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Dynamics of Supplemental Nutrition Assistance Program Participation in the Mid-2000s

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EXECUTIVE SUMMARY

The Supplemental Nutrition Assistance Program (SNAP) is the cornerstone of America's food assistance policy. In fiscal year 2010, an average of over 40 million individuals received SNAP benefits each month.[1] The program caseload is not static; each month, new individuals enter the program while some participants exit.

Several factors can lead an individual to enter SNAP. Some individuals may enroll as a result of a change in personal financial circumstances. Others who are eligible but do not enroll, may later apply for benefits because they recently learned about either the program or their likely eligibility. In particular, as state computer systems become better integrated and more advanced, individuals may find out they are eligible for a range of services, including SNAP, when they had planned to apply for something else. Decisions to apply are also affected by an individual's previous experience with SNAP and their expectations about how long this eligibility period may last.

Once an individual enrolls, several circumstances can affect the length of a participation spell. A loss of eligibility, for instance, triggers program exit. In general, SNAP requires recipients to report changes in income that make them ineligible. In addition, they must periodically report their income and be recertified for eligibility. Some studies—in certain states and subgroups—have found spikes in exits that appear to occur at recertification (Ribar, Edolhoch, and Liu 2008, Ribar, Edolhoch, and Liu 2009). Other factors that may prompt a program exit include failure to comply with program rules, certain life events (moving into group quarters, for example), or simply a preference to stop participating.

Patterns of entry into and exit from SNAP drive caseload patterns. The number of participants has increased dramatically since the early 2000s, from an average monthly caseload of 17 million in 2000 to more than 40 million in 2010. Since mid-2008, the number of participants has set a new record each month, reaching 44.6 million in April 2011.

The purpose of this study is to investigate SNAP caseload dynamics to understand what drives changes in SNAP participation over time. Understanding participation dynamics is critical to developing effective SNAP policies. Well-designed studies, for example, can inform policymakers about what factors lead individuals to enter and exit SNAP; how long they typically participate; and how their participation decisions are affected by changes in individual circumstances, overall economic conditions, and program policies. This type of study can also help policymakers understand what appear to be anomalies in participation and what happens to caseloads during times of different economic and policy environments.

The current study explores the following research questions on the dynamics of participation in SNAP:

[1] Based on data from SNAP Program Operations division [http://www.fns.usda.gov/pd/34SNAPmonthly.htm] accessed on August 22, 2011.

1. What factors lead individuals to enter SNAP?
2. How long do individuals tend to participate?
3. What factors lead individuals to exit?
4. How frequent is program re-entry?
5. How much do individuals rely on SNAP over time?
6. How do participation patterns vary by subgroup?
7. How have participation patterns changed across the time periods covered by previous studies of SNAP dynamics?

In this study, we find that many of the answers to these questions fit easily with what one might hypothesize: decreases in income lead people to enter; increases in income lead people to exit; and poorer people enter more often and participate for longer. Other findings may not be as intuitive, for example entry rates for elderly individuals are among the lowest across all subgroups. In addition, fewer than 10 percent of those not currently receiving SNAP benefits have received them in the past, but almost half of those who enter have received them at an earlier time. Still other findings add to our understanding of phenomena that have been observed: for example, in 2004 to 2006, while the economy was improving, the SNAP caseload continued to grow. The current study shows that more people entered the program than in the early 2000s and people participated longer, with fewer experiencing exit triggers such as increases in earnings.

The current report, then, confirms some of what we know, answers some of what we did not know, and provides us with more questions to address in the future. It also, importantly, provides details about how long participants remain in the program, how long they stay off SNAP before re-entering, how often people re-enter the program, and how much these patterns differ across different subgroups.

The data source for the study is the 2004 Panel of the Survey of Income and Program Participation (SIPP), a nationally representative, short-term longitudinal survey that collects detailed information on monthly labor force activity, earned income; unearned income, such as Social Security and pension payments; cash and non-cash public assistance, and family and household composition. It began with approximately 51,000 households that were interviewed every four months over a four-year period from 2004 through 2007. The 2004 SIPP panel is therefore a very useful data set with which to study SNAP dynamics, including program entry, exit, and re-entry. It also enables us to explore how the dynamics of a changing caseload vary by individual and family demographic and economic characteristics, as well as how they coincide with participants' changes in employment, income, or family composition.

SNAP Entry

On average, between 2004 and mid-2006 (the years of the SIPP panel included in this study), 5 out of every 1,000 individuals in low-income families[2] who were not receiving SNAP benefits in one month were found to be participating in the next month. This rate represents a slight increase over the early 2000s, when 4 out of every 1,000 individuals in low-income families who had not been participating entered in the following month.

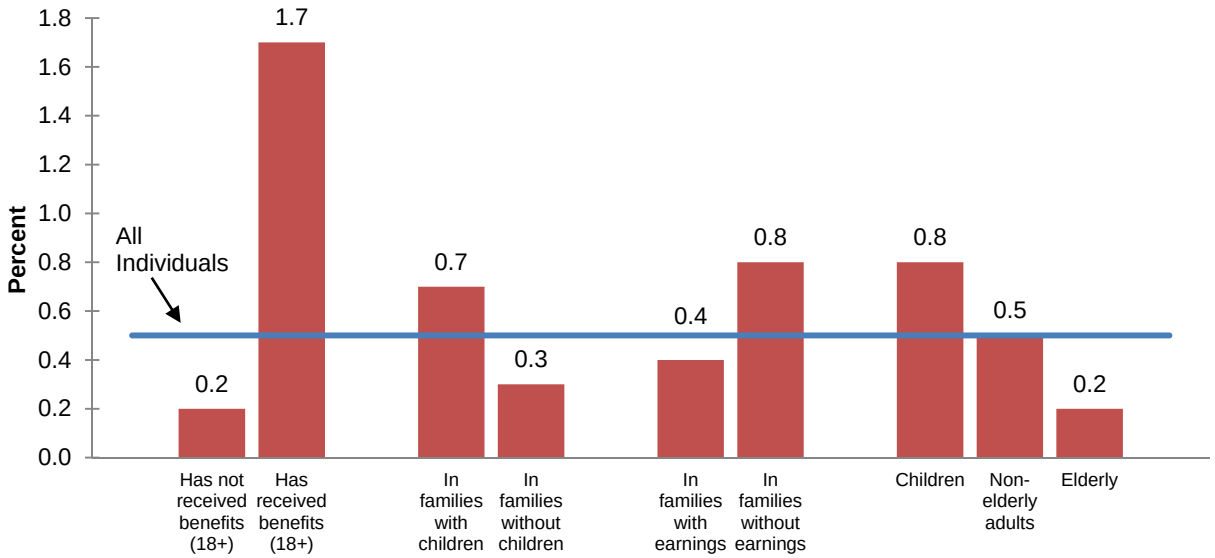
The likelihood of entry differed according to the individual's past and current circumstances. For example, for those with an income under 300 percent of poverty at some point in the panel period, about 22 of every 1,000 nonparticipants who had not received SNAP benefits in the past entered in the next year. By contrast, about 130 of every 1,000 of those who had received benefits in the past entered in the next year. Comparing those who entered SNAP with nonparticipants who had an income under 300 percent of poverty at some point in the panel period also shows the importance of past benefit receipt to program entry. About 47 percent of individuals who entered SNAP in this period had previously received benefits, but only 12 percent of those at risk of entering were previous recipients.

Family composition and earnings of family members also appear to affect the decision to enter SNAP. During the panel period, about three-fourths of entrants were in families with children, while only 55 percent of low-income nonparticipants were in families with children. About two-thirds of entrants had earnings, relative to almost 80 percent of low-income nonparticipants, and only 7 percent of entrants were elderly, compared with 18 percent of low-income nonparticipants.

Figure 1 illustrates the difference in the monthly entry rate for several subgroups. That rate is the average across 2004 to 2006 of the percentage of individuals with income under 300 percent of poverty who were not participating in a given month, yet participated in the following month.

[2] Family income under 300 percent of poverty in one or more months during the panel period.

Figure 1 Average Monthly Entry Rates among Non-Participating Individuals with Income under 300 Percent of Poverty at Some Point in Panel Period, 2004–2006



Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel
Note: If individuals enter multiple times during the panel period, estimates include each entry

The most common events that trigger entry into SNAP are related to a drop in family income. Among those who entered SNAP in the panel period, 39 percent experienced a decrease in family earnings of at least 10 percent in the previous four months; 26 percent experienced at least a 10 percent loss in other family income, aside from earnings and income from Temporary Assistance to Needy Families.

Replacement Rates

Whereas the entry rate measures the number of entrants in relation to the number of low-income people not participating in SNAP, the replacement rate measures the number of entrants in relation to the size of the caseload. The replacement rate is defined as the number of new entrants in a given month divided by the number of participants in the previous month's caseload. It is a useful measure for capturing the extent to which the caseload changes from month to month. The average monthly replacement rate for 2004 to 2006 was 4.1 percent, decreasing from 4.5 percent to 3.7 percent over the course of the study period. The 2004 to 2006 rates are lower than the rate of 5.4 percent from the early 2000s—a similar number of individuals entered over the two time periods, but the size of the caseload was much higher in the mid-2000s than it was in the early 2000s.

Length of SNAP Participation Spells

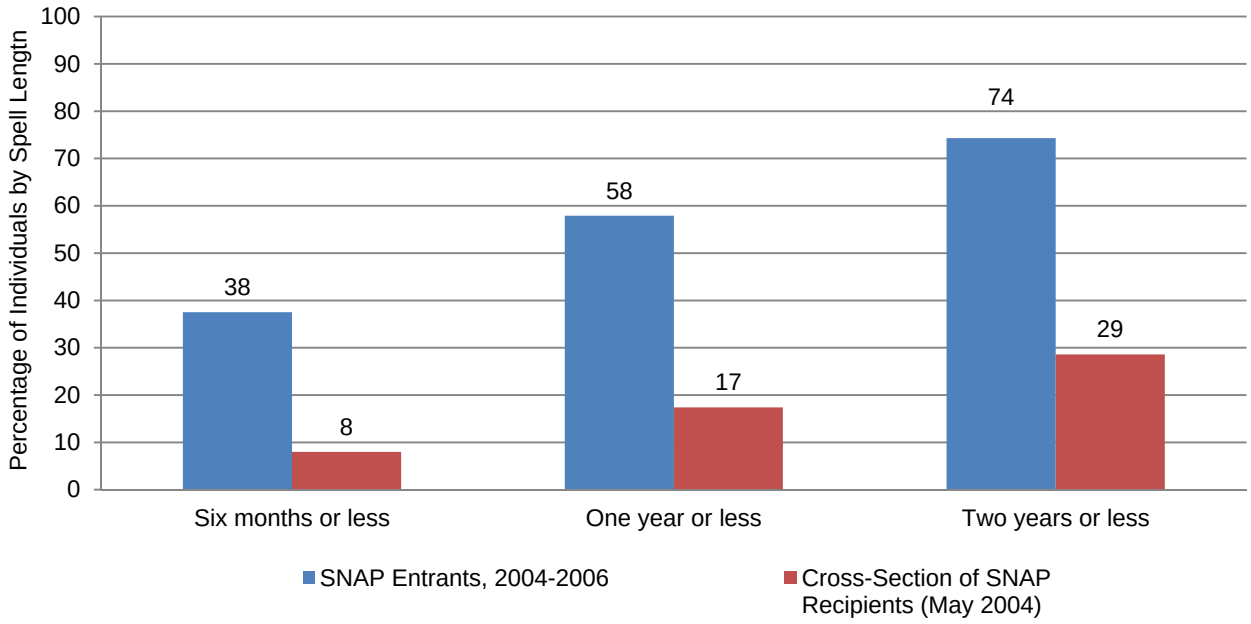
More than half of the individuals (58 percent) who entered SNAP during the panel period exited the program within one year (see Figure 2). The median spell of participation among new

entrants lasted about 10 months. This is about 1 month longer than the median spell length among new entrants in the early 1990s and about 2 months longer than observed in the early 2000s.

Using another way to understand length of spells on SNAP, we derived the spell length of a cross-section of individuals participating at a given point in time. We created a cross-sectional sample of those who were on SNAP in May 2004, an early point in the panel period, and calculated how long participants spent in the program before and after that month. Of this cross-section of participants, close to one-fifth (17 percent) had a spell on SNAP that lasted one year or less; more than one-quarter (29 percent) had a spell that lasted two years or less. It takes five more years, though, for another quarter of the May 2004 participants to exit the program. In other words, half of the cross-section has a spell that lasts seven years or less. This duration, however, is much longer than the median spell seen in the mid-1990s through the early 2000s, which ranged from 4 to 4.5 years, and is closer to the median spell of the early 1990s of more than eight years.

As with entry rates, spell length varies for individuals with different characteristics. We found that new-entrant adults in families without any children, elderly, or disabled members have the shortest spells on SNAP (many of these individuals are subject to time limits on their SNAP participation). New-entrant elderly individuals with no other family members had the longest. This pattern differs markedly from the entry rate patterns, in which elderly individuals are the least likely to enter. New entrants in families without earnings, families with no high school graduate, and families with Supplemental Security Income all had median spell lengths that were longer than average.

Figure 2 Comparison of Cumulative Spell Lengths of SNAP Participation Spells among Entrants and a Cross-Section of Participants



Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

SNAP Exit

The most common of the events identified as possible exit triggers is an increase in family income—almost two-thirds of participants experienced an increase in family earnings or other income. Almost one-quarter of those who experienced an increase in earnings left within four months of the increase. Other triggers we examined did not occur as often as the income increase, but they were associated with a similar percentage of participants exiting within four months. For example, examining change in family composition, we found that for 40 to 50 percent of participants, a family member (either with or without income) left the household. In close to one-quarter of these cases, the participant also left SNAP within four months.

Of those exiting SNAP, 25 percent did not experience a trigger event related to improved financial circumstances or reduced need, as measured by changes in income and family composition. However, 75 percent of SNAP exiters experienced at least one trigger event within the four-month window, with 43 percent experiencing multiple events.

The decision to exit SNAP differs for people in different demographic or economic circumstances as measured at the start of their spell on the program. Of SNAP participants in families with children that experience an increase in earnings, 23 percent exit the program within four months. By contrast, 34 percent of participants in families without children who experienced such an increase exit within that time. Among those with income under 50 percent of poverty at the start of their participation spell, 18 percent exited within four months of experiencing an increase in earnings, compared with 30 percent for those who enter SNAP with incomes from 100 to 200 percent of poverty.

SNAP Re-entry

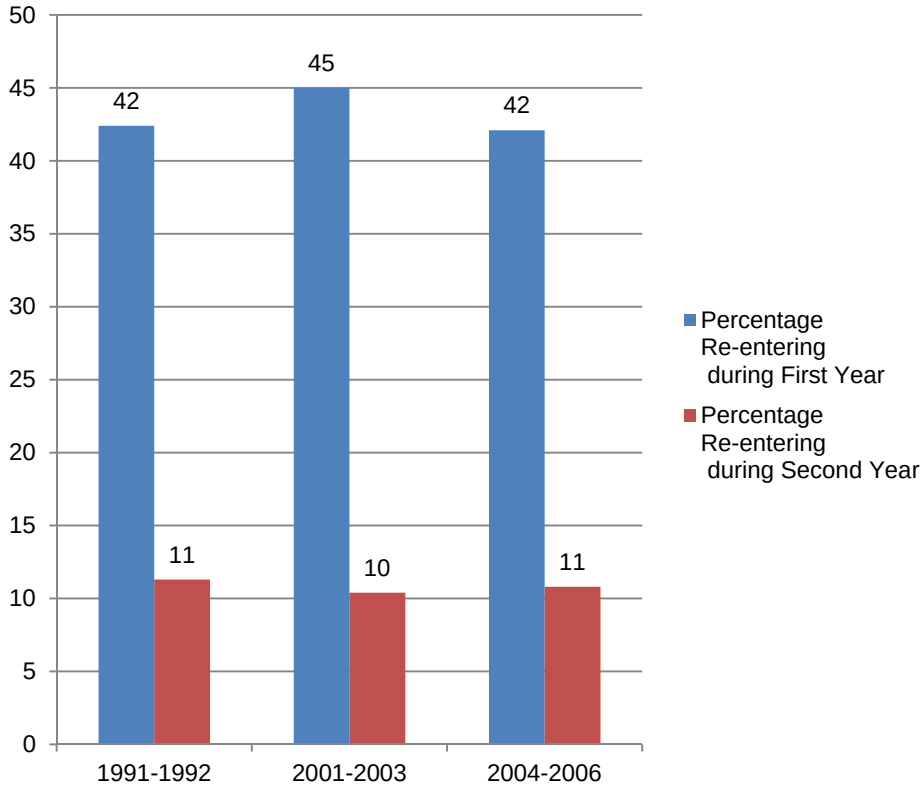
Re-entry is an important aspect of SNAP dynamics. More than half of SNAP participants who exited the program in the panel period re-entered within two years. Forty-two percent re-entered within one year of exiting, and another 11 percent re-entered within two years of exiting (see Table 1). The re-entry rates for 2004-2006 are very similar to those found in the early 1990s, but lower than those found in the early 2000s (see Figure 3).

Table 1 Cumulative Rate of SNAP Re-entry within the Panel Period

Re-entering SNAP within Panel Period	Cumulative Percent
Within 6 Months	26
Within 12 Months	42
Within 18 Months	48
Within 24 Months	53

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Figure 3 Percentages Re-entering SNAP, Comparisons over Time

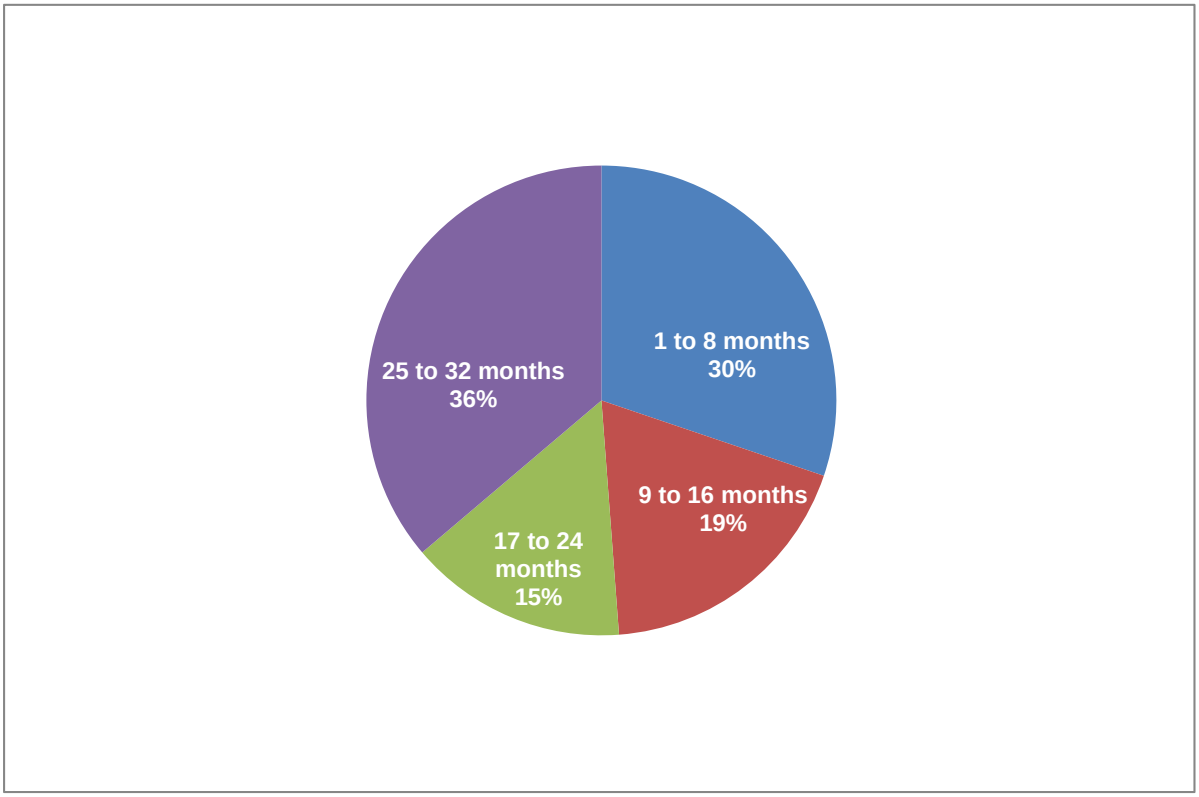


Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel; Cody et al. (2007); Gleason et al. (1998)

Total Time on SNAP during the Panel Period

Total time on SNAP during the panel period is simply the number of the 32 months in the sample that a person receives SNAP benefits. Of the individuals on the panel who received SNAP benefits during the panel, about 30 percent were in the program for a total of 8 months or less, and 28 percent participated for the entire panel (see Figure 4). The median total time was 18 months (or 56 percent of the possible 32 months). This finding suggests that individuals depend more heavily on SNAP than is indicated by the duration of new spells (median length was 10 months).

Figure 4 Total Time Participants Spent on SNAP during 32-Month Panel



Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

SNAP Turnover

The turnover rate measures the size of the population that receives SNAP benefits at some point in the year in relation to the average size of the caseload that year. We estimate the average annual turnover rate from 2004 to 2006 as 1.4. Thus, caseworkers whose workload reached 500 participants in a single month served an average of 700 different participants over the course of the year. This suggests that there is only a modest amount of turnover in SNAP participants over the course of a year. Even though the average monthly number of individuals receiving benefits increased each year from 2004 to 2006, the number of individuals receiving benefits for at least one month of the year also increased, producing a constant turnover rate over the period.

Multiple Spells

The measure of total time spent on SNAP suggests that many participants with short spells re-enter SNAP. When we include spells that occurred prior to the 2004 SIPP panel, about 60 percent of participants had multiple spells on the program. A smaller percentage of participants experienced multiple spells in the mid-2000s than in the early 2000s, and a larger percentage had a single long spell (24 months or longer) in the mid-2000s.

Changes in SNAP Dynamics over Time

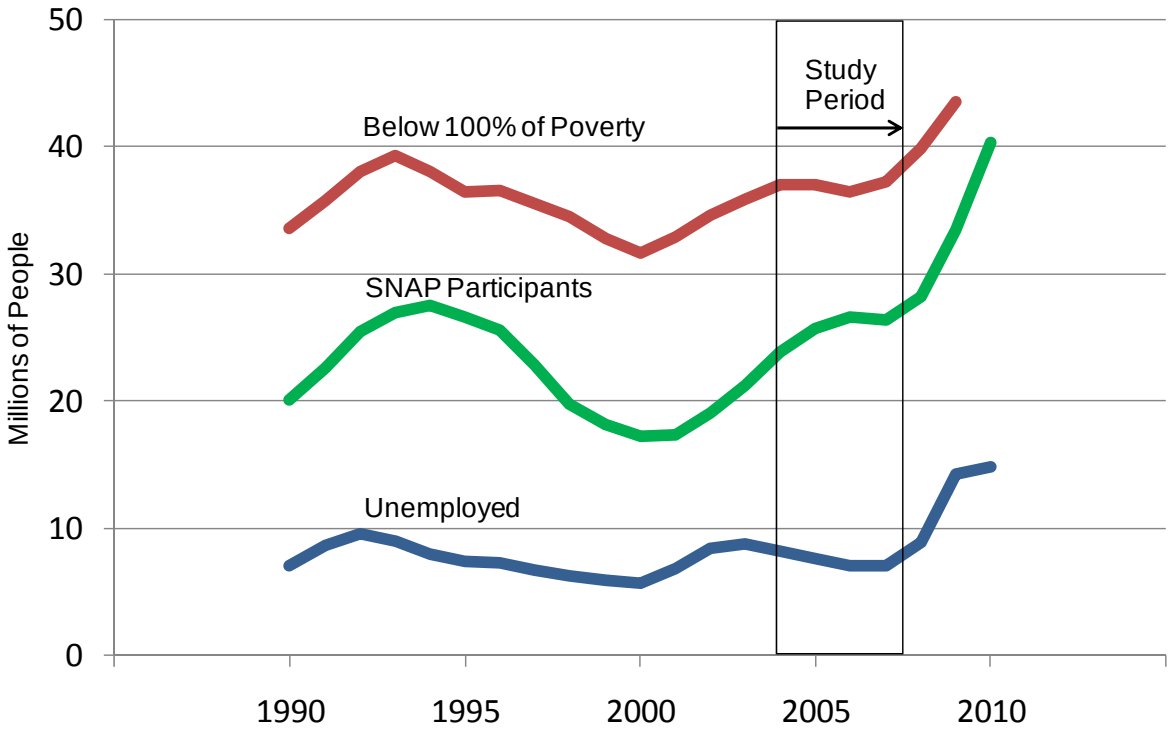
Table 2 presents several of the measures of SNAP dynamics discussed in this report alongside the estimates from four earlier reports. Overall, the measures for the mid-2000s are more similar to those noted in the early 1990s than they are to those from the mid-1990s through the early 2000s. During the 2004-2006 period, individuals enter the program at a slightly higher rate than in the early 2000s, they have longer individual spells, fewer multiple spells, and more time between spells. The combined participation picture for the mid-2000s, including that of a lower replacement rate, is one of less volatility than in the early 2000s.

Table 2 Comparison of Primary Measures of SNAP Participation Dynamics

	1990-1993	1993-1996	1996-1999	2001-2003	2004-2006
Annual Entry Rate Among All Individuals (Percent)	2.6	NA	NA	3.3	3.4
Replacement Rate (Percent)	NA	4.2	3.8	5.4	4.1
Median Length for Entry Cohort (Months)	9	8	8	8	10
Median Cross-sectional Completed Spell Length (Months)	>96	54	54	48	84
Median Time-Off Between Spells (Months)	20	NA	NA	16	20
Receiving Benefits for Total of Eight Months or Less in Panel Period (Percent)	27	NA	NA	37	30
Multiple Spells (Percent)	51	NA	NA	63	60
Average Annual Turnover Rate	1.3	NA	NA	1.5	1.4

The growth in the size of the SNAP caseload in the mid-2000s occurred during a time when the national economy was improving, at least as measured by the number of individuals living in poverty and the unemployment rate. (Figure 5 provides a longer view, tracing the number in poverty, number unemployed, and SNAP caseload from 1990-2010.) Although some of the growth in the mid-2000s can be attributed to individuals receiving hurricane-related disaster benefits in 2005, the number of non-disaster participants also rose throughout that year. The regular caseload began to drop early in 2006, and rose again in the latter half of 2006.

Figure 5 Trends in Poverty, the SNAP Caseload, and the Number of Unemployed Individuals, 1990 - 2010



Source: SNAP participants: SNAP Summary of Program Operations Data, downloaded on June 29, 2011 from http://www.fns.usda.gov/pd/SNAPsummary.htm

Individuals in poverty: Downloaded on June 15, 2011 from http://www.census.gov/hhes/www/poverty/data/historical/hstpov2.xls

Unemployed individuals: Bureau of Labor Statistics, downloaded on April 19, 2011 from http://data.bls.gov/pdq/SurveyOutputServlet

For a caseload to grow, people must be entering the program more often, staying in the program longer, or both. In this study, we find that it is both. We noted earlier, though, that the dynamics of the mid-2000s align more closely with the dynamics of the early 1990s than other periods. Interestingly, the economic circumstances of the early 1990s differed from those of the mid-2000s. In the early 1990s, the unemployment rate increased at first and then decreased. In the mid-2000s the unemployment rate continually decreased. During other periods of decreasing unemployment covered by these dynamics studies, the mid-1990s and late 1990s, participants were staying on SNAP for much shorter periods of time than in the mid-2000s. Even in the early 2000s, while unemployment was increasing, participants were staying on SNAP for shorter periods of time than in the mid-2000s.

Table 3 Changes in Caseload, Unemployment, and Dynamics Patterns over Time

	Caseload Change	Unemployment Rate	Median Length of New Entrant Spells (months)	Median Length of Completed Spells for Cross-Section of Participants (months)	Median Time Before Re-Entry (months)
1991-1993	Increasing	Increasing then decreasing	9	>96	20
1993-1996	Decreasing	Decreasing	8	54	NA
1996-1999	Decreasing	Decreasing	8	43	NA
2001-2003	Increasing	Increasing	8	48	16
2004-2006	Increasing	Decreasing	10	84	20

Future Directions for SNAP Dynamics Research

The SIPP is the premier data set with which to study SNAP dynamics. This data set facilitates the exploration of how these dynamics vary by individual and family demographic and economic characteristics, as well as how they coincide with changes in employment, income, or family composition. The 2008 SIPP Panel, whose waves are currently being collected and released, will provide the basis for the next study of SNAP dynamics that will cover the recessionary period of 2008-2009 and the unprecedented levels of SNAP participation. As of June 2011, core SIPP data from Fall 2008 through Summer 2010 has already been made available.

One limitation we faced with the SIPP was the limited information about reasons for SNAP entry and exit. The SIPP currently reports these reasons only when transitions occur within the reporting period. It misses most of the entry and exit transitions—the ones that occur across reporting periods. Revising the instrument to include all months would strengthen the analysis of dynamics in future studies.

Additionally, while SIPP is a longitudinal study of income and program participation, it is not focused on the low-income population most likely to participate in SNAP; nor does it include a range of variables that can inform our understanding of SNAP dynamics. For example, SIPP cannot be used to conduct state-level analysis of SNAP, which is increasingly important with the range of state policies in effect. It does not include information about SNAP certification periods, either length or timing, and information about some expenses and assets relevant for determining eligibility and benefit levels are only available once per year. There would be value in conducting a primary data collection effort focused solely on the low-income population and engineered to collect a more comprehensive set of individual and family characteristics, as well as local and state economic and program policies that are salient to SNAP and changes in SNAP participation decisions over time.

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I. INTRODUCTION

The Supplemental Nutrition Assistance Program (SNAP) is the cornerstone of America's food assistance policy. In April 2011, nearly 45 million individuals received SNAP benefits.[3] This monthly program caseload is not static; each month, new individuals enter the program while some participants exit. Investigating caseload dynamics provides information about what factors lead individuals to enter SNAP, how long individuals typically participate, and what factors lead them to exit the program. Caseload dynamics studies can show how individuals' participation decisions are affected by changes in individual circumstances, by overall economic conditions, and by program policies.

Typically, studies of program participation dynamics examine measures related to four key aspects of participation spells:

1. ***Program Entry***. Key measures of entry are the number of people entering the program over a fixed period of time, such as in a month or year, in relation to the size of the population (entry rate) and the number entering in relation to the caseload size (replacement rate). Examining changes in program entry and replacement rates over time can help to explain overall trends in participant levels. Moreover, examining individuals' circumstances before they enter the program can help identify the factors that appear to influence individuals' participation decisions.

2. ***Length of Program Participation Spells***. Estimates of the length of participation spells can provide valuable insight into the degree to which individuals rely on SNAP once in the program. Spell length is measured from a number of perspectives. Entry cohort analysis measures the length of stay of individuals who enter SNAP around the same time period. Cross-sectional analysis measures the length of stay for those who are participating at a specified point in time. The cross-sectional analysis usually indicates longer participation spells than the entry cohort because the cross-sectional analysis includes the accumulation of entrants that do not exit quickly. Finally, measures of turnover and months ever receiving benefits during a period indicate the prevalence of multiple spells.

[3] Based on data from SNAP Program Operations division [http://www.fns.usda.gov/pd/34SNAPmonthly.htm] accessed on August 22, 2011.

3. ***Program Exit***. Exit rates are the proportions of participants that exit the program over a fixed period of time. Like changes in entry rates, changes in exit rates over time can help explain changes in caseload size, and an examination of individuals' circumstances around the time of exit can help explain why individuals leave the program.

4. ***Program Re-entry***. Re-entry patterns measure the extent to which individuals cycle on and off a program. These measures tell us about how and why individuals use these programs.

This study examines participation dynamics for SNAP. We describe the characteristics of participation spells observed between early 2004 and mid-2006 and show how they have changed over time for policy relevant subgroups. This work was conducted in conjunction with the analysis presented in the report, "Determinants of Supplemental Nutrition Assistance Program Entry and Exit in the Mid-2000s." That report examines the associations between program dynamics and (1) demographic and economic characteristics of families and (2) state economic and policy environments and how these associations have changed from the early to mid-2000s. The two reports are closely related, despite their different emphases.

This is a particularly interesting time to study SNAP participation dynamics because the number of SNAP participants and the rate of participation among the eligible population continued to increase while economic conditions improved. In particular, the current study will help us understand if the increase was the result of more individuals entering the program than had entered in previous years, current participants staying on longer, or a combination of the two.

Our results provide evidence that the increase was due to a combination of more entries and longer spells. During the mid-2000s, 5 out of every 1,000 low-income individuals[4] of all ages not receiving SNAP benefits in one month enter the program in the next month. This is higher than in the early 2000s, when it was 4 out of every 1,000. Based on economic conditions of the two time periods, we might expect the opposite—that rates of entry would be higher in the early

[4] Low-income here is defined as individuals living in families with income below 300 percent of the federal poverty level at some point in the panel period. We discuss entry rates for individuals in other income groups in Chapter II.

2000s than in the mid-2000s. Turning to spell length, we find that half of the spells that began in mid-2004 ended within 10 months; two-thirds ended within 18 months. In contrast, the median spell length of participation for those entering in 2001 was 8 months.

The rest of this chapter provides background on SNAP, reviews the previous research on the dynamics of poverty and SNAP participation, describes the research objectives of this study, discusses the data used for the analysis, and presents an overview of the methods employed. Chapter II of this report discusses the characteristics of SNAP participation spells observed in the 2004 to 2006 period. Chapter III presents key results for many policy relevant subgroups and compares these findings to earlier time periods. A detailed assessment of the 2004 SIPP panel to identify potential problems in the data that could affect estimates of SNAP participation dynamics is found in Appendix A. Appendix B tracks how subgroup definitions have been modified over time to reflect changes in both data and analytical needs.

A. Background on SNAP

SNAP provides monthly benefits that can be used to purchase food in nearly 200,000 authorized stores across the United States. Eligibility for the program is based primarily on financial need; in general, individuals must have income and assets below specified eligibility thresholds. Households without elderly or disabled members must have gross income less than 130 percent of the poverty level, net income less than 100 percent of poverty, and countable assets less than $2,000.[5] Households with elderly or disabled members must have net income less than 100 percent of poverty and countable assets less than $3,000.

[5] Net income represents the amount of income that households have available to use for food. It equals gross income less a standard deduction, an earnings deduction, and deductions for dependent care, medical expenses and shelter expenses. Countable assets are primarily financial assets and in some states, some vehicle assets.

Some households are identified as categorically eligible for SNAP, and are not subject to the income or asset screens until income exceeds a maximum threshold that varies among states. Households in which all members receive Supplemental Security Income (SSI) or cash benefits through Temporary Assistance to Needy Families (TANF) are categorically eligible. In addition, many states have conferred categorical eligibility status to certain individuals who participate in a program funded by Maintenance of Effort or TANF funds.

Certain individuals are categorically ineligible for SNAP and cannot receive benefits even if they pass the income and asset requirements. Legally resident noncitizens must have lived in the United States for at least five years to be eligible. Elderly individuals who were both 65 and older who were legally resident in August 1996 and children and disabled noncitizens are eligible as long as they meet the income and asset requirements.

A household's SNAP benefit level equals the maximum SNAP benefit for a household of that size less 30 percent of the household's net income. Maximum benefit levels are the same in all states, with the exception of Alaska and Hawaii, where cost of living adjustments are made. In the time period of this study, maximum benefits were set equal to the cost of the Thrifty Food Plan (TFP), the USDA's lowest-cost food plan and are updated annually[6].

Several factors, alone or in combination, may lead an individual to enter the program. Some individuals may enroll as a result of a change in personal financial circumstances; others who are eligible to begin with may enroll because they recently learned about the program or about their own eligibility through program outreach or other sources; still others may enroll because they are concurrently enrolled in other public assistance programs, such as (TANF) program or SSI.

[6] The American Recovery and Reinvestment Act (ARRA) raised the maximum SNAP benefit in April 2009, so it is not currently tied to the cost of the TFP. This legislation is due to expire in 2013.

Once an individual is enrolled, the length of the participation spell can be affected by numerous circumstances. A loss of eligibility, for instance, influences spell length by triggering program exit. In general, SNAP households are required periodically to report changes in income that may affect their eligibility and to be recertified for eligibility. Thus, individuals whose income increases beyond the eligibility limits are likely to exit the program at the time of income reporting or recertification.

In addition to loss of eligibility, the following other factors may prompt program exit:

- Failure to comply with program rules, including reporting requirements and the work requirements for nondisabled nonelderly childless adults[7]
- Life events, such as moving out of state, moving into group quarters, or death
- The household decides that benefits are too low to be worth the effort of complying with administrative requirements in the program
- Errors in the administration of the program or determination of benefits

For most SNAP participants, there are no limits on the number of times they can participate in the program or on the total amount of time they can receive benefits as long as they meet the eligibility requirements. Thus, individuals whose financial circumstances and other needs fluctuate over time may have multiple spells of participation.

Congress and SNAP administrators modify the program's rules in response to changing economic situations and state needs. Most recently, states have been given increasing flexibility to alter program rules and procedures. Key program changes that have occurred in the years just prior to or during the study period include the following:

[7] In 2004-2006, nondisabled nonelderly childless adults were subject to time-limited benefits if they were not meeting the program's work requirements or exempt by waiver. In 2009, ARRA allowed states to temporarily suspend this time limit.

- ***Changes in Asset Eligibility Rules***. States had the option to exclude some or all vehicles from the resource test to make SNAP more accessible to families that need vehicles to get to work.

- ***Expanded Categorical Eligibility.*** In some states, categorical eligibility was extended to those receiving noncash benefits through the state's TANF program.

- ***Outreach***. States continued to increase program outreach so that individuals in need of assistance knew that SNAP benefits were available and how to apply.

- ***Changes in Certification Periods.*** The SNAP certification period is the length of time a household has before it must effectively reapply for benefits. Certification periods typically range from 3 to 12 months, depending on state guidelines and household circumstances. In 2004 to 2006, and in tandem with the changes in reporting requirements described next, many states provided longer certification periods for some participants. In addition, some offered 24-month certification periods for households in which all members were elderly.

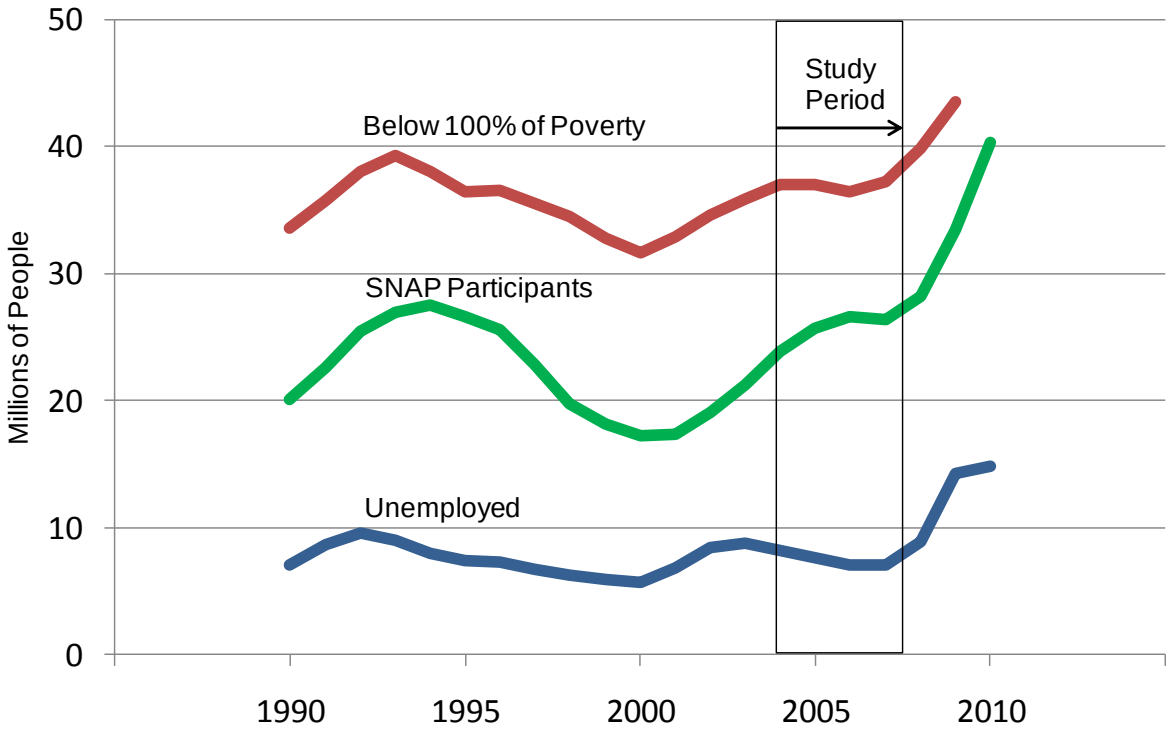
- ***Changes in Reporting Requirements***. Reporting requirements govern how a participating household must report changes in their income during certification periods. Previous SNAP rules required all income changes over $25 to be reported. Recent policy options allow states to simplify these rules. The *simplified reporting* option allows clients not to report any changes in income during their certification period, so long as their income does not exceed 130 percent of poverty. *Status reporting* requires a client to report only when a household member has a change in jobs, receives a different rate of pay, or shifts from part-time to full-time work (or has a similar change in employment status); income changes due to different hours of work do not need to be reported. These two policy options are not mutually exclusive.

- ***SSI Combined Application Project (SSI CAP).*** Some states are simplifying the application procedures and benefit calculation for individuals who are receiving SSI benefits. Qualified individuals (typically SSI recipients living alone or only with other elderly household members) complete a streamlined SNAP application and receive a set SNAP benefit based on the limited information they provide, such as shelter expenses.

Participation in SNAP has more than doubled since the early 2000s. The average monthly caseload increased from 17 million in 2000 to 25 million in 2006 and then to over 40 million in 2010 (Figure I.1). It continues to increase each month, reaching 44.6 million in April 2011. Certainly, difficult economic conditions in the early 2000s and in the late 2000s have played a substantial role in the increase. However, the number of SNAP participants also increased from 2004 to 2007, when economic conditions were improving and the number of unemployed

individuals decreased. While assistance for families during major natural disasters such as hurricanes in late 2005 increased the caseload, their impact was only temporary. Even subtracting out the disaster assistance, the caseload continued to increase. We know from several studies (for example, Mabli and Ferrerosa 2010; Klerman and Danielson 2009; Mabli, Martin, and Castner 2009) that certain policy changes, such as simplified reporting and longer recertification periods, also contributed to the 2004-2007 increase.

Figure I.1 Trends in Poverty, the SNAP Caseload, and the Number of Unemployed Individuals, 1990 - 2010



Source: SNAP participants: SNAP Summary of Program Operations Data, downloaded on June 29, 2011 from http://www.fns.usda.gov/pd/SNAPsummary.htm
Individuals in poverty: Downloaded on June 15, 2011 from http://www.census.gov/hhes/www/poverty/data/historical/hstpov2.xls
Unemployed individuals: Bureau of Labor Statistics, downloaded on April 19, 2011 from http://data.bls.gov/pdq/SurveyOutputServlet

B. Previous Research on Dynamics

This study builds on a variety of previous studies examining the movement of people in and out of public assistance programs. Several studies have examined the dynamics of entry into and

exit from poverty. These studies are relevant because they use methods similar to those of studies examining program participation dynamics, and they track the population generally targeted by SNAP. Other studies have examined SNAP participation dynamics specifically. While these studies focus primarily on reasons for program entry and exit along with length of program participation spells, some also examine program participation over an individual's lifetime, and others identify factors related to caseload growth and decline.

1. Research on Poverty

To a substantial degree, the populations eligible for SNAP overlap with the populations that are in poverty. Consistent findings emerging from the large body of poverty research are that (1) poverty touches many people at some point in their lifetime; (2) close to half of spells of poverty end within a year; (3) at any point in time, most people in poverty are in the middle of long-term poverty spells; (4) most poverty entries and exits are triggered by changes in employment—for various household members in addition to the household head; and (5) black and white individuals have markedly different poverty rates.

Studies of entry into poverty over a person's lifetime generally use the Panel Study of Income Dynamics (PSID) and include work by Duncan and Rogers (1988) and Rank and Hirschl (1999). The former focused on children, specifically those up to age 4 at the start of the PSID data collection in 1968. The authors found that about one-third of these children entered poverty within 15 years, and another 18 percent were near poor (defined as between 100 and 150 percent of poverty) during the same period. Twelve percent lived in poverty for 5 or more years. Almost 80 percent of black children, however, were found to enter poverty for some period in these 15 years, and almost 47 percent would stay in poverty for 5 or more years. Rank and Hirschl (1999) found similarly high probabilities of poverty entry at some point in adult life; they estimated that

by age 40, over one-third of adults (age 20 and over) would experience poverty, and that more than half would experience poverty by the time they were 65 years old. Again, the estimates varied substantially by race, so two-thirds of black adults could expect to enter poverty by the time they were 40 years old and 84 percent by the time they were 65 years old.

Other researchers also have noted that although a sizeable portion of the population has extended poverty spells, poverty spells are short for most people. Long-term spells accumulate over time, however, so that even if a small proportion of poverty spells are long, the cumulative effect is that in a given month, most of the population in poverty is in the midst of a long spell. Duncan and Rogers (1988) estimated that the average spell for children over the 15-year period was 1.5 years (0.9 years for non-black children and 5.5 years for black children). Bane and Ellwood (1986), who also used the PSID, found that about 45 percent of the population exit poverty within a year of entering. At a given point in time, though, the study estimated, slightly over 50 percent of the people in poverty would be in a spell that would last 10 or more years.

McKernan and Ratcliffe (2002), Bane and Ellwood (1986), and Duncan and Rogers (1988) examined household events that trigger entry into and exit out of poverty. Using the SIPP panels for the early 1990s and late 1990s, McKernan and Ratcliffe found that changes in employment were the most important triggers of poverty entry and exit in the late 1990s, although the role that earnings played declined between the early and late 1990s. They noted that the very large number of poverty entry and exits prompted by an employment change was due, in part, to the fact that so many households experienced this event. They found that even after controlling for other factors in a multivariate analysis, employment remained the primary influence on poverty entry and exit. Using the PSID, both Bane and Ellwood (1986) and Duncan and Rogers (1988) not only noted the importance of changes in earnings in relation to entries and exits, but also

showed that any household member's earnings—not just the head's—could trigger an entry or exit. Indeed, these studies found that the employment of other household members could be just as important as, and in the case of poverty exits, even more important than, a change in the household head's earnings.

According to Bane and Ellwood (1986), entry was also triggered by a birth of a child, the onset of a disability, and a shift from a household with two adults to one headed by a single female. For poverty exits, additional triggers included an increase in education and a shift from a household headed by a single female to one headed by two adults. McKernan and Ratcliffe (2002) also found that in the early 1990s, before welfare reform, the shift in marital status of the household head played a more prominent role in entries and exits than it did in the late 1990s.

Iceland (1997) used the PSID to examine factors influencing poverty exits that were exogenous to the household, such as changes in the economic structure of metropolitan areas. Looking at two periods, 1970-1974 and 1979-1985, he found that a decline in the share of manufacturing jobs in metropolitan areas led to a decline in poverty exits for black individuals in both periods, and that an increase in the share of jobs in the service industry triggered a decline in poverty exits for black individuals during the second period. However, expansion in the retail/wholesale industry prompted more poverty exits for black individuals. With the exception of the growth in the service industry in the earlier period, which led to a rise in exits for white individuals, these changes in economic structure were not significant exit triggers for white individuals.

2. Research on SNAP Participation Dynamics

Studies of SNAP participation dynamics show that the events triggering SNAP entry and exit are similar to those triggering poverty entry and exit, and that patterns of SNAP entry and exit

vary by subgroup, much like patterns of poverty entry and exit. In examining dynamics in the mid-1980s, Burstein (1993) found that the most common SNAP entry trigger was a decline in a household member's earnings, and that the most common exit trigger was an increase in a household member's earnings. Similarly, Gleason, Schochet, and Moffitt (1998), which investigated SNAP participation dynamics in the early 1990s and Cody, Castner, Mabli, and Sykes (2007) studying the early 2000s, also found that a drop in earnings preceded entry more often than other triggers. Cody et al. (2007) also found that the effect of a job loss is more pronounced for individuals who had not experienced frequent unemployment.

A recent application of program dynamics to studying the effects of various SNAP policy provisions is provided by Ribar, Edelhoch, and Liu (2008). This study used an extraordinarily detailed case-level administrative data set on SNAP households in South Carolina to examine patterns in the timing of program exits. In particular, the study revealed a very strong influence coming from case certification lengths and timing in that households were more likely to leave the program during recertification months than in other months, although the authors note that the data were not sufficient to tell whether this mostly represented "cleaning" cases that had become ineligible or mostly represented administrative barriers to still-eligible cases.

Many other studies are also relevant to the current study (see Burstein, Patrabansh, Hamilton, and Siegel (2009) for a more detailed review). Mills, Dorai-Raj, Peterson, and Alwang (2001) examined the factors that influenced program exit decisions of single female-headed families with children shortly after the 1996 welfare reform; and Heflin (2004) examined the relationship between work status, welfare receipt, and SNAP receipt among women in the post-welfare reform era. A collection of recent studies found in Jolliffe and Ziliak (2008) also contains several studies of SNAP dynamics, including Moffit and Ribar (2008). They find medium-term earnings

variability to be negatively associated with program participation for low income households, and attribute this result partially to the variability in eligibility produced by changes in earnings.

Collectively this set of studies, particularly the dynamics reports written for FNS (Burstein 1993; Gleason et al. 1998; and Cody et al. 2007), as well as an analysis by Cody, Gleason, Schechter, Satake, and Sykes (2005) of entry and exit rates throughout the 1990s and by Murphy and Harrell (1992) of long-term participants in the late 1980s, contributed substantially to our understanding of SNAP program dynamics. The following other important findings are generally consistent across the studies and confirm many of the results identified above for poverty:

- Household or family composition changes play a significant role in triggering entries, re-entries, and exit.
- Most people who enter the program exit within one year.
- At any one point in time, most participants are in the middle of a spell of four or more years.[8]
- Of those who exit the program, one-third or more re-enter within one year.

However, these and other studies indicate some noteworthy differences in dynamics from one study period to the next. The median spell for persons entering SNAP in the early 1980s lasted six months; the early 1990s, nine months; the mid-1990s, eight months; and the early 2000s, eight months (Burstein 1993, Gleason et al. 1998, Cody et al. 2005, and Cody et al. 2007, respectively). Wilde (2001) and Cody et al. (2005) also used the SNAP Control (SNAPQC) data to develop similar estimates for 1990-1999; Wilde estimated that the median spell duration for new entrants was seven months, while Cody et al. found it to be six months. When examining how entry and exit rates contributed to the growth and decline of SNAP caseload, Gleason et al.

[8] Although most people who enter SNAP remain participants for a year or less, the longer term spells accumulate. Thus, over time, the cumulative effect is that more participants at a given point in time are in the midst of a long-term spell than in the midst of a short-term spell.

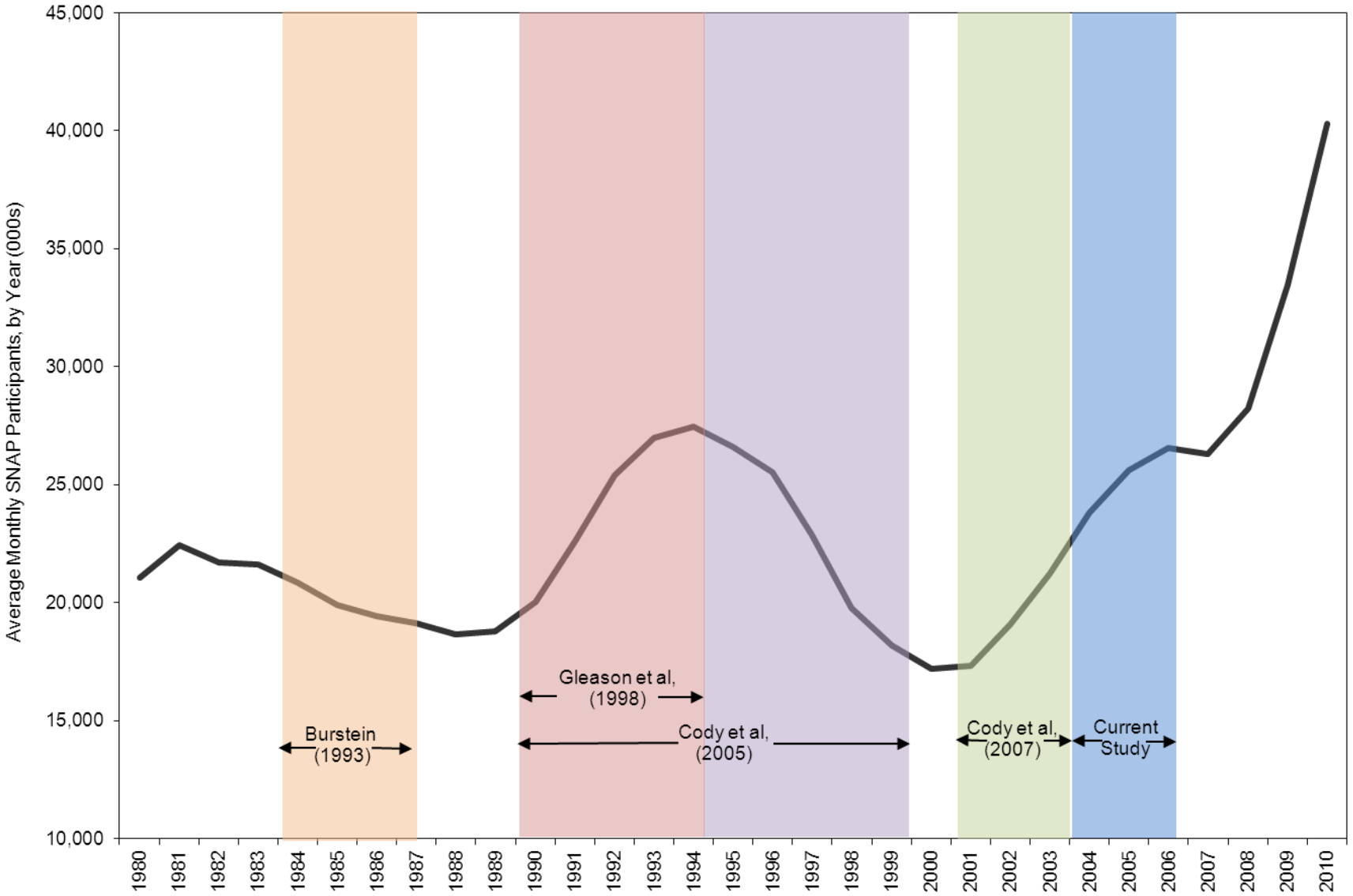
(1998) found that the increase in the caseload in the early 1990s was a result of an increase in the duration of SNAP spells, whereas Cody et al. (2005) identified increasing entry rates as the larger contributor (though longer spells were found to play a substantial role). Table I.1 compares the time frames, data, and study objectives across several of these studies. Figure I.2 illustrates the change in the caseload size in relation to each of these study periods.

Table I.1 Comparison of Previous Study Time Frames, Data, and Study Objectives with Current Study

	Burstein (1993)	Gleason et al. (1998)	Cody et al. (2005)	Cody et al. (2007)	Current
Time Period	1983-1986	1990 - 1993	1990-1999	2001 - 2003	2004-2006
Panel(s)	1984	1990, 1991	1990, 1991, 1992, 1993, 1996	2001	2004
Sample Size	20,000 households	35,000 households	12,000-40,000 households	31,000 households	51,000 households
Historical SNAP Data Used	No	Yes	No	Yes	Yes
Descriptive Analysis	Entry, exit, duration, re-entry, entry and exit triggers	Entry, exit, duration, re-entry, entry and exit triggers, total time on, turnover	Growth, replacement, exit, duration	Entry, exit, duration, re-entry, entry and exit triggers, growth, replacement, total time on, turnover	Entry, exit, duration, re-entry, entry and exit triggers, growth, replacement, total time on, turnover, subgroups
Primary At-Risk Definition for Entry Analysis	Non-participating individuals; household income under 300 percent of poverty	Non-participating individuals	N/A	Non-participating individuals; family income under 300 percent of poverty	Non-participating individuals; family income under 300 percent of poverty
Multivariate Analysis	N/A	Duration, re-entry	N/A	Entry, duration, re-entry	Entry, duration, re-entry [a]

[a] The multivariate analysis for the current study is presented in a separate report.

Figure I.2 Periods of SNAP Caseload Cycle



Note: Fiscal year participation counts are based on data from SNAP Program Operations division.

C. Research Objectives

The goal of this study is to update and extend previous research examining SNAP participation dynamics, building primarily on the work of Burstein (1993), Gleason et al. (1998), Cody et al. (2005), and Cody et al. (2007). As in Burstein (1993) and in Cody et al. (2007), we will limit much of our analysis to the population that is observed to be low income at some point in the panel period.

Our main objective is to describe SNAP dynamics using SIPP data from 2004 through mid-2006. This analysis (presented in Chapter II) describes patterns of program entry and exit, and provides descriptive statistics on participation spells observed over this period. The key research questions explored fall into five categories:

(1) SNAP Entry

- What are the entry rates for the period covered by the 2004 SIPP panel, for all individuals "at risk" of entry and for SNAP subgroups?
- How sensitive are the findings on program entry to the definition of the population at risk?
- What trigger events precede SNAP entries?
- What proportion enters SNAP at some point?
- How do the answers to the above research questions compare to the findings in the studies for earlier periods?

(2) Length of SNAP Participation Spells

- How long are spell lengths for entrants? What is the median time on SNAP after program entry? How do these vary among different SNAP subgroups?
- How long are spell lengths for participants when viewed at a specific point in time such as a cross-section of participants receiving benefits in the same month?
- How do the answers to the above research questions compare to the findings in the studies for earlier periods?

(3) SNAP Exit

- What are the rates of exit from SNAP, and how do they vary by subgroup?
- What trigger events precede exits? In particular, what percentage of participants leave SNAP in the period covered by the 2004 SIPP panel for reasons that are not related to improved financial circumstances or reduced need as measured in SIPP?
- How do the answers to the above research questions compare to the findings in the studies for earlier periods?

(4) SNAP Re-entry

- What proportion of participants who exit SNAP return to the program within six months, within a year, or within two years? What is the median time off SNAP between participation spells? How do re-entry patterns vary among different subgroups?
- What trigger events precede SNAP re-entries? In particular, what are spell lengths of nonparticipation among those who leave for reasons not related to improved financial circumstances or reduced need, as measured in SIPP?
- How do the answers to the above research questions compare to the findings in the studies for earlier periods?

(5) Summary Measures

- What proportion of the caseload has a single short spell, single medium-term spell, single long spell, or more than one spell during the SIPP panel period?
- What participant characteristics distinguish those who have longer spells, frequent spells, or spend a significant proportion of the panel time on SNAP from those who only use the program for a single short spell, or a small proportion of the panel time?
- What is the turnover rate (the ratio of all participants ever on SNAP during the year over the average monthly number of participants) for SNAP participants in each year covered by the 2004 SIPP panel? Did the turnover rate change between the first few waves of the panel, which was during a period of economic growth, and the later waves of the panel, when the economy was starting to weaken?
- What dynamics explain the participation growth that occurred in the mid-2000s? What are the replacement and exit rates in this period?
- How do the answers to the above research questions compare to the findings in the studies for the earlier periods?

The lifecycle of SNAP cases from entry through duration, exit, and re-entry varies significantly among subgroups, and the SNAP caseload can be seen as much as an amalgam of subgroups as a single entity. A second objective of the study, therefore, is to present key dynamics measures for subgroups for both the current period and earlier study periods. This analysis (presented in Chapter III) will address the following research questions:

- How do dynamics of individual subgroups compare with each other?
- What can SNAP dynamics analysis reveal about the unique character of each subgroup?
- How do the dynamics of individual subgroups explain the SNAP caseload evolution in terms of rates and absolute size?

D. Data

This study relies on data from the 2004 panel of the SIPP. This section provides background on the SIPP data and discusses key issues regarding potential response errors in the SIPP.

1. An Overview of the Survey of Income and Program Participation 2004 Panel

The SIPP is a short-term longitudinal survey that collects detailed monthly data on labor force activity, earned and unearned income, cash and noncash assistance, family and household composition, and many additional items. (See Table I.2 for a summary of the 2004 SIPP panel.) SIPP follows a representative sample of civilian noninstitutionalized persons over time, collecting monthly data by means of interviews conducted at four-month intervals. All members of the households interviewed in the first "wave" remain eligible to be interviewed in subsequent waves, even if they move away from the original sample address, provided that they remain in the survey universe.[9]

[9] The exceptions are (1) children under 15 who move without an accompanying adult panel member, including those who enter the foster care system and (2) persons who move to a location that is more than 100 miles from the nearest SIPP primary sampling unit.

Table I.2 Summary of the 2004 SIPP Panel

Purpose	Collect income, labor force information, program participation, demographic characteristics
Design	Multistage-stratified sample; longitudinal
Sample Size	Approximately 51,000 households interviewed in Wave 1 with a 50 percent sample size reduction in Wave 9
Interview Period	Households interviewed every four months about previous four months; February 2004 to January 2008
Data Time Period	Four months preceding interview: October 2003 – December 2007
Historical Data	Program participation (e.g., SNAP benefit receipt) prior to 1st month of household's panel period
Universe	Civilian, noninstitutionalized population
Weighting	Full panel weights assigned to those with data (possibly imputed) for full duration of panel or who left the universe or died before the end of the panel period; weighted to population eligible for SIPP in January 2004; monthly cross-sectional weights available for each wave but not used in this analysis
Respondent	Household members age 15 and over; proxy interview for unavailable household members

Each interview asks panel members and everyone living with them at the time about their activities during the preceding four months. Each interview includes a common set of core questions that collect information on household and family composition, personal demographic characteristics, employment, income, and participation in a wide range of government assistance programs. Periodic "topical modules" collect data on specialized subject areas such as previous participation in public assistance programs (also called "recipiency history"), employment history, citizenship,[10] child care costs, assets and liabilities, shelter costs, and work-related expenses.

The length and sample size of SIPP panels has varied over time. The first SIPP panel was fielded in 1984 with a sample of nearly 20,000 households interviewed over a period of two and one-half years. New panels of generally similar size started in nearly every year between 1984

[10] Citizenship became part of the core questions in the 2004 panel. It was a topical module question in all earlier panels.

and 1993, before a redesign replaced the overlapping panel design with an abutting panel design that allowed larger and generally longer-running panels. A four-year panel with nearly 40,000 households started in 1996 followed by a three-year panel of about 35,000 households in 2001 and a four-year panel of about 51,000 households in 2004.

While the SIPP is fundamentally a longitudinal survey, it is designed to support cross-sectional as well as longitudinal analysis. To that end, the initial sample of households is divided at random into four equally sized rotation groups that are interviewed on a staggered schedule—one rotation group per month (Table I.3). For example, the first rotation group is interviewed in February, June, and October of each year and asked to provide data for the preceding four months (e.g., in October, respondents are asked to provide information on June, July, August and September). In addition to distributing the workload evenly over the calendar year and thus permitting a set of interviewers to be dedicated to the SIPP, the rotation group design ensures that the data collected for any given calendar month are obtained in roughly equal proportions from respondents reporting on their activities of one, two, three, and four months ago. Accordingly, no calendar month of data is affected more or less than any other by recall bias or other error associated with distance from the interview.

Table I.3 Design of the 2004 SIPP Panel

Rotation Group	Wave	Interview Month	Data Months
1	1	February 2004	Oct. 2003 - Jan. 2004
2	1	March 2004	Nov. 2003 - Feb. 2004
3	1	April 2004	Dec. 2003 - Mar. 2004
4	1	May 2004	Jan. 2004 - Apr. 2004
1	2	June 2004	Feb. 2004 - May 2004
2	2	July 2004	Mar. 2004 - June 2004
3	2	August 2004	Apr. 2004 – July 2004
4	2	September 2004	May 2004 – Aug. 2004
1	3	October 2004	June. 2004 – Sep. 2004
2	3	November 2004	July. 2004 - Oct. 2004
3	3	December 2004	Aug. 2004 – Nov. 2004
4	3	January 2005	Sep. 2004 - Dec. 2004
1	4	February 2005	Oct. 2004 - Jan. 2005
2	4	March 2005	Nov. 2004 – Feb. 2005
3	4	April 2005	Dec. 2004 - Mar. 2005
4	4	May 2005	Jan. 2005 - Apr. 2005
1	5	June 2005	Feb. 2005 – May 2005
2	5	July 2005	Mar. 2005 – June 2005
3	5	August 2005	Apr. 2005 – July 2005
4	5	September 2005	May 2005 – Aug. 2005
1	6	October 2005	June. 2005 – Sep. 2005
2	6	November 2005	July. 2005 - Oct. 2005
3	6	December 2005	Aug. 2005 – Nov. 2005
4	6	January 2006	Sep. 2005 - Dec. 2005
1	7	February 2006	Oct. 2005 - Jan. 2006
2	7	March 2006	Nov. 2005 – Feb. 2006
3	7	April 2006	Dec. 2005 - Mar. 2006
4	7	May 2006	Jan. 2006 - Apr. 2006
1	8	June 2006	Feb. 2006 – May 2006
2	8	July 2006	Mar. 2006 – June 2006
3	8	August 2006	Apr. 2006 – July 2006
4	8	September 2006	May 2006 – Aug. 2006
1	9	October 2006	June. 2006 – Sep. 2006
2	9	November 2006	July. 2006 - Oct. 2006
3	9	December 2006	Aug. 2006 – Nov. 2006
4	9	January 2007	Sep. 2006 - Dec. 2006
1	10	February 2007	Oct. 2006 - Jan. 2007
2	10	March 2007	Nov. 2006 – Feb. 2007
3	10	April 2007	Dec. 2006 - Mar. 2007
4	10	May 2007	Jan. 2007 - Apr. 2007
1	11	June 2007	Feb. 2007 – May 2007
2	11	July 2007	Mar. 2007 – June 2007
3	11	August 2007	Apr. 2007 – July 2007
4	11	September 2007	May 2007 – Aug. 2007

Table I.3, *continued*

Rotation Group	Wave	Interview Month	Data Months
1	12	October 2007	June. 2007 – Sep. 2007
2	12	November 2007	July. 2007 - Oct. 2007
3	12	December 2007	Aug. 2007 – Nov. 2007
4	12	January 2008	Sep. 2007 - Dec. 2007

Note: The cross-sectional entry analysis focuses on participants in May 2004. The May 2004 data were collected in Wave 2.

2. Constructing a Longitudinal Analysis Weight

A challenge in using the 2004 SIPP panel to examine SNAP participation dynamics concerns the over 50 percent sample cut that was undertaken for budgetary reasons starting after Wave 8. Table I.4 tabulates the under-300 percent of poverty population—both total persons below the given threshold as well as those receiving SNAP among that population—to offer a more accurate portrayal of the relative sample sizes and effects of the sample cuts on dynamics analysis. Since the relevant sample for dynamics analysis is those who remain in the SIPP universe until the end of the analysis period, this table is limited to Wave 9 of the 2001 panel and Waves 8 and 12 of 2004.[11]

Table I.4 Unweighted Count of Persons Below 300% of Poverty by Receipt of SNAP

	Selected Waves Of SIPP 2001 and 2004, Fourth Reference Month				
	SNAP Participant		Nonparticipant		Total
Panel and Wave	Number	Percent	Number	Percent	Number
2001 Wave 9	4,678	13.9	28,885	86.1	33,563
2004 Wave 8	7,729	16.5	39,019	83.5	46,748
2004 Wave 12	3,453	16.5	17,474	83.5	20,927

Source: Decision Demographics, tabulations of the 2001 and 2004 SIPP panel

[11] Not all the people included in this table are part of the dynamics analysis, because some are eliminated due to gaps in their SIPP participation. Also, the SNAP participation in this table is strictly cross-sectional, pertaining to the fourth reference month, and not yet a representation of spells.

It is clear that the 2004 data through Wave 8 offer a greater opportunity for accurate analysis of SNAP dynamics than if we utilized only those who were retained in the 2004 panel through Wave 12. The 2004 Wave 12 groups are 55 percent lower than Wave 8, and include about 25 percent fewer SNAP participants and 40 percent fewer persons overall than 2001 Wave 9. On the other hand, the 2004 Wave 8 respondents include 65 percent more SNAP participants and 40 percent more persons overall than 2001 Wave 9, which will contribute to the accurate portrayal of both the total population and that of subgroups. The primary disadvantage to using a shorter eight-wave panel is that it is less likely to observe the full SNAP spell length for individuals that enter SNAP within the panel and, for those that exit SNAP in the panel, there is a shorter window in which to observe them re-entering the program in the panel period. This may lead to underestimating the length of SNAP spells and off-SNAP spells. Despite this limitation, we use the eight-wave panel for all analyses in order to ensure adequate sample sizes for the estimation of SNAP dynamics for subgroups.

For longitudinal analysis, the SIPP includes two types of weights: longitudinal panel weights and calendar year weights. The longitudinal panel weight has a reference period that begins with January 2004 and runs through the end of a specified wave, whereas the calendar year weights have calendar year reference periods. This study uses a longitudinal panel weight for all analysis. The Census Bureau assigns longitudinal weights to persons who have data (reported or imputed) for all months of a specified reference period (that is, the period covered by the longitudinal weight). The Census Bureau also assigns longitudinal weights to persons who left the survey universe (by dying, being admitted to an institution, or moving abroad, primarily) during the reference period, providing that they have data for all months that they were in the survey

universe. The longitudinal sample is weighted to represent the population eligible for the SIPP in the month to which the longitudinal weight is calibrated (January 2004 for the 2004 panel).

The Census Bureau produced a longitudinal weight for Waves 1 through 7.[12] To analyze an eight-wave panel, we produced an eight-wave longitudinal weight. The members of an eight-wave panel are a subset of those who have a longitudinal weight for Waves 1 to 7. To produce a longitudinal weight for Waves 1 to 8, we adjusted the Wave 1 to 7 weights to compensate for differential attrition between Waves 7 and 8 and then calibrated the preliminary weights to Wave 1 population controls, as is done for all SIPP longitudinal weights. This is described in detail in Appendix A.

3. SIPP Data Challenges

Since the earliest panel, SIPP users have had to grapple with the potential impact of response errors that arise from the SIPP's design and implementation. We examined the extent to which sample loss, seam bias, under-reporting, topical module problems, and SNAP churning are apparent in the 2004 SIPP panel. The results for several analyses, which are discussed in detail in Appendix A, are summarized below.

a. Sample Loss

Sample loss generally occurs when members of a household sampled for the survey either cannot be located or refuse to participate. In the 2004 SIPP Panel, about 15 percent of households originally sampled did not respond to the Wave 1 interview (this is higher than the Wave 1 nonresponse rates from prior SIPP panels, where nonresponse rates ranged from about 5 percent in 1984 to 13 percent in 2001).[13] Among those individuals who were interviewed, 37.7 percent either left the universe permanently or did not respond to the survey in a given wave

[12] The Census Bureau also produced longitudinal weights for Waves 1 to 4; 1 to 10; and 1 to 12.
[13] These estimates are taken from http://www.census.gov/sipp/usrguide/ch2_nov20.pdf.

despite still being a member of the universe by the end of Wave 8 of the 2004 panel, which is the "effective" end of the survey for our analysis (see Appendix A).

The SIPP observations used in this study are limited to those that have complete data for every month that they are in the SIPP universe through the eighth wave of the survey (these observations receive a positive longitudinal weight). Most of these are individuals with reported data that are available each of the 32 months in the panel. However, some are observations for people that exit the SIPP universe during the panel because of death or exit and re-enter the universe during the panel for reasons such as moving into or out of the country, becoming institutionalized, etc. Individuals who exit the universe, whether temporarily or for the duration of the panel, receive full longitudinal weights (and will be included in the analysis) so long as they have complete information for those months that they are in the universe. In this context, sample loss involves individuals for whom information is not complete for those months that they are in the SIPP universe. This includes individuals who miss one or more interviews while still in the SIPP universe but return for subsequent interviews as well as those who simply stop responding to the SIPP. We refer to the latter type of sample loss as attrition.

Our analysis of sample loss in the 2004 SIPP panel (see Appendix A) leads us to conclude that there is some evidence of bias from sample loss, but such bias is not a significant concern. While over one-third of the Wave 1 sample is not included in the full panel analysis file, the longitudinal weights appear to adequately correct for this sample loss when we examine key characteristics for January 2004. Indeed, the correction is an improvement from that in the 2001 SIPP panel. Moreover, the SIPP estimates tend to track estimates from other surveys, such as the Annual Social and Economic (ASEC) Supplement, administered as part of the Current Population Survey (CPS), relatively closely over the course of the SIPP panel. These findings are

consistent with previous studies examining sample loss in the SIPP (Cody et al. 2007; Cody et al. 2005; Weinberg 2004).

b. Seam Bias

In the SIPP, the "seam effect" reflects the tendency of individuals to report changes in status on seams—the months that represent the start or end of each four-month reference period. This has important implications for the study of participation dynamics, which is focused primarily on individuals' reported changes in program participation. The seam effect can affect the estimated duration of participation spells as well as the timing of program entry and exit relative to other changes.

Our analysis of the 2004 SIPP panel reveals pronounced SIPP seam effects. For SNAP, 69.3 percent of reported entries occur on the first month of a reference period (the left seam). Similarly, 46.6 percent of exits occur on the left seam. If there were no bias, we would expect each seam month to account for about 25 percent of reported transitions.[14] Hence, this suggests that individuals who enter SNAP in a given wave tend to report that they started receiving SNAP benefits in the first month of that wave, and individuals who exit in a given wave tend to report that they exited in the last month of that wave or the last month of the previous wave. While the percent of reported entries at the left seam is slightly larger than in the 2001 panel (69.3 percent in 2004 versus 67.5 percent in 2001), the percent of reported exits at the left seam is much smaller (46.6 percent in 2004 versus 73.8 percent in 2001). The net effect may be an improvement in the reporting of transition events. We attribute this to Census Bureau's introduction of its most extensive dependent interviewing in the 2004 panel, relative to the 2001

[14] Because the SIPP sample is split into 4 random rotation groups, with each rotation group having a different four-month reference period, seasonal bias or other factors would not affect the distribution of transition events across reference months.

panel, in which respondents who had reported receiving SNAP in the previous wave were reminded of this fact.[15]

Unfortunately, on a given seam month, it is not possible to determine which reported transitions are "real" and which actually occurred in a different month. Therefore, we must conduct the analysis of participation dynamics in a way that does not rely on the short-term timing of transitions. In particular, we use observation "windows" of more than four months to determine whether one event, such as a change in income, may trigger entry into or exit from SNAP.

c. Pre-panel Program Participation Data

We use pre-panel program participation data in our analysis of SNAP dynamics. Unlike studies using prior SIPP panels such as Cody et al. (2007) and Gleason et al. (1998), however, this data was not collected solely in a Recipiency History Topical Module (RHTM) in the 2004 panel. The Wave 1 RHTM items on SNAP underwent significant redesign prior to the 2004 SIPP. Some data were collected throughout the 2004 panel, and other SNAP items in the RHTM were improved.

The Census Bureau redesigned the RHTM in response to a series of recommendations from the SIPP Continuous Instrument Improvement Group.[16] As in the 2001 panel, the recipiency history topical module occurs in Wave 1, only four months after the first reference month of the panel. The RHTM redesign resequenced the questions, putting SNAP questions at the end to allow probes for categorical eligibility for SNAP based on questions about AFDC/TANF. The redesign also changed the nature of the SNAP start month and year questions, and slightly

[15] Moore et al. (2009) examined the impact of dependent interviewing procedures on seam bias not just for SNAP reporting, but an array of need-based programs and non-need-based characteristics. They found that seam bias had declined substantially in the 2004 panel and the decline was attributable to the new dependent interviewing procedures.

[16] Moore (2007) provided a complete report on the changes and their impacts on data quality.

adjusted the universe for the RHTM to compensate for previous minor omissions due to Computer Assisted Personal Interviewing (CAPI) branching issues, and probed for SNAP start dates that came before a recipient's 18th birthday.

Gleason et al. (1998) found evidence that the RHTM data were problematic in the 1991 SIPP, while Cody et al. (2007) found fewer problems with the 2001 data. Gleason et al. (1998) attributed the problems to the fact that, for the 1991 SIPP panel, the recipiency history data were collected in Wave 2, eight months *after* the first month of the panel, and decided to exclude the month 1 spells from the main spell analysis. In contrast, Cody et al. (2007) found that the 2001 recipiency history data were markedly better than the 1991 data and suitable for analysis for all waves. Our analysis, detailed in Appendix A, finds that while some problems persist, the data for Waves 1 to 8 of the 2004 SIPP panel appear to be sufficient and useful for dynamics research.[17]

We use the recipiency history data primarily to examine lengths of spells. This includes spell length of a cross-section of participants; total time on SNAP; and classifications into short and long spells, and multiple and single spells.

d. One-Month Gaps and SNAP Churning

Four previous studies (Cody et al. (2007), Cody et al. (2005), Gleason et al. (1998), and Burstein (1993)) "closed up" one-month gaps in SNAP participation before conducting analyses of SNAP dynamics. That is, they assumed that the respondent made a mistake in reporting and did not experience an actual break in participation. Thus, sample members were assumed to have received SNAP benefits in a given month if they received benefits in the previous and subsequent month. Anecdotal evidence from the states, however, indicates that "churning," that

[17] Due to confidentiality restrictions imposed on the 2004 data, we conducted an analysis of this data within the Census Bureau and only the summary data have been presented in Appendix A.

is, short-term nonparticipation in the program during a period of continued eligibility, is somewhat common.

In this study, we examined the prevalence of one- and two-month gaps in SNAP participation and characteristics of the SNAP units with such a gap. In assessing whether to continue to close one-month gaps in the current analysis, we focused on three possible explanations for short-term gaps:

1. Individuals had a change in circumstances that led them to exit and then another change that led them to re-enter, within a very short time period.
2. Individuals reach the end of their certification period without completing the recertification process, leading them to exit the program; then within a month or two, reapply and enter back into the program (what we refer to as churning below).
3. The gap is misreported and participation continued across this period.

Through our analysis we did not find much empirical evidence to support the first explanation. We did find evidence that the gap often occurs about six months into a spell, which is consistent with the six-month certification period of 40 percent of participating households in 2004 (Wolkwitz 2006). We also found that individuals who are more likely to have short gaps in participation are also the ones with the shorter participation spells. In other words, they come up for recertification more often, and have more opportunities to experience a short-term break in participation. These findings, presented in detail in Appendix A, suggest that the gaps may in fact be due to churning rather than misreporting.

After considering the results of this assessment, we decided to close up one month SNAP participation gaps in the 2004 panel primarily for two reasons. First, it helps maximize comparability of study findings with prior studies of SNAP dynamics. Second, from a SNAP policy standpoint, states and policymakers may generally consider the churners to be longer-term

participants, and closing one–months gaps may help policymakers use the study results to learn about entries, durations, and triggers among those who are not simply churning.

e. SIPP and Natural Disasters

From mid-2004 to late 2005, the southern area of the United States was affected by several hurricanes— Charlie, Frances, Ivan, Jeanne, Katrina, Rita, and Wilma. These hurricanes led over 4.6 million people to seek disaster food assistance, some of whom were evacuees.[18] In the SIPP, individuals reporting their disaster assistance as SNAP are coded as participants and are included in the current study. Their program dynamics, though, are much different than dynamics for participants in regular SNAP. For example, their entries may occur at the same time as a significant loss of income—the time of the hurricane—rather than in the months following their loss of income. And their exits will be related to the expiration of the disaster benefits rather than a change in household circumstances. In addition, SIPP respondents who moved out of the area may be difficult for the interviewers to find—at the time of disasters, forwarding information may not be easily obtained.

Out of concerns for how the disasters could be affecting our dynamics, we performed several calculations with individuals who were residents in these states at the time of the hurricanes removed. We found no change upon removal of these individuals. Thus, the estimates provided in this report include respondents from these states for all months of the panel period.

E. Methodological Approach

Our general methodological approach consists of analyzing the characteristics of participation spells observed in the 2004 through 2006 period of the SIPP. This section provides

[18] Source: "Disaster Report by Fiscal Year" as of 1-01-11
http://www.fns.usda.gov/disasters/response/disaster_chart.pdf accessed 8/15/2011

an overview of the methodology used in this report. Additional details on the methodology are provided in Chapter II.

The descriptive analysis of participation dynamics is based on a sample of individuals from the 2004 SIPP panel. Alternatively, we could have examined SNAP dynamics of *households*. However, examining SNAP household dynamics is difficult because the composition of a household can (and often does) change over time. For example, individuals can move into or out of a household, two separate households can merge to form a single household, or a single household can split and become more than one household. Because of the challenges posed by these changes, and to be consistent with earlier studies of SNAP participation dynamics, this report focuses on the dynamics of individuals.

Our descriptive analysis follows the logic of the chronological contact that a hypothetical individual has with SNAP. We begin by examining SNAP entry, then discuss the length of participation spells, next discuss the events that lead individuals to exit the program, and finally examine whether and when individuals re-enter the program. We also provide summary measures of individuals' overall reliance on SNAP.

Much of the analysis presented here is consistent with the descriptive analysis of dynamics conducted by Cody et al. (2007), Cody et al. (2005), Gleason et al. (1998), and Burstein (1993). This consistency facilitates comparisons of SNAP participation dynamics in the mid-2000s with those of the mid-1980s, the 1990s, and the early 2000s. In particular, as discussed above, we followed the procedure used by these three previous studies to "close up" one-month gaps in participation. We also followed approaches similar to theirs for estimating participation dynamics, including our approach to defining triggers that could lead to program entry, our approach to measuring the distributions of the length of participation spells (both for individuals

newly entering SNAP and for a cross-section of participants in a given month), and our approach to defining triggers that could lead to program exit. Indeed, while the Cody et al. (2007) analysis of SNAP dynamics using the 2001 SIPP panel developed some assumptions that differed from those used in previous studies, the methodology in the current study makes an identical set of assumptions to those used in Cody et al. (2007) and thus maximizes comparability between the findings from the early and mid-2000s.

A marked departure from previous studies that was initially made in Cody et al. (2007) and we have maintained in the current study is the grouping of individuals by families rather than households to determine some of their characteristics, including SNAP participation, income, and family composition. That is, we define a person to be a SNAP participant if anyone in his/her family is a SNAP participant; the income for any individual is the sum of incomes across all family members, and the individual's family composition is based on all members of the family.[19] Neither a family or household grouping reflects the actual SNAP unit, which is driven by the food purchase and preparation practices of the household members. Immediate family members (spouses, children under age 22, and the immediate family members of children under age 22) are required to be in the same unit, but other family members and unrelated household members may be in separate households. The largest impact of this change is likely for measures that look at family characteristics (such as families with earnings or families with elderly members). However, comparisons of entry rates using households and families in Cody et al. (2007) show very little difference between the two measures.

[19] Some members of the family may not be participating, such as certain noncitizens who are ineligible for SNAP, but they are counted as participants in this analysis.

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II. DESCRIPTIVE ANALYSIS

The number of SNAP participants in any given month is the net effect of two separate events: program entry and exit. First, individuals enter SNAP, often in response to changes in their personal or family circumstances. Second, after receiving benefits for some duration, they exit the program, again often in response to changes in personal or household circumstances. The dynamics of participation in SNAP, however, are usually characterized not only by entry and exit, but by program re-entry. That is, some of those individuals that exit the program re-enter at a subsequent date. Examining program re-entry distinctly from program entry adds considerable value to our understanding of program dynamics because, as evidenced in prior dynamics studies, those individuals that re-enter the program are typically different than those that enter for the first time.

These patterns of entry and exit not only determine the characteristics of the caseload at any point in time, but also determine whether the size of the caseload increases or decreases over a period of time. For the caseload to increase, as it did from 2004 to early 2006, either more people are entering than exiting the program, or people who are entering are participating for longer periods of time, or a combination of the two.

In this chapter, we examine patterns of SNAP dynamics for different cohorts of the U.S. population in the mid-2000s.[20] While there is no one "typical" SNAP participation spell, we find the following participation patterns:

[20] As in prior studies of SNAP dynamics, we do not limit ourselves to studying dynamics among the SNAP-eligible population. Measuring eligibility precisely is difficult, since most surveys do not collect enough information to determine who is eligible for program benefits each month. While several studies have examined participation rates among eligible individuals (e.g., Leftin 2010), these studies examine SNAP at one point in time. In this study, we are examining patterns over time. Replicating the eligibility determination procedures in a time-series analysis is beyond the scope of this study.

- ***About 5 out of every 1,000 nonparticipants with income under 300 percent of poverty at some point in the panel period who were not participating at the end of one month participate in the next month.***

- ***The entry rate increased from the early-2000s to the mid-2000s. The replacement rate, measured as the number of new SNAP entrants in relation to the caseload size, has decreased steadily from 2001 to 2006.***

- ***If participation patterns seen in 2004 through 2006 remained constant over time, we estimate that 31 percent of adults with income under 300 percent at some point in the panel period would participate in SNAP at some time in adulthood.*** Of those who participate as adults, half enter the program by age 30.

- ***Half of all new entrants leave within 10 months; 58 percent leave within a year.*** Participation spells in the mid-2000s are longer than in the early-2000s when half ended within 8 months and 62 percent within one year.

- ***Half of the individuals participating in SNAP in May 2004 have spells lasting at least 7 years.*** This is a sizable increase from the early-2000s when half of the individuals participating in SNAP in May 2001 had spells lasting less than four years.

- ***Families with children and income under 300 percent of poverty at some point in the panel period are twice as likely to enter SNAP and have longer participation spells than families without children.*** Children living with one adult or multiple unmarried adults have over four times the entry rate of children living with married adults.

- ***Elderly people are much less likely to enter SNAP than other adults, although they have longer participation spells than children and younger adults.*** They are also much less likely to re-enter the program once they have left.

- ***Of those who exit the program, 42 percent return within one year.*** The rate of re-entry is the highest for the poorest families.

- ***A decrease in family earnings is the most common trigger event that precedes entry, while an increase in family earnings is the most common trigger event that precedes exit.***

- ***The annual turnover rate during the 2004 panel period was 1.4 each year.*** About 40 percent more individuals participated over the course of a year than participated in an average month.

- ***The SNAP caseload increase from the beginning of 2004 to the end of 2005 was attributed to greater entry than exit (a higher replacement rate than exit rate).*** Participation growth tapered throughout 2005 because of a declining replacement rate and increasing exit rate. In 2006 the exit rate exceeded the replacement rate and the growth rate became small and negative.

In this chapter, we present the patterns; in the next chapter, we explore how these vary across subgroups in more detail and over time.

A. Entry into SNAP

For individuals entering SNAP, whether for the first time or not, we generally are interested in the following questions, which we address in this section:

- What are the entry rates for the period covered by the 2004 SIPP panel, for all individuals "at risk" of entry and for SNAP subgroups? Have these changed since the early 2000s and earlier periods?
- How sensitive are the findings on program entry to the definition of the population at risk?
- What trigger events in their lives lead individuals to enter SNAP?
- How do the answers to the above research questions compare to findings in the studies for the earlier periods?

1. The SNAP Entry Rate

a. Sample and Methods

The entry rate, that is, the rate at which individuals enter SNAP over a given period of time, is defined as the number at risk of entering who subsequently enter divided by the number at risk of entering.[21]

To determine the entry rate, we must decide on both the at-risk population and the time period over which we wish to measure entry rates. One possibility is to define the at-risk population as all individuals. While informative, the entry rates calculated for all individuals tend to obscure the differences between changes in the rate among eligibles and changes in the size of the eligible population that could enter the program. For instance, a decreasing entry rate could

[21] By "at-risk," we mean individuals who are not receiving SNAP benefits in a given month, and, depending on the definition in use, have income under a certain level. The entry rate measure provides us with an estimate of the proportion of the nonparticipating population that enters SNAP in a given time period.

reflect a lower tendency for individuals to participate, or it could reflect a shrinking population of people that potentially could participate. An alternative measure would be to examine entry rates over all individuals that are eligible for benefits. However, such a measure may be too narrow, since an individual could be ineligible for SNAP in one month, but eligible and participating two months later.

We develop three definitions of the population of individuals that are "at risk" of entering SNAP. These definitions range from strict—in which most or all members of the population are likely eligible for SNAP—to the most lenient—one that includes all individuals. By using these three definitions, we develop a better understanding of the sensitivity of our rates to our choice of at-risk population, and maximize comparability of entry rate estimates in the current study and in prior studies of SNAP dynamics. The three definitions are based on income over the full analysis period:[22]

1. Individuals with monthly income under 100 percent of poverty at some point in the analysis period
2. Individuals with monthly income under 300 percent of poverty at some point in the analysis period (the primary measure used by Cody et al. (2007))
3. All individuals (the primary measure used by Gleason et al. (1998))

The first definition provides entry rates among those likely to be eligible; however, SNAP eligibility is not limited to those under poverty, so it has the disadvantage of excluding many who would likely be at risk of entering at some point in the panel. This is especially true in the current study, relative to prior studies, as the percentage of states that offer policies designed to expand eligibility such as broad-based categorical eligibility has increased. The income threshold

[22] Ideally, we would measure a person's income in the same way that it would be measured for the purposes of SNAP eligibility determination. However, the SIPP data do not indicate which household members would apply for benefits together, so we calculate each person's income as the sum of the income of all individuals in the family, including members of related subfamilies.

of 300 percent of poverty captures individuals likely to be eligible without considering that there are some individuals in this group whose income never gets so low that they are truly at risk of entering. It has been used in similar studies of entry rates (e.g., Cody et al. 2007 and Burstein 1993). The third definition places no restrictions on income; this was the definition generally used in Gleason et al. (1998) for estimating entry rates in the early 1990s and, while not the primary measure in Cody et al. (2007), was estimated for the early 2000s in that study as well.

In addition to considering multiple definitions of the at-risk population, we consider three time periods for computing entry rates. Specifically, we compute:

(1) Monthly entry rate, which reflects the percentage of all at-risk individuals who enter SNAP in the current month after not receiving SNAP benefits during the previous two months (at least).[23]

(2) Wave-based entry rate, which reflects the percentage of individuals that were not receiving SNAP benefits at the end of a SIPP four-month reference period (a "wave") but that enter SNAP during the subsequent wave.

(3) Annual entry rate, which reflects among all individuals not participating at the end of one reference year, the proportion who participate at some point in the next reference year.[24]

The monthly entry rate is the easiest to understand, in the sense that it measures how often a person moves from not participating in one month to participating in the next. However, the annual entry rate may be more useful because it provides a broader view of how often at-risk individuals enter the program and the wave-based entry rate may be the most accurate, because it accounts for the seam bias that can cause biased distributions in monthly and annual entry rates.

[23] The at-risk population is restricted to those who had not received SNAP benefits for the previous two months, because of our practice of closing one-month gaps in SNAP participation. Under this practice, we assume that sample members received SNAP benefits in a given month if they received SNAP benefits in the previous month and also in the subsequent month. In effect, sample members have to be out of the program for two months to be considered nonparticipants (and "at risk" of entering the program). Similarly, we close one-month gaps in nonparticipation, so that sample members have to be participating in the program for at least two months to be considered an entrant. A sample member will be counted as entering the program each time they enter following a lapse in participation of at least two months.

[24] This reference year is tied to the SIPP interview schedule. It is a close representation of the calendar year.

To create the entry analysis file, we pulled from the SIPP a sample of person-month records—one record for each person for each month that they were in the SIPP universe. We then limited the sample to those who were at risk of entering, based on the definitions described above. For example, a person whose family income was under 300 percent of poverty at some point during the panel period would contribute one record to the second sample described above for every month they were not receiving SNAP benefits. Each month they were not receiving benefits, they were considered to be at risk of entering. If they subsequently entered the program, they would stop contributing to the sample unless they stopped receiving benefits, in which case they would once again contribute to the sample.

Using person months allows us to differentiate between a person who, for example, enters the program after two months of being at risk and a person who enters the program after two years of being at risk. The former will contribute an entry rate of 100 percent to the sample (entering at the first opportunity); the latter will contribute an entry rate of approximately 4 percent to the sample (entering after 23 possible opportunities).

To provide the reader with a sense of the magnitude of the sample sizes for each analysis, we provide unweighted counts in most tables. The unweighted counts may be a count of persons included in the analysis or counts of person months. Providing sample sizes in person months for some tables is necessary because each person in the SIPP sample contributes a different number of months to the analysis, depending on the number of months they are not participating in SNAP and are thus at-risk of entering. The relative sizes of the populations can be determined by comparing the number of person months in each type of analysis.

b. SNAP Entry among the At-Risk Populations

We calculate the monthly entry rates using months 3 to 31 of the SIPP panel period so a given sample member may contribute up to 29 months of data to the calculation of the rate.[25] The wave-based entry rates use Waves 2 to 8 (months 5 to 32) of the data, and the annual rates use years 1 to 3 (months 13 to 32).

The monthly SNAP entry rate ranges from 0.4 percent for all individuals to 1.1 percent for those whose income dipped below the poverty level at some point during the analysis period (see Table II.1). This suggests that for every 1,000 individuals not receiving SNAP benefits at the beginning of the month, about 4 enter during the month. When we restrict the population under consideration to those whose income was under 300 percent of poverty at some point in the analysis period, approximately 5 people in 1,000 will enter during the month.[26] If we restrict the population even further, to those whose incomes were under poverty at some point in the period, approximately 11 in 1,000 will enter in the month.

[25] We begin examining the monthly entry rates in month 3 because we require that a person have a two-month spell of nonparticipation before they could be considered at risk for entering the program. We end in month 31 because we also require that a person have a two-month participation spell to be considered an entrant. In later analyses, we will begin in later months so that we can look for events that trigger entry during a period prior to the sample month.

[26] About 72 percent of the population had their income dip below 300 percent of poverty for at least one month in the panel period. Thus, results for the entire population are very similar to results for this slightly restricted population.

Table II.1 SNAP Entry Rates by At-Risk Population

	All Individuals	Income under 300 Percent of Poverty	Income under 100 Percent of Poverty
(Percent)			
Monthly	0.4	0.5	1.1
Wave-based	1.4	2.0	4.1
Annual	3.0	4.2	8.3
(Sample size in Person-Months)			
Monthly	1,810,980	1,265,040	499,994
Wave-based	437,091	305,372	120,750
Annual	124,587	86,973	34,262

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: Not receiving SNAP benefits for at least 2 months
Reference Months: 3 to 31 for monthly estimates; 5 to 32 for wave-based estimates; 12-32 for annual estimates
Sample: Person months

Monthly entry rates may appear low because they refer to entry in a given month, rather than entry over a period of time. The wave-based entry rate of 2.0 for individuals with income under 300 percent of poverty suggests that approximately 20 out of every 1,000 of these nonparticipants will enter the program in the next four-month wave. Similarly, the annual rate of 4.2 percent implies that 42 out of every 1,000 nonparticipants with income under 300 percent of poverty who are not participating at the end of one year will participate at some point in the next year.

When we restrict the at-risk population to those with income under 100 percent of poverty at some time during the analysis period, we find that the monthly, wave-based, and annual entry rates were all about twice as large as the rates for those under 300 percent of poverty. Approximately 41 out of every 1,000 who were not participating at the beginning of the wave will enter during the wave, and approximately 83 out of every 1,000 who were not participating at the beginning of the year will enter during the year.

c. Changes in SNAP Entry over Time among the At-Risk Populations

Entry rates have increased from the early 2000s to the mid-2000s, particularly for individuals with income under 300 percent of poverty (Table II.2).[27] The monthly entry rate increased from 0.4 to 0.5 percent for individuals with income under 300 percent of poverty and from 0.9 to 1.1 for individuals with income under 100 percent of poverty. There were also increases in the wave-based entry rate from 1.8 to 2.0 percent and in the annual entry rate from 4.1 to 4.2 percent for individuals with income under 300 percent of poverty. Like the increases in the monthly rate, the wave-based and annual rates increased by more for individuals with income under 100 percent of poverty.

Table II.2 Monthly Entry Rate Comparison over Time (Percent)

	Monthly			Wave-Based				Annual		
Subgroup	Early 1990s	Early 2000s	Mid-2000s	Mid-1980s	Early 1990s	Early 2000s	Mid-2000s	Early 1990s Annual	Early 2000s Annual	Mid-2000s Annual
All individuals	0.3	0.4	0.4	NA	NA	1.4	1.4	2.6	3.3	3.0
Individuals with income under 300 percent of poverty	NA	0.4	0.5	2.0	2.4	1.8	2.0	NA	4.1	4.2
Individuals with income under 100 percent of poverty	NA	0.9	1.1	NA	NA	3.4	4.1	NA	7.9	8.3

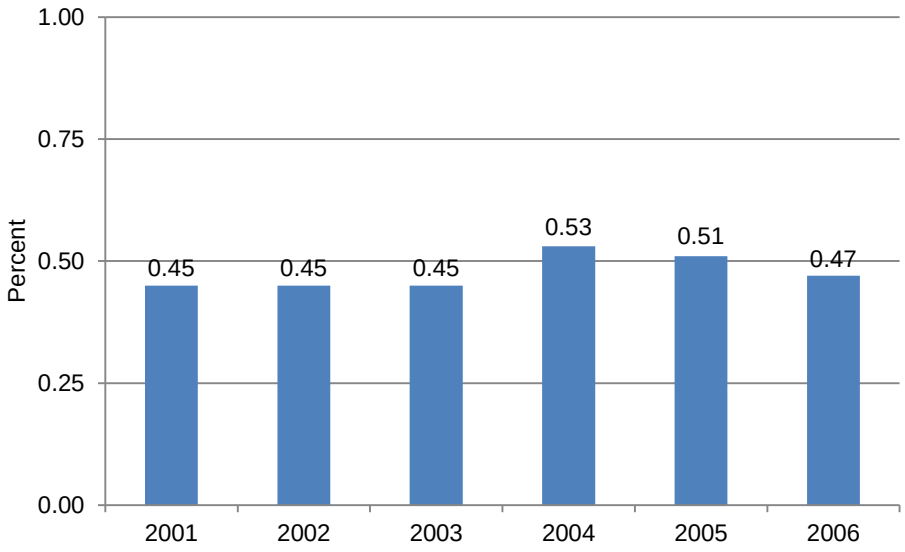
Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel for the mid-2000s; Cody et al. (2007) for the early 2000s; Gleason et al. (1998) for the early 1990s; Burstein (1993) for the mid-1980s

We also examine changes in SNAP entry by estimating average monthly entry rates and replacement rates over time within the panel period and across the 2001 and 2004 SIPP panels. The average monthly entry rate was constant at 0.45 percent from 2001 through 2003, then

[27] We also examined whether disaster assistance provided in late 2005 for a number of hurricanes affected the results. When calculating the entry rates without the states that were most affected, we found no difference in the entry rates.

increased to 0.53 in 2004, and subsequently decreased through 2006 to 0.47 percent (Figure II.1) Mirroring the decrease in national unemployment over the same period (not shown), both the number of new entrants and the number of individuals at risk of entering decreased from 2004 to 2006 (Table II.3). The decrease over this period in the entry rate, though, indicates a faster decline in the size of the group of entrants than of the at risk group.

Figure II.1 Average Monthly Entry Rates, by Year



Note: All averages are over twelve calendar months except 2003 (January through September) and 2006 (January to May).

Table II.3 Average Monthly SNAP Entry Rates and Replacement Rates, by Year

	Individuals Entering SNAP	At-Risk Individuals in Previous Month	Entry Rate	SNAP Participants in Previous Month	Replacement Rate
Average 2004 (June to December)	971,886	183,940,880	0.53	21,816,640	4.5
Average 2005 (January to December)	937,793	182,393,744	0.51	22,849,719	4.1
Average 2006 (January to May [a])	849,617	182,148,427	0.47	23,096,961	3.7
Average 2004-2006	929,367	182,793,884	0.51	22,599,913	4.1

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel for the mid-2000s.

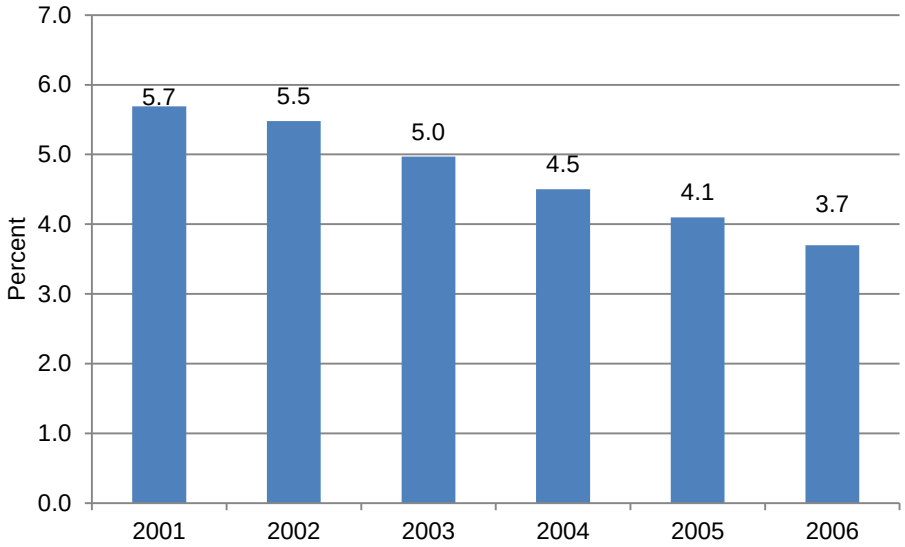
Notes: At Risk: Not receiving SNAP benefits for at least 2 months and income under 300 percent of poverty at some point in the panel period

Sample: Person months

[a] May 2006 is the last month common to all four rotation groups within the wave.

Unlike the entry rate, the average monthly replacement rate decreased steadily each year from 2001 to 2006 (Figure II.2). The replacement rate measures the number of new SNAP entrants in a month divided by the number of participants in the previous month's caseload. The decreasing trend in the replacement rate reflects the decrease in the average monthly number of new entrants and the increase in the average monthly number of participants each year (Table II.3).

Figure II.2 Average Monthly Replacement Rates, by Year



Note: All averages are over twelve calendar months except 2003 (January through September) and 2006 (January to May).

Extending the analysis farther back in time, Cody et al. (2005) estimated replacement rates throughout the 1990s, but only by panel periods and not by year. The study found that, during the caseload growth of the early 1990s, the replacement rate was 5.3 percent and decreased slightly throughout that period. Then, in the mid-1990s, a period of caseload decline, the replacement rate hovered around 4.2 percent. This was followed by another caseload decline in the late 1990s and a replacement rate of 3.8 percent. In the early 2000s, the replacement rate returned to its value of the early 1990s, ranging from 5.7 percent in 2001 to 5.0 percent in 2003. Strikingly, the current analysis shows the replacement rate (at 3.7 percent in 2006) has decreased to below the 1990s value despite no decline in the caseload. As we will see in section B, this is due to participants staying on the program longer after entering the program.

d. SNAP Entry among Subgroups

Prior studies of SNAP participation and SNAP dynamics have found each to vary substantially according to characteristics such as age, income, and citizenship (Mabli and

Ferrerosa 2010; Mabli et al. 2009; Cody et al. 2007; Leftin 2010; Gleason et al. 1998). In the previous section, we discussed how rates increase as the at-risk population under consideration is restricted by income; we now limit most of our analysis to one at-risk population—those with monthly income under 300 percent of poverty at some point during the analysis period. As in the previous section, our analysis sample consisted of person-month records, so each person in the SIPP data contributed a record to the sample for each month they did not participate in SNAP. This allowed us to capture entries across all months of the SIPP panel, giving us an average entry rate.

Before we examine the entry rates among subgroups of the population, we first consider the characteristics of the at-risk population and entrants as of the reference month (see Table II.4), paying particular attention to the subgroup characteristics that differ substantially between those two populations. For example, while 11.8 percent of at-risk individuals with income below 300 percent of poverty at some point in the analysis period had received SNAP benefits in the past, 47.2 percent of individuals who entered SNAP in this period had previously received them. About three-fourths of entrants were in families with children, but only 54.9 percent of our at-risk population was in families with children. Only 7.1 percent of entrants were elderly, compared to 18.2 percent of those at risk. The at-risk and SNAP entrant groups also differ according to sources of income, with 65.6 percent of SNAP entrants living in families with earnings, compared to 78.3 percent of all individuals at risk of entering SNAP; 7.0 percent of entrants were living in families with TANF, compared to 0.8 percent of all individuals in the at risk group; 17.9 percent of entrants were living in families with SSI, compared to 4.7 percent of all individuals at risk of entering SNAP; and 8.0 percent of entrants living in families with no income, compared to 2.0 percent of all individuals in the at-risk group.

Table II.4 Distribution of the Characteristics of the At-Risk Populations and SNAP Entrants [a]

Subgroup	All Individuals	For at Least One Month in 2004 Panel: Income under 300 Percent of Poverty	For at Least One Month in 2004 Panel: Income under 100 Percent of Poverty	Percent of All SNAP Entrants
Total: All Person-Months	100.0	100.0	100.0	100.0
SNAP Benefit Receipt				
Never received SNAP benefits (age 18 and older)	91.0	88.2	83.1	52.8
Previously received SNAP benefits (age 18 and older)	9.0	11.8	16.9	47.2
Family Composition				
Individuals in families with children	52.1	54.9	57.3	74.0
Adults in families with children and one adult	2.6	3.3	4.7	8.6
Children in families with children and one adult	3.8	4.9	7.5	16.1
Adults in families with children and multiple adults	2.7	3.4	4.0	9.5
Children in families with children and multiple adults	1.5	1.9	2.5	7.7
Adults in families with children and a married head	23.2	22.7	20.3	15.5
Children in families with children and a married head	18.3	18.6	17.8	16.2
Children in child-only families	0.1	0.2	0.5	0.4
Individuals in families without children	47.9	45.1	42.7	26.0
Individuals in families with elderly members	20.5	20.9	13.2	9.2
Elderly members living alone	4.8	5.8	4.4	1.8
Elderly members living with other elderly individuals	8.3	7.9	3.4	1.7
Elderly members living with non-elderly individuals	7.2	6.8	5.1	5.6
Individuals in families with disabled members	2.8	3.3	4.2	6.6
Individuals in families without any elderly or disabled members	24.6	20.9	25.3	10.2
Age and Disability				
Nonelderly disabled adults	3.1	3.9	5.1	11.1
Nonelderly nondisabled childless adults	28.2	24.0	27.2	11.3
Age				
Children (under age 18)	23.7	25.6	28.3	40.4
Nonelderly adults (age 18 - 59)	58.8	56.2	60.6	52.5
Elderly adults (age 60 and over)	17.5	18.2	11.1	7.1
Sex				
Male (age 18 and older)	48.8	47.8	47.1	40.2
Female (age 18 and older)	51.2	52.2	52.9	59.8
Race/Ethnicity [b]				
White, Non-Hispanic	70.4	66.2	59.4	43.1
African American, Non-Hispanic	10.5	11.7	13.6	26.3
Hispanic, all races	13.0	16.2	20.3	23.3
Asian, Non-Hispanic	3.3	2.9	3.4	1.5
Other, Non-Hispanic	2.8	2.9	3.3	5.8

Table II.4 ***continued***

Subgroup	All Individuals	For at Least One Month in 2004 Panel: Income under 300 Percent of Poverty	For at Least One Month in 2004 Panel: Income under 100 Percent of Poverty	Percent of All SNAP Entrants
Education				
Individuals in families with HS graduate	94.7	92.6	89.3	83.9
Individuals in families with no HS graduate	5.3	7.4	10.7	16.1
Citizenship				
Citizen	94.0	92.7	90.4	94.0
Noncitizen	6.0	7.3	9.6	6.0
Citizen children living with noncitizen adults in the family	2.5	3.0	4.1	5.1
Adults in families with citizen adults and citizen children	26.1	26.4	24.9	30.8
Children in families with citizen adults and citizen children	21.7	23.1	24.2	35.8
Adults in families with noncitizen adults and citizen children	1.6	2.1	3.0	2.3
Children in families with noncitizen adults and citizen children	1.4	1.9	3.0	3.9
Presence of Income				
Individuals in families with no income	1.4	2.0	4.8	8.0
Individuals in families with income	98.6	98.0	95.2	92.0
Presence of Earnings				
Individuals in families with earnings	82.4	78.3	73.2	65.6
Individuals in families without earnings	17.6	21.7	26.8	34.4
Presence of TANF				
Individuals in families with TANF	0.6	0.8	1.4	7.0
Individuals in families without TANF	99.4	99.2	98.6	93.0
Other Income				
Individuals in families with Social Security income	22.8	24.6	17.4	24.0
Individuals in families without Social Security income	77.2	75.4	82.6	76.0
Individuals in families with SSI	3.5	4.7	6.4	17.9
Individuals in families without SSI	96.5	95.3	93.6	82.1
Individuals in families with unemployment compensation	1.9	2.3	2.9	4.7
Individuals in families with no unemployment compensation	98.1	97.7	97.1	95.3
Sample Size -- Total Person-Months [c]	1,813,494	1,267,001	500,813	6,716
Sample Size -- Total ever at-risk persons ever in category	67,912	48,468	20,657	

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: Not receiving SNAP benefits for at least 2 months

Reference Months: 3 to 31

Sample: Person months for entry rates; persons for percent of entrants

Two categories are limited to adults age 18 and over. Data on previous receipt of SNAP benefits is only available for adults. We compute the entry rates for male and female adults because we do not expect entry rates to vary for male and female children.

[a] Characteristics as of reference month

[b] Categories are race *alone*; respondents who reported multiple races are in the Other, Non-Hispanic category

[c] The distributions are estimated based on person-months. To assist the reader, we also provide the number of persons ever at risk (not receiving SNAP benefits for at least 2 months) in each of the income categories.

Where we see large differences between the characteristics of the at-risk population and the entrants, such as the previous receipt of SNAP benefits, we also expect to see large differences in entry rates (see Table II.5). Among at-risk individuals who previously had not received SNAP benefits at any time in their adult lives, only about 2 in 1,000 entered the program in a given month; over the course of a year, about 22 in 1,000 entered. The entry rate among those who previously had received SNAP benefits was much higher—about 17 in 1,000 in a given month and 130 in 1,000 in a given year. At-risk individuals in families with children entered at a rate of about 7 in 1,000 per month (54 in 1,000 per year), while those without children entered at a rate of about 3 in 1,000 per month (26 in 1,000 per year). Individuals in families with SSI were over four times as likely to enter each month, with 20 in 1,000 entering per month versus 4 in 1,000 per month for individuals in families without SSI. A similar differential exists for individuals with no income (21 in 1,000 entered per month) and individuals with income (5 in 1,000 entered per month).

Table II.5 Monthly, Wave-Based, and Annual Entry Rates by Individuals in Subgroups

Subgroup	Monthly	By Wave	Annual
Total: All Person-Months	0.5	2.0	4.2
SNAP benefit receipt			
Never received SNAP benefits (age 18 and older)	0.2	1.0	2.2
Previously received SNAP benefits (age 18 and older)	1.7	6.6	13.0
Family Composition			
Individuals in families with children	0.7	2.7	5.4
Adults in families with children and one adult	1.4	5.1	9.8
Children in families with children and one adult	1.7	6.5	11.9
Adults in families with children and multiple adults	1.5	5.8	10.4
Children in families with children and multiple adults	2.1	8.2	14.2
Adults in families with children and a married head	0.4	1.4	3.1
Children in families with children and a married head	0.5	1.8	3.9
Children in child-only families	1.2	4.1	10.1
Individuals in families without children	0.3	1.2	2.6
Individuals in families with elderly members	0.2	0.9	1.9
Elderly members living alone	0.2	0.6	1.4
Elderly members living with other elderly individuals	0.1	0.5	0.8
Elderly members living with non-elderly individuals	0.4	1.7	3.6
Individuals in families with disabled members	1.0	4.0	8.9
Individuals in families without any elderly or disabled members	0.2	1.0	2.4
Age and Disability			
Nonelderly disabled adults	1.5	5.5	10.8
Nonelderly nondisabled childless adults	0.2	1.0	2.4
Age			
Children (under age 18)	0.8	3.2	6.2
Nonelderly adults (age 18 - 59)	0.5	1.9	4.0
Elderly adults (age 60 and over)	0.2	0.8	1.6
Sex			
Male (age 18 and older)	0.3	1.4	3.0
Female (age 18 and older)	0.5	1.9	3.9
Race/Ethnicity [a]			
White, Non-Hispanic	0.3	1.3	2.8
African American, Non-Hispanic	1.2	4.5	8.4
Hispanic, all races	0.8	3.0	6.3
Asian, Non-Hispanic	0.2	0.9	2.1
Other, Non-Hispanic	1.0	4.1	8.8

Table II.5, *continued*

Subgroup	Monthly	By Wave	Annual
Education			
Individuals in families with HS graduate	0.5	1.8	3.9
Individuals in families with no HS graduate	1.1	4.2	8.2
Citizenship			
Citizen	0.5	2.0	4.2
Noncitizen	0.4	1.7	3.3
Citizen children living with noncitizen adults in the family	0.9	3.6	6.7
Adults in families with citizen adults and citizen children	0.6	2.4	4.8
Children in families with citizen adults and citizen children	0.8	3.1	6.1
Adults in families with noncitizen adults and citizen children	0.6	2.3	4.4
Children in families with noncitizen adults and citizen children	1.1	4.3	8.1
Presence of Income			
Individuals in families with no income	2.1	6.9	11.9
Individuals in families with income	0.5	1.9	4.0
Presence of Earnings			
Individuals in families with earnings	0.4	1.8	3.9
Individuals in families without earnings	0.8	3.0	5.0
TANF Income			
Individuals in families with TANF	4.5	17.6	26.0
Individuals in families without TANF	0.5	1.9	4.0
Other Income			
Individuals in families with Social Security income	0.5	2.0	4.0
Individuals in families without Social Security income	0.5	2.0	4.2
Individuals in families with SSI	2.0	7.8	14.5
Individuals in families without SSI	0.4	1.7	3.6
Individuals in families with unemployment compensation	1.1	3.4	7.9
Individuals in families with no unemployment compensation	0.5	2.0	4.1
Sample Size: Person-Months	1,265,040	305,372	86,973

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: Not receiving SNAP benefits for at least 2 months and income under 300 percent of poverty at some point during the panel period

Reference Months: 3 to 31 for monthly estimates; 5 to 32 for wave-based estimates; and 12-32 for annual estimates

Sample: Person months

Subgroup Characteristics: As of Month 2 for monthly estimates, Month 4 for wave-based estimates, and Month 11 for annual estimates

Two categories are limited to adults age 18 and over. Data on previous receipt of SNAP benefits is only available for adults. We compute the entry rates for male and female adults because we do not expect entry rates to vary for male and female children.

[a] Categories are race *alone*; respondents who reported multiple races are in the Other, Non-Hispanic category

We also examine entry rates by age, race and ethnicity, and education. Consistent with prior studies, age was negatively correlated with SNAP entry—about 16 in 1,000 at-risk adults over age 60 entered each year, 40 in 1,000 age 18 to 59, and 62 in 1,000 under age 18. The entry rate among non-Hispanic African American individuals was three times the entry rate among non-Hispanic white individuals, and the entry rate among Hispanic individuals was more than twice as high as the entry rate among non-Hispanic white individuals. In addition, the annual entry rate among individuals in families in which no one has a high school degree was more than double the entry rate among individuals in families with at least one high school graduate.[28]

An alternate approach to understanding entry into SNAP is to examine the age at which adults first enter the program. Table II.6 presents estimates of the ages at which a cohort of adults initially enter SNAP (if they enter at all).[29] We limit this analysis to adults because the history of SNAP receipt is not available for children. The cumulative entry rate in the first column shows that 8.7 percent of adults participated in SNAP between ages 18 and 30. Overall, we estimate that 31.4 percent of these adults would participate in SNAP at some point in their adult lives. The cumulative entry rate among entrants shown in the second column suggests that 15.7 percent of all new entrants would have started participating between the ages of 18 and 20

[28] Table II.4 clearly indicates that some categories, such as "Children in child-only families" and "Individuals in families with TANF" have small sample sizes. Care must be taken in drawing conclusions for individuals in these categories.

[29] The estimates in Table II.6 are based on a cross section of individuals as of month 4 of the SIPP panel period. For this sample, we examine whether they had ever received SNAP benefits and, if they had, calculate the age at which they first entered the program, using data from the Wave 1 Topical Module and restricted-use SIPP data available at the Census Bureau. We then used this information to construct a "life table" for an artificial cohort of individuals (see Section B of this chapter for a description of the life table methodology). For every possible age between 18 and 80, this life table estimates yearly initial entry rates by calculating the percentage of the sample entering SNAP for the first time at that age, among those in the sample who were at least that old and who had not entered the program at a younger age. These yearly initial entry rates are then translated to cumulative initial entry rates among the full sample and among sample members who ultimately entered the program. One important assumption implicit in this methodology is that all individuals in the artificial cohort live to at least age 71. Another required assumption is that there is a stationarity over time in initial entry rates, since we are using information from a cross section of individuals to infer what would happen to a single cohort.

and over half by the time they were age 30. We also infer that 16.8 percent of adult entrants (sum of the last three rows in the third column) would have entered for the first time after age 50.

Table II.6 Initial Adult SNAP Entry Rate by Age

Age	Cumulative Entry Rate	Cumulative Entry Rate Among SNAP Entrants	Percentage of Initial SNAP Entrants
18-20	2.5	15.7	15.7
21 to 30	8.7	50.9	35.2
31 to 40	13.2	71.7	20.9
41 to 50	16.6	83.6	11.9
51 to 60	20.0	91.4	7.8
61 to 70	23.2	95.9	4.5
Older than 70	31.4	100.0	4.1

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: All adults not receiving SNAP benefits for at least 2 months and income under 300 percent of poverty at some point during the panel period

Reference Months: 3 to 31

Sample: Person months

The sample includes only individuals age 18 and older in Month 4. The methodology assumes all individuals will live to be at least 71.

2. Entry Trigger Events

Prior studies of SNAP dynamics have provided evidence that individuals typically enter SNAP in response to a change in their life circumstances—for example, a loss of income or the addition of a family member. Although we cannot necessarily identify the direct cause of a person's entry, we can examine his or her family income and the employment status and composition of their family immediately preceding entry. Observed changes can help policymakers understand the events that may have led that person to enter the program (that is, the entry trigger events), and help identify points of intervention to help reduce the need for people to enter.

a. Methods

To examine entry trigger events, we define SNAP entry as participation in SNAP in a given month after at least two consecutive months of nonparticipation. To ensure that the period prior to entry will be long enough to observe possible entry trigger events, we change our analysis period. When we examine potential entry trigger events over a four-month window immediately preceding an entry, we limit our sample to months 6 to 31. We define a trigger event as having occurred in the window if it changed across any two consecutive months. When we examine potential entry trigger events over an eight-month window immediately preceding an entry, we limit our sample to months 10 to 31.

We define our entry trigger events based on previous research (Cody et al. 2007; Gleason et al. 1998; and Burstein 1993). Specifically, we include the following trigger events:

- Recently unemployed family member
  - Self
  - Other family member
- Decrease in family income[30]
  - Earnings (10 percent or more)
  - TANF (any decrease)
  - Other income (10 percent or more)
- Change in family composition
  - Pregnant/new infant in family
  - New dependent (non-infant) in family
  - Newly separated or divorced
  - Other composition change[31]

[30] If we observe a decrease in income during any month of the trigger window, it is considered a trigger event, regardless of what happened to income in other months of the trigger window. Thus, if a sample member experienced a 10 percent decrease in family income in one month and gained the income back in a subsequent month, it is still considered a trigger event. On the other hand, if a sample member experienced a series of 5 percent decreases in family income in consecutive months during the trigger window, this is not considered a trigger event.

b. Distribution of Entry Trigger Events in the 2004 Panel

In Table II.7, we present the primary results of the entry trigger analysis. The first column shows the percentage of the at-risk population that experienced each trigger event *at some point during the sample.*[32] In the second column, we look forward four months from the time of the trigger event and indicate the percentage of those experiencing the trigger event that entered SNAP within those four months. In the third column, we look backward four months from SNAP entry to find the percentage of entrants who experienced the trigger event prior to entry. Similarly, the fourth and fifth columns provide the percentage entering within eight months of the trigger event and the percentage of entrants who experienced the trigger event in the eight months prior to entry, respectively. By looking forward from the trigger, the "trigger-centered" view identifies how often a trigger leads to entry. But this measure alone does not provide enough information because a trigger event that does not occur often but usually leads to entry when it does occur only helps us identify the trigger events for a small percentage of entrants. By looking backward from the entry for the occurrences of trigger events, we develop a clearer picture of the impact that each trigger event has on entry into SNAP.

[31] This category includes cases that change composition as defined by the groups listed in Table II.4: individuals (adults or children) in families with children and one adult; individuals in families with children and a married head; individuals in families with children and multiple adults (not married head); children in child-only families; individuals in families with elderly members; individuals in families with no elderly members but with disabled members; individuals in families without any disabled or elderly members. For example, if a cohabiting couple with children marries, the individuals would change from "individuals in families with children and multiple adults" to "individuals in families with children and a married head." If a 17-year-old in a family with children and one adult turns 18, the individuals would change from "individuals in families with children and one adult" to "individuals in families with children and multiple adults."

[32] Entry rates among groups with small percentages experiencing the event in the panel period are less reliable (for example, those experiencing a decrease in TANF income and those experiencing no trigger event).

Table II.7 Occurrence of SNAP Entry Trigger Events and Rate of Entry Following Trigger Event

Trigger Event (Not Mutually Exclusive)	Percent of At-Risk Group Experiencing Event at Some Point in Panel	Percent of People Experiencing an Event who Entered SNAP within 4 Months of Experiencing the Event	Percent of SNAP Entrants who Experienced the Event in Previous 4 Months	Percent of People Experiencing an Event who Entered SNAP within 8 Months of Experiencing the Event	Percent of SNAP Entrants who Experienced the Event in Previous 8 Months
Change in Family Composition					
Pregnant/New infant in family	7.3	4.3	2.3	8.2	5.1
New dependent (non-infant) in family	13.7	4.6	5.3	7.6	8.8
Newly separated or divorced	3.8	5.3	1.8	8.2	3.1
Other composition change	16.7	3.9	6.3	6.7	10.3
Recently Unemployed Family member					
Self	15.8	3.9	6.2	6.1	9.7
Other family member	27.6	3.8	11.5	6.1	17.9
Decrease in Family Income					
Earnings (10% or more)	75.6	2.8	38.7	4.6	53.0
TANF	1.8	14.2	2.5	21.5	3.4
Other income (10% or more)	75.0	1.7	26.1	3.1	38.0
Experienced no trigger events	8.7	NA	39.3	NA	27.2
Experienced any one trigger event	18.0	NA	31.8	NA	26.1
Experienced multiple events	73.3	NA	28.9	NA	46.7
Experienced any trigger event	91.3	2.5	60.7	4.2	72.8
Sample Size (Person Months)	48,415	197,365	5,492	167,814	4,562

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: All individuals not receiving SNAP benefits for at least 2 months and income under 300 percent of poverty at some point in the panel period

Reference Months: 3 to 31

Sample: Persons for percent experiencing event at some point; person-months for percent entering within specified number of months of experiencing event; persons entering SNAP for percent of entrant

Although the identified trigger events play key roles in SNAP entry, with 60.7 percent of all entries preceded within four months by at least one of these trigger events, 39.3 percent of entries occur without an obvious recent change in circumstances. It could be that the entrants waited longer than four months to enter (72.8 percent of entries occur within eight months of a trigger), were confident that they could find a job with the improving economy, or were enticed to enter because of outreach programs or changes in policy that simplified participation.

Among those that experienced a trigger, the most common events were related to decreases in family income. Among those who entered SNAP, 38.7 percent experienced a decrease in family earnings of 10 percent or more, and 26.1 percent experienced a loss in other family income (aside from earnings and TANF) during the prior four months.

A decrease in family income is the most common of the entry triggers, likely due to its prevalence in the population with income under 300 percent of poverty at some point during the panel. In this at-risk population, 75.6 percent experienced a decrease in family earnings of at least 10 percent at some point during the analysis period, and 75.0 percent experienced a decrease in other types of family income. Looking at how many of the at-risk individuals entered the program (the second column), one sees that that 2.8 percent of those who experienced a loss of earnings entered within four months; 1.7 percent of those who experienced a loss of other income entered within four months.

Prior studies of SNAP dynamics have found that triggers that do not occur as often in the at-risk population are more predictive of SNAP entry. That remains true in the current study for several triggers. For example, many at-risk individuals experienced a decreased in earnings, but a smaller percentage of these individuals subsequently entered SNAP, whereas few at-risk individuals experienced a decrease in TANF income, but a much larger percentage of these

individuals subsequently entered SNAP. Similarly, only 7.3 percent of the at-risk population experienced a pregnancy or birth in the family at least once during the analysis period, but, looking forward, 4.3 percent of the pregnancies and births were associated with entry into SNAP within four months. Separations and divorces in the family occurred less often and were associated with an entry within four months in 5.3 percent of the cases where it occurred.

In addition to examining the four-month period prior to entry, we examine the eight-month period prior to entry. We know that some events may not lead to immediate or near-term entry into SNAP. For example, for the first few months after a job loss, a family may be able to survive by drawing down assets. If, however, they are unable to replace the income over time, they may ultimately decide to enter SNAP. In this case the job loss would still be the trigger to entry, but would not be observed immediately preceding the entry.

The eight-month window increased the percentage of SNAP entries preceded by a trigger event, from 60.7 percent to 72.8 percent. It also increased the percentage of the at-risk population that entered SNAP who experienced a trigger event: 2.5 percent entered within four months of any trigger and 4.2 percent entered within eight months.

One difficulty in studying entry rates based on triggers is that triggers can, and often do, occur together. For example, the birth of a child may lead a parent to stay home to care for the child, leading to a loss of income. In fact, Table II.7 indicates that 28.9 percent of entrants experienced multiple events in the four months prior to their entry, an amount that is nearly half of the 60.7 percent of entrants that experienced at least one trigger event in the previous four months. In the eight months prior to their SNAP entry, 46.7 percent experienced multiple events.

In Table II.8, we again examine how often some of these same trigger events precede SNAP entry by four and eight months, but we order the trigger events to make each row mutually

exclusive. We first identify the entries that were preceded by the unemployment of a family member. Next, we identify the entries that were not preceded by the unemployment of a family member, but were preceded by a decrease in family income (earnings, TANF, or other income). Finally, we identify entries that were not preceded by the unemployment or income decreases, but were preceded by a family composition change. We see that 16.9 percent of entrants experienced the unemployment of a family member in the four months prior to entry, and another 27.4 percent experienced a decrease in earnings that was not through unemployment.

Table II.8 Occurrence of SNAP Entry Trigger Events, Mutually Exclusive Categories

Trigger Event (Mutually Exclusive Order)	Percent of At-Risk Group Experiencing Event at Some Point in Panel	Percent of SNAP Entrants who Experienced the Event in Previous 4 Months	Percent of SNAP Entrants who Experienced the Event in Previous 8 Months
Recently Unemployed Family Member (either self or other)	38.1	16.9	25.6
No Unemployment, Decrease in Family Income			
Decrease in earnings (10% or more)	40.5	27.4	32.7
Decrease in TANF, no decrease in earnings	0.2	0.7	1.0
Other income (10% or more)	11.5	11.5	10.1
No Unemployment, no Decrease in Income, Change in Family Composition			
Pregnant/New infant in family	0.1	0.7	1.2
New dependent (non-infant) in family	0.3	1.9	1.0
Newly separated or divorced	0.0	0.1	0.1
Other composition change	0.4	1.4	1.0
Sample Size (Person Months)	48,415	5,492	4,562

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: All individuals not receiving SNAP benefits for at least 2 months and income under 300 percent of poverty at some point in the panel period
Reference Months: 3 to 31
Sample: Person months

In Table II.9, we combine the triggers into three categories (unemployment, income decrease, and change in family composition) and examine the overlap for entrants. That is, we look at the

percentage of the sample that experienced a change in each type of event and the percentages of the sample that experienced a change in each pair of events, such as changes in family composition and employment or changes in unemployment and income. We see that 14.8 percent of entrants experienced a change in family composition in the four months prior to entry, but for 3.0 percent of entrants it was accompanied by the unemployment of someone in the family, and for 10.0 percent of entrants it was accompanied by a decrease in family income. When we increase the window to eight months, we find that 23.5 percent of entrants experienced a change in family composition, but for 7.4 percent of entrants, the family composition change was accompanied by the unemployment of a family member and for 19.4 percent by a decrease in family income. Low-income families may be able to withstand the problems caused by a single trigger event, but the occurrence of a second trigger event may cause them to turn to SNAP for support.

Table II.9 Overlap in Trigger Events

Trigger Event (Mutually Exclusive Order)	Percent of SNAP Entrants who Experienced the Event in Previous 4 Months	Percent of SNAP Entrants who Experienced the Event in Previous 8 Months
Recently unemployed family member	16.9	25.6
Experiencing additional decrease in family income (10% or more)	13.2	22.9
Experiencing change in family composition	3.0	7.4
Decrease in family income (10% or more)	52.8	66.7
With recently unemployed family member	13.2	22.9
Experiencing change in family composition	10.0	19.4
Change in family composition	14.8	23.5
With recently unemployed family member	3.0	7.4
Experiencing additional decrease in family income (10% or more)	10.0	19.4

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: All individuals not receiving SNAP benefits for at least 2 months and income under 300 percent of poverty at some point in the panel period
Reference Months: 3 to 31
Sample: Person months

The final method we use to examine entry triggers into SNAP is to look at the triggers in the context of how often they occur in the family. For example, if changes in family composition are common in a household, is that trigger event less likely to lead to SNAP entry than if it is an uncommon event? The descriptive evidence in Table II.10, which presents the entry rates according to the deviation of the trigger event from the family's usual circumstances, shows that this is largely not the case. We find that

- Monthly entry rates among those who experienced a family composition change in the previous four months were higher for those who had experienced multiple composition changes in the past 24 months than for those with just one composition change.

- Among those experiencing the unemployment of a family member in the previous four months, the highest entry rates were among the individuals for whom this was a *more* common experience. Individuals with one or two unemployment spells in the previous 24 months had entry rates of 3.3 and 3.1, respectively, whereas individuals with 3 or more unemployment spells in the previous 24 months had a higher entry rate of 5.2.

- Among those experiencing a decrease in earnings of at least 10 percent in the previous four months, the highest entry rates were among the individuals with family earnings that fluctuated more often (2 or more times) in the previous 24 months than among the individuals with only a single fluctuation.

Table II.10 SNAP Monthly Entry Rates Among At-Risk Individuals Experiencing a Trigger Event, by Degree of Deviation from Usual Circumstances

Trigger Event	Percent of SNAP Entrants	Percent of At-Risk Sample	SNAP Entry Rate
Change in Family Composition in Previous 4 Months (Sample Size)	32	1,006	NA
In previous 24 months, family experienced			
One composition change	40.4	56.6	2.0
More than one composition change	59.6	43.4	3.9
Unemployed Family Member in Previous 4 Months (Sample Size)	58	1,791	NA
Individual unemployed in previous 24 months			
1-6 months	68.6	72.8	3.3
7-12 months	25.6	21.2	4.2
13-24 months	5.8	6.0	3.4
Individual's unemployment spells in previous 24 months			
1 spell	48.5	52.0	3.3
2 spells	28.2	32.2	3.1
3 or more spells	23.3	15.8	5.2
At Least a 10 Percent Decrease in Earnings in Previous 4 Months (Sample Size)	120	5,917	NA
Number of times family earnings increased or decreased by more than one standard deviation in previous 24 months			
1 fluctuation	3.4	8.0	0.8
2 fluctuations	22.2	20.2	2.2
3 or more fluctuations	74.4	71.8	2.1
Entry Month's Earnings as Percent of Average Earnings in Previous 24 Months			
0 to under 50	32.0	16.3	3.9
50 to under 100	21.9	29.7	1.5
100 or more	46.1	54.0	1.7
At Least a 10 Percent Decrease in Other Income in Previous 4 Months (Sample Size)	56	5,246	NA
Number of times family earnings increased or decreased by more than one standard deviation in previous 24 months			
1 fluctuation	4.7	14.6	0.3
2 fluctuations	42.0	39.6	1.1
3 or more fluctuations	53.3	45.8	1.3

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: All individuals not receiving SNAP benefits for at least 2 months and income under 300 percent of poverty at some point in the panel period

Reference Months: 3 to 31

Sample: Persons months

c. Changes in the Distribution of Entry Trigger Events from the Early- to Mid-2000s

There have been changes from the early- to mid-2000s in the occurrence of SNAP entry trigger events, the rates of entry following them, and the percentage of SNAP entrants who experienced the event in the past four months. Though the percentage of at-risk individuals experiencing any trigger event at some point in the panel decreased from 95.9 to 91.3 percent from the early- to mid-2000s (Figure II.3), the percentage of people experiencing any trigger event who entered SNAP within four months increased slightly from 2.0 to 2.5 percent (Figure II.4). Changes over time in the association between trigger events and SNAP participation can also be measured by examining SNAP entrants' recent experiences. The percentage of SNAP entrants who experienced the event in the previous four months decreased by ten percentage points—from 70.8 to 60.7 percent (Figure II.5). We conclude that trigger events remain key determinants of SNAP entry, though they are less common among SNAP entrants in the mid-2000s relative to the early-2000s.

Experiencing a 10 percent decrease in family earnings became less common among both the at-risk group and the group of SNAP entrants, but was more strongly associated with SNAP entry in the mid-2000s than in the early-2000s (Figures II.3, II.4, and II.5). The percentage of at-risk individuals experiencing a 10 percent decrease in family earnings decreased, from 86.4 percent in the early-2000s to 75.6 percent in the mid-2000s, and the percentage of individuals entering within four months of this change increased from 1.9 to 2.8 percent. While it is reasonable to expect that the decrease in the percentage experiencing this event may reflect fewer individuals becoming unemployed as the economy improved from the 2001 to 2003 period to the 2004 to 2006 period, there were slight increases in the percentages of individuals in the at-risk group that became unemployed or had a family member become unemployed from the early- to

mid-2000s. Thus, the change in the percentage of individuals experiencing decreases in earnings may reflect lowered wages or hours worked among the employed rather than transitions into unemployment.

Figure II.3 Percentage of At-Risk Group Experiencing Event, Comparison over Time

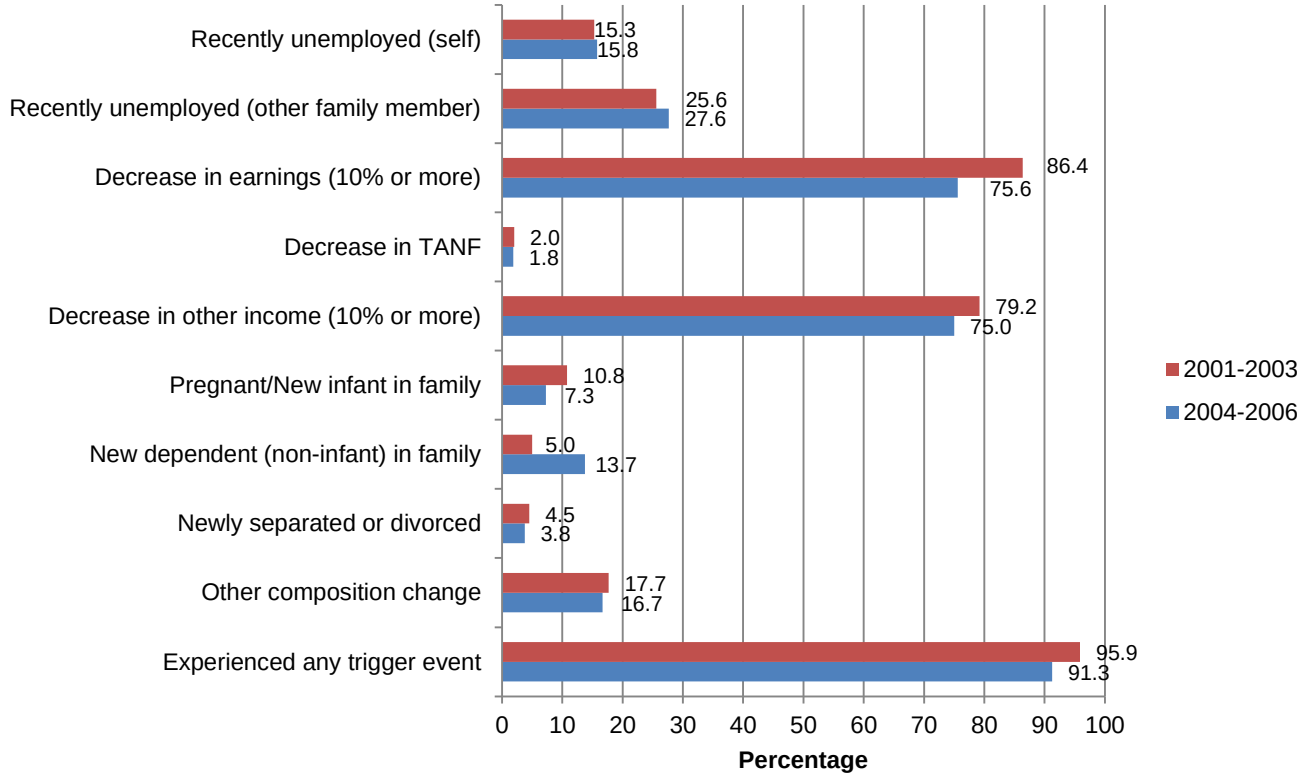


Figure II.4 Percentage of At-Risk Group Who Entered SNAP within Four Months of Experiencing Event, Comparison over Time

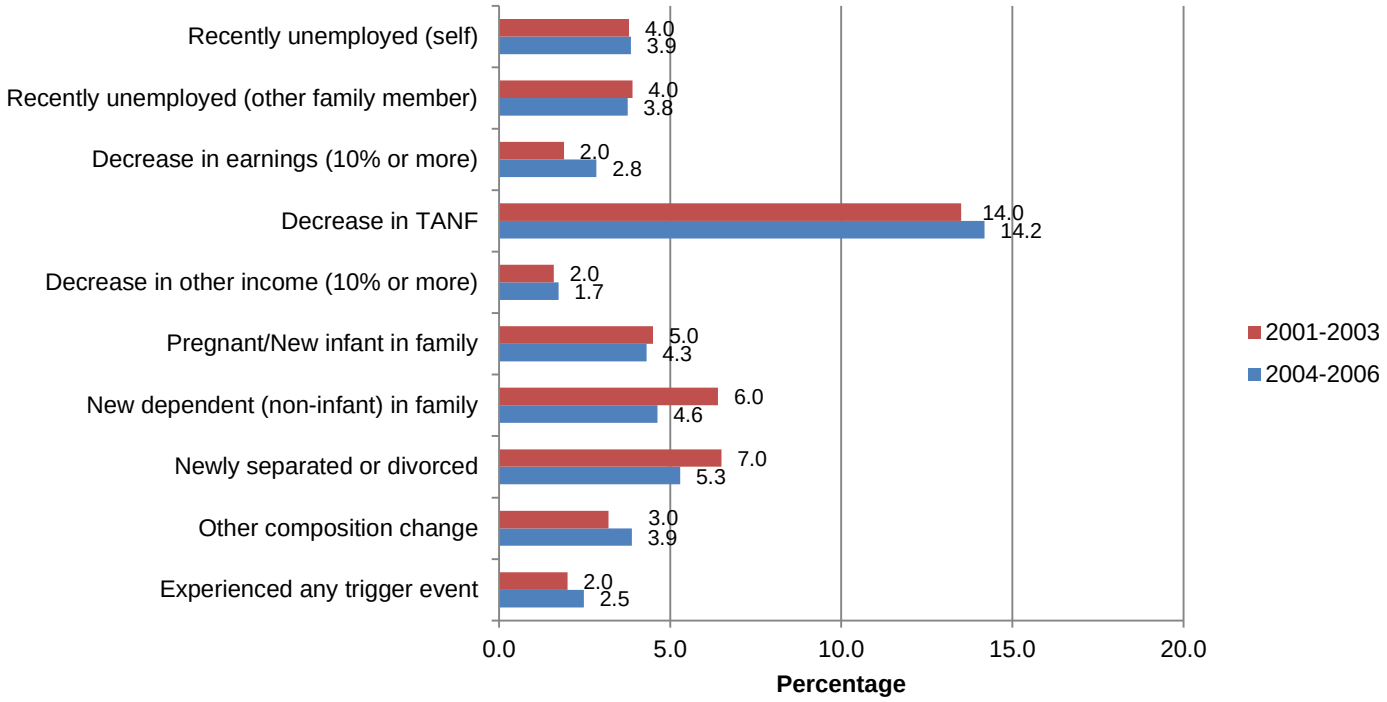
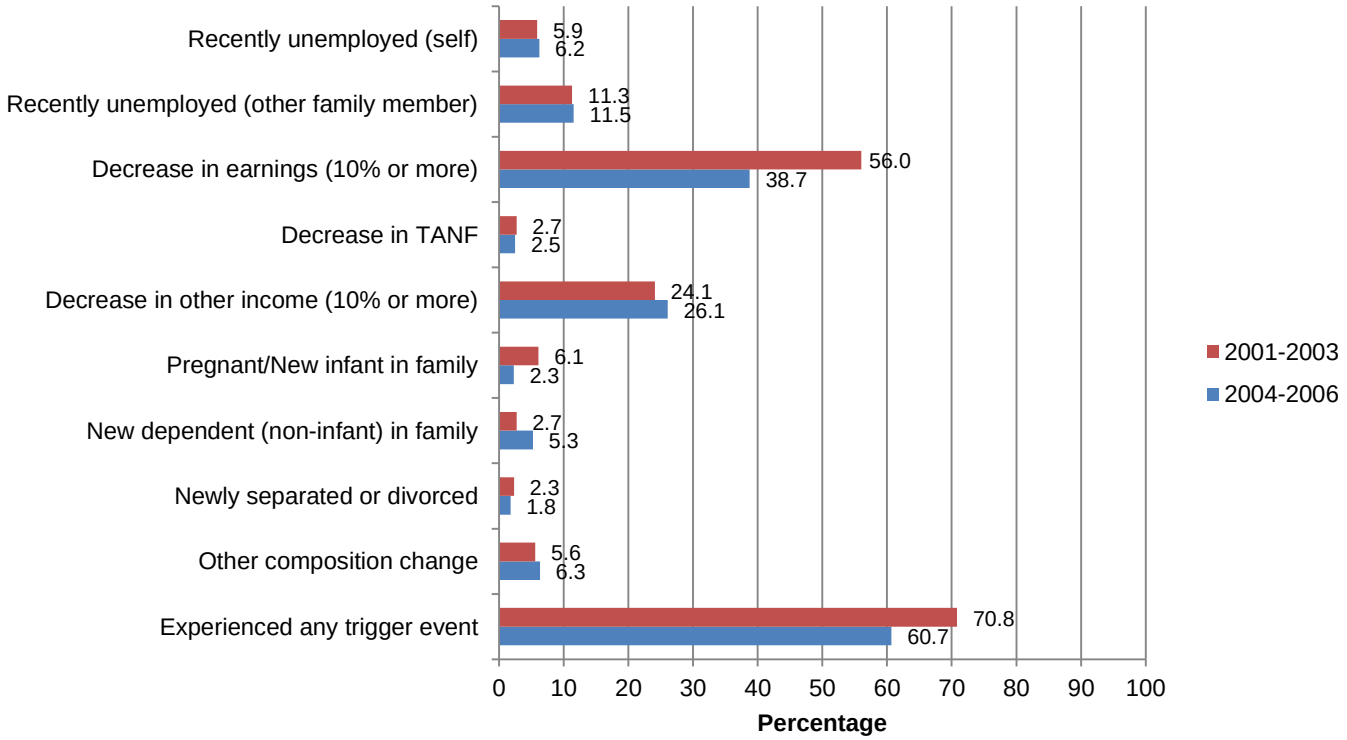


Figure II.5 Percentage of SNAP Entrants Who Experienced Event in Previous Four Months, Comparison over Time



B. Length of SNAP Participation Spells

Having examined patterns of SNAP entry and the triggers that lead to entry, we turn to the length of stay in the program. We address the following questions:

- How long are participation spells for entrants? What is the median time on SNAP after program entry? How do these vary among different SNAP subgroups?
- How long are participation spells for participants when viewed at a specific point in time such as a cross-section of participants receiving benefits in the same month?
- How do the answers to the above research questions compare to the findings in the studies for earlier periods?

We examine the length of participation spells by using survival or "life table" analysis to estimate the rate at which individuals ended their participation spell in each month following program entry. Our analysis uses two different samples of participants—an entry cohort sample and a cross-sectional sample. The entry cohort sample includes all individuals who began a spell of SNAP participation during a given calendar period, in this case, within the SIPP panel period. This allows us to partially answer the first question above, concerning how long the new entrants will participate. The cross-sectional sample of SNAP participation includes all individuals receiving benefits at a given point in time, regardless of when their participation began, and allows us to answer the second and third questions.

1. Entry Cohort Analysis

a. Sample and Methods

The entry cohort analysis uses a sample from the 2004 panel in which each observation represents a single participation spell of an individual. We limit our sample to spells that began in month 3 or later (and therefore are not left-censored) and allow sample members to contribute more than one spell to the analysis.

For each spell, we are able to observe the length of the spell during the panel period, and we know whether the spell was still in progress at the end of the panel period (that is, whether the spell was right-censored). We also identify characteristics of the individuals during the month prior to the start of the spell for our subgroup analysis, similar to those used in the SNAP entry subgroup analysis.

The 2004 SIPP panel contains a total of 12,367 SNAP spells from 10,010 individuals. Most of these individuals (almost 79 percent) contributed only one spell to the data set. About 44 percent of spells are left-censored, including 20 percent that ended within the panel period and 24 percent that are both left- and right-censored. Another 3 percent of spells are not left-censored, but began before month 3 or after month 30; including these spells would not give us the number of months we need to establish at least two months of participation before we record an exit. The remaining 54 percent of spells that form our entry cohort are not left-censored, including 30 percent that are neither left- nor right-censored and 23 percent that are right-censored.

To estimate spell length, we construct life tables. Life tables allow us to use information we have about the length of a spell, while ignoring information we do not have. For example, if an individual participated for the last 12 months of the sample, and thus has a right-censored spell, we use only the fact that the individual did not exit the program after any of his or her first 11 months on the program. We then ignore this person beyond month 12 of the life table. We note that because the samples on which the spell lengths are based decline as the duration increases, the estimates of the hazard rates generally become less precise as duration rises.

In our life tables we consider participation spells by month. For each month, we show the weighted estimates of survivor, hazard, and cumulative exit rates. The hazard rate is the

probability that a spell ends in a particular month, given that it has lasted at least until the beginning of that month. The survivor rate is the unconditional probability that a spell remains in progress more than a given number of months. Finally, the cumulative exit rate is the unconditional probability that a spell ends within a given number of months. The survivor and cumulative exit rates total 100 percent.

For our analysis, we focus on a few summary measures from the life table: the cumulative exit probabilities and the median spell length. The cumulative exit probabilities measure the proportion of participants who exit SNAP within a given number of months; we focus on 4, 12, and 24 months. In the month that the cumulative exit probability reaches 50 percent, we have the median spell length—half of all spells are shorter and half of all spells are longer. We provide these summary measures for all participants and key subgroups.

b. Lengths of SNAP Participation in the 2004 Panel and Comparisons over Time

Table II.11 indicates that most SNAP participants who entered any time after month 3 of the panel exited within the next year. The median spell length for these participants was approximately 10 months, with 37.5 percent of spells ending within six months and 57.9 percent ending within a year. Within two years, 74.3 percent of SNAP participation spells ended, so just over one-quarter of spells lasted two years or longer. These results show a slightly longer spell length than identified in Cody et al. (2007) for the early 2000s (Figure II.6). They found that the median spell length during the early 2000s was eight months, and that 61.4 percent ended within one year. Similarly, Cody et al. (2005) measured spell length during the early to late 1990s and found that the median length was eight months, and that 64.1 percent of spells ended within a year. The 2004 to 2006 spell lengths are also longer than those in 1991 to 1992 in which the median length was nine months.

Table II.11 Life Table of Participation Spells

Month	Number of Spells at Beginning of Month	Number In-Sample in Following Month	Number Exiting During Following Month	Survivor Rate	Hazard Rate	Cumulative Exit Rate	Standard Error of Survivor Rate
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
1[a]	27,601,828	27,546,465	0	100.0	0.0	0.0	0.1
2	27,546,465	27,521,088	1,653,767	94.0	6.0	6.0	0.3
3	25,867,321	25,664,504	1,427,489	88.8	5.6	11.2	0.4
4	24,237,016	21,924,152	4,005,100	72.5	18.3	27.5	0.6
5	17,919,052	17,494,283	1,232,011	67.4	7.0	32.6	0.6
6	**16,262,272**	**16,050,222**	**1,168,892**	**62.5**	**7.3**	**37.5**	**0.6**
7	14,881,330	14,701,787	760,091	59.3	5.2	40.7	0.6
8	13,941,695	12,538,231	1,338,059	53.0	10.7	47.0	0.6
9	11,200,172	10,946,789	511,990	50.5	4.7	49.5	0.6
10	**10,434,799**	**10,240,275**	**397,637**	**48.5**	**3.9**	**51.5**	**0.6**
11	9,842,638	9,599,376	428,706	46.4	4.5	53.6	0.6
12	**9,170,670**	**7,939,961**	**727,531**	**42.1**	**9.2**	**57.9**	**0.5**
13	7,212,430	6,921,183	265,314	40.5	3.8	59.5	0.5
14	6,655,870	6,568,318	145,131	39.6	2.2	60.4	0.5
15	6,423,187	6,395,717	239,146	38.1	3.7	61.9	0.5
16	6,156,571	5,039,571	350,403	35.5	7.0	64.5	0.4
17	4,689,169	4,495,501	166,336	34.2	3.7	65.8	0.4
18	4,329,165	4,223,766	102,129	33.3	2.4	66.7	0.4
19	4,121,637	4,020,999	107,586	32.4	2.7	67.6	0.4
20	3,913,413	3,128,135	220,092	30.2	7.0	69.8	0.3
21	2,908,042	2,719,471	127,774	28.7	4.7	71.3	0.3
22	2,591,697	2,477,484	68,920	27.9	2.8	72.1	0.3
23	2,408,565	2,314,576	47,010	27.4	2.0	72.6	0.3
24	**2,267,567**	**1,641,016**	**101,634**	**25.7**	**6.2**	**74.3**	**0.2**
25	1,539,383	1,424,937	30,060	25.1	2.1	74.9	0.1
26	1,394,877	1,263,158	10,194	24.9	0.8	75.1	0.1
27	1,252,964	1,205,697	30,960	24.3	2.6	75.7	0.0

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: Reference Months: 3 to 31

Sample: SNAP spells

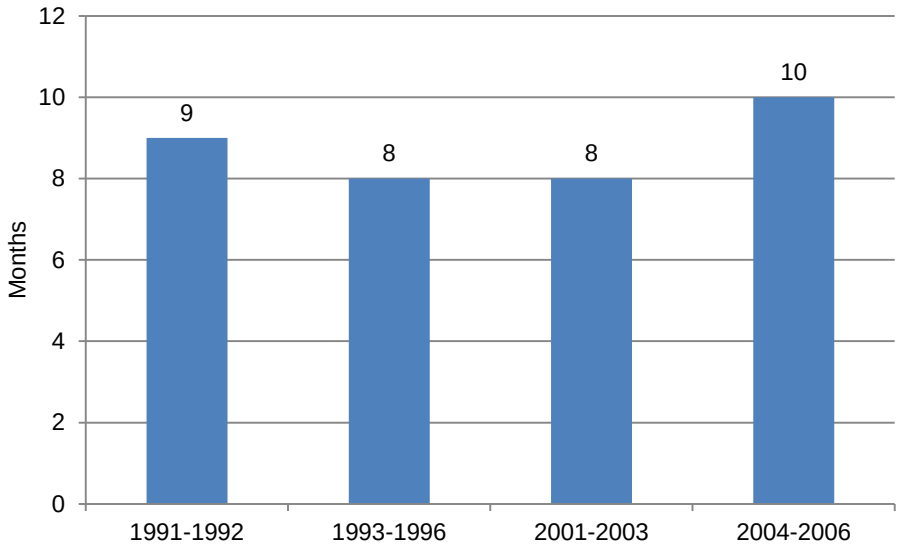
[a] We do not observe exits after one month because we fill one-month gaps in nonparticipation.

Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. Column (b) indicates the number of the spells from (a) that we continue to observe in the following month (that is, spells that are not right censored). Column (c) is the number of spells from (b) that exit the SNAP in the following month. The hazard rate (e) is 100*(c)/(b). The cumulative exit rate (f) is sum of the previous row's cumulative exit rate and the product of the current row's hazard rate and previous row's survivor rate, divided by 100. The survivor rate is 100-(f). For example, Month 12 indicates that 9,170,670 spells have lasted at least 12 months or longer. We observe the 13th month for 7,939,961 spells. Of those that we observe, 727,531 end after the 12th month. Then the hazard rate is 100*727,531/7,939,961 (=9.2). The cumulative exit rate is 53.6+9.2*46.4/100 (=57.9).

The change in the number of spells from the first row of the table to the last row reflects losses due to both SNAP exits and right censoring. In the higher rows of the table, with the shorter participation spells, more of the loss is due to exits, while in the lower rows of the table, with the longer participation spells, more of the loss is due to right censoring. For example, at 6 months, column (c) shows that 1.2 million spells end;

subtracting column (b) from column (a) shows that 0.2 million spells are right censored and no longer included in the sample. On the other hand, at 24 months, 0.1 million spells end but 0.6 million spells are lost due to right censoring. Spells of individuals who leave the universe (for example, due to a move to group quarters, exit from the country, or death) before an exit is observed are right-censored and are not incorporated into the exit rate.

Figure II.6 Median Length of SNAP Participation in Entry Cohort Sample, Comparisons over Time



The rate at which SNAP participants exit the program decreases as length increases, as can be seen by examining the hazard rates. Analysis of these rates requires caution because seam bias causes them to jump at four-month intervals; however, the rate at these four-month intervals generally decreases over time. For example, the hazard rate falls from 18.3 percent in month 4 to 10.7 percent in month 8, 9.2 percent in month 12, and 7.0 percent in months 16 and 20.

c. Lengths of SNAP Participation, by Subgroup

We can compute life tables for key subgroups of participants as well. In Table II.12, we present selected results from the subgroup life tables: the median participation spell and cumulative exit rates for 4, 12, and 24 months. Then, using the log-rank statistic within each category of subgroups (e.g., household composition), we test the significance of the difference in the lengths of SNAP receipt.

There are sharp contrasts in the length of SNAP participation spells among participant subgroups. Adults living in families without any children, elderly, or disabled members had the shortest spells, with a median length of 7 months, while elderly members with no other family members had a median spell that exceeded 23 months. Nonelderly disabled adults had longer participation spells than nonelderly, nondisabled, childless adults (median length of 16 and 6 months, respectively). Furthermore, individuals in families with no earnings, families with no high school graduate, and families with SSI all had median spell lengths longer than the average, at 12, 13, and 11 months, respectively.

The subgroup analysis also shows that children living with multiple adults had shorter spell lengths than children living with one adult. Children living with a married family head had a median spell length of 11 months, and children living with multiple adults had a median spell length of 9 months. In contrast, children living with one adult had a median spell length of 12 months. Similarly, adults living in families with multiple adults, whether married or not, had shorter spells than adults living in single-adult families with children.

Another result provided by the subgroup spell length analysis is that individuals living in families with no monthly income had longer median spell lengths than those living at other poverty levels. Those in families with no income had a median spell length of 15 months, while those living in families with income between 50 and 100 percent of poverty had a median length of 12 months, and those living in families with income of more than 200 percent of poverty had a median spell length of 6 months. About one-third of individuals in families with no income had a SNAP spell that was at least two years, while less than one-fifth of individuals in families with income above 200 percent of poverty had a spell that was at least two years.

Table II.12 Length of SNAP Spells by Subgroups

Subgroup	Sample Size	Median Participation Spell (Months)	Cumulative Exit Rate (Percent)			Log-Rank Statistic to Test Differences across Subgroups
			4 Months or Less	12 Months or Less	24 Months or Less	
All Individuals	6,634	10	27.5	57.9	74.3	
Family Composition						149.3***
Individuals in families with children	4,945	10	25.4	57.6	75.0	
Adults in families with children and one adult	561	11	19.9	54.9	68.4	
Children in families with children and one adult	1,100	12	19.1	50.8	66.4	
Adults in families with children and multiple adults	584	8	34.1	67.1	79.5	
Children in families with children and multiple adults	512	9	23.1	62.4	79.7	
Adults in families with children and a married head	1,028	9	29.9	60.5	78.9	
Children in families with children and a married head	1,125	11	26.2	55.4	78.9	
Children in child-only families	35	9	29.4	64.8	64.8	
Individuals in families without children	1,689	8	33.4	58.5	72.4	
Individuals in families with elderly members	626	12	32.1	50.9	63.4	
Elderly members living alone	163	>24	17.7	36.8	47.8	
Elderly members living with other elderly individuals	120	12	35.6	50.2	51.5	
Elderly members living with non-elderly individuals	333	9	36.5	57.0	72.1	
Individuals in families with disabled members	448	11	27.5	52.4	64.9	
Individuals in families without any elderly or disabled members	615	7	38.4	69.7	85.7	
Age and Disability						99.1***
Nonelderly disabled adults	752	16	20.6	47.9	62.6	
Nonelderly nondisabled childless adults	668	6	41.1	68.2	84.9	
Family Income						211.5***
Under 50 percent of poverty	815	10	24.1	57.6	71.3	
50 to under 100 percent of poverty	1,716	12	20.1	50.6	67.4	
100 to under 200 percent of poverty	2,281	9	24.6	58.5	77.6	
200 or more percent of poverty	1,303	6	45.0	70.3	81.9	

Table II.12, *continued*

Subgroup	Sample Size	Median Participation Spell (Months)	Cumulative Exit Rate (Percent)			Log-Rank Statistic to Test Differences across Subgroups
			4 Months or Less	12 Months or Less	24 Months or Less	
Age						27.3***
Children (under age 18)	2,772	11	22.8	54.9	73.9	
Nonelderly adults (age 18 - 59)	3,299	8	30.3	60.9	76.5	
Elderly adults (age 60 and over)	563	12	32.9	52.5	60.9	
Sex						28.3***
Male (age 18 and over)	1,466	8	36.6	65.6	79.7	
Female (age 18 and over)	2,396	11	26.6	56.1	71.1	
Race/Ethnicity [a]						44.1***
White, Non-Hispanic	3,093	9	29.5	60.3	78.9	
African American, Non-Hispanic	1,673	12	26.7	54.3	67.6	
Hispanic, all races	1,252	10	26.3	58.3	75.1	
Asian, Non-Hispanic	92	20	19.5	40.1	54.1	
Other, Non-Hispanic	524	9	22.7	58.9	70.8	
Education						47.3***
Individuals in families with HS graduate	5,579	9	28.2	59.6	75.7	
Individuals in families with no HS graduate	1,055	13	23.5	49.1	67.4	
Citizenship						
Citizen	6,302	10	27.2	57.8	74.6	
Noncitizen	332	8	31.0	59.9	69.7	
Citizen children living with noncitizen adults in the family	305	10	21.4	52.4	78.8	
Adults in families with citizen adults and citizen children	2,012	9	28.5	61.4	77.0	48.2***
Children in families with citizen adults and citizen children	2,479	12	21.7	54.6	73.6	
Adults in families with noncitizen adults and citizen children	137	8	27.0	60.1	71.7	
Children in families with noncitizen adults and citizen children	241	8	31.8	56.3	77.1	

Table II.12, *continued*

Subgroup	Sample Size	Median Participation Spell (Months)	Cumulative Exit Rate (Percent)			Log-Rank Statistic to Test Differences across Subgroups
			4 Months or Less	12 Months or Less	24 Months or Less	
Presence of Income						
Individuals in families with no income	524	15	20.9	45.2	67.6	16.0***
Individuals in families with income	6,110	9	28.0	59.0	74.9	
Presence of Earnings						122.9***
Individuals in families with earnings	4,291	8	30.2	61.9	78.9	
Individuals in families without earnings	2,343	12	22.2	50.3	66.6	
Presence of TANF						
Individuals in families with TANF	416	10	32.1	58.5	74.1	
Individuals in families without TANF	6,218	10	27.1	57.8	74.3	
Other Income						
Individuals in families with Social Security income	1,664	9	29.6	58.0	71.7	16.2***
Individuals in families without Social Security income	4,970	10	26.8	57.9	75.2	
Individuals in families with SSI	1,195	11	28.5	58.7	71.2	
Individuals in families without SSI	5,439	10	27.3	57.8	75.1	
Individuals in families with unemployment compensation	310	8	31.3	67.2	88.9	7.8***
Individuals in families with no unemployment compensation	6,324	10	27.3	57.4	73.6	

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: Reference Months: 3 to 31

Sample: SNAP spells

Subgroups: Characteristics in month before SNAP spell began

The log-rank test compares the estimated monthly hazard rate to the expected monthly hazard rate where the expected rate is calculated based on the null hypothesis that the hazard rate is the same for each time period of the subgroup category. We do not reject the null hypothesis that the distributions are the same across categories if the aggregate difference between the estimated and expected hazard rate is small relative to the aggregate variance of the difference. We reject the null hypothesis if the difference is large.

[a] Categories are race *alone*; respondents who reported multiple races are in the Other, Non-Hispanic category

2. Cross-Sectional Analysis

While a cohort analysis provides a wealth of information about those just entering SNAP, it does not inform us about those already participating, so we turn to our cross-sectional sample, which consists of all individuals participating in SNAP in a given month. For this group, we consider such questions as: How many additional months will they spend in the program? What will be the total length of their spell? For the first question, we estimate *subsequent* spell lengths, and for the second, we estimate *completed spell lengths.*

a. Sample and Methods

Our cross-sectional sample includes all individuals receiving SNAP benefits in May 2004.[33] It is the month in the second wave of data that all respondents have in common. We then use characteristics of individuals in May 2004 to assign them to subgroups, similar to those we use in the entry and entry cohort duration analyses. The cross-sectional sample consists of spells. About 45 percent ended within the panel period, with the remainder being right-censored.

As with the entry cohort analysis, we use life tables to address the relevant questions. For the life table of subsequent spell lengths, May 2004 is treated as month 1 for all cross-sectional sample members. For the life table of completed spell lengths, the first month of the spell is treated as month 1.

b. Subsequent Spell Lengths in the 2004 Panel and Comparisons over Time

For subsequent spell lengths of our cross-sectional sample, average spells were much longer than in our new entry cohort, even though we only consider the spell duration from May forward. The median subsequent spell length for the cross-sectional sample was over 27 months (the data

[33] May 2004 is the fifth panel month for those in rotation group 4, the sixth panel month for those in rotation group 3, the seventh panel month for those in rotation group 2 and the eighth panel month for those in rotation group 1.

support only the estimation of spell lengths at or less than 27 months), with 30.8 percent having a 12 month spell length and 46.7 having a 24 month spell length (see Table II.13). This compares with a median of 10 months for individuals in the entry cohort sample.

As in previous studies, we expect to see the longer spell lengths within the cross-sectional sample, when compared with the entry cohort (Gleason et al. 1998; Cody et al. 2005; Cody et al. 2007). For any month of the sample we choose, we will miss many of the short spells that occur within the sample period—they are likely to be completed before or begin after our sample month. Longer spells, however, are more likely to include our sample month. For this reason, the longer spells are more heavily represented in the cross-sectional than in the entry cohort sample.

Table II.13 Life Table of Subsequent Spell Length for the Full Cross-Sectional Sample

Month	Number of Spells at Beginning of Month	Number In-Sample in Following Month	Number Exiting During Following Month	Survivor Rate	Hazard Rate	Cumulative Exit Rate	Standard Error of Survivor Rate
	(a)	(b)	(c)	(d)	(e)	(f)	(g)
1	21,381,163	21,351,297	870,119	95.9	4.1	4.1	0.3
2	20,481,178	20,408,225	793,986	92.2	3.9	7.8	0.4
3	19,614,238	19,570,684	733,405	88.7	3.7	11.3	0.5
4	18,837,280	18,794,091	829,426	84.8	4.4	15.2	0.5
5	17,964,665	17,931,403	545,210	82.2	3.0	17.8	0.6
6	17,386,193	17,357,540	347,603	80.6	2.0	19.4	0.6
7	17,009,937	16,963,446	478,833	78.3	2.8	21.7	0.6
8	16,484,613	16,457,837	473,906	76.1	2.9	23.9	0.6
9	15,983,930	15,982,485	501,941	73.7	3.1	26.3	0.7
10	15,480,544	15,469,065	278,782	72.3	1.8	27.7	0.7
11	15,190,283	15,162,813	400,783	70.4	2.6	29.6	0.7
12	**14,762,030**	**14,720,172**	**261,489**	**69.2**	**1.8**	**30.8**	**0.7**
13	14,458,683	14,443,520	408,792	67.2	2.8	32.8	0.7
14	14,034,728	14,020,615	362,298	65.5	2.6	34.5	0.7
15	13,658,317	13,650,190	296,881	64.1	2.2	35.9	0.7
16	13,353,309	13,342,828	316,766	62.5	2.4	37.5	0.7
17	13,026,062	13,022,161	247,881	61.4	1.9	38.6	0.7
18	12,774,280	12,757,511	234,437	60.2	1.8	39.8	0.7
19	12,523,073	12,507,925	151,454	59.5	1.2	40.5	0.7
20	12,356,472	12,350,548	338,491	57.9	2.7	42.1	0.7
21	12,012,056	12,010,231	194,432	56.9	1.6	43.1	0.7
22	11,815,800	11,814,077	266,241	55.6	2.3	44.4	0.7
23	11,547,836	11,547,836	217,952	54.6	1.9	45.4	0.7
24	**11,329,883**	**11,317,162**	**262,637**	**53.3**	**2.3**	**46.7**	**0.7**
25	11,054,525	8,356,784	99,811	52.7	1.2	47.3	0.7
26	8,256,973	5,635,446	29,229	52.4	0.5	47.6	0.5
27	**5,606,217**	**3,040,804**	**50,657**	**51.5**	**1.7**	**48.5**	**0.0**

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: Reference Months: May 2004 and subsequent months

Sample: SNAP spells

Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. Column (b) indicates the number of the spells from (a) that we continue to observe in the following month (that is, spells that are not right censored). Column (c) is the number of spells from (b) that exit the SNAP in the following month. The hazard rate (e) is 100*(c)/(b). The cumulative exit rate (f) is sum of the previous row's cumulative exit rate and the product of the current row's hazard rate and previous row's survivor rate, divided by 100.

The change in the number of spells from the first row of the table to the last row reflects losses due to both SNAP exits and right censoring. In the top rows of the table, with the shorter participation spells, more of the loss is due to exits, while in the bottom rows of the table, with the longer participation spells, more of the loss

is due to right censoring. For example, at 6 months, column (c) shows that 0.3 million spells end; subtracting column (b) from column (a) shows that less than 30,000 spells are right censored and no longer included in the sample. On the other hand, at 27 months, 51,000 spells end but 2.6 million spells are lost due to right censoring. Spells of individuals who leave the universe (for example, due to a move to group quarters, exit from the country, or death) before an exit is observed are right-censored and are not incorporated into the exit rate.

c. Subsequent Spell Lengths, by Subgroup

Patterns of subsequent spell lengths among subgroups of the cross-sectional sample (see Table II.14) are similar to the patterns for the entry cohort (see Table II.12). Elderly members living with no other family members or with only other elderly family members have longer participation spells than all other subgroups we examine. Only 17.8 percent of elderly members living with no other family members and 15.7 percent of elderly members living with only other elderly family members have ended their participation spell within two years. In contrast, 69.7 percent of individuals in families without any children or elderly or disabled members exit within 24 months or less; one-third exit within 4 months. Thus, there are a higher proportion of individuals in families without children, elderly, or disabled members exiting within 4 months than there are elderly individuals living with no other family members or with only other elderly family members exiting within 24 months.

Table II.14 Subsequent Spell Length for the Full Cross-Sectional Sample by Subgroups

Subgroup	Sample Size	Median Participation Spell (Months)	Cumulative Exit Rate (Percent)			Log-Rank Statistic to Test Differences across Subgroups
			4 Months or Less	12 Months or Less	24 Months or Less	
All Individuals	5,619	> 27	15.2	30.8	46.7	
Family Composition						265.3***
Individuals in families with children	4,201	27	15.0	32.1	48.8	
Adults in families with children and one adult	632	> 27	11.7	29.9	43.3	
Children in families with children and one adult	1,285	> 27	10.0	26.6	41.4	
Adults in families with children and multiple adults	402	18	23.4	41.8	56.4	
Children in families with children and multiple adults	467	23	15.3	31.6	51.4	
Adults in families with children and a married head	635	22	19.0	35.7	52.5	
Children in families with children and a married head	757	21	17.6	34.3	56.1	
Children in child-only families	23	> 27	10.2	41.0	47.5	
Individuals in families without children	1,418	> 27	15.6	26.6	39.8	
Individuals in families with elderly members	656	> 27	10.7	19.5	28.3	
Elderly members living alone	316	> 27	4.9	10.3	17.8	
Elderly members living with other elderly individuals	129	> 27	5.8	8.7	15.7	
Elderly members living with non-elderly individuals	198	27	19.5	36.2	48.3	
Individuals in families with disabled members	525	> 27	11.0	20.2	35.0	
Individuals in families without any elderly or disabled members	237	11	33.0	51.3	69.7	
Age and Disability						151.3***
Nonelderly disabled adults	930	> 27	9.8	19.6	34.0	
Nonelderly nondisabled childless adults	256	11	33.2	51.3	71.1	
Family Income						310.7***
Under 50 percent of poverty	1,202	> 27	9.6	25.6	40.8	
50 to under 100 percent of poverty	2,127	> 27	9.9	23.2	38.6	
100 to under 200 percent of poverty	1,488	20	20.1	36.9	55.9	
200 or more percent of poverty	446	10	34.9	55.8	67.1	

Table II.14, continued

Subgroup	Sample Size	Median Participation Spell (Months)	Cumulative Exit Rate (Percent)			Log-Rank Statistic to Test Differences across Subgroups
			4 Months or Less	12 Months or Less	24 Months or Less	
Age						105.1***
Children (under age 18)	2,532	> 27	13.3	30.0	47.8	
Nonelderly adults (age 18 - 59)	2,468	25	18.3	34.5	49.9	
Elderly adults (age 60 and over)	619	> 27	8.7	16.0	23.7	
Sex						38.0***
Male (age 18 and over)	935	21	23.4	39.8	54.1	
Female (age 18 and over)	2,152	> 27	13.4	27.4	41.7	
Race/Ethnicity [a]						62.2***
White, Non-Hispanic	2,372	23	17.4	34.6	51.8	
African American, Non-Hispanic	1,756	> 27	10.4	26.8	40.9	
Hispanic, all races	965	> 27	15.7	28.9	45.1	
Asian, Non-Hispanic	91	> 27	14.3	17.9	29.0	
Other, Non-Hispanic	435	20	25.8	39.7	56.3	
Education						62.0***
Individuals in families with HS graduate	4,280	25	15.9	33.1	49.7	
Individuals in families with no HS graduate	1,339	> 27	12.9	23.6	37.2	
Citizenship						
Citizen	5,385	> 27	14.6	30.4	46.3	9.0***
Noncitizen	234	20	26.5	38.3	53.6	
Citizen children living with noncitizen adults in the family	205	20	15.0	31.4	58.0	6.3**
Adults in families with citizen adults and citizen children	1,545	25	16.2	34.3	49.4	38.2***
Children in families with citizen adults and citizen children	2,343	> 27	12.5	29.4	46.8	
Adults in families with noncitizen adults and citizen children	108	22	21.7	36.7	52.9	
Children in families with noncitizen adults and citizen children	156	20	18.1	31.9	57.9	

Table II.14, continued

Subgroup	Sample Size	Median Participation Spell (Months)	Cumulative Exit Rate (Percent)			Log-Rank Statistic to Test Differences across Subgroups
			4 Months or Less	12 Months or Less	24 Months or Less	
Presence of Income						115.8***
Individuals in families with no income	359	> 27	16.3	32.5	47.6	
Individuals in families with income	5,260	> 27	15.1	30.7	46.6	
Presence of Earnings						345.2***
Individuals in families with earnings	2,870	19	20.7	39.9	57.9	
Individuals in families without earnings	2,749	> 27	8.7	20.3	33.6	
Presence of TANF						17.6***
Individuals in families with TANF	1,029	> 27	12.8	28.1	42.7	
Individuals in families without TANF	4,590	> 27	15.8	31.5	47.7	
Other Income						
Individuals in families with Social Security income	1,576	> 27	12.3	26.7	41.3	
Individuals in families without Social Security income	4,043	27	16.2	32.3	48.5	
Individuals in families with SSI	1,467	> 27	10.7	21.5	35.8	
Individuals in families without SSI	4,152	24	16.7	33.9	50.3	
Individuals in families with unemployment compensation	125	8	29.7	60.3	68.8	27.6***
Individuals in families with no unemployment	5,494	> 27	14.8	30.1	46.1	

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: Reference Months: May 2004 and subsequent months

Sample: SNAP spells

Subgroups: Characteristics in month before SNAP spell began

The log-rank test compares the estimated monthly hazard rate to the expected monthly hazard rate where the expected rate is calculated based on the null hypothesis that the hazard rate is the same for each time period of the subgroup category. We do not reject the null hypothesis that the distributions are the same across categories if the aggregate difference between the estimated and expected hazard rate is small relative to the aggregate variance of the difference. We reject the null hypothesis if the difference is large.

[a] Categories are race *alone*; respondents who reported multiple races are in the Other, Non-Hispanic category

d. Completed Spell Lengths in the 2004 Panel and Comparisons over Time

We also measured the completed lengths of participation spells (adding receipt prior to May 2004 to the subsequent receipt) for the cross-sectional sample of participants. Only 8.0 percent of participants in May 2004 had a completed spell length of six months or less, 17.4 percent had spells that lasted for one year or less, and 28.6 percent had spells that lasted two years or less (Table II.15). Half of the cross section of SNAP participants exited the program within seven years. The first 25 percent to exit do so within two years; however, an additional five years pass before another 25 percent have exited.

Table II.15 Life Table of the Completed Length of SNAP Spells for the Full Cross-Sectional Sample

Years	Number of Spells at Beginning of Month	Number In-Sample in Following Month	Number Exiting During Following Month	Survivor Rate	Hazard Rate	Cumulative Exit Rate
	(a)	(b)	(c)	(d)	(e)	(f)
0.5	**21,183,603**	**21,135,401**	**1,693,625**	**92.0**	**8.0**	**8.0**
1.0	**19,441,776**	**19,302,100**	**1,972,854**	**82.6**	**10.2**	**17.4**
1.5	17,329,247	17,282,052	1,189,134	76.9	6.9	23.1
2.0	**16,092,917**	**16,056,446**	**1,147,134**	**71.4**	**7.1**	**28.6**
3.0	14,909,312	11,393,154	1,341,933	63.0	11.8	37.0
4.0	10,051,221	8,161,423	587,047	58.5	7.2	41.5
5.0	7,574,376	6,806,513	308,469	55.8	4.5	44.2
6.0	6,498,044	5,821,143	435,373	51.6	7.5	48.4
7.0	**5,385,770**	**4,652,415**	**179,725**	**49.6**	**3.9**	**50.4**
8.0	4,472,690	3,940,466	198,700	47.1	5.0	52.9

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: Reference Months: 1 to 31

Sample: SNAP spells that were underway in May 2004

Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. Column (b) indicates the number of the spells from (a) that we continue to observe in the following month (that is, spells that are not right censored). Column (c) is the number of spells from (b) that exit the SNAP in the following month. The hazard rate (e) is 100*(c)/(b). The cumulative exit rate (f) is sum of the previous row's cumulative exit rate and the product of the current row's hazard rate and previous row's survivor rate, divided by 100.

The change in the number of spells from the first row of the table to the last row reflects losses due to both SNAP exits and right censoring. In the top rows of the table, with the shorter participation spells, more of the loss is due to exits, while in the bottom rows of the table, with the longer participation spells, more of the loss is due to right censoring. For example, at 1 year, column (c) shows that 2.0 million spells end; subtracting column (b) from column (a) shows that 0.1 million spells are right censored and no longer included in the sample. On the other hand, at 7 years, 0.2 million spells end but 0.7 million spells are lost due to right censoring. Spells of individuals who leave the universe (for example, due to a move to group quarters, exit

from the country, or death) before an exit is observed are right-censored and are not incorporated into the exit rate.

The estimate of the median completed spell length of seven years for the May 2004 cross-sectional sample is longer than the medians found for the mid-1990s and early 2000s (Cody et al. 2007; Cody et al. 2005), which were 3.5 years and 4 years, respectively (Table II.16).[34] The median is closer to the Gleason et al. (1998) findings for the early 1990s of 8 years. Figure II.7 shows the cumulative exit rates for each of the timeframes—the cross-sectional sample from 2004 closely resembles the 1996 sample for shorter spells, but resembles the 1991 findings for the longer spells.

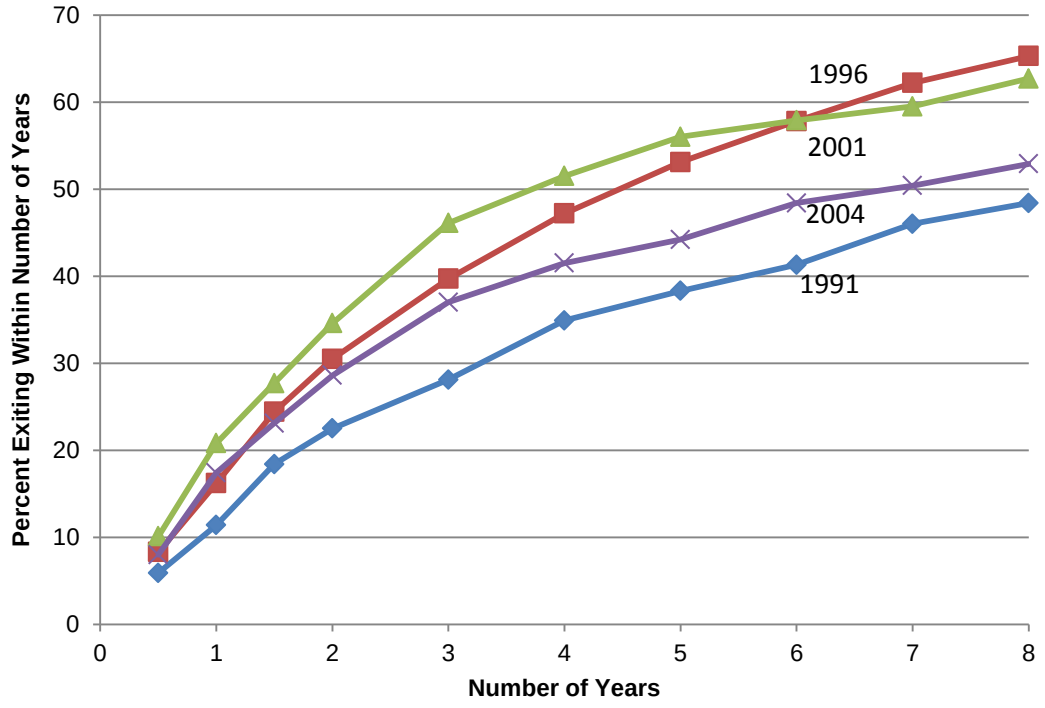
Table II.16 Comparison of Spell Lengths and Exit Rates for Completed Spells Using Cross-Sectional Samples

	1991-1993	1993-1996	1996-1999	2001-2003	2004-2006
Median Spell Length (Months)	>96	54	54	48	84
Cumulative Exit Rate					
6 Months or Less	5.9	NA	8.3	10.1	8.0
12 Months or Less	11.4	NA	16.2	20.8	17.4
24 Months or less	18.4	NA	30.5	27.7	28.6

Sources: 2004-2006: Decision Demographics weighted tabulations of the 2004 SIPP panel; 2001-2003: Cody et al. (2007); 1996-1999 Cody et al. (2005); 1993-1996: Cody et al. (2005); 1990-1993 Gleason, et al. (1998)

[34] The recipiency history topical module survey instrument underwent several modifications between 2001 and 2004, including changes in question wording and ordering. Though this may have had an effect on comparisons over time, the direction of the effect is unclear. These changes are discussed in Appendix A.

Figure II.7 Cumulative Exit Rates for Cross-Sectional Sample, Comparison over Time



e. Completed Spell Lengths, by Subgroup

Not surprisingly, individuals in families without any children, elderly, or disabled members have the shortest completed spell length (Table II.17). Many of these individuals are subject to time limits. Almost one quarter of them exit within six months and over half exit within two years. In contrast, only 13.4 percent of elderly individuals with no other persons in their family and 19.9 percent of elderly individuals living in families with only other elderly individuals exit within eight years.

Table II.17 Completed Length of SNAP Spells for the Full Cross-Sectional Sample by Subgroups

Subgroup	Sample Size	Cumulative Exit Rate (Percent)									
		.5 Yrs or Less	1 Yr or Less	1.5 Yrs or Less	2 Yrs or Less	3 Yrs or Less	4 Yrs or Less	5 Yrs or Less	6 Yrs or Less	7 Yrs or Less	8 Yrs or Less
All Individuals	5,570	8.0	17.4	23.1	28.6	37.0	41.5	44.2	48.4	50.4	52.9
Family Composition											
Individuals in families with children	4,152	7.4	17.1	23.6	29.1	38.3	43.7	46.8	**51.6**	**53.8**	**56.5**
Adults in families with children and one adult	632	4.8	12.6	19.3	23.8	33.8	40.4	43.0	48.6	**50.1**	**51.4**
Children in families with children and one adult	1,261	3.3	10.3	16.3	20.9	30.8	37.1	39.9	45.8	47.2	**50.1**
Adults in families with children and multiple adults	402	13.4	28.4	33.8	38.2	44.8	49.6	**51.9**	**55.3**	**59.5**	**61.0**
Children in families with children and multiple adults	461	6.7	18.7	23.7	28.9	35.7	40.0	44.3	46.8	49.6	**54.1**
Adults in families with children and a married head	635	10.8	23.0	30.0	36.9	47.7	**51.7**	**55.3**	**58.9**	**60.9**	**64.6**
Children in families with children and a married head	739	10.2	19.0	27.6	35.2	44.7	49.8	**53.2**	**59.3**	**61.9**	**65.0**
Children in child-only families	22	10.5	17.2	17.2	17.2	26.9	32.1	32.1	32.1	32.1	32.1
Individuals in families without children	1,418	9.8	18.5	21.5	27.0	32.7	34.6	35.9	38.1	39.5	41.3
Individuals in families with elderly members	656	5.9	12.9	14.5	18.6	21.1	22.0	23.3	24.0	25.7	27.8
Elderly members living alone	316	1.4	4.0	5.2	8.8	9.1	10.0	10.9	11.4	12.1	13.4
Elderly members living with other elderly individuals	129	5.3	7.1	7.1	8.6	9.3	10.0	10.0	14.2	14.2	19.9
Elderly members living with non-elderly individuals	198	11.9	26.8	30.0	34.4	41.9	42.4	45.4	46.3	**50.8**	**52.0**
Individuals in families with disabled members	525	6.0	11.2	14.6	19.5	27.0	29.2	30.7	34.4	36.0	36.4
Individuals in families without any elderly or disabled members	237	24.0	41.8	47.1	**56.0**	**65.0**	**68.7**	**69.9**	**72.7**	**72.7**	**78.9**

Table II.17, *continued*

Subgroup	Sample Size	Cumulative Exit Rate (Percent)									
		.5 Yrs or Less	1 Yr or Less	1.5 Yrs or Less	2 Yrs or Less	3 Yrs or Less	4 Yrs or Less	5 Yrs or Less	6 Yrs or Less	7 Yrs or Less	8 Yrs or Less
Age and Disability											
Nonelderly disabled adults	930	4.9	11.0	14.5	18.7	25.7	28.0	29.7	32.8	35.4	36.0
Nonelderly nondisabled childless adults	256	24.6	40.5	47.4	**57.8**	**68.8**	**72.3**	**74.2**	**74.2**	**75.5**	**78.2**
Family Income											
Under 50 percent of poverty	1,186	3.6	10.8	16.5	21.4	29.9	35.4	38.3	43.5	45.4	47.6
50 to under 100 percent of poverty	2,107	3.9	10.6	15.9	21.1	28.9	32.1	34.3	37.3	40.6	42.4
100 to under 200 percent of poverty	1,481	11.2	24.4	30.2	35.3	45.3	**51.1**	**54.8**	**59.9**	**61.0**	**64.3**
200 or more percent of poverty	444	24.1	39.6	44.2	**53.7**	**63.4**	**67.5**	**69.7**	**72.8**	**72.8**	**77.3**
Age											
Children (under age 18)	2,483	6.1	14.5	21.1	26.7	35.8	41.3	44.6	49.8	**51.8**	**55.0**
Nonelderly adults (age 18 – 59)	2,468	10.5	21.6	27.4	33.1	42.2	46.5	48.8	**52.7**	**54.9**	**56.7**
Elderly adults (age 60 and over)	619	4.5	9.9	11.0	14.7	15.6	16.8	18.4	19.3	20.0	22.4
Sex											
Male (age 18 and over)	935	14.5	27.8	33.0	39.4	48.0	**51.5**	**53.1**	**57.5**	**61.0**	**63.5**
Female (age 18 and over)	2,152	7.2	15.8	20.6	25.6	33.1	37.0	39.3	42.4	43.8	45.5
Race/Ethnicity [a]											
White, Non-Hispanic	2,355	9.7	20.4	26.2	34.0	44.1	48.4	**51.0**	**56.4**	**58.5**	**61.0**
African American, Non-Hispanic	1,740	4.7	12.6	18.4	21.6	29.4	34.3	36.8	40.9	42.5	44.0
Hispanic, all races	954	9.6	20.2	25.2	30.6	35.4	39.1	41.5	44.8	46.9	**51.5**
Asian, Non-Hispanic	91	0.8	2.3	2.3	6.6	20.0	26.5	26.5	26.5	26.5	26.5
Other, Non-Hispanic	430	11.4	18.5	27.2	30.1	42.5	49.9	**55.3**	**57.2**	**60.6**	**62.8**
Education											
Individuals in families with HS graduate	4,247	8.7	19.2	25.2	30.8	40.0	44.9	47.9	**52.3**	**54.6**	**57.0**
Individuals in families with no HS graduate	1,323	5.8	11.8	16.5	21.6	27.7	31.3	32.9	36.4	37.6	40.2

Table II.17, *continued*

Subgroup	Sample Size	Cumulative Exit Rate (Percent)									
		.5 Yrs or Less	1 Yr or Less	1.5 Yrs or Less	2 Yrs or Less	3 Yrs or Less	4 Yrs or Less	5 Yrs or Less	6 Yrs or Less	7 Yrs or Less	8 Yrs or Less
Citizenship											
Citizen	5,336	7.6	17.1	22.9	28.4	36.9	41.5	44.1	48.3	**50.1**	**52.6**
Noncitizen	234	15.0	24.2	27.5	32.5	38.2	41.8	45.7	**50.2**	**54.7**	**58.6**
Citizen children living with noncitizen adults in the family	200	8.7	18.0	27.2	38.0	44.9	49.6	**52.9**	**57.4**	**60.7**	**66.1**
Adults in families with citizen adults and citizen children	1,545	8.3	19.9	26.5	32.0	41.8	46.8	49.1	**53.1**	**55.4**	**57.0**
Children in families with citizen adults and citizen children	2,300	5.4	14.2	20.8	26.0	35.3	40.8	44.0	49.1	**50.8**	**53.8**
Adults in families with noncitizen adults and citizen children	108	13.1	20.1	25.4	30.2	34.8	44.1	**55.1**	**65.1**	**71.6**	**79.0**
Children in families with noncitizen adults and citizen children	151	11.5	17.7	23.6	34.0	41.3	48.1	**52.9**	**61.3**	**71.8**	**81.0**
Presence of Income											
Individuals in families with no income	355	10.3	19.5	28.0	33.3	38.8	44.0	44.9	**50.8**	**51.9**	**51.9**
Individuals in families with income	5,215	7.9	17.3	22.8	28.3	36.9	41.4	44.1	48.2	**50.3**	**52.9**
Presence of Earnings											
Individuals in families with earnings	2,836	11.2	24.3	30.6	36.8	48.2	**53.8**	**57.2**	**62.2**	**64.2**	**67.1**
individuals in families without earnings	2,734	4.3	9.5	14.4	19.2	24.1	27.4	29.3	32.5	34.5	36.6
Presence of TANF											
Individuals in families with TANF	1,019	5.3	15.2	20.4	25.5	35.1	40.0	41.6	44.2	44.8	46.4
Individuals in families without TANF	4,551	8.7	18.0	23.8	29.4	37.5	41.9	44.8	49.4	**51.7**	**54.4**

Table II.17, *continued*

Subgroup	Sample Size	Cumulative Exit Rate (Percent)									
		.5 Yrs or Less	1 Yr or Less	1.5 Yrs or Less	2 Yrs or Less	3 Yrs or Less	4 Yrs or Less	5 Yrs or Less	6 Yrs or Less	7 Yrs or Less	8 Yrs or Less
Other Income											
Individuals in families with Social Security income	1,573	6.6	15.2	19.8	25.3	29.8	31.9	35.0	38.2	40.1	43.8
Individuals in families without Social Security income	3,997	8.5	18.2	24.3	29.8	39.5	45.0	47.5	**52.0**	**54.1**	**56.2**
Individuals in families with SSI	1,463	5.5	11.6	16.0	19.5	25.1	26.7	29.3	32.4	33.9	35.4
Individuals in families without SSI	4,107	8.9	19.4	25.5	31.6	41.0	46.8	49.5	**54.2**	**56.5**	**59.6**
Individuals in families with unemployment compensation	125	19.7	33.1	44.4	**57.6**	**60.8**	**71.3**	**80.7**	**80.7**	**80.7**	**80.7**
Individuals in families with no unemployment compensation	5,445	7.7	17.0	22.6	27.9	36.4	40.9	43.4	47.7	49.7	**52.2**

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: [a] Categories are race *alone*; respondents who reported multiple races are in the Other, Non-Hispanic category

Reference Months: 1 to 31

Sample: SNAP spells that were underway in May 2004

C. Exiting SNAP

Our analysis of SNAP spell lengths tells us how long individuals stay in SNAP before they exit. We now turn to examining the life events that might lead to their exit in order to estimate how many individuals leave SNAP in the period covered by the 2004 SIPP panel for reasons that are not related to improved financial circumstances or reduced need as measured in SIPP. To answer this question, we will determine (1) what types of events most often precede a SNAP exit; (2) how often an exit is preceded by an observed trigger event; and (3) whether trigger events differ with characteristics of the participants.

As with entry trigger events, we cannot directly identify the reason individuals stop receiving SNAP benefits, but we can examine their life circumstances (and changes in their life circumstance) immediately around the time they leave the program to try to understand more about why they exited. In this analysis, we use SIPP data on SNAP participants' circumstances to define a set of trigger events that are analogous to the entry trigger events discussed in Section A. We then examine the extent to which these exit trigger events precede SNAP exits.

1. Methods

We choose our exit and entry triggers in much the same way, primarily based on the triggers found relevant in Cody et al. (2007), Gleason et al. (1998), and Burstein (1993). We define exits only for the at-risk population, which consists of all individuals who participated in SNAP for the previous two months. We examine SNAP exits in sample months 6 through 31 of the SIPP panel period and allow individuals to contribute more than one observation to the data set.[35] We

[35] An exit in month 6 is defined as participating in SNAP in month 5 and not participating in month 6. Thus, while exits are defined in months 6 to 31, they are based on participation data from months 5 to 30.

define exiting SNAP as not receiving SNAP benefits in the sample month or the following month.[36]

We look for exit trigger events that occurred during the sample month or any of the three previous months. Unlike the definitions used for entry trigger events, we shift the window to include the sample month, because some participants may exit SNAP in the same month that their circumstances change. In entry, the circumstances may need to have changed for a person to become eligible, but they may exit knowing that circumstances are about to change (for example, that he or she is starting a new job the following week).

We use the following trigger events in this analysis:

- Increase in family earnings (10 percent or more)
- Increase in other family income (10 percent or more)
- Departure of family member without income
- Departure of family member with income
- New adult family member
- New child family member

2. Distribution of Exit Trigger Events Among All SNAP Participants in the 2004 Panel

The most common exit trigger event was an increase in family income, with almost two-thirds of the sample experiencing the event at some time during the panel (Table II.18). About one-quarter of the participants who experienced an increase in earnings left within four months of the increase.

[36] Because of our practice of closing up both one-month gaps in participation and one-month spells, a true exit must consist of two months of participation followed by two months of nonparticipation.

Other trigger events such as family composition changes were less common than increases in income, but the triggers still led to similar exit rates among SNAP participants. For example, 43.3 percent of SNAP participants had a family member with income leave; 48.1 percent of SNAP participants had a family member without income leave. In each case, close to one-quarter of the participants who experienced a decrease in family size left within four months of the decrease.

Twenty-five percent of SNAP exiters did not experience a trigger event related to improved financial circumstances or reduced need, as measured by changes in income and family composition. Seventy-five percent of SNAP exiters experienced at least one trigger event within the four-month window, with 43.2 percent experiencing multiple events. Mirroring the incidence of the trigger events among SNAP participants, SNAP exiters were most likely to have experienced an increase in earnings (46.4 percent) relative to other trigger events.

Table II.18 Occurrence of SNAP Exit Trigger Events

Trigger Event	Percent of SNAP Participants that Experienced the Event during the Panel	Percent of Persons that Experienced the Trigger then Exited SNAP within 4-Month Window	Percent of Persons Exiting SNAP that Experienced the Trigger within Previous 4 Months
Increase in Income			
Earnings	63.9	24.0	46.4
Other income	63.8	17.5	32.0
Change in Family Composition			
Family Size Decreases			
Member without income leaves	48.1	23.1	24.7
Member with income leaves	43.3	22.2	22.0
Family Size Increases			
New Child	16.1	18.6	5.0
New Adult	19.2	23.5	7.8
Other	2.9	13.5	0.7
Distribution of Trigger Events	100.0	NA	100.0
Experienced no trigger events	11.6	NA	25.0
Experienced any single trigger event	19.0	NA	31.8
Experienced multiple events	69.4	NA	43.2
Experienced any trigger event	88.4	21.2	75.0
Leaves the Sample [a]	1.9	100.0	2.8
Sample Size	9,894	149,773	5,726

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: Individuals receiving SNAP benefits for at least 2 months

Reference Months: 3 to 31

Sample: Persons for percent experiencing event at some point during panel; person-months of participants for percent exiting within specified number of months of experiencing event; persons exiting SNAP for percent of exiters

[a] Individuals who die, are institutionalized, enter the armed forces and live in army barracks, or leave the country are removed from the SIPP sample. We assume that any one of these reasons would also lead to SNAP exit and assign the sample exit as the exit trigger.

3. Changes in the Distribution of Exit Trigger Events Among All SNAP Participants from the Early- to Mid-2000s

A slightly smaller percentage of SNAP participants experienced exit trigger events in the mid-2000s than in the early-2000s. About 88.4 percent of participants experienced any trigger event during the 2004-2006 panel, down from 90.6 percent during the 2001-2003 panel (Figure

II.8). Though the percentage of participants who experienced an increase in earnings decreased over time, from 72.3 to 63.9 percent, the percentage who experienced an increase in other income increased from 58.3 to 63.8 percent. Despite this event, and others, becoming more common among SNAP participants, the percentages of SNAP participants experiencing the trigger event who exited within four months decreased over time for every type of trigger (Figure II.9).

Figure II.8 Percentage of SNAP Participants Experiencing Event, Comparison over Time

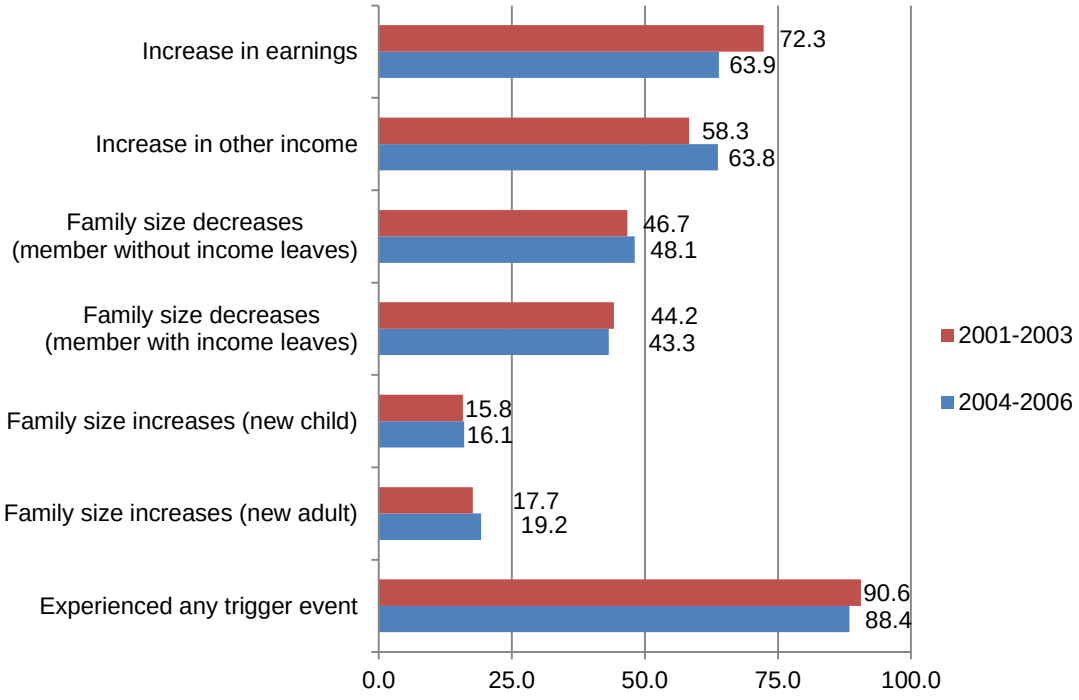
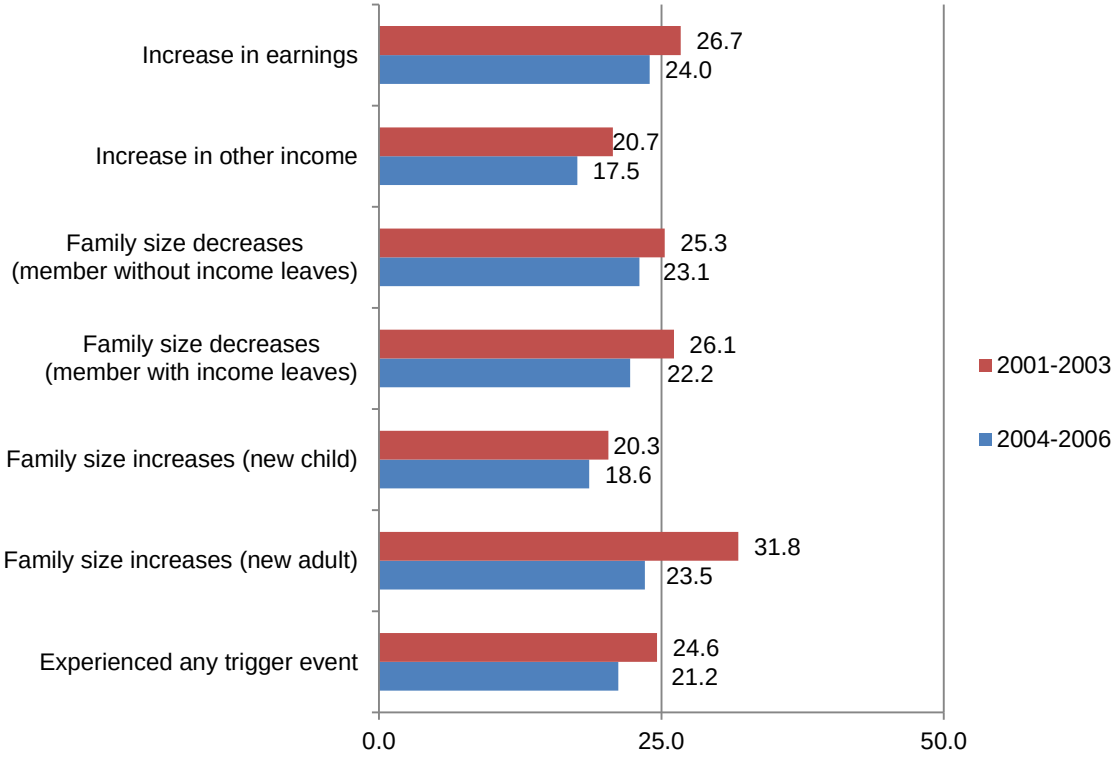


Figure II.9 Percentage of SNAP Participants Who Exited SNAP within Four Months of Experiencing Event, Comparison over Time



4. Distribution of Exit Trigger Events among Subgroups in the 2004 Panel

Exit rates differed based on the participants' characteristics in the month before the spell began (Table II.19). Twenty-three percent of SNAP participants in families with children that experience an increase in earnings exit the program within four months, compared to 34.3 percent of participants in families without children. Among participants in families with children, this percentage varies from 17.8 percent for children in single-adult families to 21.4 percent for children in families with multiple adults to 24.4 percent for children in families with a married head. For adults in these families, this percentage varies from 20.4 percent for adults in single-adult families to around 27 percent for adults in families with multiple adults and adults in families with a married head. Not surprisingly, there is also a differential by income, with 17.9

percent of participants with income under 50 percent of poverty exiting SNAP within four months of experiencing an increase in earnings, compared to 40.3 percent of participants with income above 200 percent of poverty—with the comparison to poverty measured prior to the increase.

Changes in family size (in either direction) are strongly associated with SNAP exit for participants in families with elderly members, especially elderly members living with non-elderly individuals (43.4 and 44.8 percent, respectively, among those with a decrease in family size). Indeed, the probability of exiting SNAP following a decrease in family size increases with participants' age, from 22.1 percent for children, 33.4 percent for nonelderly adults, to 48.4 percent for elderly adults. There is also a striking gender differential, with 46.3 percent of males exiting SNAP after experiencing a decrease in family size, compared to 29.7 percent of females.

Table II.19 Occurrence of SNAP Exit Events by Subgroups

Subgroup	Percentage of Individuals Exiting SNAP within 4 Months of the Trigger Event (Not Mutually Exclusive)					
	None	Increase in Earnings	Increase in Other Income	Increase in Family Size	Decrease in Family Size	Any Trigger [a]
All Individuals	14.1	24.0	17.5	22.2	28.9	21.4
Family Composition						
Individuals in families with children	14.5	22.6	17.2	19.8	27.2	20.2
Adults in families with children and one adult	11.4	20.4	14.9	21.4	35.0	17.3
Children in families with children and one adult	10.8	17.8	13.3	18.1	23.0	15.0
Adults in families with children and multiple adults	18.6	26.8	20.8	27.0	28.8	24.9
Children in families with children and multiple adults	15.6	21.4	15.4	19.6	19.0	18.6
Adults in families with children and a married head	17.3	26.6	22.3	18.3	36.7	25.1
Children in families with children and a married head	17.8	24.4	20.0	19.4	25.5	22.6
Children in child-only families	21.3	0.0	13.6	5.2	0.0	13.7
Individuals in families without children	13.3	34.3	19.2	35.4	43.3	28.5
Individuals in families with elderly members	10.1	25.0	15.2	32.0	43.4	23.6
Elderly members living alone	5.6	15.5	4.4	28.6	0.0	13.4
Elderly members living with other elderly individuals	6.5	0.0	12.9	0.0	26.8	17.0
Elderly members living with non-elderly individuals	18.4	27.1	26.0	40.9	44.8	30.2
Individuals in families with disabled members	10.2	30.5	14.7	35.0	40.1	24.1
Individuals in families without any elderly or disabled members	28.9	40.2	31.1	36.9	52.6	36.9
Age and Disability						
Nonelderly disabled adults	9.4	19.1	14.8	21.2	20.9	17.7
Nonelderly nondisabled childless adults	27.9	42.0	34.1	42.4	60.5	39.9
Family Income						
Under 50 percent of poverty	8.3	17.9	11.7	10.6	10.4	14.7
50 to under 100 percent of poverty	10.2	21.0	12.3	22.0	20.9	17.2
100 to under 200 percent of poverty	18.5	29.7	26.1	24.3	31.7	27.9
200 or more percent of poverty	31.1	40.3	32.9	40.2	42.4	37.7

Table II.19, *continued*

Subgroup	Percentage of Individuals Exiting SNAP within 4 Months of the Trigger Event (Not Mutually Exclusive)					
	None	Increase in Earnings	Increase in Other Income	Increase in Family Size	Decrease in Family Size	Any Trigger [a]
Age						
Children (under age 18)	13.8	20.9	15.7	18.6	22.1	18.4
Nonelderly adults (age 18 - 59)	15.7	27.3	20.1	25.3	33.4	24.6
Elderly adults (age 60 and over)	8.9	20.9	12.5	29.6	48.4	21.1
Sex						
Male (age 18 and over)	18.5	33.2	25.0	32.3	46.3	30.7
Female (age 18 and over)	12.5	24.0	16.8	22.7	29.7	21.4
Race/Ethnicity [b]						
White, Non-Hispanic	15.7	28.5	21.9	26.6	34.7	25.6
African American, Non-Hispanic	11.9	18.6	12.5	17.3	22.0	17.0
Hispanic, all races	14.6	23.8	15.9	22.8	27.2	20.0
Asian, Non-Hispanic	8.1	17.8	9.3	6.8	37.1	14.8
Other, Non-Hispanic	16.3	25.0	20.8	20.2	24.7	24.1
Education						
Individuals in families with HS graduate	15.4	24.9	18.6	23.7	29.0	22.4
Individuals in families with no HS graduate	10.0	18.7	12.6	16.5	28.0	16.6
Citizenship						
Citizen	13.9	23.7	17.7	21.4	28.6	21.2
Noncitizen	19.0	29.2	13.4	35.5	35.7	25.8
Citizen children living with noncitizen adults in the family	19.0	25.2	18.0	23.8	20.9	21.9
Adults in families with citizen adults and citizen children	15.1	24.5	20.0	20.8	33.2	22.7
Children in families with citizen adults and citizen children	13.1	20.5	15.9	16.9	21.8	18.0
Adults in families with noncitizen adults and citizen children	18.1	25.0	10.1	25.8	18.2	19.9
Children in families with noncitizen adults and citizen children	19.9	25.4	13.4	36.5	18.2	21.4

Table II.19, *continued*

Subgroup	Percentage of Individuals Exiting SNAP within 4 Months of the Trigger Event (Not Mutually Exclusive)					
	None	Increase in Earnings	Increase in Other Income	Increase in Family Size	Decrease in Family Size	Any Trigger [a]
Presence of Income						
Individuals in families with no income	13.6	22.8	15.2	28.1	24.6	19.9
Individuals in families with income	14.2	24.1	17.7	21.6	29.0	21.5
Presence of Earnings						
Individuals in families with earnings	19.1	25.3	21.8	24.8	32.2	24.2
Individuals in families without earnings	9.1	21.1	12.5	18.5	18.1	16.9
Presence of TANF						
Individuals in families with TANF	10.0	17.3	12.2	21.7	24.6	16.0
Individuals in families without TANF	15.0	25.4	18.7	22.3	30.2	22.7
Other Income						
Individuals in families with Social Security income	13.1	24.6	16.1	25.4	29.1	22.1
Individuals in families without Social Security income	14.5	23.8	17.9	21.6	28.8	21.2
Individuals in families with SSI	10.6	21.3	14.9	24.8	24.8	19.1
Individuals in families without SSI	15.5	24.4	18.3	21.5	30.3	22.0
Individuals in families with unemployment compensation	20.9	34.0	24.0	3.9	38.8	29.9
Individuals in families with no unemployment compensation	14.0	23.4	17.3	22.6	28.7	21.0
Sample size (person-months)	16,186	3,335	2,118	469	574	5,799

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: Individuals receiving SNAP benefits for at least 2 months
Reference Months: 3 to 31
Sample: Person-months of those experiencing trigger event
Subgroups: Characteristics in month before SNAP spell began

a This column also includes the trigger event of leaving the sample due to death, institutionalization, entry into the armed forces and living in army barracks, or exit from the country. We assume that any one of these reasons would also lead to SNAP exit and assign the sample exit as the exit trigger. Thus, the exit rates for this group are 100 percent.

[b] Categories are race *alone*; respondents who reported multiple races are in the Other, Non-Hispanic category

D. Re-entry into SNAP

Re-entry is the final stage of SNAP participation dynamics that we examine.[37] In our earlier entry analysis, we noted that about half of all adults entering SNAP had prior participation spells as adults. In this section, we focus solely on those individuals with prior receipt—both those who had a second (or more) spell within the panel and those who experienced their second (or more) spell as an adult. The questions we address are:

- What proportion of participants who exit SNAP return to the program within six months, within a year, or within two years? What is the median time off SNAP between participation spells? How do re-entry patterns vary among different subgroups?
- How do the answers to the above research questions compare to the findings in the studies for earlier periods?

Once again, we use life tables, but in this case we examine the duration of spells off SNAP following a spell of participation. The exit rate from these "off spells" is the re-entry rate back into SNAP.

1. Sample and Methods

The sample consists of individuals who received SNAP benefits during the panel period and exited before the end of the panel period. Individuals could contribute more than one observation to the analysis. The data consist of 6,353 off-spell observations, contributed by 5,185 unique individuals. Any off spell that began in or after month 4 and before month 31 of the panel is included in the sample—95 percent of off spells began in this time frame. About 62 percent of the remaining off-spell observations are right-censored. We refer back to original new spell to determine the subgroup of the spell off SNAP and the subsequent re-entry, if it occurs.

[37] This re-entry analysis overlaps to some extent with the entry analysis presented in Section B, since much of the entry analysis was not limited to those who had never previously received SNAP benefits. The entry analysis used information from some individuals who re-entered SNAP. However, it did not use information regarding when individuals had last exited the program and did not analyze the duration of time to re-entry. In the re-entry analysis in this section, by contrast, we analyze the duration of time between when the individuals exited the program and when (and if) they re-entered.

Subgroups for off spells and re-entry rates are determined as of the month preceding the original "new" SNAP entry.

Because we have fewer than three years available to us in this SIPP panel period, we have a limited follow-up period for the re-entry analysis. The maximum possible number of months of follow-up information is 27, though the sample for which we have more than 24 months of follow-up data is relatively small. However, our analysis shows that re-entry rates fell off rapidly during the first 24 months of off-spells, suggesting that most SNAP participants who re-entered the program did so within two years of exiting.

2. SNAP Re-entry in the 2004 Panel and Comparisons over Time

As was the case in previous studies, many respondents in our SIPP sample returned to SNAP after exiting. More than half (52.9 percent) who exited returned within two years, of those, half had already returned within six months of their exit (Table II.20). Of those who ended a participation spell, 42.1 percent re-entered during their first year off the program and another 10.8 percent re-entered during the second year.[38] Similarly, Gleason et al. (1998) found that, in the early 1990s, 42.4 percent re-entered in their first year off the program and 11.3 percent re-entered in their second year, and Cody et al. (2007) found that 45.0 percent re-entered in their first year off and 10.4 percent re-entered in the second year (Figure II.10).

[38] As in the life tables of SNAP spell lengths in the previous section, because the samples on which the re-entry rates are based decline as the duration increases, the estimates of the hazard rates become less precise as duration rises.

Table II.20 Life Tables of Spells Off SNAP (Re-entry Rates)

Month	Number of Spells at Beginning of Month	Number In-Sample in Following Month	Number Re-entering During Following Month	Survivor Rate	Hazard Rate	Cumulative Re-entry Rate	Standard Error of Survivor Rate
1	24,720,427	24,633,366	0	100.0	0.0	0.0	0.1
2	24,633,366	24,559,799	1,220,276	95.0	5.0	5.0	0.3
3	23,339,523	22,471,829	1,181,790	90.0	5.3	10.0	0.5
4	21,290,039	19,196,469	2,600,404	77.8	13.5	22.2	0.6
5	16,596,065	16,080,927	461,532	75.6	2.9	24.4	0.6
6	**15,619,395**	**15,181,039**	**411,058**	**73.6**	**2.7**	**26.4**	0.6
7	14,769,981	14,144,820	355,624	71.7	2.5	28.3	0.7
8	13,789,197	12,313,851	1,082,723	65.4	8.8	34.6	0.7
9	11,231,128	10,784,390	230,953	64.0	2.1	36.0	0.6
10	10,553,437	10,221,110	181,015	62.9	1.8	37.1	0.6
11	10,040,095	9,651,544	216,643	61.5	2.2	38.5	0.6
12	**9,434,901**	**8,260,878**	**480,196**	**57.9**	**5.8**	**42.1**	0.6
13	7,780,681	7,546,775	162,616	56.6	2.2	43.4	0.6
14	7,384,159	7,009,759	93,288	55.9	1.3	44.1	0.6
15	6,916,471	6,657,127	76,689	55.2	1.2	44.8	0.6
16	6,580,438	5,606,889	188,598	53.4	3.4	46.6	0.5
17	5,418,291	5,191,837	40,782	53.0	0.8	47.0	0.5
18	**5,151,055**	**4,869,080**	**114,638**	**51.7**	**2.4**	**48.3**	0.5
19	4,754,441	4,426,194	60,161	51.0	1.4	49.0	0.5
20	4,366,032	3,646,278	130,614	49.2	3.6	50.8	0.4
21	3,515,664	3,249,007	30,803	48.7	0.9	51.3	0.4
22	3,218,203	2,946,196	13,759	48.5	0.5	51.5	0.4
23	2,932,437	2,637,639	12,280	48.3	0.5	51.7	0.3
24	**2,625,359**	**1,688,897**	**40,967**	**47.1**	**2.4**	**52.9**	0.2
25	1,647,929	1,442,114	38,107	45.9	2.6	54.1	0.2
26	1,404,007	1,206,275	0	45.9	0.0	54.1	0.1
27	1,206,275	920,093	5,630	45.6	0.6	54.4	0.0

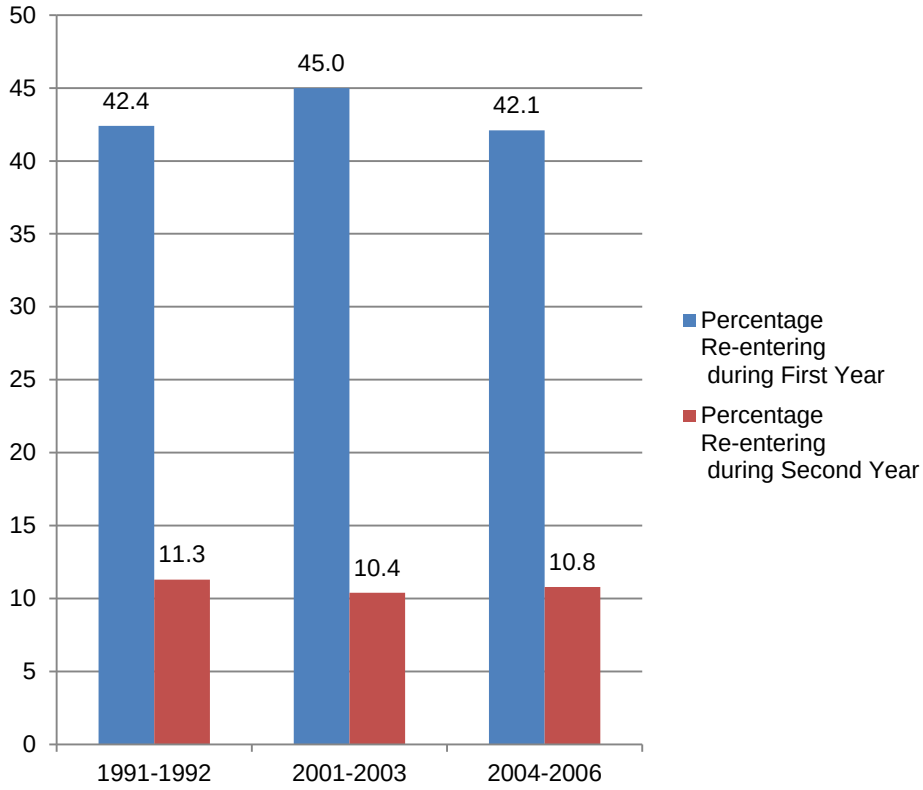
Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: Reference Months: 4 to 31

Sample: Nonparticipation spells following a participation spell

Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. Column (b) indicates the number of the spells from (a) that we continue to observe in the following month (that is, spells that are not right censored). Column (c) is the number of spells from (b) that exit the SNAP in the following month. The hazard rate (e) is 100*(c)/(b). The cumulative exit rate (f) is sum of the previous row's cumulative exit rate and the product of the current row's hazard rate and previous row's survivor rate, divided by 100.

Figure II.10 Percentages Re-entering SNAP, Comparisons over Time



3. SNAP Re-Entry, by Subgroup

Individuals who had long participation spells also tend to have had high re-entry rates. In our subgroup analysis for re-entry, we measure the subgroup characteristics based on the original spell that preceded their non-participation spell (Table II.21). Among individuals in the poorest families (those with monthly income under 50 percent of poverty in their non-participation spell), almost three-fifths re-entered within two years of exiting. However, among those who lived in families with income at least two times the poverty line, slightly over two-fifths re-entered within two years. Similarly, we find that individuals in families that had no earners were likely to re-enter SNAP sooner than those in families that had earners.

We also see substantial differences in re-entry rates by age and by family composition. Half of the individuals in families with children re-entered SNAP within 16 months of exiting. In

contrast, fewer than half of the individuals living in families without children re-entered within two years of exiting. In contrast to previous findings, in this panel, adults living in single-parent families with children had longer periods off SNAP (median of 24 months) than adults in families with children and non-married multiple adults (median of 16 months). Adults living in families with children and married adults had a median off-SNAP length of greater than 27 months.

The elderly are an exception to the general pattern of longer participation spells being associated with quick reentry. Although elderly individuals tended to have long participation spells, once they exited the program, they often did not re-enter (33.2 percent re-entered the program within two years, compared to 48.8 percent of nonelderly adults). It could be that the elderly individuals moved in with other family members who could support them or made other financial arrangements that did not lend to re-entering SNAP.

Noncitizens have shorter spells than citizens (median of 13 months versus 20 months, respectively. Median off-spell lengths are much shorter for children in families with citizen adults and citizen children than for adults in these types of families (13 and 24 months, respectively). The differential is similar for children in families with noncitizen adults and citizen children, and adults in these families (12 months and greater than 27 months, respectively), though these two groups are based on small sample sizes.

Table II.21 Re-Entry Rates into SNAP, by Subgroups

Subgroup	Sample Size	Median Time to Re-entry (Months)	Cumulative Rate of Re-entry (Percent)			Log-Rank Statistic to Test Differences across Subgroups
			4 Months or Less	12 Months or Less	24 Months or Less	
All Individuals	6,054	20	22.2	42.1	52.9	
Family Composition						127.4***
Individuals in families with children	4,726	16	23.6	45.4	55.7	
Adults in families with children and one adult	521	24	21.0	41.4	52.8	
Children in families with children and one adult	1,043	13	28.2	48.6	60.6	
Adults in families with children and multiple adults	589	16	22.8	44.6	53.6	
Children in families with children and multiple adults	537	12	30.2	51.1	62.7	
Adults in families with children and a married head	950	> 27	15.9	36.5	46.8	
Children in families with children and a married head	1,063	13	24.5	49.8	57.9	
Children in child-only families	23	4	52.1	76.3	100.0	
Individuals in families without children	1,328	> 27	17.1	30.8	42.9	
Individuals in families with elderly members	425	> 27	18.5	30.9	43.6	
Elderly members living alone	111	> 27	19.6	38.4	42.8	
Elderly members living with other elderly individuals	65	> 27	21.8	24.3	27.8	
Elderly members living with non-elderly individuals	242	> 27	18.2	29.5	47.7	
Individuals in families with disabled members	397	> 27	17.3	33.6	46.5	
Individuals in families without any elderly or disabled members	506	> 27	15.9	29.1	40.7	
Age and Disability						20.2***
Nonelderly disabled adults	652	18	21.8	42.6	54.1	
Nonelderly nondisabled childless adults	553	> 27	14.6	27.5	41.0	
Family Income						135.4***
Under 50 percent of poverty	714	12	31.8	53.9	59.0	
50 to under 100 percent of poverty	1,481	12	30.7	51.0	58.0	
100 to under 200 percent of poverty	2,319	24	17.5	39.0	50.4	
200 or more percent of poverty	1,235	> 27	14.8	31.0	42.6	

Table II.21, *continued*

Subgroup	Sample Size	Median Time to Re-entry (Months)	Cumulative Rate of Re-entry (Percent)			Log-Rank Statistic to Test Differences across Subgroups
			4 Months or Less	12 Months or Less	24 Months or Less	
Age						80.7***
Children (under age 18)	2,666	13	27.4	49.8	60.2	
Nonelderly adults (age 18 - 59)	2,984	25	18.6	37.2	48.8	
Elderly adults (age 60 and over)	404	> 27	16.3	28.8	33.2	
Sex						18.7***
Male (age 18 and over)	1,317	> 27	16.4	33.2	42.5	
Female (age 18 and over)	2,071	24	19.7	38.7	51.0	
Race/Ethnicity [a]						57.5***
White, Non-Hispanic	2,850	> 27	17.6	34.0	46.8	
African American, Non-Hispanic	1,471	12	28.3	52.5	57.8	
Hispanic, all races	1,170	16	23.9	44.2	55.8	
Asian, Non-Hispanic	64	17	28.5	50.0	52.9	
Other, Non-Hispanic	499	16	21.7	48.8	63.7	
Education						29.8***
Individuals in families with HS graduate	5,186	22	20.7	40.3	51.2	
Individuals in families with no HS graduate	868	12	30.5	52.3	62.3	
Citizenship						
Citizen	5,739	20	22.0	41.6	52.8	
Noncitizen	315	13	24.5	49.0	55.1	
Citizen children living with noncitizen adults in the family	303	16	27.1	47.5	57.1	
Adults in families with citizen adults and citizen children	1,901	24	19.0	39.5	50.1	21.1***
Children in families with citizen adults and citizen children	2,386	13	26.1	48.7	59.2	
Adults in families with noncitizen adults and citizen children	133	> 27	25.6	39.8	48.6	

Table II.21, *continued*

Subgroup	Sample Size	Median Time to Re-entry (Months)	Cumulative Rate of Re-entry (Percent)			Log-Rank Statistic to Test Differences across Subgroups
			4 Months or Less	12 Months or Less	24 Months or Less	
Presence of Income						
Individuals in families with no income	310	16	27.6	45.5	74.8	11.0***
Individuals in families with income	5,744	20	21.9	41.9	51.5	
Presence of Earnings						21.4***
Individuals in families with earnings	4,320	24	20.9	40.6	50.5	
individuals in families without earnings	1,734	16	25.4	46.0	59.4	
Presence of TANF						21.7***
Individuals in families with TANF	643	13	30.8	48.4	60.3	
individuals in families without TANF	5,411	20	21.0	41.3	52.0	
Other Income						
Individuals in families with Social Security income	1,503	25	19.4	40.7	49.5	24.5***
Individuals in families without Social Security income	4,551	19	23.0	42.6	53.9	
Individuals in families with SSI	1,167	15	24.2	47.8	60.5	4.1**
Individuals in families without SSI	4,887	23	21.7	40.7	51.2	
Individuals in families with unemployment compensation	244	> 27	11.0	44.3	49.1	
Individuals in families with no unemployment compensation	5,810	20	22.6	42.0	53.1	

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: Individuals receiving SNAP benefits for at least 2 months

Reference Months: 4 to 31

Sample: Nonparticipation spells following a participation spell

Subgroups: Characteristics in month before SNAP spell began

[a] Categories are race *alone*; respondents who reported multiple races are in the Other, Non-Hispanic category

The log-rank test compares the estimated monthly hazard rate to the expected monthly hazard rate where the expected rate is calculated based on the null hypothesis that the hazard rate is the same for each time period of the subgroup category. We do not reject the null hypothesis that the distributions are the same across categories if the aggregate difference between the estimated and expected hazard rate is small relative to the aggregate variance of the difference. We reject the null hypothesis if the difference is large.

E. Summary Measures of SNAP Participation

Thus far in the analysis, we have examined each step of a participant's contact with SNAP: entry, duration on the program, exit, and, finally, re-entry. Now, we explore the total experience with the program, and how it has changed over time, using several additional measures:

- ***Total time on***. What proportion of the 32-month period covered by the SIPP panel period does an individual spend on SNAP? What participant characteristics distinguish those who spend a significant proportion of the panel time on SNAP from those who only use the program for a small proportion of the panel time?

- ***Spell type***. What proportion of the caseload has a single short spell, single medium-term spell, single long spell, or more than one spell during the SIPP panel period?

- ***Turnover Rate***. What is the turnover rate (the ratio of all participants ever on SNAP during the year over the average monthly number of participants) for SNAP participants in each year covered by the 2004 SIPP panel? Did the turnover rate change between the first few waves of the panel, which was during a period of economic growth, and the later waves of the panel, when the economy was starting to weaken?

- ***Replacement Rates and Exit Rates***. What is the number of new SNAP entrants in a month divided by the number of participants in the previous month's caseload? And how many SNAP participants exit the program each month? What dynamics explain the participation growth that occurred in the mid-2000s?

These additional measures of program dynamics help to summarize individual experiences in SNAP and to interpret aggregate caseload trends. In particular, they address an important policy research question of the current study: what dynamics explain the participation growth that occurred in the mid-2000s? We answer this question below by decomposing the participation growth into changes over time in several summary measures.

1. Total Time on SNAP

The total time during which a participant receives benefits over the course of the panel period provides an additional measure of an individual's SNAP participation behavior. From our earlier analysis of the entry cohort, we know that the median duration is ten months. However, we also

know that 25 percent of participants that leave the program return within six months and 50 percent return within twenty months. Thus, the measure of spell duration alone may provide misleading information about their total reliance on the program. Because a measure of the total time in the program combines information about an individual's spell length and re-entry, it provides a more accurate measure of program dependence. By including the time spent in pre-panel participation spells, it is also a more comprehensive measure. However, our total-time-on measure is still limited by right censoring, because we do not know when many of the spells will end. This will lead us to underestimate the dependence on the program by some participants.

We calculate the total time on as the number of months during the SIPP panel period that each individual received SNAP benefits. Table II.22 shows the distribution for the full sample and for those with at least one month of participation.

Table II.22 Total Time on SNAP for Individuals Participating in the Panel Period (Percent)

Number of Months	Excluding Pre-Panel Data		Including Pre-Panel Data	
	All Individuals	Individuals with at Least One Month of SNAP During Panel Period	All Individuals	Individuals with at Least One Month of SNAP During Panel Period
No Receipt of SNAP in Panel Period	81.6	0.0	81.6	0.0
1 to 4	3.0	16.4	2.9	15.5
5 to 8	2.5	13.8	2.3	12.3
9 to 12	1.9	10.5	1.8	9.6
13 to 16	1.5	8.1	1.3	7.0
17 to 20	1.4	7.7	1.2	6.5
21 to 24	1.3	7.3	1.1	6.0
25 to 28	1.6	8.5	1.1	6.1
29 to 32	5.1	27.7	3.0	16.2
33 to 36	NA	NA	0.1	0.5
37 to 40	NA	NA	0.1	0.3
41 to 44	NA	NA	0.1	0.5
45 to 48	NA	NA	0.1	0.6
49+	NA	NA	3.5	18.9
Mean months	3.3	18.0	7.2	39.0
Median months	0.0	17.0	0.0	20.0
Sample Size	51,379	9,894	51,379	9,894

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel
Notes: Reference Months: 1 to 32
Sample: All individuals and participants

a. Total Time on SNAP in the 2004 Panel

We found that 18.4 percent of the full population received SNAP at some point during the 32-month panel period. Of those who participated, 16.4 percent had contact with the program for less than five months, and 30.2 percent had contact with the program for less than nine months. In addition, 27.7 percent of those who received SNAP did so for the entire 32 months of the panel period. If we also add the time spent in SNAP before the panel period, we find that spell-

length for 20.8 percent of those who participated at least once during the panel lasted longer than 32 months.[39]

Table II.22 also shows that the median total time in SNAP among participants during the panel period was 17 months out of a possible 32. Thus, re-entry into the program led the average participant to spend more than 50 percent of the 32-month period in the program.

b. Changes in Total Time on SNAP from the Early-1990s to the Early-2000s to the Mid-2000s

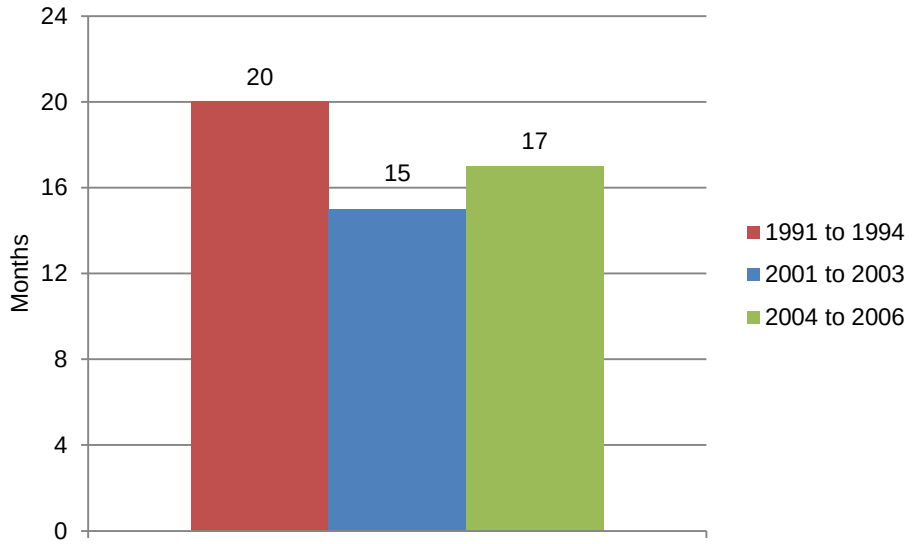
The median total time on SNAP was 20 months in the early 1990s (Gleason et al. 1998) and 15 months in the early 2000s (Cody et al. 2007); it then rose quickly to 17 months in the mid-2000s (Figure II.11).[40] The variation in these estimates is due to the net effects of two elements of program dynamics: how long individuals spend *on* the program and how long participants who exit the program spend *off* the program before re-entering. Compared to the early-1990s, individuals in the early-2000s who entered SNAP in the panel stayed on for fewer months (median of 8 months versus 9 months) but, once exited, re-entered the program more quickly (median of 16 months versus 20 months). Compared to the early-2000s, individuals who entered SNAP in the 2004 panel stayed on SNAP longer (median of 10 months versus 8 months) but, once exited, stayed off the program longer as well before re-entering (median of 20 months versus 16 months). Finally, the median total time on was longer in the early-1990s than in the mid-2000s. While the early-1990s and the mid-2000s were similar in the median duration of SNAP participants that enter SNAP in the panel (9 and 10 months, respectively) and in median

[39] The information concerning previous participation tells us the start date of the spell that was in progress in Month 1 of the 2004 SIPP panel, not about start and end dates of spells that ended prior to the sample. Thus, in Table II.22 we do not see an increase in the number receiving SNAP benefits, but rather in the length of time that some participants received SNAP benefits.

[40] The length of the SIPP panel period can affect the median total time on estimate if individuals enter SNAP disproportionately toward the end, relative to the beginning, of the SIPP panel, thereby right-censoring the SNAP spell length for these individuals. Because the three SIPP panel periods considered above different in length, this potential bias should be acknowledged when comparing the three estimates of total time on SNAP.

length of time spent off the program prior to re-entering (20 months for both periods), participants who were participating in SNAP in the first wave of the panel had longer median SNAP spells-- more than 8 years in the early-1990s, compared to 7 years in the mid-2000s.

Figure II.11 Total Time on SNAP for Individuals Participating in Panel Period, Comparisons over Time (Median Number of Months)



c. Total Time on SNAP among Subgroups in the 2004 Panel

The percentages of individuals who received SNAP at some point during the 32-month 2004 SIPP panel period varied greatly across subgroups (Table II.23). For individuals in families with children, 23.3 percent received SNAP at some point in the panel, compared to 11.5 percent for those without children. SNAP receipt in the panel decreases by age, with 26.8 percent of children, 16.5 percent of non-elderly adults, and 9.0 percent of elderly adults receiving SNAP in the panel. The differential by income is even more striking, with SNAP receipt in the panel ranging from 51.9 percent of individuals in families with income below 50 percent of poverty, compared to 5.5 percent of individuals in families with income above 200 percent of poverty. The percentage of individuals without earnings, at 29.0 percent, is about twice as large as the

percentage of individuals with earnings, as is the percentage of individuals without and with income (42.8 and 17.5 percent, respectively). Finally, 55.9 percent of individuals in families with SSI received SNAP at some point in the panel, compared to 16.0 percent of individuals in families without SSI.

Table II.23 Total Time on SNAP for Individuals Participating in the Panel Period (Percent), by Subgroup [a]

Subgroup	All Individuals		Individuals with at Least One Month of SNAP During Panel Period	
	Sample Size	Percentage Receiving SNAP in Panel	Sample Size	Median
All Individuals	51,379	18.4	9,894	17
Family Composition				
Individuals in families with children	29,748	23.3	7,315	19
Adults in families with children and one adult	2,081	41.8	925	23
Children in families with children and one adult	3,959	49.2	2,031	22
Adults in families with children and multiple adults	1,647	36.3	642	16
Children in families with children and multiple adults	1,405	51.0	748	20
Adults in families with children and a married head	10,085	12.3	1,306	14
Children in families with children and a married head	10,394	14.8	1,612	16
Children in child-only families	177	28.5	51	12
Individuals in families without children	21,631	11.5	2,579	15
Individuals in families with elderly members	10,797	9.3	1,035	19
Elderly members living alone	3,324	11.0	418	32
Elderly members living with other elderly individuals	4,092	4.8	198	27
Elderly members living with non-elderly individuals	3,196	12.8	401	12
Individuals in families with disabled members	1,978	38.1	785	24
Individuals in families without any elderly or disabled members	8,856	8.6	759	8
Age and Disability				
Nonelderly disabled adults	2,643	45.6	1,281	26
Nonelderly nondisabled childless adults	10,123	8.4	829	8
Family Income				
Under 50 percent of poverty	3,329	51.9	1,787	27
50 to under 100 percent of poverty	5,680	48.0	2,990	25
100 to under 200 percent of poverty	13,792	20.7	2,923	13
More than 200 percent of poverty	26,941	5.5	1,439	8
Age				
Children (under age 18)	15,935	26.8	4,442	20
Nonelderly adults (age 18 - 59)	25,679	16.5	4,504	16
Elderly adults (age 60 and over)	9,765	9.0	948	24

Table II.23, *continued*

Subgroup	All Individuals		Individuals with at Least One Month of SNAP During Panel Period	
	Sample Size	Percentage Receiving SNAP in Panel	Sample Size	Median
Sex				
Male (age 18 and older)	23,885	16.1	4,037	16
Female (age 18 and older)	27,494	20.5	5,857	19
Race/Ethnicity [b]				
White, Non-Hispanic	34,325	12.2	4,472	15
African American, Non-Hispanic	6,963	37.7	2,727	22
Hispanic, all races	6,665	24.2	1,799	17
Asian, Non-Hispanic	1,313	10.1	142	26
Other, Non-Hispanic	2,113	32.0	754	16
Education				
Individuals in families with HS graduate	44,878	16.0	7,496	16
Individuals in families with no HS graduate	6,501	35.1	2,398	24
Citizenship				
Citizen	48,209	18.8	9,419	17
Noncitizen	3,170	13.3	475	16
Citizen children living with noncitizen adults in the family	1,659	25.7	447	16
Adults in families with citizen adults and citizen children	12,609	19.8	2,623	17
Children in families with citizen adults and citizen children	14,408	26.9	4,018	17
Adults in families with noncitizen adults and citizen children	803	22.1	213	15
Children in families with noncitizen adults and citizen children	1,044	30.2	345	15
Presence of Income				
Individuals in families with no income	1,659	42.8	763	19
Individuals in families with income	49,720	17.5	9,131	17
Presence of Earnings				
Individuals in families with earnings	36,902	14.7	5,674	13
Individuals in families without earnings	14,477	29.0	4,220	24
Presence of TANF				
Individuals in families with TANF	1,357	84.8	1,167	28
Individuals in families without TANF	50,022	16.5	8,727	16

Table II.23, *continued*

Subgroup	All Individuals		Individuals with at Least One Month of SNAP During Panel Period	
	Sample Size	Percentage Receiving SNAP in Panel	Sample Size	Median
Other Income				
Individuals in families with Social Security	13,082	17.9	2,358	18
Individuals in families without Social Security Income	38,297	18.5	7,536	17
Individuals in families with SSI	3,328	55.9	1,949	24
Individuals in families without SSI	48,051	16.0	7,945	16
Individuals in families with unemployment	1,637	21.7	400	10
Individuals in families with no unemployment	49,742	18.3	9,494	18

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: Reference Months: 1 to 32

Sample: All individuals and participants

[a] Excluding Pre-Panel Data

[b] Categories are race *alone*; respondents who reported multiple races are in the Other, Non-Hispanic category

The median total time in SNAP also differs across subgroups (Table II.23). Individuals in families with children spent 19 out of 32 months on SNAP, compared to individuals in families without children who spent 15 months. The median total time on SNAP decreases with income, with individuals with income under 50 percent of poverty having spent 27 out of 32 months and individuals with income over 200 percent of poverty having spent 8 months. There are also sizable differentials by education (16 and 24 months respectively, for individuals in families with and without a high school graduate); by earnings (13 and 24 months respectively, for individuals in families with and without earnings); by SSI (24 and 16 months, respectively, for individuals with and without SSI); and by presence of unemployment compensation (10 and 18 months, respectively, for individuals with and without unemployment compensation).

2. Characterizing SNAP Participants by Spell Type

A weakness of the total-time-on measure is that it does not tell us whether individuals participate in SNAP continuously or whether they move on and off the program. An alternative way of summarizing participants' SNAP experiences is to learn more about those who had single spells by identifying individuals as (1) single-spell, short-term participants; (2) single-spell, medium-term participants; (3) single-spell, long-term participants; or (4) multiple-spell participants.

a. Characterizing SNAP Participants by Spell Type in the 2004 Panel

Following the analysis of Cody et al. (2007) and Gleason et al. (1998), we define the four groups as follows:

- *Short-term participants* are those with a single participation spell that lasted 8 months or less.
- *Medium-term participants* are those with a single participation spell that lasted between 9 and 23 months
- *Long-term participants* are those with a single participation spell that lasted 24 months or longer
- *Multiple-spell participants* are those with more than one participation spell during the panel period

We perform this characterization for our cross-sectional sample. The first column of Table II.24 categorizes recipients into single-spell recipients and multiple-spell recipients based on their receipt only in the current panel. For the duration of receipt, though, it adds on the pre-panel duration of any spells that were in progress at the beginning of the panel period. In the second column, we extend this method to also include spells that both began and ended prior to the panel period. Using this new information leads many single-spell participants to be classified as multiple-spell participants—when we include the information from the pre-panel period, we find

that nearly 60 percent of participants had multiple spells. Of those who had single spells, most had either short spells (eight months or less) or long spells (more than two years).

Table II.24 Characterization of SNAP Participants (Percent)

Number Of Months	Include Pre-Panel Data On Duration Of Beginning Spell [a]	Include Pre-Panel Data On Previous Spells And Duration Of Beginning Spell [b]
Single-Spell Participants		
Short-Term (1 to 8 Months)	25.3	12.1
Medium-Term (9 to 23 Months)	17.4	8.8
Long-Term (24+ Months)	35.8	19.3
Multiple Spell Participants	21.5	59.8
Sample Size	10,010	10,010

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: Reference Months: 1 to 32

Sample: All individuals and participants

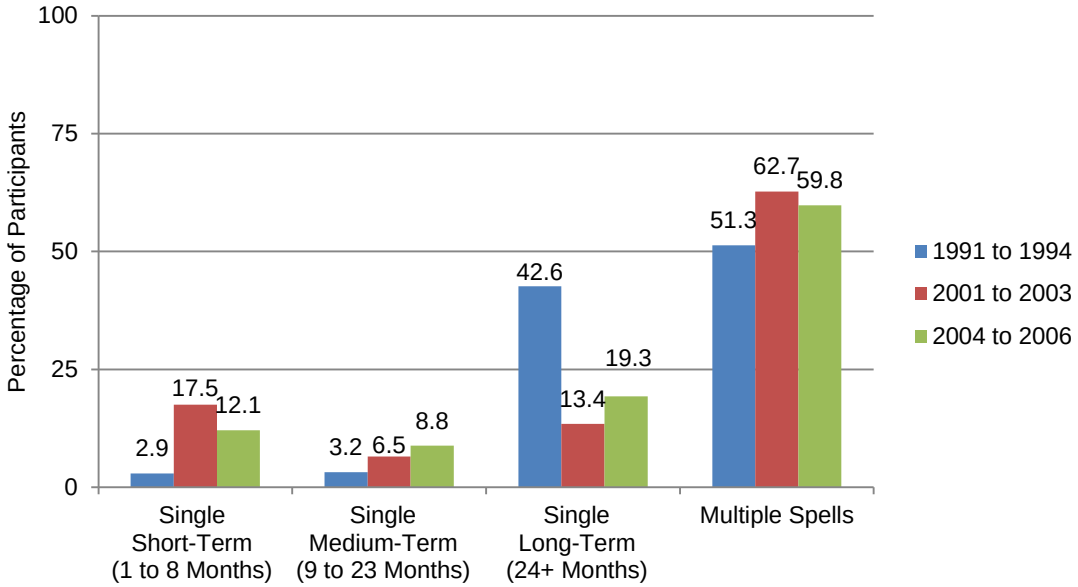
[a] Pre-panel data are used to determine the duration of the spells that are ongoing at the beginning of the panel; however, pre-panel data about participation in spells that ended before the start of the panel are not included.

[b] Pre-panel data on both spells that were ongoing at the beginning of the panel and spells that ended before the beginning of the panel are included.

b. Changes in the Characterization of SNAP Participants by Spell Type from the Early-1990s to the Early-2000s to the Mid-2000s

The percentage of SNAP participants with multiple spells increased from 51.3 percent in the early-1990s (Gleason et al. 1998) to 62.7 percent in the early-2000s (Cody et al. 2007) and then decreased to 59.8 percent in the mid-2000s (Figure II.12). Among single-spell participants, there was a sizable shift from long-term spells (more than two years) in the early-1990s to short- and medium-term spells (collectively less than two years) in the early-2000s. This was followed by a second and much smaller shift from short-term spells (8 months or less) in the early-2000s to medium- and long-term spells (collectively more than 8 months) in the mid-2000s. As a result, the percentage of medium-term spells (9 to 23 months) increased steadily across the three periods, though they were the least common of all spell types in the 2000s.

Figure II.12 Characterizing the Length and Frequency of SNAP Participant Spells, Comparisons over Time



3. Turnover Rate

The two previous summary measures of SNAP participation were from the point of view of individual participants. We next summarize SNAP participation from the perspective of the program, by presenting estimates of the SNAP turnover rate during calendar years 2004, 2005, and part of 2006. We also compare these turnover rates to estimated turnover rates for periods from the 1980s, 1990s, and early 2000s.

If the overall SNAP caseload remains relatively constant, the turnover rate is a useful measure of how often individuals move into and out of the system. With a low turnover rate, the program will handle the same participants over long periods of time with few participants entering or exiting in a given month. With a high turnover rate, by contrast, the program will handle large numbers of individuals, even if the number of cases they have to handle remains steady. In any given month, there will be many new faces in the SNAP office, and many others who had participated in the past will no longer participate.

a. SNAP Turnover Rate in the 2004 Panel

The turnover rate measures the size of the population that has come into contact with SNAP over the course of a year in relation to the average size of the caseload. We calculate it as the total number of individuals who received SNAP benefits during the year, divided by the mean number receiving SNAP benefits in a month.

We estimate the SNAP turnover rate to be 1.4 in each of calendar years 2004 and 2005, and also 1.4 in the 12 months from June 2005 to May 2006 (see Table II.25). Thus, for each year, caseworkers who had a caseload size of 500 in a single month handled an average of 700 different cases over the course of the year. This suggests that there is only a modest amount of turnover in the SNAP caseload over the course of a year. While there was an increase across years in the number of individuals receiving benefits in at least one month of the year, the average monthly number of individuals receiving benefits also increased each year, leading to a constant turnover rate over the 2.5 years.

Table II.25 SNAP Turnover Rate

	(A) Total Receiving Benefits in At Least One Month	(B) Average Monthly Number Receiving Benefits	(C) Turnover Rate (A/B)
2004 Panel			
January 2004-December 2004	30,129,134	21,501,977	1.4
January 2005-December 2005	31,663,862	23,088,912	1.4
June 2005-May 2006 [a]	31,757,586	23,200,443	1.4
January 2004-May 2006	39,533,424	22,434,857	1.8
2001 Panel			
January 2001-December 2001	24,549,821	16,269,571	1.5
January 2002-December 2002	25,819,693	17,204,142	1.5
October 2002-September 2003	26,445,119	18,351,314	1.4
January 2001-September 2003	35,687,585	17,223,082	2.1
1991 Panel			
January 1991-December 1991			1.3
January 1992-December 1992			1.3
1984 Panel			
January 1984-December 1984			1.4
January 1985-December 1985			1.4

Source: 2004: Decision Demographics, weighted tabulations of the 2004 SIPP panel; 2001: Cody et al. (2007); 1991: see Gleason et al. (1998) p 98 text discussion; 1984: Burstein et al. (1993).

Notes: Calendar Months: January 2004 to May 2006

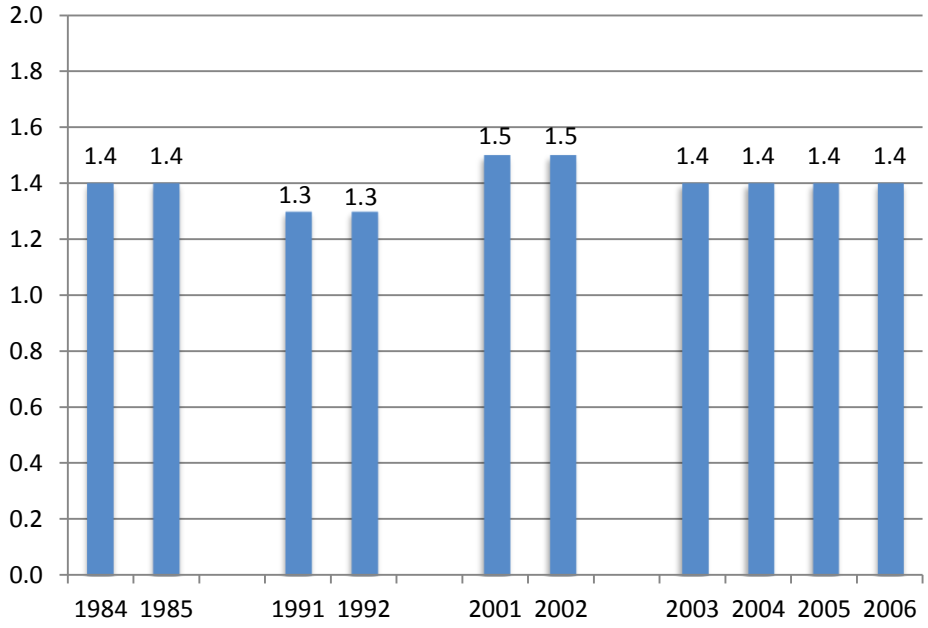
Sample: SNAP spells

[a] May 2006 is the last month common to all four rotation groups within the wave.

b. Changes in the SNAP Turnover Rate over Time

The SNAP turnover rate has not changed very much from 1984 to 2006. Figure II.13 presents the rate for 1984 and 1985 from Burstein et al. (1993); for 1991 and 1992 from Gleason et al. (1998); for 2001, 2002, and 2003 from Cody et al. (2007); and 2004, 2005, and 2006 from the current study. The turnover rate was lower in both 1991 and 1992 (1.3 percent) than in both 1984 and 1985 (1.4 percent), possibly due to the increase in the duration of spells from the mid-1980s to the early 1990s (Gleason et al. 1998). In 2001 and 2002 it was 1.5 percent, then decreased and stabilized at 1.4 from 2003 to 2006.

Figure II.13 Changes in the SNAP Turnover Rate over Time



There is no clear discernable association with the state of the national economy, at least from considering changes in the number of unemployed individuals in the U.S. population over time. The decrease in the turnover rate between 2002 and 2003 coincides with the start of a decline in the number of unemployed individuals in 2003—an unemployment trend that continued through 2006. This would suggest a negative relationship between the turnover rate and the strength of the economy. However, unemployment was highest in 1991 and 1992, relative to the early- to mid-2000s, at a time when the turnover rate was lowest, which would suggest a positive relationship between the turnover rate and the strength of the economy.

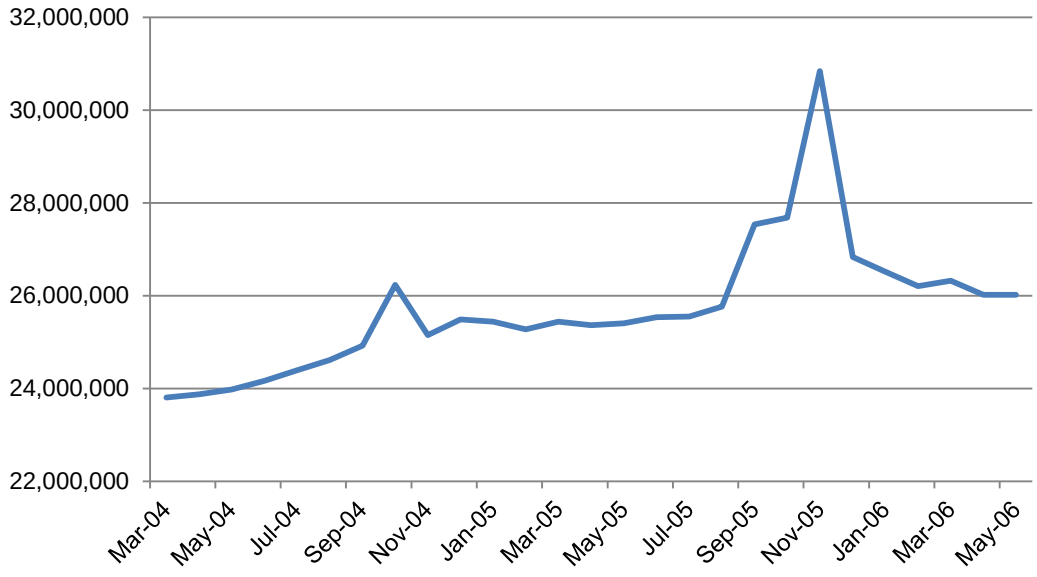
4. Decomposition of the SNAP Participation Growth in the Mid-2000s

The number of SNAP participants has increased dramatically over the last ten years, including from 2004 to the end of early 2006 at a time when the economy was improving. Figure II.14 presents the number of SNAP participants from March 2004 to May 2006. The spikes in September 2004 and September through November 2005 represent the increase due to the

provision of disaster benefits following Hurricanes Charlie, Frances, Ivan, and Jeanne in Alabama and Florida and Hurricanes Katrina, Rita, and Wilma in the Gulf states. The number of participants increased from March 2004 through December 2005 and began decreasing in early 2006.

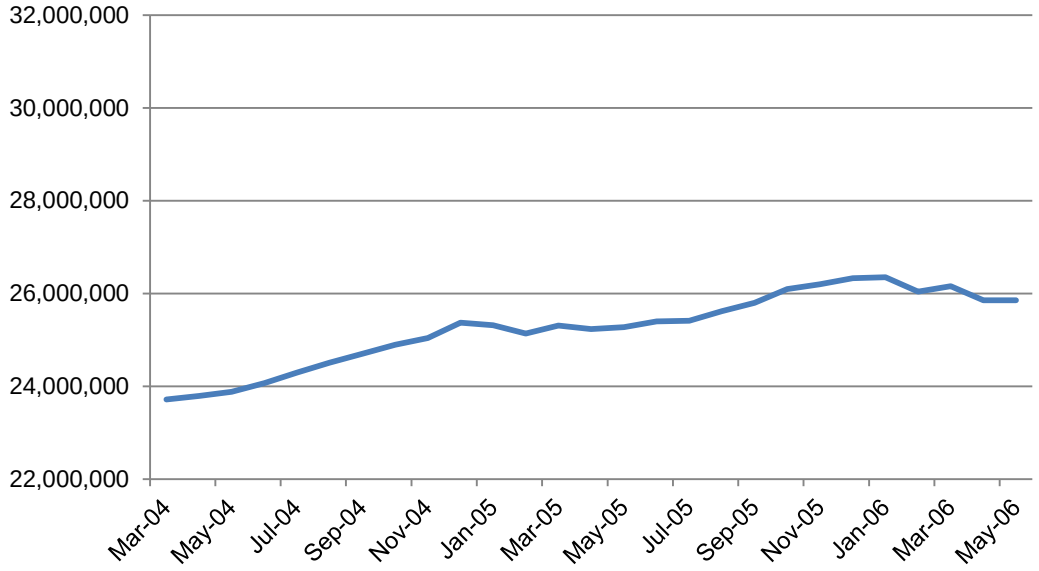
The decrease at the end of the period was not simply due to the termination of disaster benefits several months after the hurricanes. Figure II.15 presents the number of SNAP participants from March 2004 to May 2006 excluding individuals receiving disaster benefits in any month and state. The number of participants increased from March 2004 through December 2005 and began decreasing in early 2006. In the decomposition analysis below, we use the 2004 SIPP panel to examine what program dynamics contributed to the slowdown in growth toward the end of 2005 and what dynamics contributed to the decrease in participants (the negative growth) in early 2006.

Figure II.14 SNAP Caseload, March 2004 to May 2006



Source: SNAP Quality Control Data for 1994 through 1996

Figure II.15 SNAP Caseload, March 2004 to May 2006, Excluding Disaster Benefits



Source: SNAP Quality Control Data for 1994 through 1996

a. Methods

The substantial growth between 2004 and the end of 2005 can be the result of increases in the entry rate and/or decreases in the exit rate. Similarly, the caseload decline in early 2006 can be the result of decreases in the entry rate and/or increases in the exit rate. Following the methodology of Cody et al. (2005), we calculate each month's percentage change in the caseload (the growth rate), replacement rate, and exit rate and average them over the SIPP survey period. Each month's replacement rate is defined as the number of entrants, e_t, in month t divided by the total number of participants, p_{t-1}, in month t-1.Each month's exit rate, n_t, is defined as the number of exiters, x_t, in month t (participants in month t-1 not participating in month t) divided by the total number of participants in month t-1, p_{t-1}. Combined, these rates reveal how the caseload changes over time. In each month t, the total number of participants can be calculated as $p_t = p_{t-1} - x_t + e_t$. That is, the number of participants in the current month t is equal to the number of participants in the previous month minus those who exited the program between month t-1 and

month *t*, and plus those individuals who entered the program between months *t*-1 and *t*. Similarly, the growth rate can be computed as $g_t = r_t - n_t$, with the growth in SNAP participation across two months equal to the replacement rate minus the exit rate. Because the total number of participants in the previous month is in the denominator of both the replacement rate and the exit rate, the growth rate is defined as the difference between the number of new entrants in month *t* and the number of exiters in month *t*, relative to the number of participants in the previous month.

We compute the monthly growth rate, replacement rate, and exit rate from March 2004 to May 2006. March 2004 is the earliest month for which we have at least two months of data for individuals in all four rotation groups. Similarly, May 2006 is the last month for which we have two months of data from individuals in all four rotation groups. We then decompose the percentage change in the average growth rate from the base period of March 2004 to December 2004 to each of the two subsequent periods (January 2005 to December 2005 and January 2006 to May 2006). The decomposition allocates the share of the change in growth rate to changes in the replacement rate and exit rate.

b. Decomposition of Caseload Changes from 2004 to 2006

The average monthly growth rate was positive in 2004 and 2005, but decreased and became negative in early 2006 (Table II.26). The average monthly replacement rate decreased over the three periods, while the average monthly exit rate remained constant from 2004 to 2005 and then increased from 2005 to 2006. Thus, the decomposition reveals two main findings. First, the caseload increased in 2004 and 2005 because the replacement rate was greater than the exit rate and the caseload decreased in early 2006 when the exit rate ultimately exceeded the replacement rate. Second, the slowdown in caseload growth (i.e., the decrease in the positive growth rate)

from 2004 to 2005 was due solely to the decrease in the replacement rate. By contrast, 62 percent of the decrease in the growth rate from 2005 to 2006 was explained by the increase in the exit rate and 38 percent by the decrease in the replacement rate.

When we exclude from the SIPP sample individuals living in the five states affected most by Hurricanes Katrina and Rita (Alabama, Florida, Louisiana, Mississippi, and Texas), the replacement rates remain more or less the same as in the full sample (with all states), but there is a smaller increase in the exit rate in early 2006. The result is a similar growth rate in 2004 and 2005 as in the full sample of states, but a smaller (negative) growth rate in early 2006 (-0.2 percent instead of -0.7 percent).

Table II.26 Average Monthly SIPP-Based Growth, Replacement, and Exit Rates, 2004 through 2006

Period [a]	Average Monthly Growth Rate	Average Monthly Replacement Rate	Average Monthly Exit Rate	Percent Change In Growth Rate (Relative To First Period) Explained By Change In: Replacement Rate	Exit Rate
All States					
March 2004 to December 2004	1.1	4.7	3.6	--	--
January 2005 to December 2005	0.5	4.1	3.6	1.02	-0.02
January 2005 to May 2006 [a]	-0.7	3.7	4.3	0.38	0.62
Excluding Alabama, Florida, Louisiana, Mississippi, and Texas					
March 2004 to December 2004	1.0	4.7	3.7	--	--
January 2005 to December 2005	0.4	4.1	3.7	0.99	0.01
January 2005 to May 2006 [a]	-0.2	3.6	3.8	0.78	0.22

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: [a] May 2006 is the last month common to all four rotation groups within the wave

c. Decomposition of Caseload Increase from 2004 to 2006, by Subgroup

We re-estimated average monthly growth rates, exit rates, and replacement rates, and performed the decomposition analysis, for eight policy relevant subgroups: individuals with and

without children; individuals in families with income below 100 percent of poverty or at or above 100 percent of poverty; individuals in families with or without earnings; and individuals in families with or without elderly members. The results are presented in Table II.27. The main findings for the full sample (with all states) include:

- Individuals in families with children had a similar growth rate in 2004 as individuals in families without children (1.0 percent and 1.2 percent, respectively). However, the exit rate increased from 2004 to 2005 for individuals in families with children, but decreased sizably for those in families without children. This resulted in a growth rate that was three times as large for individuals in families without children in 2005 than for individuals in families with children. Individuals in families without children then decreased sharply from 2005 to 2006.

- Individuals in families with income below 100 percent of poverty had replacement rates, exit rates, and growth rates that were similar to the full sample—the decrease over time in the replacement rate and the increase over time in exit rate produced a decreasing growth rate that became negative in early 2006. Though the same was true for individuals in families with income at 100 percent of poverty or greater, the replacement rates and exit rates were about twice as large as those for individuals in families with less income. This indicates greater turnover among those with more income.

- Individuals in families with earnings had a relatively large positive growth rate in 2005, whereas individuals in families without earnings had a small negative growth rate in 2005. The 2006 growth rate for individuals in families with earnings was the largest negative growth rate among all subgroups, while the 2006 growth rate for individuals in families without earnings was the only positive growth rate among all subgroups.

- Consistent with the full sample, individuals in families with elderly members and individuals in families without elderly members experienced a decrease in the replacement rate from 2004 to 2006. Unlike the latter group, however, individuals in families with elderly members experienced a decrease in the exit rate from 2004 to 2005. This resulted in the largest growth rate in 2005 among all subgroups for individuals in families with elderly members—one that was three time as large as for individuals in families without elderly members.

Table II.27 Average Monthly SIPP-Based Growth, Replacement, and Exit Rates, 2004 through 2006, by Subgroup

Period [a]	Average Monthly Growth Rate	Average Monthly Replacement Rate	Average Monthly Exit Rate	Percent Change In Growth Rate (Relative To First Period) Explained By Change In: Replacement Rate	Exit Rate
Individuals in families with children					
March 2004 to December 2004	1.0	4.5	3.5	--	--
January 2005 to December 2005	0.3	4.0	3.7	0.74	0.26
January 2005 to May 2006	-0.6	3.7	4.2	0.39	0.61
Individuals in families without children					
March 2004 to December 2004	1.2	5.3	4.1	--	--
January 2005 to December 2005	1.0	4.4	3.4	4.70	-3.70
January 2005 to May 2006	-1.0	3.7	4.7	0.36	0.64
Individual in families with income below poverty					
March 2004 to December 2004	0.6	3.1	2.5	--	--
January 2005 to December 2005	0.0	2.6	2.6	0.77	0.23
January 2005 to May 2006	-1.2	2.4	3.5	0.21	0.79
Individuals in families with income 100 percent of poverty or greater					
March 2004 to December 2004	2.6	7.2	4.6	--	--
January 2005 to December 2005	1.1	6.2	5.1	0.64	0.36
January 2005 to May 2006	-0.6	5.3	5.9	0.54	0.46
Individuals in families with earnings					
March 2004 to December 2004	1.2	5.7	4.5	--	--
January 2005 to December 2005	0.9	5.2	4.3	1.58	-0.58
January 2005 to May 2006	-1.3	4.6	6.0	0.27	0.73
Individuals in families without earnings					
March 2004 to December 2004	0.9	3.6	2.7	--	--
January 2005 to December 2005	-0.1	2.8	2.9	0.83	0.17
January 2005 to May 2006	0.1	2.6	2.5	-1.77	2.77
Individuals in families with elderly members					
March 2004 to December 2004	2.1	5.2	3.1	--	--
January 2005 to December 2005	1.2	3.2	2.0	2.26	-1.26
January 2005 to May 2006	0.0	3.0	3.0	0.21	0.79
Individuals in families without elderly members					
March 2004 to December 2004	0.9	4.7	3.7	--	--
January 2005 to December 2005	0.4	4.2	3.8	0.80	0.20
January 2005 to May 2006	-0.8	3.8	4.5	0.39	0.61

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: [a] May 2006 is the last month common to all four rotation groups within the wave

III. SUBGROUP ANALYSES

This chapter compares SNAP dynamics data from the 1984, 1991, 2001, and 2004 SIPP panels for nine subgroups that are important in understanding SNAP caseload dynamics. In Chapter II, dynamic events and spells lengths were examined for all persons and individuals in different subgroups. In this chapter, each subgroup is portrayed on its own and contrasted with the characteristics of the total SNAP caseload.

The typical lifecycle of SNAP cases from entry through duration, exit, and re-entry varies substantially among subgroups. This section addresses the following research questions:

- What can the compilation of SNAP dynamics research reveal about each subgroup's unique character?
- How do the dynamics of individual subgroups explain the SNAP caseload evolution in terms of rates and absolute size?

The subgroups included comprise the main groups of concern to the FNS, and the main groups that drive the SNAP caseload:

- Single parents
- Children of single parents
- Married adults with children
- Children of married adults
- Elderly adults
- Non-elderly nondisabled childless adults
- Noncitizens
- People living in families with earnings
- People living in families with TANF income

This chapter reviews the series of studies that we draw on to describe subgroups, provides a key to data availability, and provides an historic profile of the nine designated subgroups.

A. SNAP Dynamics Data on Subgroups

The principal studies of SNAP dynamics that have data on subgroups are a series of reports written for FNS: Burstein (1993); Gleason et al. (1998); and Cody et al. (2007), as well as an analysis by Cody et al. (2005) of entry and exit rates throughout the 1990s.[41] The time periods, SIPP panels, sample sizes, universes, and types of analysis are all shown in Table III.1. Over time, the descriptive analysis topics and the life table analyses of SNAP spells by subgroup have been expanded.

Not all of the analyses described in Table III.1 are repeated for subgroups, or for all subgroups at each juncture. Table III.2 illustrates the historical availability of SNAP dynamics data for our selected subgroups. Rather than by author, this table is organized by SIPP panel: 1984, 1991, and 2001. The current study of the 2004 panel covers all of the subgroups for all topics.

[41] We have omitted data for the 1990s--from Cody (2005)--from the balance of this chapter because the subgroup data are severely restricted in both subject content and coverage.

Table III.1 SNAP Dynamics Studies with Subgroup Data: Time Frames, Data, and Study Objectives [a]

	Burstein (1993)	Gleason et al. (1998)	Cody et al. (2007)	Current
Time Period	1983-1986	1990 - 1993	2001 - 2003	2004-2006
Panel(s)	1984	1990, 1991	2001	2004
Sample Size	20,000 households	35,000 households	31,000 households	51,000 households
Historical SNAP Data Used	No	Yes	Yes	Yes
Descriptive Analysis	Entry, exit, duration, re-entry, entry and exit triggers	Entry, exit, duration, re-entry, entry and exit triggers, total time on, turnover	Entry, exit, duration, re-entry, entry and exit triggers, growth, replacement, total time on, turnover	Entry, exit, duration, re-entry, entry and exit triggers, growth, replacement, total time on, turnover, subgroups
Primary At-Risk Definition for Entry Analysis	Non-participating individuals; household income under 300 percent of poverty	Non-participating individuals	Non-participating individuals; family income under 300 percent of poverty	Non-participating individuals; family income under 300 percent of poverty
Topics for life table analysis of SNAP spells by subgroup	New spells, off spells (re-entry)	New spells, off spells (re-entry), subsequent spells of cross-sectional sample	New spells, off spells (re-entry), subsequent spells of cross-sectional sample	New spells, off spells (re-entry), subsequent and completed spells of cross-sectional sample

Table III.2 Historical Availability of SNAP Dynamics Subgroup Data

	At Risk Population and Entry Rates			Spell Length, Median Months, and Spell Exit Rate at 4, 12, 24 Months [b]			Exit Triggers		Re-entry (Median Months) and Re-entry Rate at 4, 12, 24 Months		
SIPP Panel Years	2001	1991 [a]	1984	2001	1991	1984	2001	1984	2001	1991	1984 [c]
Single parents	x	x	x	x	x	x	x	x	x	x	x
Children of single parents	x	x	x	x	x	x	x	x	x	x	x
Married adults with children [d]	x	x	x	x	x	x	x	x	x	x	x
Children of married adults [d]	x	x	x	x	x	x	x	x	x	x	x
Elderly adults	x	x		x	x		x		x	x	
Individuals in childless families without elderly or disabled members	x	x	x	x	x	x	x	x	x	x	x
Noncitizens	x	x		x	x		x		x	x	
People living in households with earnings	x	x	x	x	x	x	x	x	x	x	x
People living in households with TANF income	x			x			x		x		

Source: 2001 from Cody (2007), 1991 from Gleason (1998), 1984 from Burstein (1993)

Notes: The availability of the data for the current 2004 study is identical to that of 2001.

[a] 1991 analysis applied to the total population rather than the under 300 percent of poverty population as in 1984 and 2001.

[b] 1984 data include only new spells, 1991 data adds cross sectional sample data on subsequent spell length without medians, and 2001 further adds those medians and completed spell length data.

[c] 1984 data lack the median and the re-entry rate at 24 months.

[d] For 1984 and 1991, multiple adults-present households are presented instead of married adults households; see text for implications.

The analysis using the 1984 panel includes only six subgroups, whereas the analysis from the 1991 panel has data available for all subgroups except those living in households with TANF income.[42] For the study using the 2001 panel, all nine subgroups have a full complement of data with the exception of life table analyses of completed SNAP spells of the cross-sectional sample. Note also that there are no trigger data available for subgroups in 1991. While preparing the 2004 analysis, we went back to the original 2001 analysis files and replicated many measures to ensure accuracy and compatibility of the 2001 and 2004 data. In this process we also expanded the 2001 life table analysis of completed SNAP spells of the cross-sectional sample from the total population to include subgroups as well. Those data are included in this chapter's tables.

B. Subgroup Definitions

As is often the case with studies that evolve over time, subgroup definitions have been modified and revised to reflect changes in both data and analytical needs. Understanding how the definitions have changed is important to properly assessing how dynamics have changed. We provide a brief summary of the changes in Table III.3 and present the differences in more detail in Appendix B.

[42] In 1996, welfare reform replaced AFDC with TANF, but that there was no subgroup analysis for AFDC households for the 1991 panel.

Table III.3 Varying Definitions of Certain Populations Over Time

	Burstein (1993)	Gleason et al. (1998)	Cody et al. (2007)	Current
At-risk population for entry rates	Nonparticipating population with income under 300 percent of poverty at some point in the panel period	Total nonparticipating population	Nonparticipating population with income under 300 percent of poverty at some point in the panel period	Nonparticipating population with income under 300 percent of poverty at some point in the panel period
Household/Family Composition	Based on relationships and characteristics within the entire household or dwelling unit	Based on relationships and characteristics within the entire household or dwelling unit	Based on relationships and characteristics within the family—all those related to the household head	Based on relationships and characteristics within the family—all those related to the household head

C. Point at which Subgroup Membership is Determined

For some types of subgroup analyses, subgroup membership must be determined at a particular point in time, even though it may actually change during the specific period being analyzed. For example, if a participating family starts its spell with earnings, but then loses the earnings, their participation spell will continue, but they will have changed from a subgroup with earnings to a subgroup without earnings. We do not want to divide their spell into two distinct spells, one for the period in which they had earnings and one for the period in which they did not, so we need to choose one. Below, we explain the point in time at which we place individuals into certain subgroups for each of the measures.

At-risk and entrants

Subgroup membership for the at-risk population and SNAP entrants is determined on a month-by-month basis. For these measures only, the subgroup assignment is allowed to change on a monthly basis if respondents' characteristics change. Each month, from month 3 to month 31, individuals are placed into the at-risk subgroup based on their current characteristics. We then examine the subsequent month to see if they entered. We identify those who enter in the

subsequent month as new entrants and classify them based on their previous month characteristics. For example, of all the person months in which individuals met the definition of at-risk, 3.3 percent were single parents. Of all the persons in every month examined who entered SNAP, 8.6 percent were single parents.

Entry rates

For entry rates, we determine each individual's subgroup membership as of the month preceding entry for monthly entry rates, as of the last month preceding the wave of entry for wave-based entry rates, and as of the last month preceding the year of entry for annual entry rates.

New SNAP spells

We determine the subgroup of new spells in the same manner as the monthly entry rate: the month preceding SNAP entry.

Subsequent and completed spells of the cross-sectional sample

The cross-sectional samples consist of all SNAP spells active as of a given month. For 2001 and 2004 panels, this month is May 2001 and 2004, respectively, the first common month in the second wave. Subgroup determinations are also made as of that month.

Re-entry rates

Re-entry rates are the result of calculations of the end of a new SNAP spell and the initiation of another SNAP spell. We refer back to original new spell to determine the subgroup of the spell off SNAP and the subsequent re-entry, if it occurs. Subgroups for off spells and re-entry rates are determined as of the month preceding the original "new" SNAP entry.

Exit triggers

Since exit trigger events use a four-month reference period, the subgroup for exit trigger analysis is determined four months previous to exiting a SNAP spell.

D. Subgroups Trends through Time

In the sections below, we discuss how dynamics differ within subgroups across time and in comparison to the total population. Table III.4 provides a brief summary of how the dynamics compare to the total population.

Table III.4 Subgroup Dynamics In Comparison to Total Population Dynamics

	Entry Rates	New-entrant spells	Subsequent/completed spells for cross-section	Time before Re-entry
Single Adults with Children	Much higher	Longer	Longer	Longer
Children of Single Parents	Much higher	Longer	Longer	Shorter
Married Adults with Children	Lower	Shorter	Shorter	Longer
Children of Married Parents	Higher	Longer	Shorter	Shorter
Elderly	Much lower	Longer	Much longer	Longer
Nonelderly, nondisabled, childless adults	Much lower	Much shorter	Much shorter	Longer
Noncitizens	Mixed	Shorter	Shorter	Mixed
Individuals in Families with Earnings	Lower	Shorter	Shorter	Longer
Individuals in Families with TANF	Very much higher	Mixed	Longer	Shorter

1. Total Population

Table III.5.1 for the total population and total SNAP spells sets the stage for the other groups (Tables III.5.2-5.10), and provides the comparative base. Some of the measures in the tables represent percentages of this total, and they appear in this table as 100.0 percent.

Table III.5.1 Historic Subgroup SNAP Dynamics Data: Total Population

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
At-risk populations and SNAP entrants				
Percent of the at-risk population	100.0	100.0	100.0	100.0
Percent of entrants	100.0	100.0	100.0	100.0
Entry rates				
Monthly	--	0.3	0.4	0.5
Wave-based	2.0	--	1.8	2.0
Annual	--	2.6	4.1	4.2
Spell length of new spells				
Median months	6	9	8	10
Cumulative exit at 4 months or less	41.1	32	32.6	27.5
Cumulative exit at 12 months or less	68.1	57	61.4	57.9
Cumulative exit at 24 months or less	80.3	71	74.1	74.3
Percent of overall spells at 1 month [a]	--	--	100.0	100.0
Percent of overall spells at 4 months	--	--	100.0	100.0
Percent of overall spells at 12 months	--	--	100.0	100.0
Percent of overall spells at 24 months	--	--	100.0	100.0
Subsequent spell length for cross-sectional sample				
Median months	--	--	19	> 27
Cumulative exit at 4 months or less	--	12	20.3	15.2
Cumulative exit at 12 months or less	--	27	40.0	30.8
Cumulative exit at 24 months or less	--	43	57.4	46.7
Percent of overall spells at 1 month [a]	--	--	100.0	100.0
Percent of overall spells at 4 months	--	--	100.0	100.0
Percent of overall spells at 12 months	--	--	100.0	100.0
Percent of overall spells at 24 months	--	--	100.0	100.0
Completed spell length for cross-sectional sample				
Cumulative exit at 6 months or less	--	--	10.1	8.0
Cumulative exit at 1 year or less	--	--	20.8	17.4
Cumulative exit at 2 years or less	--	--	34.6	28.6
Cumulative exit at 4 years or less	--	--	51.5	41.5
Cumulative exit at 8 years or less	--	--	62.7	52.9
Percent of overall spells at 1 month [a]	--	--	100.0	100.0
Percent of overall spells at 1 year	--	--	100.0	100.0
Percent of overall spells at 2 years	--	--	100.0	100.0
Percent of overall spells at 4 years	--	--	100.0	100.0
Percent of overall spells at 8 years	--	--	100.0	100.0

Table III.5.1 Total Population, *continued*

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
Re-entry rates				
Median nonparticipation spell in months	--	20	16	20
Cumulative re-entry at 4 months or less	11.6	25	24.0	22.2
Cumulative re-entry at 12 months or less	38.3	42	45.0	42.1
Cumulative re-entry at 24 months or less	--	54	55.4	52.9
Exit triggers				
Increase in earnings	28.6	--	26.7	24.0
Increase in other income	13.0	--	20.7	17.5
Increase in family size	--	--	26.9	22.2
Decrease in family size	--	--	29.4	28.9
Any trigger	--	--	24.8	21.4

"--" indicates data fields that cannot be completed

Source: Decision Demographics weighted tabulations of the 2004 SIPP panel, 2001 SIPP panel data, Cody (2007), 1991 SIPP panel data from Gleason (1998)

Notes:

[a] Percent of Overall Spells at Beginning of Period is the subgroup percent of the totals shown in life table columns (a) in Tables II.12, II.14, II.16, and II.23 for 2004. Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. These panels show the percent of the total spells across all groups accounted for by this subgroup at each juncture.

Subgroup determinations for 2001 and 2004. At-risk and entrants: person month basis, reference month. Entry rates: month preceding entry for monthly entry rates; last month preceding the wave of entry for wave-based entry rates; and last month preceding the year of entry for annual entry rates. New SNAP spells: the month preceding new SNAP entry. Re-entry rates: the month preceding the original "new" SNAP entry. Subsequent and completed spells of the cross-sectional sample: May 2001 or May 2004, the first common month in the second wave. Exit triggers: four months previous to exiting a SNAP spell. Similar determinations were made for 1991 and 1986.

2. Single Parents

Single parent- adults make up about three percent of the population at risk, but account for nine percent of SNAP entrants in 2001 and 2004[43]—a result of an entry rate that is about three times the level found in the total population. They account for a larger share of the at-risk population in 2001 and 2004 than they did in 1984 and 1991, and also a larger share of new entrants.

[43] For brevity's sake, data coming from each of the four studies will be simply referred to by the initial year of the SIPP panel on which it is based: findings based on Burstein, et al. are referred to simply as 1984 data; Gleason, et al. findings will go by 1991, Cody, et al. will be 2001, and the current study as 2004.

Single parents' median new spell length is consistently longer than for the total population, by as much as seven months in 1991 and as little as one month in 2004. Exits from new SNAP spells occur at a rate that is slower than for the total population, which corresponds to the longer median spell length. Of the years examined, 1991 had the lowest 24-month cumulative exit rate, at 59 percent; 2004 had the highest, at 69 percent.

The subsequent spell length measures how many additional months recipients will spend in the program from that common month forward. The subsequent spell length, as measured by cumulative exit percentages, was substantially longer in 1991 than it was during the 2001 SIPP, and 2004 is between those two extremes. At 12 months, 15 percent had exited in 1991, while the 2001 and 2004 cumulative exit rates of 35 and 30 percent, respectively, were close to the values for the total population. As a proportion of overall SNAP spells of various lengths, single parents' shares gradually increase with increasing spell length. This is consistent with other research that observed the longer spells of assistance among this subgroup and their children.

Re-entry among single parents occurs at a slightly slower rate than for the full population in 2004 (24 months versus 20 months for the median nonparticipation spell), though it was slightly faster for single parents in 2001 than for the full population (14 months versus 16 months for the median nonparticipation spell). The percentage of single parents re-entering within two years was similar to the percentage for the total population for 1991, 2001, and 2004.

The most common single parent exit trigger in 2001 and 2004 was a decrease in family size. This trigger is also more frequently found among single parents in comparison to the total population exit triggers. Increases in earned or unearned income occurred less frequently among single parents in comparison to the total population exit triggers.

Table III.5.2 Historic Subgroup SNAP Dynamics Data: Single Parents [a]

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
At-risk populations and SNAP entrants				
Percent of the at-risk population	2.4	1.6	3.2	3.3
Percent of entrants	4.3	4.7	9.2	8.6
Entry rates				
Monthly	--	0.9	1.3	1.4
Wave-based	3.6	--	4.8	5.1
Annual	--	7.0	9.8	9.8
Spell length of new spells				
Median months	9	16	11	11
Cumulative exit at 4 months or less	27.4	17	25.5	19.9
Cumulative exit at 12 months or less	55.3	44	55.4	54.9
Cumulative exit at 24 months or less	65.7	59	69.0	68.4
Percent of overall spells at 1 month [b]	--	--	9.2	8.6
Percent of overall spells at 4 months	--	--	9.4	8.8
Percent of overall spells at 12 months	--	--	11.0	9.2
Percent of overall spells at 24 months	--	--	14.4	10.1
Subsequent spell length for cross-sectional sample				
Median months	--	--	23	> 27
Cumulative exit at 4 months or less	--	5	17.1	11.7
Cumulative exit at 12 months or less	--	15	35.1	29.9
Cumulative exit at 24 months or less	--	30	53.6	43.3
Percent of overall spells at 1 month [b]	--	--	12.9	11.3
Percent of overall spells at 4 months	--	--	13.5	11.5
Percent of overall spells at 12 months	--	--	14.1	11.5
Percent of overall spells at 24 months	--	--	14.3	12.2
Completed spell length for cross-sectional sample				
Cumulative exit at 6 months or less	--	--	6.4	4.8
Cumulative exit at 1 year or less	--	--	15.9	12.6
Cumulative exit at 2 years or less	--	--	29.8	23.8
Cumulative exit at 4 years or less	--	--	47.2	40.4
Cumulative exit at 8 years or less	--	--	58.1	51.4
Percent of overall spells at 1 month [b]	--	--	13.0	11.4
Percent of overall spells at 1 year	--	--	13.6	11.8
Percent of overall spells at 2 years	--	--	13.9	12.1
Percent of overall spells at 4 years	--	--	14.2	12.7
Percent of overall spells at 8 years	--	--	13.6	12.5

Table III.5.2 Single Parents, *continued*

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
Re-entry rates				
Median nonparticipation spell in months	--	22	14	24
Cumulative re-entry at 4 months or less	16.2	25	27.0	21.0
Cumulative re-entry at 12 months or less	41.0	36	47.4	41.4
Cumulative re-entry at 24 months or less	--	55	57.8	52.8
Exit triggers				
Increase in earnings	26.0	--	22.2	20.4
Increase in other income	2.7	--	14.3	14.9
Increase in family size	--	--	27.3	21.4
Decrease in family size	--	--	41.9	35.0
Any trigger	--	--	19.1	17.3

"--" indicates data fields that cannot be completed

Source: Decision Demographics weighted tabulations of the 2004 SIPP panel, 2001 SIPP panel data, Cody (2007), 1991 SIPP panel data from Gleason (1998)

Notes:

[a] The "single parents" subgroup actually corresponds to two different definitions: in 1984 and 1991 it is adults in *households* with children and one adult, while in 2001 and 2004 it is adults in *families* with children and one adult. Please refer to the text for a further exploration of these distinctions.

[b] Percent of Overall Spells at Beginning of Period is the subgroup percent of the totals shown in life table columns (a) in Tables II.12, II.14, II.16, and II.23 for 2004. Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. These panels show the percent of the total spells across all groups accounted for by this subgroup at each juncture.

Subgroup determinations for 2001 and 2004. At-risk and entrants: person month basis, reference month. Entry rates: month preceding entry for monthly entry rates; last month preceding the wave of entry for wave-based entry rates; and last month preceding the year of entry for annual entry rates. New SNAP spells: the month preceding new SNAP entry. Re-entry rates: the month preceding the original "new" SNAP entry. Subsequent and completed spells of the cross-sectional sample: May 2001 or May 2004, the first common month in the second wave. Exit triggers: four months previous to exiting a SNAP spell. Similar determinations were made for 1991 and 1986.

3. Children of Single Parents

Children of single parents make up about five percent of the population at risk, but account for 16 to 17 percent of SNAP entrants in both 2001 and 2004. This is a result of entry rates that are consistently three times the rates for the total population at risk. In 2001 and 2004, these children form a larger share of the at-risk population than they did in 1984 and 1991, but also represent a much larger percentage of entrants.

Children of single parents' median new spell length is consistently longer than the total population, by as much as six months in 1984 but as little as 2 months in 2004. In each of the time periods examined, about half of the children's spells end within one year.

The subsequent spell length changed substantially over the time periods. In 1991, 14 percent of children of single parents participating early in the panel period exit within a year. In 2001, over a third exit within a year, indicating generally shorter subsequent spells. In 2004, fewer were exiting within a year than in 2001, but more than in 1991. Similarly, the completed spell length for those that were participating at a given point in time, was longer in 2004 than in 2001, with fewer exiting in 2004 at 1 year, 2 years, 4 years, and 8 years. In 2004, half leave within 8 years while in 2001, over half leave within 4 years. At the start of subsequent and completed spells in 2004, children of single parents accounted for 22 percent of all spells, and by 24 months this grows to nearly 25 percent.

In 2001 and 2004, re-entry among children of single parents occurs faster than among the total population, though in 1991 the rates for the children and total population were fairly similar. The children's median time off SNAP after a spell was 12 months in 2001, 4 months less than for the total population, and 13 months in 2004, 7 months less than for the total population. Generally, children of single parents are more dependent on SNAP than their parents, which implies that single parent families with more children are more dependent on SNAP.

The most common exit trigger for children of single parents in 2001 and 2004 was a decrease in family size, reflecting the pattern set by their parents, although fewer children experienced this as a trigger in 2004 than in 2001 (a 10-percentage point difference). Indeed, all of the listed exit triggers declined in frequency among this group.

Table III.5.3 Historic Subgroup SNAP Dynamics Data: Children of Single Parents [a]

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
At-risk populations and SNAP entrants				
Percent of the at-risk population	3.6	2.3	5.0	4.9
Percent of entrants	9.8	8.3	17.4	16.1
Entry rates				
Monthly	--	1.1	1.6	1.7
Wave-based	5.5	--	5.9	6.5
Annual	--	10.2	11.1	11.9
Spell length of new spells				
Median months	12	13	12	12
Cumulative exit at 4 months or less	24.0	19	23.2	19.1
Cumulative exit at 12 months or less	50.7	49	50.9	50.8
Cumulative exit at 24 months or less	61.3	64	67.3	66.4
Percent of overall spells at 1 month [b]	--	--	17.4	16.1
Percent of overall spells at 4 months	--	--	18.2	17.0
Percent of overall spells at 12 months	--	--	22.5	18.8
Percent of overall spells at 24 months	--	--	27.4	21.0
Subsequent spell length for cross-sectional sample				
Median months	--	--	22	> 27
Cumulative exit at 4 months or less	--	4	16.8	10.0
Cumulative exit at 12 months or less	--	14	35.6	26.6
Cumulative exit at 24 months or less	--	27	55.7	41.4
Percent of overall spells at 1 month [b]	--	--	25.4	22.2
Percent of overall spells at 4 months	--	--	26.7	23.1
Percent of overall spells at 12 months	--	--	27.9	23.6
Percent of overall spells at 24 months	--	--	27.4	25.0
Completed spell length for cross-sectional sample				
Cumulative exit at 6 months or less	--	--	6.8	3.3
Cumulative exit at 1 year or less	--	--	16.0	10.3
Cumulative exit at 2 years or less	--	--	31.5	20.9
Cumulative exit at 4 years or less	--	--	51.2	37.1
Cumulative exit at 8 years or less	--	--	64.5	50.1
Percent of overall spells at 1 month [b]	--	--	25.3	22.0
Percent of overall spells at 1 year	--	--	26.2	23.2
Percent of overall spells at 2 years	--	--	26.7	24.1
Percent of overall spells at 4 years	--	--	26.3	25.3
Percent of overall spells at 8 years	--	--	23.8	23.5

Table III.5.3 Children of Single Parents, *continued*

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
Re-entry rates				
Median nonparticipation spell in months	--	20	12	13
Cumulative re-entry at 4 months or less	14.5	27	29.5	28.2
Cumulative re-entry at 12 months or less	49.9	39	50.1	48.6
Cumulative re-entry at 24 months or less	--	53	64.8	60.6
Exit triggers				
Increase in earnings	24.9	--	20.5	17.8
Increase in other income	7.0	--	14.9	13.3
Increase in family size	--	--	25.0	18.1
Decrease in family size	--	--	34.6	23.0
Any trigger	--	--	18.1	15.0

"--" indicates data fields that cannot be completed

Source: Decision Demographics weighted tabulations of the 2004 SIPP panel, 2001 SIPP panel data, Cody (2007), 1991 SIPP panel data from Gleason (1998)

Notes:

[a] The children of single parents subgroup actually corresponds to two different definitions: in 1984 and 1991 it is children in *households* with children and one adult, while in 2001 and 2004 it is children in *families* with children and one adult. Please refer to the text for a further exploration of these distinctions.

[b] Percent of Overall Spells at Beginning of Period is the subgroup percent of the totals shown in life table columns (a) in Tables II.12, II.14, II.16, and II.23 for 2004. Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. These panels show the percent of the total spells across all groups accounted for by this subgroup at each juncture.

Subgroup determinations for 2001 and 2004. At-risk and entrants: person month basis, reference month. Entry rates: month preceding entry for monthly entry rates; last month preceding the wave of entry for wave-based entry rates; and last month preceding the year of entry for annual entry rates. New SNAP spells: the month preceding new SNAP entry. Re-entry rates: the month preceding the original "new" SNAP entry. Subsequent and completed spells of the cross-sectional sample: May 2001 or May 2004, the first common month in the second wave. Exit triggers: four months previous to exiting a SNAP spell. Similar determinations were made for 1991 and 1986.

4. Multiple or Married Adults with Children[44]

Married adults with children make up 23 percent of the population at risk, but represent only 18 and 16 percent of new entrants in 2001 and 2004, respectively. This is a result of entry rates that are consistently lower than for the total population.

[44] This category refers to married adults with children in 2001 and 2004 and adults in households with multiple adults (either married or unmarried) and children in 1984 and 1991. See Appendix B for implications.

Their new spells are slightly shorter than the spells for the total population—the median is typically the same or one month less than for the full population, and a larger percentage exit within the specified points in time, across all years examined.

The subsequent spell lengths for multiple or married adults with children are similar in 1991 and 2004, with just about one-fifth of those participating in a given month participating for another 4 months or less and over one-third participating for another 12 months or less. In 2001, the subsequent spell length is shorter than the other two periods, with half having exited within 12 months. Similarly, for the completed spell length, participants exit at a slower rate in 2004 than in 2001, with almost two-thirds exiting within four years in 2001 and just over half exiting in four years in 2004.

The share of long spells that married adults with children account for is smaller than those for single parents because their percentage of overall SNAP spells consistently drops with increasing spell length. For subsequent and completed spells lasting at least one month in the 2004 cross-sectional sample, they account for 12 percent of all spells. For spells of 24 months, the share declines slightly to 11 percent, and among those with completed spells lasting at least eight years, married adults account for less than seven percent.

Their median time off SNAP after a spell is the maximum measurable, over 27 months in 2004, and their cumulative re-entry rates are lower than the total population. These patterns are slightly more pronounced in 2001 than in 2004.

The most common exit trigger for married adults with children in 2001 and 2004 was a decrease in family size, followed by increases in earned income. Exits due to higher earnings and income declined between 2001 and 2004.

Table III.5.4 Historic Subgroup SNAP Dynamics Data: Married Adults with Children [a]

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
At-risk populations and SNAP entrants				
Percent of the at-risk population	32.9	28.7	22.7	22.7
Percent of entrants	36.0	34.8	17.5	15.5
Entry rates				
Monthly	--	0.4	0.3	0.4
Wave-based	2.2	--	1.4	1.4
Annual	--	2.9	3.5	3.1
Spell length of new spells				
Median months	5	8	8	9
Cumulative exit at 4 months or less	47.2	36	38.1	29.9
Cumulative exit at 12 months or less	72.9	63	68.2	60.5
Cumulative exit at 24 months or less	87.3	76	78.3	78.9
Percent of overall spells at 1 month [b]	--	--	17.5	15.5
Percent of overall spells at 4 months	--	--	16.9	15.1
Percent of overall spells at 12 months	--	--	14.8	14.2
Percent of overall spells at 24 months	--	--	10.7	12.2
Subsequent spell length for cross-sectional sample				
Median months	--	--	12	22
Cumulative exit at 4 months or less	--	20	27.8	19.0
Cumulative exit at 12 months or less	--	38	50.1	35.7
Cumulative exit at 24 months or less	--	56	66.7	52.5
Percent of overall spells at 1 month [b]	--	--	12.6	12.1
Percent of overall spells at 4 months	--	--	11.6	11.8
Percent of overall spells at 12 months	--	--	10.3	11.0
Percent of overall spells at 24 months	--	--	9.3	10.6
Completed spell length for cross-sectional sample				
Cumulative exit at 6 months or less	--	--	15.4	10.8
Cumulative exit at 1 year or less	--	--	28.3	23.0
Cumulative exit at 2 years or less	--	--	43.0	36.9
Cumulative exit at 4 years or less	--	--	62.4	51.7
Cumulative exit at 8 years or less	--	--	76.3	64.6
Percent of overall spells at 1 month [b]	--	--	12.7	12.2
Percent of overall spells at 1 year	--	--	11.9	11.8
Percent of overall spells at 2 years	--	--	11.4	10.9
Percent of overall spells at 4 years	--	--	9.1	9.0
Percent of overall spells at 8 years	--	--	7.7	6.8

Table III.5.4 Married Adults with Children, *continued*

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
Re-entry rates				
Median nonparticipation spell in months	--	18	> 24	> 27
Cumulative re-entry at 4 months or less	12.4	27	18.5	15.9
Cumulative re-entry at 12 months or less	37.2	44	39.3	36.5
Cumulative re-entry at 24 months or less	--	54	45.9	46.8
Exit triggers				
Increase in earnings	30.6	--	29.3	26.6
Increase in other income	15.4	--	28.5	22.3
Increase in family size	--	--	22.3	18.3
Decrease in family size	--	--	32.9	36.7
Any trigger	--	--	29.5	25.1

"--" indicates data fields that cannot be completed

Source: Decision Demographics weighted tabulations of the 2004 SIPP panel, 2001 SIPP panel data, Cody (2007), 1991 SIPP panel data from Gleason (1998)

Notes:

[a] The married adults with children subgroup actually corresponds to two distinct definitions of subgroups as noted above; in 1984 and 1991 it is adults living in a *household* with other adults and children, while in 2001 and 2004 it is adults in *families* with children and a *married* head. Please refer to the text for a further exploration of these distinctions.

[b] Percent of Overall Spells at Beginning of Period is the subgroup percent of the totals shown in life table columns (a) in Tables II.12, II.14, II.16, and II.23 for 2004. Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. These panels show the percent of the total spells across all groups accounted for by this subgroup at each juncture.

Subgroup determinations for 2001 and 2004. At-risk and entrants: person month basis, reference month. Entry rates: month preceding entry for monthly entry rates; last month preceding the wave of entry for wave-based entry rates; and last month preceding the year of entry for annual entry rates. New SNAP spells: the month preceding new SNAP entry. Re-entry rates: the month preceding the original "new" SNAP entry. Subsequent and completed spells of the cross-sectional sample: May 2001 or May 2004, the first common month in the second wave. Exit triggers: four months previous to exiting a SNAP spell. Similar determinations were made for 1991 and 1986.

5. Children of Multiple or Married Adults[45]

Children of married adults make up 19 percent of the population at risk (compared to 5 percent for children of single parents) and 16 percent of new entrants in 2001 and 2004. Because children of married adults enter SNAP at lower levels and rates compared with the general at-risk population, they account for about the same share of new entrants as children of single

[45] This category refers to children of married adults in 2001 and 2004 and children in households with multiple adults (either married or unmarried) and children in 1984 and 1991. See Appendix B for implications.

parents. Their median new spell length in 2004 is 11 months, one more than the total population. In 2001 it is the same length as the total—eight months.

Their cumulative exit percentages are about equal to the total population for new spells; however they exit subsequent and completed spells of the cross-sectional sample at a slightly higher rate than the total.

The median subsequent spell length for children of married adults increased from 16 to 21 months between 2001 and 2004. The 2004 patterns of cumulative exit rates closely parallel those of 1991, which probably had about the same median subsequent spell length. Over half of subsequent spells in 1991 and 2004 ended by 24 months, whereas in 2001, two-thirds of such spells ended by 24 months. As a proportion of overall SNAP spells of various lengths, children of married adults' shares gradually decreases with increasing spell length.

Longer completed spell lengths result from lower exit rates. Table III.5.5 shows that cumulative exit rates for children of married adults were lower in the 2004 analysis period compared with the 2001 for all lengths of spells except six months.

Re-entry for children of married adults occurs at a somewhat higher rate than for the overall population. Their median time off SNAP after a spell was 12 months in 2001 and 13 months in 2004. About one-quarter of the subgroup re-enters within four months, and about 60 percent re-enter within 24 months. Generally, children of married adults are more dependent on SNAP than their parents, which implies that families with more children are more dependent on SNAP than smaller families.

Income increases and family size increases affected children of married adults the most in 2001. By 2004, the frequency of these triggers had declined somewhat, and the most common exit trigger for children of married adults was a decrease in family size.

III.5.5 Historic Subgroup SNAP Dynamics Data: Children of Married Adults [a]

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
At-risk populations and SNAP entrants				
Percent of the at-risk population	26.7	22.0	19.1	18.6
Percent of entrants	34.5	33.2	16.0	16.2
Entry rates				
Monthly	--	0.5	0.4	0.5
Wave-based	2.6	--	1.6	1.8
Annual	--	3.7	3.9	3.9
Spell length of new spells				
Median months	6	12	8	11
Cumulative exit at 4 months or less	40.4	30	31.3	26.2
Cumulative exit at 12 months or less	70.9	52	65.2	55.4
Cumulative exit at 24 months or less	84.5	69	78.5	78.9
Percent of overall spells at 1 month [b]	--	--	15.9	16.2
Percent of overall spells at 4 months	--	--	16.1	16.1
Percent of overall spells at 12 months	--	--	15.2	17.0
Percent of overall spells at 24 months	--	--	11.2	12.2
Subsequent spell length for cross-sectional sample				
Median months	--	--	16	21
Cumulative exit at 4 months or less	--	15	23.0	17.6
Cumulative exit at 12 months or less	--	32	44.8	34.3
Cumulative exit at 24 months or less	--	52	67.9	56.1
Percent of overall spells at 1 month [b]	--	--	11.8	13.3
Percent of overall spells at 4 months	--	--	11.4	13.2
Percent of overall spells at 12 months	--	--	10.8	12.8
Percent of overall spells at 24 months	--	--	9.4	11.4
Completed spell length for cross-sectional sample				
Cumulative exit at 6 months or less	--	--	8.9	10.2
Cumulative exit at 1 year or less	--	--	22.1	19.0
Cumulative exit at 2 years or less	--	--	36.8	35.2
Cumulative exit at 4 years or less	--	--	57.6	49.8
Cumulative exit at 8 years or less	--	--	70.6	65.0
Percent of overall spells at 1 month [b]	--	--	11.5	13.0
Percent of overall spells at 1 year	--	--	11.7	12.8
Percent of overall spells at 2 years	--	--	11.4	12.4
Percent of overall spells at 4 years	--	--	10.6	11.4
Percent of overall spells at 8 years	--	--	9.2	9.6

Table III.5.5 Children of Married Adults, *continued*

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
Re-entry rates				
Median nonparticipation spell in months	--	13	12	13
Cumulative re-entry at 4 months or less	11.7	28	28.4	24.5
Cumulative re-entry at 12 months or less	39.2	50	52.1	49.8
Cumulative re-entry at 24 months or less	--	61	60.1	57.9
Exit triggers				
Increase in earnings	26.1	--	28.7	24.4
Increase in other income	10.2	--	27.1	20.0
Increase in family size	--	--	26.8	19.4
Decrease in family size	--	--	18.8	25.5
Any trigger	--	--	27.8	22.6

"--" indicates data fields that cannot be completed

Source: Decision Demographics weighted tabulations of the 2004 SIPP panel, 2001 SIPP panel data, Cody (2007), 1991 SIPP panel data from Gleason (1998)

Notes:

[a] The children of married adults subgroup actually corresponds to two distinct definitions of subgroups as noted above; in 1984 and 1991 it is children living in a *household* with multiple adults, while in 2001 and 2004 it is children in *families* with children and a *married* head. Please refer to the text for a further exploration of these distinctions.

[b] Percent of Overall Spells at Beginning of Period is the subgroup percent of the totals shown in life table columns (a) in Tables II.12, II.14, II.16, and II.23 for 2004. Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. These panels show the percent of the total spells across all groups accounted for by this subgroup at each juncture.

Subgroup determinations for 2001 and 2004. At-risk and entrants: person month basis, reference month. Entry rates: month preceding entry for monthly entry rates; last month preceding the wave of entry for wave-based entry rates; and last month preceding the year of entry for annual entry rates. New SNAP spells: the month preceding new SNAP entry. Re-entry rates: the month preceding the original "new" SNAP entry. Subsequent and completed spells of the cross-sectional sample: May 2001 or May 2004, the first common month in the second wave. Exit triggers: four months previous to exiting a SNAP spell. Similar determinations were made for 1991 and 1986.

6. Elderly Adults

Elderly adults have low SNAP entry rates, but relatively long spells and relatively low cumulative exit rates. In fact, if we compare spells that last at least 4 months to those that last at least 24 months, we find that the elderly represent a greater share of participants in the 24-month spells (11.8 percent for new spells) than in the 4-month spells (6.9 percent for new spells). More generally, in examining new entrant spells and spells from cross-section of participants, the longer the spell, the greater the proportion attributable to elderly adults. These findings are

consistent across the 1991, 2001, and 2004 panels. Elderly individuals have been a growing portion of the population at risk of entering SNAP, accounting for over 18 percent in 2004 compared to 17 percent in 1991 and 16 percent in 2001. However, only seven percent of SNAP entrants were elderly in 2004 and six percent elderly in earlier periods.

The median new spell length for elderly adults is 10 months in 1991, compared to 12 months in 2001 and 2004, while the corresponding figures for the total population are 9, 8, and 10 months. Elderly spell lengths increase between 1991 and 2001 when spell lengths for the total population decline. In 2004, elderly spells remain longer.

In 2001 and 2004, when we include the longer spells that are found in the cross-sectional samples, the length of elderly spells and the slower pace of their cumulative exit are striking. The median subsequent spell length for elderly adults is over 24 months in 2001 and over 27 months in 2004. In 2004, the cumulative exit rates for elderly adults are about half those of the total population, and less than a quarter of their subsequent spells end by 24 months. The 2001 period shows the highest rate of exit of the elderly among the years examined, while the 2004 period shows the lowest. Elderly adults have consistently lower cumulative exit rates at every point in time for the 2004 analysis period compared with the 2001. When considering spells of different lengths, the elderly account for higher proportions of longer spells, however these proportions are still less than the percent they make up of the at-risk population.

Once the elderly exit SNAP, they are also slow to rejoin the program. In 1991, 2001 and 2004, their median time off SNAP is the longest measurable, and their cumulative re-entry rates at 12 and 24 months are 20 to 30 percent lower than the total population.

Decrease in family size is the strongest trigger for elderly exits in both 2001 and 2004. Ironically, increase in family size is the second strongest exit trigger, possibly because it may bring an increase in family income.

III.5.6 Historic Subgroup SNAP Dynamics Data: Elderly Adults (Age 60 or Older)

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
At-risk populations and SNAP entrants				
Percent of the at-risk population	--	16.4	17.3	18.2
Percent of entrants	--	5.9	6.0	7.1
Entry rates				
Monthly	--	0.1	0.2	0.2
Wave-based	--	--	0.6	0.8
Annual	--	1.1	1.3	1.6
Spell length of new spells				
Median months	--	10	12	12
Cumulative exit at 4 months or less	--	33	30.2	32.9
Cumulative exit at 12 months or less	--	57	50.1	52.5
Cumulative exit at 24 months or less	--	67	60.9	60.9
	--			
Percent of overall spells at 1 month [a]	--	--	6.0	7.1
Percent of overall spells at 4 months	--	--	6.2	6.9
Percent of overall spells at 12 months	--	--	7.1	8.3
Percent of overall spells at 24 months	--	--	9.1	11.8
Subsequent spell length for cross-sectional sample				
Median months	--	--	> 24	> 27
Cumulative exit at 4 months or less	--	11	13.8	8.7
Cumulative exit at 12 months or less	--	25	30.3	16.0
Cumulative exit at 24 months or less	--	34	40.0	23.7
Percent of overall spells at 1 month [a]	--	--	9.7	9.2
Percent of overall spells at 4 months	--	--	10.0	9.6
Percent of overall spells at 12 months	--	--	10.6	10.6
Percent of overall spells at 24 months	--	--	12.2	12.2
Completed spell length for cross-sectional sample				
Cumulative exit at 6 months or less	--	--	6.9	4.5
Cumulative exit at 1 year or less	--	--	13.4	9.9
Cumulative exit at 2 years or less	--	--	20.8	14.7
Cumulative exit at 4 years or less	--	--	28.5	16.8
Cumulative exit at 8 years or less	--	--	38.7	22.4
Percent of overall spells at 1 month [a]	--	--	9.8	9.2
Percent of overall spells at 1 year	--	--	10.1	9.6
Percent of overall spells at 2 years	--	--	11.0	10.6
Percent of overall spells at 4 years	--	--	14.4	11.7
Percent of overall spells at 8 years	--	--	17.7	15.3

Table III.5.6 Elderly Adults, *continued*

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
Re-entry rates				
Median nonparticipation spell in months	--	> 30	> 24	> 27
Cumulative re-entry at 4 months or less	--	21	22.8	16.3
Cumulative re-entry at 12 months or less	--	30	35.9	28.8
Cumulative re-entry at 24 months or less	--	38	42.8	33.2
Exit triggers				
Increase in earnings	--	--	16.5	20.9
Increase in other income	--	--	20.4	12.5
Increase in family size	--	--	22.0	29.6
Decrease in family size	--	--	37.7	48.4
Any trigger	--	--	22.0	21.1

"--" indicates data fields that cannot be completed

Source: Decision Demographics weighted tabulations of the 2004 SIPP panel, 2001 SIPP panel data, Cody (2007), 1991 SIPP panel data from Gleason (1998)

Notes:

[a] Percent of Overall Spells at Beginning of Period is the subgroup percent of the totals shown in life table columns (a) in Tables II.12, II.14, II.16, and II.23 for 2004. Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. These panels show the percent of the total spells across all groups accounted for by this subgroup at each juncture.

Subgroup determinations for 2001 and 2004. At-risk and entrants: person month basis, reference month. Entry rates: month preceding entry for monthly entry rates; last month preceding the wave of entry for wave-based entry rates; and last month preceding the year of entry for annual entry rates. New SNAP spells: the month preceding new SNAP entry. Re-entry rates: the month preceding the original "new" SNAP entry. Subsequent and completed spells of the cross-sectional sample: May 2001 or May 2004, the first common month in the second wave. Exit triggers: four months previous to exiting a SNAP spell. Similar determinations were made for 1991 and 1986.

7. Individuals in Childless Families without Elderly or Disabled Members

Non-elderly, non-disabled childless adults accounted for 20 to 22 percent of the at-risk population in 1991, 2001, and 2004—that is, one-fifth of low-income nonparticipants. However, they account for just one-tenth of program entrants in 2001 and 2004, as indicated by their lower than average entry rates. In 2001 and 2004, periods after the implementation of welfare reform, those from among this group who were unemployed, not participating in a work activity, or exempt because of high unemployment faced restrictive time limits and were eligible for SNAP for only 3 months out of any 36-month period. This put them in the at-risk pool without the

ability to enter. This does not explain the even greater disparity in 1991, though, when 20 percent of nonparticipants are in the subgroup, but they represent only 5 percent of entrants.

The median new spell length in 2004 is seven months, three months less than for the total population. Their cumulative exit percentages are consistently higher than for the total population, with almost three-quarters exiting within 12 months in 2001 and over two-thirds exiting within 12 months in 2004.

The median subsequent spell length for non-elderly, non-disabled childless adults was only 5 months in 2001 and 11 months in 2004. In 2001, nearly 50 percent exit by month four, and only 13 percent do not exit their subsequent spells by 24 months. Although 2004 shows lower rates of exit, with one-third exiting within four months, it remains larger than the one-fifth who exit within four months in 1991, before the time limits were put in place. We see similar patterns in the completed spell length, with generally longer spells in 2004 than in 2001, but still much shorter than for the total population. Non-elderly, non-disabled adults account for five percent of overall subsequent and completed spells as of the first month. Among spells that last two years, they account for three percent, and they make up less than two percent of spells that last eight years.

In addition to brief spells on SNAP, non-elderly non-disabled childless adults also have longer spells off the program before re-entry. Their median time off SNAP was 27 months in 1991, and longer than the maximum calculated in 2001 and 2004.

Virtually all shown triggers precede exits more often for the non-elderly, non-disabled adults than for the total population in 2001 and 2004. Twice the proportion of this subgroup experienced each of the exit triggers than the total population in 2001, and in 2004 nearly 75 percent more experienced such triggers.

III.5.7 Historic Subgroup SNAP Dynamics Data: Individuals in Childless Families Without Elderly or Disabled Members [a]

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
At-risk populations and SNAP entrants				
Percent of the at-risk population	13.5	20.1	21.9	20.9
Percent of entrants	8.1	4.9	11.0	10.2
Entry rates				
Monthly	--	0.1	0.2	0.2
Wave-based	1.2	0.1	0.9	1.0
Annual	--	0.8	2.4	2.4
Spell length of new spells				
Median months	5	4	5	7
Cumulative exit at 4 months or less	48.1	52	46.6	38.4
Cumulative exit at 12 months or less	78.2	76	73.7	69.7
Cumulative exit at 24 months or less	87.4	78	82.7	85.7
Percent of overall spells at 1 month [b]	--	--	10.9	10.1
Percent of overall spells at 4 months	--	--	9.9	9.1
Percent of overall spells at 12 months	--	--	6.9	7.0
Percent of overall spells at 24 months	--	--	6.2	6.3
Subsequent spell length for cross-sectional sample				
Median months	--	--	5	11
Cumulative exit at 4 months or less	--	19	47.9	33.0
Cumulative exit at 12 months or less	--	40	71.6	51.3
Cumulative exit at 24 months or less	--	55	86.6	69.7
Percent of overall spells at 1 month [b]	--	--	3.9	5.2
Percent of overall spells at 4 months	--	--	2.8	4.3
Percent of overall spells at 12 months	--	--	1.8	3.6
Percent of overall spells at 24 months	--	--	1.2	2.9
Completed spell length for cross-sectional sample				
Cumulative exit at 6 months or less	--	--	32.3	24.0
Cumulative exit at 1 year or less	--	--	56.8	41.8
Cumulative exit at 2 years or less	--	--	76.9	56.0
Cumulative exit at 4 years or less	--	--	90.8	68.7
Cumulative exit at 8 years or less	--	--	94.3	78.9
Percent of overall spells at 1 month [b]	--	--	4.0	5.3
Percent of overall spells at 1 year	--	--	3.0	4.3
Percent of overall spells at 2 years	--	--	1.7	3.5
Percent of overall spells at 4 years	--	--	0.8	2.6
Percent of overall spells at 8 years	--	--	0.6	1.7

Table III.5.7 Individuals in Childless Families Without Elderly or Disabled Members, *continued*

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
Re-entry rates				
Median nonparticipation spell in months	--	27	> 24	> 27
Cumulative re-entry at 4 months or less	7.8	8	16.1	15.9
Cumulative re-entry at 12 months or less	32.1	40	32.5	29.1
Cumulative re-entry at 24 months or less	--	47	42.9	40.7
Exit triggers				
Increase in earnings	28.6	--	53.3	40.2
Increase in other income	13.9	--	42.9	31.1
Increase in family size	--	--	52.0	36.9
Decrease in family size	--	--	57.4	52.6
Any trigger	--	--	49.3	36.9

"--" indicates data fields that cannot be completed

Source: Decision Demographics weighted tabulations of the 2004 SIPP panel, 2001 SIPP panel data, Cody (2007), 1991 SIPP panel data from Gleason (1998)

Notes:

[a] This category can be found consistently in the 1991, 2001, and 2004 data. In this 2004-based report, we also present data for "non-elderly, nondisabled, childless adults" which is determined on a person basis, a slightly different definition because such individuals could be living with an elderly or disabled person.

[b] Percent of Overall Spells at Beginning of Period is the subgroup percent of the totals shown in life table columns (a) in Tables II.12, II.14, II.16, and II.23 for 2004. Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. These panels show the percent of the total spells across all groups accounted for by this subgroup at each juncture.

Subgroup determinations for 2001 and 2004. At-risk and entrants: person month basis, reference month. Entry rates: month preceding entry for monthly entry rates; last month preceding the wave of entry for wave-based entry rates; and last month preceding the year of entry for annual entry rates. New SNAP spells: the month preceding new SNAP entry. Re-entry rates: the month preceding the original "new" SNAP entry. Subsequent and completed spells of the cross-sectional sample: May 2001 or May 2004, the first common month in the second wave. Exit triggers: four months previous to exiting a SNAP spell. Similar determinations were made for 1991 and 1986.

8. Noncitizens

Noncitizens can only be tracked in the 1991, 2001, and 2004 dynamics studies. In 2001 and 2004, the percentage of entrants that they account for is nearly half what it is in 1991, before restrictions on the eligibility of legally resident noncitizens took effect. Their entry rates are lower than those of the total population by 15 to 20 percent in 2004.

Generally, noncitizens' median spell lengths are shorter than the total population, and they exit all types of spells more rapidly. Their median new spell length in 2004 is eight months, two

months less than for the total population. Subsequent and completed spells of the cross-sectional sample tell a similar story, where their spells are relatively short, and their cumulative exit relatively fast, especially in the lower spell lengths. As a percent of all spells, noncitizens dropped between 2001 and 2004, when they accounted for a consistent five to six percent of total.

Of the years examined, noncitizens median spells off SNAP are shortest in 2004 and longest in 1991. In 1991 and 2001, they re-entered at a slower pace than the total population; in 2004, they re-entered more quickly than the total population.

Changes in family size or earnings were exit triggers for 30 to 35 percent of noncitizens in 2004, rates that were higher than those experienced by the total population, especially the increase in family size. Triggers preceded exits by noncitizens more often in 2004 than in 2001.

III.5.8 Historic Subgroup SNAP Dynamics Data: Noncitizens

SNAP Dynamics Topic	SIPP Panel			
	1984	1991	2001	2004
At-risk populations and SNAP entrants				
Percent of the at-risk population	--	5.8	6.4	7.3
Percent of entrants	--	11.2	6.7	6.0
Entry rates				
Monthly	--	0.5	0.5	0.4
Wave-based	--	--	1.9	1.7
Annual	--	3.7	4.7	3.3
Spell length of new spells				
Median months	--	8	7	8
Cumulative exit at 4 months or less	--	37	42.9	31.0
Cumulative exit at 12 months or less	--	59	69.3	59.9
Cumulative exit at 24 months or less	--	69	78.3	69.7
	--			
Percent of overall spells at 1 month [a]	--	--	6.8	6.0
Percent of overall spells at 4 months	--	--	6.6	6.5
Percent of overall spells at 12 months	--	--	5.5	5.4
Percent of overall spells at 24 months	--	--	6.0	5.5
Subsequent spell length for cross-sectional sample				
Median months	--	--	12	20
Cumulative exit at 4 months or less	--	8	31.5	26.5
Cumulative exit at 12 months or less	--	22	50.1	38.3
Cumulative exit at 24 months or less	--	43	64.9	53.6
Percent of overall spells at 1 month [a]	--	--	7.4	5.0
Percent of overall spells at 4 months	--	--	6.8	4.8
Percent of overall spells at 12 months	--	--	6.0	4.1
Percent of overall spells at 24 months	--	--	6.0	4.0
Completed spell length for cross-sectional sample				
Cumulative exit at 6 months or less	--	--	15.5	15.0
Cumulative exit at 1 year or less	--	--	29.4	24.2
Cumulative exit at 2 years or less	--	--	35.9	32.5
Cumulative exit at 4 years or less	--	--	54.4	41.8
Cumulative exit at 8 years or less	--	--	71.3	58.6
Percent of overall spells at 1 month [a]	--	--	7.5	5.1
Percent of overall spells at 1 year	--	--	7.0	4.6
Percent of overall spells at 2 years	--	--	6.8	4.6
Percent of overall spells at 4 years	--	--	7.5	4.7
Percent of overall spells at 8 years	--	--	4.9	4.4

Table III.5.8 Noncitizens, *continued*

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
Re-entry rates				
Median nonparticipation spell in months	--	> 30	23	13
Cumulative re-entry at 4 months or less	--	27	25.4	24.5
Cumulative re-entry at 12 months or less	--	36	44.0	49.0
Cumulative re-entry at 24 months or less	--	46	50.4	55.1
Exit triggers				
Increase in earnings	--	--	29.3	29.2
Increase in other income	--	--	23.7	13.4
Increase in family size	--	--	20.9	35.5
Decrease in family size	--	--	29.6	35.7
Any trigger	--	--	28.3	25.8

"--" indicates data fields that cannot be completed

Source: Decision Demographics weighted tabulations of the 2004 SIPP panel, 2001 SIPP panel data, Cody (2007), 1991 SIPP panel data from Gleason (1998)

Notes:

[a] Percent of Overall Spells at Beginning of Period is the subgroup percent of the totals shown in life table columns (a) in Tables II.12, II.14, II.16, and II.23 for 2004. Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. These panels show the percent of the total spells across all groups accounted for by this subgroup at each juncture.

Subgroup determinations for 2001 and 2004. At-risk and entrants: person month basis, reference month. Entry rates: month preceding entry for monthly entry rates; last month preceding the wave of entry for wave-based entry rates; and last month preceding the year of entry for annual entry rates. New SNAP spells: the month preceding new SNAP entry. Re-entry rates: the month preceding the original "new" SNAP entry. Subsequent and completed spells of the cross-sectional sample: May 2001 or May 2004, the first common month in the second wave. Exit triggers: four months previous to exiting a SNAP spell. Similar determinations were made for 1991 and 1986.

9. People in Families with Earnings

People in families with earnings represent a majority of the population at risk (78.3 percent). Such a dominant group might be expected to conform to patterns found for the general population, but the opposite applies.

People in families with earnings enter SNAP at slightly lower rates than the full population. Their median new spell length in 2004 is 8 months, two months less than for the total population. In earlier years, their new spell length is zero to one month less than for the total population. Their cumulative exit percentages are consistently higher than for the total population for new spells, especially for subsequent and completed spells of the cross-sectional sample.

People in families with earnings experience subsequent and completed spells that are shorter than for the total population. The median subsequent spell length for people in families with earnings was only 16 months in 2001 and 19 months in 2004, compared to the subsequent spell lengths for the total population of 19 months and over 27 months. Their percentage of overall SNAP spells consistently drops with increasing spell length.

People in families with earnings experienced median spells off SNAP before re-entry that were about four months longer than those among the total population. Their median time off SNAP was 24 months in 1991 and 2004, and 21 months in 2001.

Changes in family size or earnings were exit triggers for 25 to 30 percent of people in families with earnings in 2004, rates that were somewhat higher than those experienced by the total population. Decrease in family size was a trigger for over 30 percent of the subgroup in 2004, and an increase in family size triggered exit at the same level in 2001.

III.5.9 Historic Subgroup SNAP Dynamics Data: People Living in Families with Earnings

SNAP Dynamics Topic	SIPP Panel			
	1984	1991	2001	2004
At-risk populations and SNAP entrants				
Percent of the at-risk population	80.0	85.1	81.5	78.3
Percent of entrants	79.2	73.0	69.2	65.6
Entry rates				
Monthly	--	0.3	0.4	0.4
Wave-based	2.0	--	1.5	1.8
Annual	--	2.4	3.8	3.9
Spell length of new spells				
Median months	5	8	8	8
Cumulative exit at 4 months or less	47.8	36	35.2	30.2
Cumulative exit at 12 months or less	76.8	63	65.9	61.9
Cumulative exit at 24 months or less	87.9	76	78.7	78.9
Percent of overall spells at 1 month [a]	--	--	69.2	65.5
Percent of overall spells at 4 months	--	--	68.6	64.3
Percent of overall spells at 12 months	--	--	63.4	58.8
Percent of overall spells at 24 months	--	--	56.0	47.2
Subsequent spell length for cross-sectional sample				
Median months	--	--	16	19
Cumulative exit at 4 months or less	--	20	24.7	20.7
Cumulative exit at 12 months or less	--	40	46.8	39.9
Cumulative exit at 24 months or less	--	58	64.7	57.9
Percent of overall spells at 1 month [a]	--	--	55.7	53.7
Percent of overall spells at 4 months	--	--	53.0	51.3
Percent of overall spells at 12 months	--	--	50.4	46.7
Percent of overall spells at 24 months	--	--	47.4	43.5
Completed spell length for cross-sectional sample				
Cumulative exit at 6 months or less	--	--	12.9	11.2
Cumulative exit at 1 year or less	--	--	25.4	24.3
Cumulative exit at 2 years or less	--	--	41.1	36.8
Cumulative exit at 4 years or less	--	--	58.2	53.8
Cumulative exit at 8 years or less	--	--	69.1	67.1
Percent of overall spells at 1 month [a]	--	--	55.7	53.4
Percent of overall spells at 1 year	--	--	53.9	51.6
Percent of overall spells at 2 years	--	--	51.1	48.3
Percent of overall spells at 4 years	--	--	48.4	43.8
Percent of overall spells at 8 years	--	--	46.7	38.3

Table III.5.9 People Living in Families With Earnings, *continued*

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
Re-entry rates				
Median nonparticipation spell in months	--	24	21	24
Cumulative re-entry at 4 months or less	12.0	20	20.8	20.9
Cumulative re-entry at 12 months or less	36.4	39	41.5	40.6
Cumulative re-entry at 24 months or less	--	51	51.2	50.5
Exit triggers				
Increase in earnings	30.1	--	26.9	25.3
Increase in other income	21.2	--	23.8	21.8
Increase in family size	--	--	31.4	24.8
Decrease in family size	--	--	31.0	32.2
Any trigger	--	--	26.3	24.2

"--" indicates data fields that cannot be completed

Source: Decision Demographics weighted tabulations of the 2004 SIPP panel, 2001 SIPP panel data, Cody (2007), 1991 SIPP panel data from Gleason (1998)

Notes:

[a] Percent of Overall Spells at Beginning of Period is the subgroup percent of the totals shown in life table columns (a) in Tables II.12, II.14, II.16, and II.23 for 2004. Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. These panels show the percent of the total spells across all groups accounted for by this subgroup at each juncture.

Subgroup determinations for 2001 and 2004. At-risk and entrants: person month basis, reference month. Entry rates: month preceding entry for monthly entry rates; last month preceding the wave of entry for wave-based entry rates; and last month preceding the year of entry for annual entry rates. New SNAP spells: the month preceding new SNAP entry. Re-entry rates: the month preceding the original "new" SNAP entry. Subsequent and completed spells of the cross-sectional sample: May 2001 or May 2004, the first common month in the second wave. Exit triggers: four months previous to exiting a SNAP spell. Similar determinations were made for 1991 and 1986.

10. People in Families with TANF Income

People in families with TANF Income can only be tracked in 2001 and 2004 dynamics studies.[46] They are a very small subgroup within the population at risk at under one percent, at least partly because the most TANF participants already participate in SNAP due to categorical eligibility. However, people in families with TANF account for seven percent of SNAP entrants as reflected in entry rates that are six to ten times those of the general population.

[46] The earlier studies also lacked information about people in families with Aid to Families with Dependent Children (AFDC). AFDC was the cash welfare program that existed prior to the 1996 welfare reform, which replaced AFDC with TANF.

Their median new spell length in 2004 is ten months, the same as for the total population, but in 2001, it is four months longer than for the total population. The patterns are consistent for the subsequent and completed spell length of the cross-sectional sample—the findings are similar between people with TANF income and the full population in 2004, but people in families with TANF income have longer spells and are slower to exit in 2001 than the total population.

When considering the percent of overall spells accounted for by people with TANF income, they clearly make up a higher percentage of longer spells than shorter. This applies to new spells as well as subsequent and completed spells. This relationship is stronger in 2001 than in 2004.

People in families with TANF stayed off SNAP for a shorter time than the general population. Their median time off SNAP was 12 months in 2001 and 13 months in 2004, compared to 16 and 20 months for the total population. Just over 60 percent re-enter within 24 months in 2004. Compared to the total population, they re-enter at higher rates, especially in the first four months, reflecting how quickly things can change for this subgroup.

Changes in family size are the most common exit triggers, affecting nearly one in four spells in 2004. Triggers generally have a lesser impact in 2001 among this subgroup, and all triggers in both periods affect this subgroup to a lesser extent than the total population.

III.5.10 Historic Subgroup SNAP Dynamics Data: People Living in Families with TANF Income

SNAP Dynamics Topic	SIPP Panel			
	1984	1991	2001	2004
At-risk populations and SNAP entrants				
Percent of the at-risk population	--	--	0.7	0.8
Percent of entrants	--	--	6.3	7.0
Entry rates				
Monthly	--	--	4.3	4.5
Wave-based	--	--	16.6	17.6
Annual	--	--	26.3	26.0
Spell length of new spells				
Median months	--	--	12	10
Cumulative exit at 4 months or less	--	--	27.1	32.1
Cumulative exit at 12 months or less	--	--	51.7	58.5
Cumulative exit at 24 months or less	--	--	65.0	74.1
Percent of overall spells at 1 month [a]	--	--	6.3	7.1
Percent of overall spells at 4 months	--	--	6.8	7.2
Percent of overall spells at 12 months	--	--	6.8	7.4
Percent of overall spells at 24 months	--	--	9.2	8.9
Subsequent spell length for cross-sectional sample				
Median months	--	--	> 24	> 27
Cumulative exit at 4 months or less	--	--	12.6	12.8
Cumulative exit at 12 months or less	--	--	31.7	28.1
Cumulative exit at 24 months or less	--	--	50.0	42.7
Percent of overall spells at 1 month [a]	--	--	23.9	19.9
Percent of overall spells at 4 months	--	--	25.8	20.3
Percent of overall spells at 12 months	--	--	27.3	20.8
Percent of overall spells at 24 months	--	--	28.2	21.6
Completed spell length for cross-sectional sample				
Cumulative exit at 6 months or less	--	--	5.7	5.3
Cumulative exit at 1 year or less	--	--	10.6	15.2
Cumulative exit at 2 years or less	--	--	19.8	25.5
Cumulative exit at 4 years or less	--	--	37.4	40.0
Cumulative exit at 8 years or less	--	--	54.6	46.4
Percent of overall spells at 1 month [a]	--	--	23.6	19.9
Percent of overall spells at 1 year	--	--	24.7	20.5
Percent of overall spells at 2 years	--	--	27.8	20.6
Percent of overall spells at 4 years	--	--	30.7	20.8
Percent of overall spells at 8 years	--	--	32.4	22.2

Table III.5.10 People Living in Families with TANF Income, *continued*

SNAP Dynamics Topic	SIPP Panel 1984	1991	2001	2004
Re-entry rates				
Median nonparticipation spell in months	--	--	12	13
Cumulative re-entry at 4 months or less	--	--	35.3	30.8
Cumulative re-entry at 12 months or less	--	--	55.9	48.4
Cumulative re-entry at 24 months or less	--	--	64.9	60.3
Exit triggers				
Increase in earnings	--	--	18.0	17.3
Increase in other income	--	--	10.7	12.2
Increase in family size	--	--	12.6	21.7
Decrease in family size	--	--	19.0	24.6
Any trigger	--	--	15.2	16.0

"--" indicates data fields that cannot be completed

Source: Decision Demographics weighted tabulations of the 2004 SIPP panel, 2001 SIPP panel data, Cody (2007), 1991 SIPP panel data from Gleason (1998)

Notes:

[a] Percent of Overall Spells at Beginning of Period is the subgroup percent of the totals shown in life table columns (a) in Tables II.12, II.14, II.16, and II.23 for 2004. Column (a) represents the number of SNAP spells that have lasted at least the indicated number of months, regardless of when the spell first started. These panels show the percent of the total spells across all groups accounted for by this subgroup at each juncture.

Subgroup determinations for 2001 and 2004. At-risk and entrants: person month basis, reference month. Entry rates: month preceding entry for monthly entry rates; last month preceding the wave of entry for wave-based entry rates; and last month preceding the year of entry for annual entry rates. New SNAP spells: the month preceding new SNAP entry. Re-entry rates: the month preceding the original "new" SNAP entry. Subsequent and completed spells of the cross-sectional sample: May 2001 or May 2004, the first common month in the second wave. Exit triggers: four months previous to exiting a SNAP spell. Similar determinations were made for 1991 and 1986.

E. Subgroup Dynamics and their Influence on the Makeup of the Caseload

We discussed earlier that the overall caseload can grow if more people are entering, if participants are staying on longer, or both. These types of changes can vary across subgroups, though, and if either the subgroup is large or the changes are extreme, the subgroup changes can have a noticeable effect on changes for the overall population. In this section, we discuss how the dynamics of the subgroups between 2001 and 2004 affect their total distribution within the 2004 participant pool. The specific dynamics we discuss are displayed in Table III.6. In most cases, the reasons behind the increases and decreases are different across the subgroups.

Table III.6 How Subgroup Dynamics Affect the Overall Caseload 2001-2004

	Change in Percentage of Cross-Sectional Population (percentage points)	Percentage of At-Risk Population		Monthly Entry Rate (percent)		Median New Spell Length (months)		Median Time Before Re-Entry (months)	
		2001	2004	2001	2004	2001	2004	2001	2004
Total Population	NA	100.0	100.0	0.4	0.5	8	10	16	20
Single Adults with Children	-1.6	3.2	3.3	1.3	1.4	11	11	14	24
Children of Single Parents	-3.2	5.0	4.9	1.6	1.7	12	12	12	13
Married Adults with Children	-0.5	22.7	22.7	0.3	0.4	8	9	>24	>27
Children of Married Parents	+1.5	19.1	18.6	0.4	0.5	8	11	12	13
Elderly	-0.5	17.3	18.2	0.2	0.2	12	12	>24	>27
Nonelderly, nondisabled, childless adults	+1.3	21.9	20.9	0.2	0.2	5	7	>24	>27
Noncitizens	+2.4	6.4	7.3	0.5	0.4	7	8	23	13
Individuals in Families with Earnings	-2.0	81.5	78.3	0.4	0.4	8	8	21	24
Individuals in Families with TANF	-4.0	0.7	0.8	4.3	4.5	12	10	12	13

Single adults with children declined as a percentage of total participants. Their entry rate increased between the two time periods, as did the percentage of the at-risk population that they represent. However, their median spell length stayed the same while the spell length overall increased. This contributed to a decrease in the total percentage of participants that were single parents with children.

Children of single adults declined as a percentage of total participants. Their entry rate increased, although they represented a slightly smaller portion of the at-risk population. Their median spell length, though, like their parents' spell length, did not change, while the spell length for the total population increased. This contributed to a decrease in the percentage of participants represented by children of single adults.

Married adults with children decreased as a percentage of total participants. Their entry rate increased, but they represented a smaller share of the at-risk population. Also, their spell

length increased slightly, but not as much as for the total population. This contributed to a decrease in the percentage of participants that are married adults with children.

Children of married parents increased as a percentage of total participants. Their entry rate increased and their percentage of the at-risk population did not change. Their median participation spell length also increased more than did the median spell length of the total population. All of these contributed to their increase as a percentage of the participant pool.

Elderly individuals decreased as a percentage of total participants. Their entry rate remained the same while the percentage of the at-risk population that they represented increased, both of which would contribute to an increase in the percentage of participants that are elderly. However, their median spell length did not change, while the median spell length among all participants increased. This netted as a decrease in the percentage of participants that are elderly.

Nonelderly, nondisabled, childless adults increased as a percentage of total participants. Their entry rate remained the same and their percentage of the at-risk population decreased, which would have contributed to a decrease in the percentage of participants that they represent. However, their median spell length increased by almost 50 percent. This contributed to an increase in the percentage of total participants that are nonelderly, nondisabled, childless adults.

Noncitizens decreased as a percentage of total participants. Their entry rate decreased, although the percentage of the at-risk population that are noncitizens increased. Their median spell length, though, increased by a smaller amount than for the total population. This contributed to the decrease in the percentage of participants that are noncitizens.

Individuals in families with earnings decreased as a percentage of total participants. Their entry rate remained the same but their percentage of the at-risk population decreased. Their median spell length did not increase, while the length increased for the total population. These

contributed to the ultimate decrease in the percentage of total participants that live in families with earnings.

Individuals in families with TANF income decreased as a percentage of total participants. Their entry rate increased and their percentage of the at-risk population increased. However, their median spell length decreased while it increased for the total population. This contributed to their decrease in the percentage of participants.

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IV. SUMMARY AND RECOMMENDATIONS FOR FUTURE RESEARCH

The purpose of this study was to investigate SNAP caseload dynamics to understand what drives changes in SNAP participation over time. Over much of our sample period, caseloads increased substantially, as they did during the time of the Cody et al. (2007) study of the early 2000s and the Gleason et al. (1998) study of the early 1990s. To help explain these changes, we examined what factors lead individuals to enter SNAP, how long individuals typically participate, and what factors lead them to exit the program. We have also compared our findings with those reported in the earlier studies. Future comparisons with this study, using the 2008 SIPP Panel, will examine the unprecedented levels of participation during the economic slowdown of the late 2000s.

In this chapter we summarize our main set of findings and discuss a direction for future research on SNAP dynamics.

A. Summary of Key Findings

The annual entry rate among individuals with income less than 300 percent of poverty in one or more months of the panel period increased from 4.1 in the early-2000s to 4.2 percent in the mid-2000s and the monthly entry rate increased from 0.4 to 0.5 percent (see Table IV.1) (estimates for earlier periods are not available for this population). In addition, the median spell length for those who enter in the panel period is two months longer, on average, in the mid-2000s compared to the mid- to late-1990s and the early 2000s. Those who exited re-enter later, on average, than in the early-2000s, which leads to fewer participants with multiple spells in the mid-2000s, compared to the early-2000s. Trigger events also changed. While decreases in income remain the predominant trigger to entry, and increases in income remain the predominant

trigger to exit, the percentage of SNAP entrants that have experienced any entry trigger in the past four months decreased by close to 10 percentage points and the percentage of SNAP exiters who experienced any trigger in the past four months decreased by almost 9 percentage points.

1. SNAP Entry

On average, in 2004 to 2006, 5 out of every 1,000 nonparticipants with income under 300 percent of poverty at some point in the panel period who are not participating at the end of one month participate in the next month (4 out of 1000 when we did not limit the income). However, the likelihood of entry differs according to the family situation. Individuals who received benefits in the past are much more likely to enter than those who had not received benefits; individuals in families with children are more likely to enter than individuals in families without children; individuals in families without income are more likely to enter than individuals in families with income; and individuals in families with SSI are more likely to enter than individuals in families without SSI.

Table IV.1 Comparison of Primary Measures of SNAP Participation Dynamics

	1991-1993	1993-1996	1996-1999	2001-2003	2004-2006
Annual Entry Rate Among Individuals with Income Under 300 Percent of Poverty (Percent)	NA	NA	NA	4.1	4.2
Monthly Entry Rate Among Individuals with Income Under 300 Percent of Poverty (Percent)	NA	NA	NA	0.4	0.5
Replacement Rate (Percent)	NA	4.2	3.8	5.4	4.1
Median Duration for Entry Cohort (Months)	9	8	8	8	10
Median Cross-sectional Completed Spell Length (Months)	> 96	54	54	48	84
Median Time-Off (Months)	20	NA	NA	18	20
Total Time On (Percent with Eight Months or Less)	27	NA	NA	37	30
Multiple Spells (Percent)	51	NA	NA	63	60
Turnover Rate	1.3	NA	NA	1.5	1.4

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Although trigger events continue to play key roles in SNAP entry as in prior studies of SNAP dynamics, with 61 percent of all entries preceded within four months by at least one of these trigger events, 39 percent of entries occur without an obvious recent change in circumstances. The most common events that triggered entry into SNAP were related to decreases in family earnings. Among those who entered SNAP in the panel period, 39 percent experienced a decrease in family earnings of at least 10 percent in the four months prior to their entry. The incidence of this trigger event, however, was sizably smaller than in the early-2000s when it was 56 percent.

2. SNAP Spell Length

Most individuals who enter SNAP during the panel period exit within one year. The median participation spell among new entrants is about ten months. However, among a cross-section of those who are participating in a given month early in the panel (May 2004), the median

subsequent spell is more than 27 months. This is a sizable increase from May 2001 when it was 19 months.

As with entry rates, spell duration varies according to the characteristics of the individuals. Individuals in families without earnings have longer spells than individuals in families with earnings. Additionally, children have longer spells than non-elderly adults, but elderly generally have the longest spells. This is in contrast to entry rates, where we see that elderly are the least likely to enter. The groups who stay on longer were similar to those in the early-2000s.

3. SNAP Exit

The most common trigger event associated with a SNAP exit was an increase in family income, with almost two-thirds of participants experiencing an increase of at least 10 percent. Slightly less than one-quarter of participants left SNAP within four months of the increase. Other events, though not as common, including the departure of a family member, led to a similar percentage exiting within four months.

4. SNAP Re-entry

As in the early-2000s, more than half of SNAP participants in the mid-2000s who exited the program in the panel period re-entered SNAP within two years. Although we cannot be sure who enters following the panel period, it appears that most people who re-enter SNAP do so within two years of exiting.

5. Subgroups

In Table IV.2, we bring together several of our measures for selected subgroups. The subgroups with the higher entry rates (children, individuals in families with children, individuals in families without earnings, individuals in families without a high school graduate, individuals in families with SSI, individuals in families with no income) also have longer median

participation spells, have a shorter period before re-entry, and are less likely to exit after experiencing an identified trigger event. These subgroups also tend to have longer median duration of subsequent spells for the cross section of participants in May 2004, except that individuals in families with children have shorter subsequent spells than individuals in families without children, and individuals in families with and without income both have long subsequent spell lengths. The elderly enter less frequently, but participate longer, are less likely to leave following a trigger event, and are less likely to re-enter once they exit.

Table IV.2 Comparison of SNAP Participation Dynamics across Selected Subgroups

Subgroup (of Individuals in families with income under 300 percent of poverty at some point in the panel period)	Monthly Entry Rate	Median Duration of SNAP Spells, New Entry Sample (Months)	Median Duration of Subsequent Spell Length, Cross Sectional Sample (Months)	Probability of Exit Given Any of Identified Triggers	Re-entry: Median Duration of Nonparticipation-Spell (Months)
All Individuals	0.4	10	>27	21.4	20.0
Children	0.8	11	>27	18.4	13
Nonelderly adults	0.5	8	25	24.6	25
Elderly	0.3	12	>27	21.1	>27
Individuals in families with children	0.7	10	27	20.2	16.0
Individuals in families without children	0.3	8	>27	28.5	>27
Individuals in families with earnings	0.4	8	19	24.2	24.0
Individuals in families without earnings	0.8	12	>27	16.9	16.0
Individuals in families with HS graduate	0.5	9	25	22.4	22.0
Individuals in families without HS graduate	1.1	13	>27	16.6	12.0
Individuals in families with SSI	2.0	11	>27	19.1	15.0
Individuals in families without SSI	0.4	10	24	22.0	23.0
Individuals in families with no income	2.1	15	>27	19.9	16.0
Individuals in families with income	0.5	9	>27	21.5	20.0

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

6. Summary Measures

The total time on SNAP is measured by the percentage of the 32 months in the sample that a person spends receiving SNAP benefits. Given that nearly 60 percent of participants had multiple spells in the panel, total time on SNAP is a useful complement to examining the length of SNAP spells. Of the 18 percent of individuals in the panel that received SNAP benefits during the

panel, 30 percent had 8 months or less of contact with SNAP and over 27 percent received benefits during the entire panel. The median total time on SNAP in the panel—18 months—indicates that the median spell duration of ten months for new entrants discussed earlier does not provide the complete picture of a person's benefit receipt.

The increase in the number of SNAP participants in 2004 and 2005 was attributed to a replacement rate that was greater than the exit rate. This reversed, however, in early 2006 and the caseload began to decline. The slowdown in growth in 2004 and 2005 was due solely to a decrease in the replacement rate, while the ultimate reversal in growth in early 2006 was due mostly to an increase in the exit rate.

B. Recommendations for Future Research

The SIPP panel allows us to estimate the dynamics of participation including rates of entry, exit, and re-entry for any panel period or set of months within the panel. The richness of the data also facilitates the exploration of how these dynamics vary by individual and family demographic and economic characteristics, particularly how they coincide with changes in employment, income, or family composition. But attributing changes in SNAP participation to changes in employment (or income or family composition) requires a set of assumptions about the two longitudinal series. First, both the change in participation and the change in employment need to be reported accurately in the months in which they occurred. We know from the analysis of seam bias in Appendix A that a disproportionate percentage of reported changes in participation and employment occur on the seams between waves, making it difficult to establish when the changes actually occurred. Second, a maximum, and reasonable, length of time between the changes needs to be assumed. For example, changes in earnings and employment are fairly coincident, with earnings decreasing usually in the same month or the month after a job

loss occurs. It is reasonable to expect, however, that changes in participation can lag several months behind changes in employment or income. Individuals who experience a job loss, for example, may believe they can find new work quickly or continue to draw down on savings before deciding to enter SNAP. Similarly, unemployed SNAP participants who obtain a new job may wait a month or two prior to leaving SNAP to assess better whether the employment will be permanent and to their liking. Thus, to establish associations between changes in life events and changes in SNAP participation, one must decide on a reasonable window of time that precedes the start or end of a SNAP spell in which to examine changes in these factors. Finally, even when the data is reported accurately and a reasonable window for observing changes is established, knowing which event actually triggered program entry or exit is difficult. Changes in family composition and income, for example, often occur together, such as when an employed sister comes to live temporarily with her brother's family. It is not possible to differentiate whether the SNAP exit is due to the increase in income or to the fact that an additional adult member is now present who can drive to stores with lower food prices or help cook cheaper meals rather than buying expensive prepared foods. Thus, examining longitudinal series of participation and employment, income, and family composition can only go so far in explaining why people enter and exit the program over time. Ideally, we want to know from the respondents themselves why they elected to participate or not participate in a given month. We believe this is a fruitful area of future research either through the use of improved SIPP data or through the collection of primary data.

1. Modifying SIPP to Obtain Reported Reasons for All SNAP Entries and Exits

Those who developed the SIPP instrument also understand the importance of asking respondents why program entries and exits occurred, as both the 2001 and 2004 SIPP panels

contain self-reported data on the reasons for entering and exiting SNAP. The 10 self reported reasons for entering include: (1) new child (or other dependent) or pregnancy, (2) separation or divorce, (3) job loss or wages reduced, (4) loss or reduction of other income, (5) became disabled or otherwise unable to work, (6) no change—just decided it was time, (7) no change—just heard about the program, (8) need to recertify, (9) became disabled—other.[47] Respondents are asked to identify all reasons that apply to their situation; the SIPP provides up to two reasons for up to two SNAP entries within each wave. However, in our analysis we discovered that the question is only asked of those who have an entry *within* the wave. It is not asked of those who were not participating at the end of one wave but were participating at the beginning of the next wave. A similar problem exists with the two reasons for up to two SNAP exits within each wave. Because the largest percentage SNAP entries and exits occur across waves, rather than within waves, we do not have answers to these questions for most individuals who transition onto and off of SNAP. As a result, the information cannot be used in our analysis.

Because it is so important to know not just how many and what type of SNAP transitions are made, but why they are made, it would be useful to work with the Census Bureau to revise future SIPP instruments to ask this question of all SNAP entrants and exiters. It would not only be feasible to change the instrument in this way, but with the start of dependent interviewing in the 2004 panel, it is now easier for an interviewer to identify whether the respondent made a SNAP transition across waves. Because the 2008 SIPP data collection is currently underway, these changes would need to be incorporated into the re-engineered survey that is still being

[47] The categories changed from the 2001 SIPP panel. The 2001 panel categories were: (1) needed the money, (2) pregnancy/birth of child, (3) began receiving for another dependent (e.g., grandchild), (4) separated or divorced from spouse/partner, (5) loss of job/wages/other income (own or partner's), (6) loss of other support income, (7) just learned about the program, (8) just got around to applying, (9) became disabled, and (10) other.

developed. The re-engineered SIPP panel, with annual interviews, will tentatively be fielded in early 2014 and collect data on calendar year 2013.

2. Collecting National or State Data on SNAP Dynamics

We believe modifying the SIPP instrument in this way would greatly improve the usefulness of the data for understanding the relationship between trigger events and SNAP transitions. The SIPP, however, is not a survey focused solely on SNAP dynamics and we believe there would be value in such a design and data collection effort, particularly in a survey that can be repeated over time. To demonstrate the usefulness of this type of survey, we consider a characteristic that in both the current study and prior studies of SNAP dynamics, as well as related SNAP participation research, has consistently been found to be strongly associated with SNAP entry and, among participants, the length of time spent on the program—prior participation. Entry rates are much higher and spell lengths are longer for individuals that have previously participated in the program. But what is it about prior participation that changes the benefit-cost calculus for individuals who are considering entering or exiting the program? Several possibilities include:

- **Knowledge of eligibility rules**. Individuals who have been on the program previously likely have a better understanding of the income and asset tests, the necessary documentation, and reporting procedures and will know when they are likely to be eligible in future months and years.
- **Knowledge of application procedure**. Many economic models of SNAP participation specify a set of costs associated with applying. These may be time costs such as spending part of a morning at the application office or financial costs such as paying to travel to the application office or foregoing a morning or afternoon's pay from one's job or even having to pay for childcare while applying in person. The costs for individuals who have participated in SNAP previously may be smaller than the costs for those who have never participated—they may have a better sense of how long the activities take and be able to carve out the appropriate amount of time rather than assuming the activities will take a full day.
- **Tie to the workforce and economy**. Individuals who have participated in SNAP previously may be more vulnerable to fluctuations in the economy, either through wages

and employment income or through budgeting and savings behavior. If prior SNAP participants are less likely to save each month, for example, then they may be affected more by downturns in the economy, leading them to re-enter the program.

- **Family instability**. Individuals who have participated in SNAP previously may have less stable family compositions. Individuals may join and leave families more often, leading them to re-enter SNAP.

- **Program policies**. Individuals that have participated in the program previously likely know program policies designed to promote outreach such as community-based outreach services; expand eligibility such as broad-based categorical eligibility; or ease reporting such as simplified or reduced income reporting requirements. Knowing these programs and policies exist may decrease the perceived "costs" to entering the program or continuing to participate in the program.

A survey that collects information from SNAP new entrants, as well as continuing participants, can include sets of questions designed to identify which of these (and other) characteristics of prior participants differ from those of individuals new to the program. For example, a question for SNAP participants in states with simplified reporting for earners could be whether, before applying, they knew about the policy and in what ways they valued it or thought they might value it in the future (say when they returned to employment, if currently unemployed).

The survey could be conducted in a set of states varying not only by program policies, but by economic conditions. In addition to obtaining an employment history for each household member, as done in SIPP, questions can be included that ask about the *perceived* employment possibilities for those members in the next three to six months. SNAP participation typically lags several months behind changes in the unemployment rate. Researchers have not identified whether this is because (1) local labor demand for low income individuals—the eligible population to receive SNAP benefits—typically lags behind the demand for higher-income (or more highly educated) workers or (2) nonemployed individuals in a strengthening economy marked by a falling unemployment rate need several months of market indicators to convince

themselves to begin undertaking a costly job search endeavor. Knowing how SNAP participants perceive changes in the aggregate economy could help in understanding environmental, rather than individual or family, factors that may influence program entry and exit decisions.

The primary data collection effort for the longitudinal design could be either a national survey or a several state "case study". In either case the sample frame would consist of an extract of newly entered households. Households would be interviewed initially within the first month of entering SNAP and would then complete a follow up interview six months to one year later. Based on the estimates in the current study, this would allow the follow up interviews to consist of more than 50 percent of households that are no longer on the program after one year. The survey would minimize burden on state offices by requiring only a small set of variables needed to contact the new SNAP participants.

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APPENDICES

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Appendix A

Longitudinal File Assessment, Recipiency History Topical Module Assessment, and Analysis of One- and Two-Month Gaps

The analysis was conducted to identify potential problems in the data that could affect estimates of SNAP participation dynamics. Our assessment identifies several problems in the 2004 SIPP panel—most of which are similar to problems observed in previous panels. While these problems exist, we believe the 2004 SIPP data can still be used to generate reasonable estimates of SNAP participation dynamics. However, some adjustments to the data that were made in the study of SNAP dynamics in Cody et al. (2007) will also be required here. As was the case in that study, the estimates of participation dynamics in the current study must be considered in the context of the potential bias created by these problems.

I. OVERVIEW

The analysis of the dynamics of participation in SNAP is based on data from the 2004 SIPP panel. In general, we use these data to examine participation dynamics in two ways:

(1) **Descriptive Analysis of Program Entry, Duration, and Exit.** We conduct a descriptive analysis of patterns of entry into SNAP, the duration of participation spells, and patterns of exit from and re-entry into the program. As in previous dynamics studies, a central tool used in this analysis is the life table, which examines the distribution of participation spells by their duration. We also will examine how the incidence of trigger events such as changes in income or changes in household size are correlated with program entry and program exit.

(2) **Multivariate Analysis of Program Entry, Duration, and Re-Entry.** We conduct multivariate modeling of program entry, spell duration, and program re-entry. This analysis examines how trigger events affect participation dynamics while controlling for other individual characteristics. For each individual, we examine whether the trigger event is a deviation from the individual's usual circumstances.

These analyses use the SIPP data longitudinally. For most individuals in our analysis file, we have 32 months of monthly data on income, program participation, and household characteristics. With this information, we compute entry and exit statistics for each month and examine whether triggers occurring in one month are associated with program participation changes in a subsequent month.

The analysis presented in this Appendix is intended to identify problems that may bias our estimates of participation dynamics. Some problems in the data can make the data less representative of the populations of interest such as those individuals receiving SNAP benefits. Other problems can introduce erroneous information and false changes into an individual's information over time. These problems can create biased estimates of dynamics.

Aside from this brief Overview, our assessment of the SIPP data is presented in six parts:

Section II discusses the development of new analysis weights based on eight waves of the survey. Because the SIPP panel contained longitudinal panel weights for Waves 1 to 4, 1 to 7, 1 to 10, and 1 to 12, but not for Waves 1 to 8, we had to construct a new panel weight that used the original seven-wave panel weight on the file along with information about and characteristics of panel members who either left the survey universe after Wave 7 or attrited from the survey after Wave 7.

Section III examines potential bias stemming from sample loss and seam reporting in the SIPP. While the 2004 SIPP panel suffered from high rates of sample loss, the rates were comparable to recent SIPP panels. The full panel analysis weights created by the Census Bureau tend to correct for this sample loss and estimates of general population characteristics appear unbiased. The "seam effect" in the 2004 SIPP is pronounced, as it was in previous panels, with most of the key changes of interest to this study occurring on the seams between SIPP Waves. Therefore, estimates of changes over time must allow for the fact that many changes may be observed on a seam month instead of the month that they actually occurred. Defining trigger event variables using four or eight months of data, as in the prior studies' continues to allow for this.

Section IV examines inconsistencies in the SIPP data. One key problem identified in the data is that program participation is underreported in throughout the panel. This affects measures of participation in the first four months of the panel and measures of program entry in the second four months. Other problems we identified include the way that some assistance units (such as SNAP units) are constructed, and a high rate of extremely short participation spells.

Section V examines how SIPP estimates of SNAP participation compare with those from administrative data sources. Estimates of SNAP participants in the SIPP differ from administrative estimates in two key ways: (1) SIPP data have proportionately too many adults, and (2) SIPP data have proportionately too many Hispanic individuals and American Indians. We believe that the higher proportions of adults and Hispanic individuals is related to the mistake identified in the 2001 SIPP panel data, that SIPP makes ineligible adult noncitizens appear to be receiving SNAP benefits along with their children (when, in reality, only their children are participating).

Section VI examines data from the principal SIPP topical modules that are used in our analysis: data on recipiency history and employment history from Wave 1. Due to confidentiality restrictions imposed on the 2004 data, we conducted this analysis within the Census Bureau. The Wave 1 Recipiency History Topical Module (RHTM) items on SNAP underwent significant redesign prior to the 2004 SIPP. Some data were collected throughout the 2004 panel, and other SNAP items in the RHTM were improved, although the net effect on dynamics analysis was small. Overall, the results of this evaluation place the 2004 RHTM data within a normal range of what can be

expected from the 2001 and 1991 data, and the data appear to be reliable and not in need of adjustment. Data from the employment history module also appear useful for our analysis.

Section VII examines gaps in SNAP participation in the 2004 SIPP panel. We examine the incidence of gaps of different sizes; the lengths of spells prior to and following the gaps; characteristics associated with having a gap; and other data features related to gaps. The analysis was conducted to help inform the decision about whether to recode one- or even two-month gaps in participation by closing them up. We found evidence that one- and especially two-month gaps could be due not only to misreporting but also to actual program churning, with individuals exiting and re-entering the program soon thereafter. We consulted with FNS and decided to close one-month gaps in participation, consistent with prior studies.

We believe that the problems in the 2004 SIPP data can be addressed either by making adjustments in the data or by identifying the potential bias resulting from the problems and interpreting the results of the analysis accordingly. In the end, while these problems likely introduce error into our results, we still believe that the analysis yields useful and informative estimates of the dynamics of participation in SNAP.

II. WEIGHT CONSTRUCTION

The primary analysis sample for this project will consist of original sample members who did not attrite through the first eight waves of the 2004 SIPP panel. There was a 50 percent sample cut following Wave 8, so a longer panel would provide a substantially smaller sample. The Census Bureau produced a longitudinal weight for Waves 1 through 7. To analyze an eight-wave panel, we have produced a longitudinal weight for Waves 1 to 8. The members of an eight-wave panel are a subset of those who have a longitudinal weight for Waves 1 to 7. To produce a longitudinal weight for Waves 1 to 8, we adjusted the Wave 1 to 7 weight for the somewhat smaller (by about 4.5 percent) sample of persons with data for Waves 1 through 8. The adjustment is intended to compensate for attrition between Waves 7 and 8.

Constructing the Eight-Wave Weight

The Census Bureau assigns longitudinal weights to persons who have data (reported or imputed) for all months of the panel reference period (that is, the period covered by the longitudinal weight). The Census Bureau also assigns longitudinal weights to persons who left the survey universe (by dying, being admitted to an institution, or moving abroad, primarily) during the panel reference period, providing that they have data for all months that they were in the survey universe. In adjusting the Wave 1 to 7 longitudinal weight to apply to a Wave 1 to 8 sample, we had to account for universe leavers regardless of how they are handled in subsequent analyses. Universe leavers, by definition, are not subject to attrition, so there is no need to adjust their seven-wave weights. That is, those whom we identify as universe leavers have retained their seven-wave panel weight as their eight-wave panel weight.

Table A.1 displays how the initial SIPP sample size is reduced from the 110,065 sample members in Wave 1 to the 68,810 individuals with eight-wave panel weights. First, we keep only those 72,065 panel members with seven-wave panel weights. Next, we partition this group into (1) those individuals who retain their original weight (meaning that their eight-wave panel weight is equal to their seven-wave panel weight); (2) those individuals whose seven-wave panel weight is adjusted to produce the eight-wave weight; and (3) those individuals who do not receive an eight-wave panel weight.

Table A.1 Obtaining Eight-Wave Longitudinal Sample from Initial Sample, 2004 Panel

	Unweighted Count	Unweighted Percentage
Total Sample (Wave 1)	110,446	100.0
Panel Members with Wave 1 to 7 Panel Weights	72,065	65.3
Panel Members That Receive Wave 1 to 8 Panel Weight	68,810	62.3
Retain original panel weight	2,557	2.3
Present for all of Wave 7 and coded as leaving the universe in Wave 8	163	0.2
Present for part of Wave 7 (1-3 months)	165	0.2
Not present for any of Wave 7	2,229	2.0
Receive Adjusted Weight	66,253	60.0
No missing months of data in Waves 2 through 6 and four months of data for Wave 8	66,162	59.9
One or more missing months of data in Waves 2 through 6 and four months of data for Wave 8	91	0.1
Panel Members That Do Not Receive Wave 1 to 8 Panel Weight (Due to Missing Months in Wave 8 and Not Coded as Leaving Universe in Wave 8)	3,255	3.0
Panel Members without Wave 1 to 7 Panel Weights	38,381	34.8

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes:

These counts exclude infants born to panel members after Wave 1.

To retain their original weight, panel members must have been present for all of Wave 7 and have been coded as leaving the universe in Wave 8, or present for some or none of Wave 7. (Over 90 percent of panel members who had missing data in Wave 7 also had missing data in Wave 8 and 99 percent of panel members who had no data in Wave 7 also had no data in Wave 8.) To receive an adjusted weight, a panel member must have four months of data for both Waves 7 and 8. Panel members with a seven-wave weight who have four full months of Wave 7 data, but fewer than four months of Wave 8 data and no indication of having left the universe, are assigned no eight-wave weight.

In all, 2,557 panel members retained their seven-wave panel weights (their "original" weights) as their eight-wave panel weights; 66,253 panel members received adjusted weights; and 3,255 panel members received no weights for the eight-wave panel. As described below, individuals in this last group, however, were used in adjusting the weights of the panel members that did

receive adjusted weights when identifying how the characteristics of those that attrited from the survey differed from those that did not attrite.

The weighting adjustment was carried out in two stages. In the first stage we calculated and applied an adjustment factor to compensate for differential attrition between Waves 7 and 8. In the second weighting stage we calibrated the preliminary weights to Wave 1 population controls, as is done for all SIPP longitudinal weights.

The first stage adjustment consisted of estimating a regression model of the association between (1) the likelihood of being in Wave 7 and not attriting in or before Wave 8 and (2) a set of individual- and family-level characteristics including race and ethnicity, labor market participation status, family income to poverty ratio, and indicators for receipt of SNAP, Supplemental Security Income (SSI), TANF, Medicaid, or unemployment compensation. The dependent variable was a binary variable coded to 1 if the individual did not attrite between Waves 7 and 8 (those who would receive adjusted weights) and to 0 if the individual did (those who would receive no weight). Predicted propensities not to attrite were then used to develop adjustment factors that correct for attrition bias. Specifically, the adjustment factor is the inverse of the predicted probability of remaining in the sample between Waves 7 and 8 and is applied to the seven-wave panel weight. The weighted sum of observations after the adjustment is equal to the weighted sum of the observations included in the propensity model.

The second stage in the reweighting procedure was a calibration to bring the weighted sample into agreement with independent population controls for January 2004. All SIPP longitudinal weights are calibrated to population controls for the common month of Wave 1 (January 2004), so this was desirable for the eight-wave panel weight that we developed. The population controls divide the population by age, sex, race, Hispanic origin, and relationship to the household reference person. The demographic controls were based on the Census Bureau's population estimates while the relationship controls were based on a Census Bureau tabulation of the Current Population Survey.

Assigning Panel Weights to Children Born after the Start of the Panel

Once the weight adjustment and calibration was completed, we identified which panel members with positive eight-wave panel weights had children who were born after the start of the panel, and we assigned longitudinal weights derived from their mothers, fathers, or guardians. We used a method identical to that using the 2001 panel in Cody et al. (2007).

For any infant born after January 2004 (or born in January 2004 but not listed as a household member in that month), we assigned an eight-wave panel weight according to a scheme that gave priority to the mother's weight, as detailed below.

If the child's mother (biological or adoptive) was present at any point, we assigned the mother's eight-wave weight to the child except when one parent (either the mother or the father) was an original member of the panel and the other parent joined the SIPP household after Wave 1. If the father joined the household after Wave 1, we assigned one-half the mother's weight. If the mother joined the household after Wave 1, we assigned one-half the father's weight. This

strategy of assigning half-weights in some cases was designed to increase the number of sample infants who received panel weights. It should not affect the weighted number of infants significantly. In all cases, weights were assigned without regard to whether they were positive versus zero. If the appropriate weight for a child was the mother's weight and the mother's weight happened to be zero, then the assignment of a zero weight to the child was appropriate as well.

If an infant's biological or adoptive mother was never present, we assigned the weight from the child's father, guardian, or household reference person. If the child's father (biological or adoptive) was present, we assigned the eight-wave weight (including values of zero) from the father. If neither parent was present, but someone in the household was identified as the child's guardian, we assigned the eight-wave weight from the guardian. If no one was identified as the child's guardian, we assigned the eight-wave weight from the household reference person.[1] We followed this sequence regardless of the values of the weights.

Children who were adopted after January 2004 were eligible to receive panel weights but only if they were also born after January 2004. Adopted children born in or before January 2004 were treated the same way as other persons who moved in with panel members after Wave 1; they could not be assigned panel (longitudinal) weights, but their data contributed to the family and household characteristics of panel members in the months that they shared such membership. In addition, while present they received cross-sectional weights. In total, 2,023 children born between Wave 1 and the end of Wave 8 were assigned positive eight-wave weights. Of this latter total, 1,783 (or 88.1 percent) received positive weights from their mothers, 122 (6.0 percent) received positive weights from their fathers, and 118 (5.8 percent) received positive weights from nonparental guardians. No one received positive weights from household reference persons who were not identified as their guardians.

III. SAMPLE LOSS AND SEAM REPORTING

In this section, we explore the effects of sample loss and seam bias on SIPP-based estimates of participation dynamics. We then examine how response patterns in Wave 1 differ from patterns in Wave 2 and later. The key findings discussed in this section include:

- The rates of sample loss in the 2004 panel are high, even relative to previous panels. Almost half of the individuals responding in the first wave of the SIPP are excluded from the dynamics analysis because they stop participating or otherwise have incomplete data. However, when we look at key individual characteristics, there is no evidence of substantial bias resulting from this sample loss.

- Patterns of seam reporting are evident across many characteristics. Among SNAP participants, over two thirds of program entries and half of program exits occur on the first month of a wave. Seam reporting patterns are apparent among potential trigger events such as changes in employment and changes in other income. As in prior SNAP dynamics analyses, this suggests that analyses of participation spell durations

[1] A child could receive a weight from a stepparent only through either of these last two alternatives.

and analyses of trigger events need to allow for the fact that seam reporting can affect short term transitions.

A. Sample Loss

Sample loss generally occurs when members of a household sampled for the survey either cannot be located or refuse to participate. In the 2004 SIPP Panel, about 15 percent of households originally sampled did not respond or could not be identified for the Wave 1 interview (this is higher than the Wave 1 nonresponse rates from prior SIPP panels, where nonresponse rates ranged from about 5 percent in 1984 to 13 percent in 2001).[2] Among those individuals who were interviewed, 37.7 percent stopped participating in the survey by the end of eighth wave of the 2004 panel (the "effective" end of the survey for our analysis).

This section examines the extent of sample loss and the implications that it may have for analysis of participation dynamics. If the individuals who left the SIPP sample are different from the individuals who do not leave, then estimates generated from the SIPP could be biased. The longitudinal "full panel" analysis weights described in the previous section are designed by the Census Bureau in part to address this bias. In this section, we examine weighted SIPP estimates to identify evidence of bias, and conclude that for broad characteristics, the SIPP weights appear to account for sample loss.

The SIPP observations used in the study of participation dynamics are limited to those that have complete data for every month that they are in the SIPP universe through the eighth wave of the survey (these observations receive the full panel weights). Most of these are individuals with reported data are available each of the 32 months in the panel. However, some are cases that missed one wave of SIPP interviews and had the missing data from that wave imputed based on responses in the previous and subsequent waves. Others are observations for people that enter or exit the SIPP universe during the panel for reasons such as birth/death, moving into or out of the country, becoming institutionalized, etc. Individuals who enter/exit the universe receive full panel weights (and are included in the analysis) so long as they have complete information for those months that they are in the universe. It should be noted that some individuals that leave the SIPP universe do return later in the panel.

In this context, sample loss (sampled individuals excluded from the analysis) are individuals that do not have complete information for those months that that they are in the SIPP universe. This includes individuals who stop responding to the SIPP (for instance, people who move and cannot be located, or people who refuse to participate in the SIPP), as well as individuals for whom at least two consecutive waves of the SIPP are missed, and therefore missing wave imputations cannot be completed. We refer to these two types of sample loss as attrition.

Table A.2 shows the total sample loss in the SIPP among individuals interviewed in Wave 1.[3] Of the 110,446 individuals responding in Wave 1, 37.7 percent are lost due to attrition. The remaining sample of 68,810 reflects those individuals who receive a full panel weight (for Waves 1 to 8) and are included in the analysis of program participation dynamics. We note that

[2] These estimates are taken from http://www.census.gov/sipp/usrguide/ch2_nov20.pdf.
[3] Sample loss due to nonresponse in Wave 1 is not reflected in this table.

this table excludes the 2,023 infants that were born between the end of Wave 1 and the end of Wave 8 because they do not have Wave 1 characteristics. The total sample size including these infants is thus 70,833 individuals.

Differential rates of sample loss are apparent when we look at broad population characteristics such as income and age. Table A.2 shows that rates of sample loss are higher among those with lower income. While the overall combined sample loss rate is 37.7 percent, the sample loss rate for individuals below 10 percent of poverty is 49.2 percent. If not correctly accounted for, this type of differential sample loss could lead to biased estimates of participation dynamics. Table A.2 shows that total sample loss rates are highest among individuals age 19 to 39—44.0 percent of all individuals and 49.1 percent of individuals below 100 percent of poverty in this age group leave the sample. The age group with the second highest sample loss rates are those under age 19—39.4 percent of all individuals, and 44.4 percent of individuals below 100 percent of poverty leave the sample.

Table A.2 Sample Loss Rates, by Select Characteristics in 2004 SIPP Panel [a]

	Initial Sample Size	Percent of Initial Sample Lost	Remaining Sample Size
Total	110,446	37.7	68,810
Income as Percent of Poverty [b]			
Under 10 Percent	3,916	49.2	1,989
10 to Less Than 50 Percent	4,531	45.7	2,461
50 to Less Than 100 Percent	9,060	39.1	5,521
100 to Less Than 150 Percent	10,863	37.8	6,754
150 to Less Than 200 Percent	10,880	38.3	6,713
200 to Less Than 300 Percent	18,979	36.9	11,972
300 to Less Than 400 Percent	15,169	35.5	9,784
400 to Less Than 500 Percent	11,488	34.7	7,498
500 Percent or More	25,372	36.8	16,031
Age (All Individuals)			
Under 19	31,255	39.4	18,949
19 to 39	30,508	44.0	17,079
40 to 64	35,241	34.5	23,085
65+	13,442	28.0	9,683
Total	110,446	37.7	68,796
Age (Individuals with Income less than 100 Percent of Poverty)			
Under 19	6,820	44.4	3,795
19 to 39	5,218	49.1	2,657
40 to 64	4,162	37.5	2,600
65+	1,307	29.7	919
Total	17,507	43.0	9,971

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes:

[a] These estimates exclude infants born after Wave 1, but before the end of Wave 8 of the panel. A subset of these infants who had mothers, fathers, or guardians with positive eight-wave weights was assigned positive eight-wave panel weights. In all, 2,023 infants were assigned positive eight-wave panel weights, for a total sample size of 70,833 individuals.

[b] Income and age characteristics are taken from the first panel month.

Comparing cross-sectional and full panel estimates of the population in January 2004 can provide some insight into the Census Bureau's ability to adjust for sample loss in their analysis weights. While full panel estimates only include those individuals with data for every month they are in the SIPP universe in Waves 1 to 8, cross sectional estimates include all individuals present in January 2004, regardless of subsequent SIPP response status. Because the full panel weights are calibrated to January 2004 population characteristics, full panel estimates of January 2004 characteristics should be similar to cross-sectional estimates if those full panel estimates are unbiased by sample loss. Differences between cross-sectional and full panel estimates, on the other hand, reflect potential bias introduced by sample loss.

Table A.3 presents estimates of key characteristics that are analyzed in the study of participation dynamics. In this table, estimates derived from the cross-sectional weights are compared with estimates derived from the full panel weights. While for most characteristics, such as SNAP participation, the full panel estimates appear similar to the cross sectional estimates, some estimates are different. Estimates of the number of Asian, non-Hispanic individuals are lower when using the full panel weights, but there is general agreement between the sets of weighted estimates for individuals in the other race and ethnicity categories. Estimates of individuals employed 35+ hours in some weeks are lower when using the full panel weights, though the sets of weighted estimates are similar for those that worked full time in all weeks. Finally, estimates of individuals receiving SSI benefits in January 2004 are higher when using the full panel weights. The magnitudes of all of these differences, however, are smaller than those in the 2001 panel. Indeed, participation in SNAP in the 2001 panel was greater using the full panel weight than the cross-sectional weight, whereas SNAP participation in the 2004 panel shows the estimates to be nearly equivalent using each set of weights.

We also compared the distribution of individuals by monthly income when using the cross-sectional and full panel weights (Table A.4). The decile values of the distributions of total family income are similar in the cross-sectional and full panel estimates for all income levels at or above the 30th percentile, but differ slightly below this level. The 10^{th} percentile value for the distribution of persons by total family income is about \$63 higher in the full panel estimates—\$863 compared with \$800 in the cross-sectional estimates. For the 20th percentile value, the difference is about \$45. This indicates that the bottom 20 percent of the distribution is skewed towards lower income amounts in the full panel estimates. Because both sets of weights produce similar estimates of the lower end of the distribution of family earnings, the differences in the lower tail of the total family income distribution may suggest that the full panel weights do not fully account for the disproportionate loss of individuals with various sources of unearned income from the sample.

Table A.3 Sample Members with Cross-Sectional versus Eight-Wave Panel Weights, by Demographic and Economic Characteristics

Characteristic	Cross-Sectional Estimates [a]	Eight-Wave Panel Estimates [b]	Eight-Wave Panel as Percent of Cross-Section
Weighted Sample Size	286,946,523	286,947,893	
Age			
Under 19	77,165,656	77,447,492	100.4%
19 - 39	83,312,915	83,026,062	99.7%
40 - 64	92,001,033	92,007,420	100.0%
65 +	34,466,919	34,466,919	100.0%
Race/Ethnicity			
White Alone Non-Hispanic	194,446,211	194,233,808	99.9%
Black Alone Non-Hispanic	34,714,271	34,684,986	99.9%
Hispanic	39,970,249	40,080,248	100.3%
Asian/Pacific Islander Alone Non-Hispanic	9,596,865	9,320,373	97.1%
Other Non-Hispanic	8,218,928	8,628,478	105.0%
Employment Status			
No Time on Layoff, No Time Looking for Work			
Employed 35+ hours all weeks	108,138,895	108,301,671	100.2%
Employed 35+ hours some weeks	2,178,602	2,054,707	94.3%
Employed 1-34 hours per week	26,764,265	27,635,709	103.3%
Some Time Laid Off and/or Looking for Work			
Employed 35+ hours some weeks	1,232,417	1,182,253	95.9%
Employed 1-34 hours some weeks	780,982	744,601	95.3%
No time working	8,568,485	8,278,540	96.6%
Did Not Work, Not Laid Off, Not Looking for Work	77,928,515	77,300,784	99.2%
With Job, Did Not Work	1,174,497	1,265,453	107.7%
Disability Status			
Had work-preventing physical/mental/health condition	14,149,288	14,291,465	101.0%
Had work-limiting physical/mental/health condition	22,662,542	23,057,411	101.7%
Participants of Government Assistance Programs			
TANF	3,279,271	3,252,198	99.2%
SNAP	19,493,044	19,674,845	100.9%
SSI	6,118,361	6,527,958	106.7%
Social Security	43,087,062	43,519,941	101.0%
Veterans Disability Payments	3,165,465	3,126,532	98.8%
WIC	5,602,640	5,726,281	102.2%

Table A.3, *continued*

Characteristic	Cross-Sectional Estimates a	Eight-Wave Panel Estimates b	Eight-Wave Panel as Percent of Cross-Section
Persons In Households of this Size			
1	30,169,310	30,649,722	101.6%
2	76,235,546	76,385,546	100.2%
3	55,576,998	54,580,261	98.2%
4	61,975,099	62,791,252	101.3%
5+	62,989,570	62,541,112	99.3%
Persons In Families of this Type			
Two Parent Families	183,830,585	185,365,750	100.8%
Families headed by Single Female	35,637,232	34,750,640	97.5%
Families headed by Single Male	67,478,706	66,831,502	99.0%

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes:

[a] The column labeled "Cross-Section" provides weighted counts of persons in the January 2004 cross-section sample.

[b] The column labeled "Eight-Wave Panel" provides weighted counts in January 2004 of persons with eight-wave panel weights.

Table A.4 Decile Values of Selected Monthly Income Distributions for January 2004, using Cross-Sectional and Eight-Wave Panel Weights

Income Distribution	Cross-Sectional Estimates [a]	Eight-Wave Panel Estimates [b]	Eight-Wave Panel as Percent of Cross-Section
Persons by Total Family Income			
10th percentile	800	863	107.9%
20th percentile	1,537	1,582	102.9%
30th percentile	2,208	2,250	101.9%
40th percentile	2,954	2,982	100.9%
50th percentile	3,759	3,790	100.8%
60th percentile	4,710	4,732	100.5%
70th percentile	5,871	5,885	100.2%
80th percentile	7,403	7,393	99.9%
90th percentile	10,062	9,903	98.4%
100th percentile	81,877	81,877	100.0%
Persons by Family Earnings			
10th percentile	0	0	--
20th percentile	0	0	--
30th percentile	1,200	1,212	101.0%
40th percentile	2,050	2,083	101.6%
50th percentile	2,944	2,989	101.5%
60th percentile	3,956	4,000	101.1%
70th percentile	5,100	5,172	101.4%
80th percentile	6,612	6,629	100.3%
90th percentile	9,112	9,031	99.1%
100th percentile	77,550	77,550	100.0%
Persons Age 60 or Older by Family Social Security			
10th percentile	0	0	--
20th percentile	372	367	98.7%
30th percentile	646	647	100.2%
40th percentile	854	861	100.8%
50th percentile	1,024	1,024	100.0%
60th percentile	1,202	1,200	99.8%
70th percentile	1,414	1,419	100.4%
80th percentile	1,658	1,655	99.8%
90th percentile	1,975	1,971	99.8%
100th percentile	11,105	11,105	100.0%

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes:

[a] The column labeled "Cross-Section" provides weighted counts of persons in the January 2004 cross-section sample.

[b] The column labeled "Eight-Wave Panel" provides weighted counts in January 2004 of persons with eight-wave panel weights.

While there are differences apparent in estimates of the January 2004 population between the full panel and cross-sectional estimates, we are most concerned about whether these differences affect estimates over the life of the panel. Therefore, a second way to examine the effects of sample loss is to compare SIPP full panel estimates to estimates from an independent source at different points over the life of the panel. In Table A.5 (below), we compare the distribution of population characteristics in the SIPP with the distribution observed in the Annual Social and Economic (ASEC) supplement, administered as part of the Current Population Survey (CPS) each March. The SIPP and ASEC estimates are similar in 2004, and for many characteristics, the SIPP captures changes over time as they are observed in the CPS. However, estimates of some characteristics trend away from estimates in the CPS. Key differences include:

- Both SIPP and ASEC estimates of the proportion of individuals under age 19 decline over time, and estimates of individuals over age 40 tend to increase over time, but the changes in the SIPP proportions of those over age 40 are larger than those in the ASEC.

- ASEC estimates of the white, non-Hispanic population decrease over time, while those from the SIPP increase very slightly over time. At the same time, SIPP estimates of the Hispanic population decrease over time, while those from the ASEC increase.

- SIPP estimates of individuals receiving SNAP benefits increase over time by a greater amount than estimates from ASEC.

- SIPP estimates of adults receiving SSI increase over time; the ASEC estimate stays constant.

- SIPP estimates of adults receiving Social Security increases over time, while estimates from ASEC remain relatively constant.

- SIPP estimates of the proportion of individuals living in two parent families increase from January 2004 to January 2005 and subsequently remain fairly constant, while ASEC estimates decrease.

If we assume that the ASEC estimates are unbiased estimates of the full population over time, then we can conclude that there is some bias in the SIPP estimates, but that bias is relatively small. Given this small magnitude, we would not anticipate that bias in SIPP-based estimates of these characteristics over time would lead to meaningful bias of estimates of program dynamics.

In summary, our analysis of sample loss in the 2004 SIPP panel leads us to conclude that there is some evidence of bias from sample loss, but such bias is not a significant concern. While over one-third of the Wave 1 sample is not included in the full panel analysis file, the full panel weights appear to adequately correct for this sample loss when we examine key characteristics for January 2004. Indeed, the correction is an improvement from that in the 2001 SIPP panel. Moreover, the SIPP estimates tend to track ASEC estimates relatively closely over the course of the SIPP panel.

It should still be stressed that while there is no large bias in the characteristics we examined, it is still a concern that the full panel is substantially smaller than the original 2004 panel sample. Having a smaller set of observations leads to reduced precision in the estimates of participation patterns and in estimates of what factors affect entry and exit. Several aspects of the 2004 panel work to our advantage, however. First, the sample sizes are larger at the start of the 2004 panel than at the start of the 2001 panel. Second, the panel did not suffer from a large-scale cut between Waves 1 and 2 as did the 2001 panel. Third, there was a smaller rate of sample loss in the 2004 panel, (once the Census Bureau's 2001 panel sample cut is excluded from the 2001 sample loss calculation). Thus, while we have reduced precision levels using the full panel relative to using the month 1 cross-section, this reduction is smaller here than in prior studies of SNAP dynamics.

Table A.5 Comparison of Percent Distribution of Population Characteristics, SIPP and ASEC, 2004-2006[1]

	Jan 2004 SIPP vs. Mar 2004 ASEC			Jan 2005 SIPP vs. Mar 2005 ASEC			Jan 2006 SIPP vs. Mar 2006 ASEC		
	SIPP [a]	ASEC	SIPP Minus ASEC	SIPP	ASEC	SIPP Minus ASEC	SIPP	ASEC	SIPP Minus ASEC
Age									
Under 19	27.0	26.9	0.1	26.7	26.7	0.0	26.6	26.5	0.1
19 - 39	28.9	29.1	-0.1	28.3	28.8	-0.6	27.7	28.7	-1.0
40 - 64	32.1	32.0	0.1	32.7	32.4	0.3	33.1	32.7	0.4
65 +	12.0	12.0	0.0	12.3	12.1	0.2	12.6	12.1	0.5
Gender									
Male	48.8	49.0	-0.1	48.7	49.0	-0.4	48.6	49.1	-0.5
Female	51.2	51.0	0.1	51.3	51.0	0.4	51.4	50.9	0.5
Marital Status									
Married	42.3	42.1	0.2	42.4	42.0	0.4	42.2	41.8	0.4
Divorced	7.9	7.6	0.4	7.9	7.7	0.3	8.0	7.8	0.2
Separated	1.5	1.6	-0.1	1.4	1.7	-0.3	1.4	1.7	-0.3
Widowed	5.0	4.8	0.2	4.9	4.8	0.2	4.9	4.7	0.2
Never Married	43.3	44.0	-0.7	43.3	43.9	-0.6	43.5	44.0	-0.4
Race/Ethnicity									
White Non-Hispanic	67.7	67.6	0.1	67.8	67.1	0.7	67.9	66.7	1.2
Black Non-Hispanic	12.1	12.1	0.0	12.1	12.1	0.0	12.2	12.1	0.0
Hispanic	14.0	14.0	-0.1	13.8	14.4	-0.6	13.7	14.7	-1.0
Asian/Pacific Islander	3.2	4.1	-0.8	3.2	4.2	-1.0	3.2	4.2	-1.1
American Indian	3.0	2.2	0.8	3.0	2.2	0.8	3.1	2.3	0.8
Participants of Gov't Assistance Programs									
TANF									
All Adults and Children	1.9	2.1	-0.2	2.0	1.8	0.3	1.8	1.8	0.0
SNAP									
All Adults and Children	8.2	7.2	1.0	9.2	7.6	1.7	9.5	7.8	1.7
All Children [b]	4.1	5.6	-1.5	4.9	5.8	-0.9	5.1	5.9	-0.8

Table A.5, *continued*

	Jan 2004 SIPP vs. Mar 2004 ASEC			Jan 2005 SIPP vs. Mar 2005 ASEC			Jan 2006 SIPP vs. Mar 2006 ASEC		
	SIPP [a]	ASEC	SIPP Minus ASEC	SIPP	ASEC	SIPP Minus ASEC	SIPP	ASEC	SIPP Minus ASEC
Participants of Gov't Assistance Programs, *cont'd*									
SSI									
All Adults	2.0	1.8	0.2	2.4	1.8	0.5	2.5	1.8	0.7
Social Security									
All Adults	14.7	14.1	0.6	15.3	14.1	1.2	15.6	14.1	1.6
Veterans Disability Payments	1.1	0.8	0.3	1.2	0.9	0.3	1.2	0.9	0.3
WIC	2.0	1.3	0.7	2.1	1.3	0.9	2.1	1.2	0.9
Persons In Families of this Type									
Two Parent Families	64.6	64.0	0.6	65.4	63.5	1.9	65.4	63.2	2.1
Families headed by Single Female	23.3	23.3	0.0	23.3	23.4	-0.1	23.5	23.5	0.0
Families headed by Single Male	12.1	12.8	-0.7	11.4	13.1	-1.7	11.2	13.3	-2.2

Source: Decision Demographics tabulations of the 2004 SIPP Panel and March 2004-2006 ASEC

Notes:

[a] SIPP estimates generated using eight-wave panel weights.

[b] Mar ASEC estimates of SNAP children were based on HFOODNO * HSUP-WGT.

B. Seam Bias

In the SIPP, the "seam effect" reflects the tendency of individuals to report changes in status on seams—the months that represent the start or end of each four-month reference period. This has important implications for the study of participation dynamics, which is focused primarily on individuals' reported changes in program participation. The seam effect can affect the estimated duration of participation spells as well as the timing of program entry and exit relative to other changes. In this section, we examine patterns of seam reporting to determine which transitions are affected. Unfortunately, on a given seam month, it is not possible to determine which reported transitions are "real" and which actually occurred in a different month. Therefore, we must conduct the analysis of participation dynamics in a way that does not rely on the short-term timing of transitions.

Table A.6 shows the distribution of key transition events by the months that those transitions are reported in the SIPP.[4] For most events, the transitions disproportionately occur on seam months. For example, 69.3 percent of reported entries into SNAP occur on the first month of a reference period (the left seam). Similarly, 46.6 percent of exits occur on the left seam. If there were no bias, we would expect each seam to account for about 25 percent of reported transitions.[5] Hence, this suggests that individuals who enter SNAP in a given wave tend to report that they started receiving SNAP benefits in the first month of that wave, and individuals who exit in a given wave also tend to report that they exited in the first month of that wave. All else being equal, this would have the effect of lengthening estimated spell durations. While the percent of reported entries at the left seam is slightly larger than in the 2001 panel (69.3 percent in 2004 versus 67.5 percent in 2001), the percent of reported exits at the left seam is much smaller (46.6 percent in 2004 versus 73.8 percent in 2001). The net effect may be an improvement in the reporting of transition events.

[4] Left seams from Wave 1 and right seams from Wave 8 are excluded from the estimates in Table A.6. In Wave 1, the left-seam transitions cannot be observed since there are no data on the month prior to the left seam. In Wave 8, while right-seam transitions can be observed for some of the sample, our longitudinal panel weights are representative through Wave 8 of the sample only.

[5] Because the SIPP sample is split into 4 random rotation groups, with each rotation group having a different four-month reference period, seasonal bias or other factors would not affect the distribution of transition events across reference months.

Table A.6 Distribution of Transition Events by Reference Month [a,b,c]

Transition Event	Total	Percent of Transitions from Prior Month to Indicated Month			
		Month 1	Month 2	Month 3	Month 4
SNAP					
Entry	30,497,124	69.3	7.8	10.2	12.7
Exit	25,388,310	46.6	22.1	14.6	16.6
Employment among Persons 16 and Over					
Entry	91,249,690	45.6	17.1	17.7	19.6
Exit	82,297,555	43.1	17.9	19.3	19.6
More than 5% Change in Income among Persons 16 and Older					
Earnings	775,754,126	55.9	14.0	14.1	16.0
TANF	9,137,706	66.9	12.2	9.4	11.5
SSI	25,525,713	86.2	5.4	3.7	4.6
Household Composition					
Different Household (Total)	91,909,075	29.2	23.1	23.2	24.5
Different Household (Adult)	67,910,066	28.9	22.9	23.3	24.9
Different Household (Child Under 15)	23,999,010	29.9	23.9	22.8	23.4

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes:

[a] Left-censored spells, spells beginning in Wave 1, and newborns upon entry are excluded from the entry estimates.

[b] Right-censored spells and spells ending in Wave 8 are excluded from the exit estimates.

[c] Changes in income and household composition in Wave 1 are excluded.

Transitions in other events that could affect SNAP entry and exit also are subject to seam bias. For example, among all individuals just less than half of job entries and exits occur on the left-seam. Additionally, individuals disproportionately report changes in earnings of more than 5 percent on left seams. The seam effect for changes in earnings is less than that of changes in TANF or SSI. For TANF, 66.9 percent of changes greater than 5 percent are reported on the left seam, while for SSI, 86.2 percent of changes greater than 5 percent are reported on the left seam. Changes in household size appear to be only slightly affected by seam reporting when we examine trends for all individuals.

To determine whether patterns of seam reporting are associated with characteristics of the SIPP household, Table A.7 compares left seam reporting of transition events for different subgroups. For individuals who report receipt of SNAP at some point during the 2004 panel, rates of seam reporting reflect those of the population as a whole. However, when we limit the analysis to individuals whose household respondent for the wave changed (and only examining those waves where the household respondent is different), seam reporting for most transitions approaches 100 percent. The seam effect is higher for both SNAP entries and exits when a proxy responds for the individual than for all individuals. Finally, the seam effect is higher for records where the entire month is imputed, relative to the full sample.

Table A.7 Rates of Seam Reporting For Select Subgroups, 2004 SIPP Panel [a,b,c]

Transition Event	All Individuals	Adults Receiving SNAP Benefits During Panel	Individuals in Households with Change in Household Respondent	Interview Status (Adults only)		
				Interview (Self)	Proxy	Individual's Month Imputed
SNAP						
Entry	69.3	69.9	93.4	7,934,787	72.7	89.8
Exit	46.6	47.4	91.7	3,972,087	53.6	70.5
Employment among Persons 16 and Over						
Entry	45.6	44.0	96.1	20,354,727	45.8	56.2
Exit	43.1	41.9	96.8	17,183,742	46.5	70.3
More than 5% Change in Income among Persons 16 and Older						
Earnings	55.9	52.4	97.6	246,051,837	58.5	63.6
TANF	66.9	65.9	97.2	4,732,601	75.5	84.3
SSI	86.2	86.1	98.8	14,604,675	87.2	91.0
Household Composition						
Different Household (Total)	29.2	28.4	43.1	13,455,787	29.4	35.8
Different Household (Adult)	28.9	28.4	41.8	13,447,333	29.1	35.7
Different Household (Child Under 15)	29.9	29.9	49.4	8,454	70.9	100.0

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes:

[a] Left-censored spells, spells beginning in Wave 1, and newborns upon entry are excluded from the entry estimates.

[b] Right-censored spells and spells ending in Wave 8 are excluded from the exit estimates.

[c] Changes in income and household composition in Wave 1 are excluded.

The extent of seam bias in the 2004 SIPP panel constrains our ability to examine how program participation is affected by the timing of other events. Because of seam reporting, an observed transition could have occurred in the reported month or in any other month of a wave. Indeed, it is even possible that a trigger event that precedes a SNAP transition is reported after that transition is reported. As a result, as in prior SNAP dynamics analyses, our analysis accounts for the SIPP seam effect. We use trigger "windows" of 4 and 8 months to capture transition events that may have been reported on a seam. Finally, we conduct a sensitivity analysis excluding those groups with the largest seam bias (namely, individuals in households where the respondent changed in the wave, and individuals whose information was imputed).

IV. DATA INCONSISTENCIES

In this section, we provide a summary of key inconsistencies we identified in the 2004 SIPP panel data. Inconsistencies may reflect reporting errors or data processing errors, and using data with errors could lead to biased estimates of participation dynamics. We examine two types of inconsistencies. First, we describe cross-sectional inconsistencies, where some information for a respondent or household conflicts with other information in the same month. Second, we describe longitudinal inconsistencies, where a respondent's information in one month is inconsistent with information provided in a subsequent month.

Key findings from the analysis of data inconsistencies include:

- As in the 2001 panel, we have found conflicting information for some individuals about whether or not the individual was employed in a given month. We assessed the implications of using the same recode of the SIPP's employment summary variable in 2004 as we used in 2001 and continued to use it in 2004.

- Some SNAP and TANF assistance units have conflicting information on the amount of benefits received in that unit. Moreover, in some cases, it is difficult to determine whether the one unit observed in the SIPP actually represents two separate assistance units. We developed an algorithm to resolve these inconsistencies based on a set of simple assumptions.

- Underreporting of program participation is significantly greater in Wave 1 than in Wave 2. One possible explanation of this behavior is that respondents are "learning" how to respond accurately to the survey instrument. This could bias estimates of participation spells that are active in the first wave, as well as estimates of spells that start in the second wave.

A. Cross-Sectional Inconsistencies

There are two key cross-sectional inconsistencies we identified in the 2004 SIPP data. The first is a set of inconsistencies that arise in determining which individuals are employed, unemployed, and out of the labor force in a given month. The second is a set of inconsistencies that arise in the formation of SNAP and TANF assistance units in the SIPP data.

1. Employment Status Indicators

In 2006, using the 2001 SIPP panel, Mathematica identified a number of problems with key variables that determine employment status. The problems led some individuals to have conflicting information on whether they were employed, and if so, the number of hours that they worked. Mathematica worked with Census Bureau staff to investigate these issues and determined that there were multiple reasons for these inconsistencies. As a result, for many of these inconsistencies it was difficult to determine which variables should be trusted and which should be ignored or modified. After a comprehensive assessment of the SIPP's employment status summary variable, RMESR, and other variables such as hours worked and job start and end dates, Mathematica decided on a recoding procedure that preserved the employment status value from RMESR for most of the sample, but recoded it using additional information from the "usual hours worked per week" variable RMHRSWK to form a new employment summary measure EMPCAT.

Using the 2004 panel we cross-tabulated in month 1 of the panel the employment summary variable EMPCAT with the SIPP employment summary variable RMESR and usual hours worked per week variable RMHRSWK to identify how many sample members would have their employment status recoded if EMPCAT was used in place of RMESR in the current study. We found that:

- Except for one person, all sample members (about 69.5 percent of the sample) that would be categorized as employed using RMESR continue to be categorized as employed using EMPCAT. The one individual categorized as employed using EMPCAT but unemployed using RMESR has (1) an RMESR value that indicates that they did not have a job all month and spent at least one but not all weeks on layoff or looking for work; and (2) a RMHRSWK value that indicates he or she worked 1 to 34 hours at least one week but not all weeks and worked 0 hours the remaining weeks.

- Using EMPCAT, 3.0 percent of the unweighted sample, or a set of 3,253 individuals, is unemployed in month 1. Using RMESR, 2.3 percent, or a set of 2,539 individuals, is unemployed in this month. The individuals coded as unemployed using EMPCAT, but not using RMESR, reported usually working 0 hours per week in the month.

- All sample members that would be coded as out of the labor force using RMESR continue to be categorized as out of the labor force using EMPCAT. This makes up about 27.6 percent of the sample.

The employment status variables are important to our analysis because we investigate the role that changes in employment status have on program entry and exit. Based on this tabulation (and similar tabulations in other months of the panel), we utilize EMPCAT in place of RMESR to define monthly employment measures. We believe all except one of the sample members affected by this choice of variable can reasonably be considered unemployed given that they reported working zero hours in a usual week in the month. This also maintains comparability with the results in Cody et al. (2007) based on the analysis of the 2001 SIPP panel.

2. Assistance Unit Formation Problems

In some cases, individuals who are members of the same SNAP or TANF assistance unit have information that conflicts with other members of that unit.[6] In terms of SNAP units, we identified a handful of cases with one of two inconsistencies:

(1) The program unit had extra SNAP benefits. In each SNAP unit, the SIPP is only supposed to record the amount of benefits on one person's record – that of the unit reference person. However, in some units, the benefit amount is assigned to multiple people—the unit reference person as well as one or more non-reference persons. Often, the individuals in the same unit have SNAP benefits of different amounts. It is unclear why these inconsistencies occur. It could be that the benefit amount assigned to non-reference persons is superfluous (and should be ignored), that the unit's benefits have been pro-rated across multiple unit members (and should be summed across members of the unit), or that the unit has been incorrectly formed (and should be split into two units).

[6] In this section, we refer to "assistance units" as those members of a dwelling unit that receive benefits under the same case. We use the term "household" to refer to the SIPP household.

(2) The SNAP unit reference person was a participant in another SNAP unit. The SIPP records include "pointers" that indicate, for each individual, which other household member is their SNAP unit reference person. In some households, some members point to one individual as the unit reference person, who in turn points to another individual as the unit reference person. This second reference person is also covered by SNAP and points to him/herself as the reference person of his/her unit. In these cases, it could be that there is only one SNAP unit and the first set of pointers is erroneous. Alternatively, it could be that the household has multiple units with two reference persons, and the pointer on the first reference person is erroneous.

Each month, between 1.6 and 5.3 percent of SNAP households (unweighted) has one of these two inconsistencies (Table A.8). Similar problems exist for TANF units, where the same SIPP procedures for identifying unit reference persons and income are used. For TANF units, the rates of inconsistencies are higher than for SNAP units—ranging from 3.4 to 6.9 percent of TANF units (unweighted) each month.

The percentage of SNAP units with inconsistencies is fairly constant at around 1.6 percent from month 1 to month 4, then jumps to 4.6 percent in month 5 and remains fairly constant (ranging from 4.0 to 5.3 percent) from month 5 onward. Concerned about the jump between Waves 1 and 2, which is larger than the jump we saw in the 2001 SIPP panel, we performed additional diagnostic tabulations on the cases with inconsistencies. We concluded that the introduction of dependent interviewing in the 2004 panel, in conjunction with changes in interview status from "self" to "proxy" between waves, may be responsible for the largest proportion of the inconsistencies—the reporting of two SNAP benefit amounts within one SNAP unit.

As an example, consider an actual case that we observed in the data in which a household contains a married couple. In the first wave, both persons 101 and 102 respond as "self", with person 101 identifying him- or herself as the SNAP unit head and thus is coded as the sole recipient of the SNAP benefit amount. In Wave 2, person 102 responds as "self" and also serves as a proxy for person 101 who does not respond. In this wave, person 102 identifies him- or herself as the SNAP unit head and is coded with the benefit amount. Then, according to the order of questions in the SIPP interviewer's manual, the dependent interviewing causes the SIPP interviewer to ask about the previous participation of person 101 before asking who is covered in person 102's SNAP unit. The interviewer asks "[Person 101] was getting SNAP benefits before, are they still?" Person 102 responds in the affirmative that person 101 is still receiving SNAP, and the interviewer proceeds to ask questions about the level of benefits of person 101. Finally, after attributing a benefit amount to person 102 and person 101 (which is sometimes reported as the same amount and sometimes not), the interviewer asks who is covered by the benefit in Wave 2 and person 102 responds they both are. The result is that person 101 and 102 are both coded as being in the unit headed by person 102, but both of them have a positive benefit amount when there should only be one benefit amount per unit.

The effect of dependent interviewing on the increase in inconsistencies between Wave 1 and 2 appears to be compounded by an increase use of proxy respondents in Wave 2. The increase in the use of proxy respondents may be due to Wave 1 interviews being conducted in person and Wave 2 interviews being conducted by telephone, as the SIPP tries to do only one in-person interview per year (and Wave 1 interviews are always in person).

Table A.8 Frequency of within-Unit Inconsistencies for SNAP and TANF, 2004 SIPP Panel, Unweighted

Reference Month	Households with SNAP	Percentage of SNAP Households with Problems	Households with TANF	Percentage of TANF Households with Problems
1	3,245	1.6%	645	3.6%
2	3,311	1.6%	644	3.4%
3	3,382	1.6%	659	3.5%
4	3,435	1.6%	676	3.8%
5	3,407	4.6%	661	5.7%
6	3,343	4.0%	625	6.2%
7	3,369	4.2%	624	5.9%
8	3,392	4.0%	622	5.5%
9	3,362	5.2%	620	5.2%
10	3,317	4.7%	600	4.7%
11	3,330	4.4%	589	4.4%
12	3,343	4.4%	581	4.5%
13	3,395	4.9%	580	4.5%
14	3,340	4.6%	565	4.4%
15	3,341	4.3%	565	4.4%
16	3,346	4.2%	558	4.8%
17	3,362	5.0%	564	6.9%
18	3,306	4.5%	538	6.7%
19	3,291	4.3%	537	6.7%
20	3,315	4.1%	543	6.6%
21	3,405	5.0%	542	6.3%
22	3,375	4.4%	521	6.1%
23	3,394	4.2%	524	5.7%
24	3,399	4.2%	525	6.3%
25	3,417	5.3%	523	4.6%
26	3,335	4.6%	505	5.0%
27	3,317	4.4%	494	4.7%
28	3,305	4.1%	494	4.7%
29	3,228	5.1%	497	4.2%
30	3,157	4.5%	470	4.3%
31	3,153	4.4%	465	4.1%
32	3,138	4.3%	460	4.3%

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

These inconsistencies are a concern in part because they could affect our estimates of the number of SNAP units experiencing certain events, and they could affect our estimates of potential TANF trigger events. We developed basic assumptions to resolve these inconsistencies. In units where multiple individuals have income, we assume that there is only one program unit (not multiple units for each person with income), and we assume that the only income to be counted is that of the designated reference person. In cases where one reference person points to another reference person, we again assume that there is only one program unit, and that the individual that points to him/herself is the reference person of the unit.

B. Longitudinal Inconsistencies

In this section, we discuss differences in underreporting of program participation between Wave 1 and Wave 2, our approach to handling participation spells that are censored by transitions into and out of the SIPP universe (and discuss a small number of inconsistent records that are observed), and how we handle extremely short participation spells.

1. Differences between Wave 1 and Wave 2 Responses

In the 2004 Panel (as well as in the 2001 and 1996 Panels), patterns of responses between Waves 1 and 2 suggest a "learning" of the SIPP instrument. Underreporting of program participation is substantially larger in Wave 1 than Wave 2. It could be that individuals in Wave 1 are more likely to underreport—intentionally or unintentionally—because they are not familiar with the interview procedures; then as they learn the procedures, they provide more accurate information. This type of response pattern has two key implications for the analysis of participation dynamics. First, it would lead to an under-representation of participation spells in the first wave of the SIPP (and the participants that report may be systematically different from the participants that do not report). Second, it would lead to an overcount of new spells in the second wave of the SIPP. Unfortunately, this problem cannot be fixed in the data. Instead, we can at best use sensitivity analysis to explore how our estimates of participation dynamics might be affected by the differences between Wave 1 and Wave 2 responses.

Table A.9 shows how underreporting of program participation is consistently larger in Wave 1 than Wave 2. For each wave, we examine the number of participants in the common month of that wave. [7] For example, the number of individuals reporting SNAP receipt in the common month of Wave 1 (January 2004) is 14.8 percent below administrative totals for that month, while the number in the common month of Wave 2 (May 2004) is only 9.7 percent below administrative totals. The difference between Wave 1 and Wave 2 is larger for SNAP and TANF than for employment.

[7] The common month refers to the one month of each Wave that is common to each SIPP rotation group. Using the common month allows us to simplify the analysis to reflect one month of each Wave.

Table A.9 Difference in Participation Levels between Waves 1 and 2 of the 2004 SIPP Panel

Transition Event	January 2004 SIPP (Wave 1)	January 2004 Administrative Data	January 2004 Percent Difference	May 2004 SIPP (Wave 2)	May 2004 Administrative Data	May 2004 Percent Difference	Difference in Wave 1 and Wave 2 Differences
SNAP Participants							
Total	19,493,044	22,869,339	-14.8	21,498,317	23,817,622	-9.7	-5.0
Adult	10,386,132	11,240,416	-7.6	11,680,169	11,809,981	-1.1	-6.5
Children (under age 18)	9,106,912	11,628,923	-21.7	9,818,148	12,007,641	-18.2	-3.5
TANF Participants							
Total	3,279,271	4,758,264	-31.1	3,469,136	4,687,755	-26.0	-5.1
Mothers	972,767	1,152,179	-15.6	965,392	1,129,221	-14.5	-1.1
Children (under age 6)	2,306,505	3,606,085	-36.0	2,503,744	3,558,534	-29.6	-6.4
Employment	128,418,606	151,880,200	-15.4	134,383,726	151,880,200	-11.5	-3.9

Source: Decision Demographics, tabulations of the 2004 SIPP panel; the 2004 SNAP QC data, exclusive of Guam and the Virgin Islands; the March 2004 ASEC data (for employment "administrative" estimates). TANF estimates, exclusive of Guam, Puerto Rico, and the Virgin Islands, from http://www.acf.hhs.gov/programs/ofa/data-reports/caseload/caseload_current.htm

Notes:

SIPP Estimates generated using cross-sectional weights. Employment reflects all individuals with earnings and is compared with estimates from the CPS. The CPS estimates represent "ever-had" earnings during the previous year.

The increase in reported SNAP participation between Waves 1 and 2 can be the result of a number of factors. It could be that individuals who are present in both waves report participation at higher rates in Wave 2. However, it could also be the case that individuals who enter the SIPP sample in Wave 2 (for instance, individuals that move into a SIPP household) are disproportionately SNAP participants. Finally, it could be that weighting adjustments in Wave 2 disproportionately increase the weights of SNAP participants.

Table A.10 decomposes the observed change in SNAP participation from wave to wave by these various factors. For each wave, we estimate the number of SNAP participants in the common month (using cross-sectional weights). The estimated number of participants increased by 2.0 million between January and May 2004, increased by 759 thousand between May and September 2004, increased by 623 thousand between September 2004 and January 2005, and increased by 482 thousand between January 2005 and May 2005. We decompose these changes into three categories: (1) changes in reporting of SNAP participation status among individuals present in the common months of the current and previous wave, (2) reporting among individuals who are present in the current wave but were not in the SIPP sample in the common month of previous wave,[8] and (3) residual growth. Residual growth

[8] Individuals are considered absent from the SIPP sample in a common month even if they were present in other months of that or prior Waves. For example, an individual can respond in Wave 2, not respond in Wave 3 and respond again in Wave

is the difference between the observed change and the sum of the first two categories. This growth can be explained by changes made to individuals' weights across waves to account for movement of other individuals into and out of the SIPP sample.

The estimates in Table A.10 support the theory that individuals are learning the SIPP survey between Waves 1 and 2. The large increase in participation between Waves 1 and 2 is driven by a relatively large number of people who did not report participation in Wave 1 but reported participation in Wave 2. It does not appear that the change is driven by SNAP participants entering the SIPP sample in Wave 2, or by weighting adjustments between the two waves. The number of individuals present in both waves that report participation in Wave 2 but not Wave 1 (4.7 million) is higher than the analogous number observed in subsequent Waves (between 3.3 and 3.8 million). At the same time, the number reporting SNAP participation in Wave 1 but not Wave 2 (3.1 million) is more consistent with the analogous number observed in subsequent Waves (3.1 million to 3.2 million). The net increase due to changes in reporting status among individuals present in both Waves is 1.6 million, higher than the net increase observed in later waves.

4. For this analysis, we would consider that individual absent from the sample in Wave 3. Note that there are 157,742 (weighted) individuals in Wave 2 who were not present in the common month of Wave 1. These individuals were present in at least one other month of Wave 1 besides the common month.

Table A.10 Decomposition of Changes in SNAP Participation Estimates across the Common Months of Waves 1 through 5 in the 2004 SIPP

	Jan. 2004	May 2004	Sept. 2004	Jan. 2005	May 2005
Total Participants in Wave	19,499,943	21,524,129	22,283,027	22,906,394	23,388,476
Net Increase Over Prior Wave		2,024,186	758,898	623,367	482,082
Decomposition of Change					
In SNAP Now but Not in Prior Wave		4,703,331	3,752,364	3,633,309	3,274,338
Not in SNAP Now but Was in Prior Wave		3,085,339	3,159,764	3,213,709	3,082,983
Net increase in reporting		1,617,991	592,600	419,600	191,355
Participants Not in Sample Prior Wave, Not New to Sample This Wave[2]		157,742	990,727	1,339,603	1,215,884
Participants, New to Sample This Wave		334,319	338,156	312,172	387,570
Subtotal		492,061	1,328,883	1,651,774	1,603,454
Combined net growth		2,110,052	1,921,483	2,071,374	1,794,809
Residual growth		-85,866	-1,162,585	-1,448,007	-1,312,727
SNAP Reporting Rates					
Percent Not in Sample Prior Wave, Not New This Wave with SNAP		20.1	8.3	8.8	8.1
Percent New to Sample This Wave with SNAP		9.1	10.5	9.8	11.6

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes:

1. A positive residual growth would suggest a relatively greater increase in weights among participants than nonparticipants. The observed negative residual growth implies a smaller increase in weights among participants than among nonparticipants.
2. There are 157,742 (weighted) individuals in Wave 2 who were not present in the common month of Wave 1. These individuals were present in at least one other month of Wave 1 besides the common month.

A small number of SNAP participants in Wave 2 are individuals that were not in sample in the common month of Wave 1 but were not new to the sample in Wave 2. In other words, there are observations for these individuals for a different month of Wave 1. As would be expected, analogous numbers of participants in later waves are larger because there is more of an opportunity for individuals to leave the sample and return. The number of SNAP participants that are new to the SIPP sample in Wave 2 is consistent with the number observed in later waves.

In short, there appears to be some factor that leads individuals to underreport program participation in Wave 1, and correct that underreporting in Wave 2. This could lead to biased estimates of program participation dynamics if the spells that are unreported in Wave 1—in particular, spells that begin in Wave 1 but are unreported—are systematically different than those spells that are reported. In our analysis, we test the sensitivity of our results to whether or not Wave 1 spells are included.

V. COMPARISONS OF SIPP CHARACTERISTICS OF SNAP PARTICIPANTS WITH ADMINISTRATIVE DATA

We compared the characteristics of SNAP participants in the SIPP with the characteristics of participants in administrative data. The results show that SIPP-based estimates of SNAP participants are similar to those in the SNAP-QC data. Table A.11 compares characteristics of SNAP participants in the SIPP with characteristics in the SNAPQC administrative data for calendar years 2004 through 2006.[9] In general, the SIPP data align closely to the SNAPQC data. However, there are some notable differences:

- The age distribution of SNAP participants in the SIPP is inconsistent with the distribution in the SNAP QC data. In the SIPP, there are proportionately more SNAP adults and fewer SNAP children than in the SNAP QC. This is a known problem with the SIPP data. It is due, in part, to the fact that the SIPP unit formation procedures do not permit child-only SNAP units to exist. Instead, the SIPP forces adults to be part of the SNAP unit. This problem exists in the 1996 and 2001 SIPP panels since the prevalence of child-only units increased after many adult non-citizens became categorically ineligible for SNAP in 1997. Unfortunately, it is not possible to determine which units should be child-only units. After reviewing the 2001 panel in 2006, we requested that the Census Bureau make changes to their programs, but any changes would not have been in time to affect the 2004 panel. The differences between SIPP and SNAP QC are smaller, however, in the 2004 panel than in the 2001 panel for both adults and children. SIPP data have proportionately more Hispanic participants and proportionately fewer white SNAP participants than the QC data. This may be due, in part, to the fact that ineligible noncitizen adults are grouped into child-only units by the SIPP unit formation procedures.
- SIPP data have proportionately fewer households with zero earnings than SNAP QC data. This may reflect several factors. The difference could reflect a tendency of SNAP participants to report income to the SIPP but not to the SNAP QC. Additionally, seam bias and other SIPP factors could lead to high earnings and SNAP benefits in the same month for some participants.
- The proportion of individuals in SNAP households with TANF ranges from 3 to 4 percentage points lower in the SIPP than in the SNAP QC. In the 2001 panel, TANF receipt ranged from 4 to 8 percentage points lower in the SIPP than in the SNAP QC.

[9] Because May 2006 is the last month in the eighth wave for which all four rotation groups have data, we estimated the monthly average for 2006 from January to May 2006.

Table A.11 SNAP Participants by Characteristics in Administrative Data and in the SIPP

	Monthly Average, 2004			Monthly Average, 2005			Monthly Average, 2006[a]		
	SNAP QC	SIPP	Difference	SNAP QC	SIPP	Difference	SNAP QC	SIPP	Difference
Age									
0-4	17.0	14.8	-2.3	17.0	14.0	-3.0	17.0	13.4	-3.5
5-17	33.1	30.2	-3.0	32.8	30.1	-2.7	32.2	29.8	-2.4
18-59	41.7	45.9	4.2	41.8	46.2	4.4	42.1	46.5	4.4
60+	8.1	9.2	1.1	8.4	9.7	1.3	8.8	10.3	1.6
Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Race/Ethnicity									
White Non-Hispanic	43.0	38.4	-4.6	43.4	38.1	-5.3	42.5	36.9	-5.6
Black Non-Hispanic	33.1	31.9	-1.3	32.6	31.3	-1.3	33.4	31.9	-1.5
Hispanic	19.4	22.7	3.3	19.8	23.0	3.2	19.4	23.6	4.2
Asian/Pacific Islander	2.5	1.7	-0.8	2.2	2.1	-0.1	2.5	2.1	-0.5
American Indian	1.5	5.3	3.8	1.5	5.4	3.9	1.7	5.5	3.9
Unknown	0.4	0.0	-0.4	0.4	0.0	-0.4	0.5	0.0	-0.5
SNAP Unit Benefit Amount									
$1 - 10	3.0	3.4	0.4	2.9	3.8	0.9	3.5	3.9	0.4
$11-25	1.7	1.9	0.2	1.5	1.7	0.2	1.5	1.7	0.2
$26-$75	7.0	9.2	2.2	6.7	8.6	1.9	6.8	8.8	2.0
$76-$150	19.3	19.3	0.0	17.6	19.3	1.7	11.9	17.9	6.0
$151-$200	7.1	9.4	2.2	8.6	8.8	0.1	14.1	9.6	-4.5
$201-$250	9.0	10.7	1.7	7.7	9.1	1.3	8.2	8.6	0.4
$251-$300	12.8	12.9	0.1	13.3	13.4	0.1	12.5	13.8	1.3
$301-$350	7.2	6.5	-0.7	7.2	6.7	-0.5	6.5	5.3	-1.2
$351-$400	11.5	10.0	-1.5	11.8	10.1	-1.7	11.5	10.8	-0.7
$401-$450	4.4	4.4	0.0	4.2	3.1	-1.1	4.3	3.3	-1.0
$451+	17.1	9.5	-7.5	18.3	12.3	-6.0	19.3	12.7	-6.5

Table A.11, *continued*

	Monthly Average, 2004			Monthly Average, 2005			Monthly Average, 2006[a]		
	SNAPQC	SIPP	Difference	SNAPQC	SIPP	Difference	SNAPQC	SIPP	Difference
SNAP Unit Earnings									
$0	60.3	54.9	-5.5	60.1	52.9	-7.2	59.1	52.9	-6.2
$1-199	2.8	1.7	-1.1	2.9	1.2	-1.7	2.5	1.4	-1.1
$200-399	3.4	2.8	-0.5	3.4	2.5	-0.9	3.6	2.9	-0.6
$400-599	4.4	3.9	-0.5	4.0	3.8	-0.2	4.3	4.0	-0.3
$600-799	5.3	4.7	-0.7	5.2	4.2	-1.0	5.5	3.6	-2.0
$800-999	5.4	4.4	-1.0	5.2	4.3	-1.0	5.3	3.9	-1.4
$1000-1199	5.3	5.3	0.0	5.0	5.8	0.7	5.1	5.3	0.2
$1200-1399	4.3	4.9	0.6	4.7	5.2	0.5	4.3	5.0	0.7
$1400-1599	3.4	3.5	0.1	3.2	3.8	0.6	3.1	3.7	0.6
$1600-1999	3.6	4.7	1.2	4.1	5.2	1.1	4.4	5.9	1.5
$2000-2499	1.3	3.2	1.9	1.7	4.3	2.5	2.1	4.5	2.4
$2500+	0.6	6.0	5.5	0.4	7.0	6.6	0.7	6.9	6.2
SNAP Unit TANF Benefits									
$0	79.1	82.0	2.9	80.6	84.2	3.6	82.2	85.3	3.1
$1-25	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0
$26-$75	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.0
$76-$150	0.4	0.7	0.3	0.3	0.4	0.1	0.2	0.6	0.4
$151-$200	1.5	2.2	0.6	1.3	2.4	1.1	1.2	1.8	0.6
$201-$250	1.8	1.8	-0.1	1.7	1.5	-0.2	1.8	1.3	-0.4
$251-$300	2.2	2.2	0.0	1.9	1.7	-0.2	1.8	1.4	-0.3
$301-$350	1.7	1.9	0.2	1.6	1.0	-0.6	1.4	0.8	-0.6
$351-$400	2.3	1.3	-1.0	2.0	1.2	-0.8	2.2	1.4	-0.8
$401-$450	1.3	1.2	-0.1	1.5	1.6	0.1	1.4	1.1	-0.3
$451+	1.4	0.9	-0.5	1.6	0.7	-0.9	1.4	1.1	-0.2
Covered by TANF [b,c]									
Total	20.9	18.0	-2.9	19.4	15.8	-3.6	17.8	14.7	-3.1
Adult	7.0	7.4	0.4	6.4	6.9	0.5	6.0	6.6	0.6
Child	14.0	10.6	-3.4	13.0	8.9	-4.1	11.8	8.1	-3.7

Table A.11, *continued*

	Monthly Average, 2004			Monthly Average, 2005			Monthly Average, 2006[a]		
	FSPQC	SIPP	Difference	FSPQC	SIPP	Difference	FSPQC	SIPP	Difference
Covered by SSI[2]									
Total	12.4	14.4	2.0	12.7	14.9	2.1	13.0	14.9	1.9
Adult	11.0	12.5	1.5	11.3	13.0	1.7	11.5	13.1	1.6
Child	1.5	1.9	0.4	1.5	1.9	0.4	1.4	1.7	0.3

Source: Decision Demographics, tabulations of the 2004 SIPP panel; the 2004 SNAP QC data, exclusive of Guam and the Virgin Islands; from http://www.acf.hhs.gov/programs/ofa/data-reports/caseload/caseload_current.htm

Notes:

[a] Through May.

[b] Imputed adult/child among persons with missing age in SNAP QC.

[c] TANF assigned to all persons in the SNAP unit.

VI. TOPICAL MODULE DATA

We examined data from the principal SIPP topical modules that are used in our analysis: data on recipiency history from Wave 1 and data on employment history from Wave 1. Due to confidentiality restrictions imposed on the 2004 data, we conducted this analysis within the Census Bureau and only the summary data have been published. This section presents our assessment of the data in these topical modules.

The Wave 1 Recipiency History Topical Module (RHTM) items on SNAP underwent significant redesign prior to the 2004 SIPP. Some data were collected throughout the 2004 panel, and other SNAP items in the RHTM were improved, although the net effect on dynamics analysis is small. The RHTM data continue to be useful for dynamics analysis. Data from the employment history appear useful for our analysis.

1. Recipiency History

In this section, we first outline factors that may have changed the nature of the 2004 RHTM compared with the 2001 panel and earlier panels, and then present the results of tests carried out on the data similar to those performed with the 2001 data.

The Census Bureau redesigned the RHTM in response to a series of recommendations from the SIPP Continuous Instrument Improvement Group. Moore (2007) provided a complete report on the changes and their impacts on data quality. As in the 2001 panel, the recipiency history topical module occurs in Wave 1, only four months after the first reference month of the panel. The RHTM redesign resequenced the questions, putting SNAP questions at the end to allow probes for categorical eligibility for SNAP based on questions about AFDC/TANF. The redesign also changed the nature of the SNAP start month and year questions, and slightly adjusted the universe for the RHTM to compensate for previous minor omissions due to CAPI branching issues, and probed for SNAP start dates that came before a recipient's 18th birthday.

<u>Resequencing and Inclusion in Core</u>

Individuals in Wave 1 who reported in the SIPP core questionnaire that they received SNAP in the first reference month (month one) were subsequently asked in the topical module to provide the month and year in which their SNAP recipiency began, probing for "left-censored" SNAP spells that began prior to the SIPP panel. Moore notes that as part of the 1996 redesign, these questions were moved from the RHTM to the SIPP core questionnaire. Not noted by Moore is the fact that these month and year started SNAP items have been repeated in every wave of the 2004 and 2008 SIPP panels. Whenever new respondents were found (e.g., new spouses, newborns, new members of splinter households, etc.) in 2004 Waves 2-12 Core interviews, and they reported SNAP receipt in the first reference month, they were asked when that spell of SNAP began. These Wave 2-12 response data, however, were neither edited nor published. The Census Bureau did provide these additional data for us to use within the Bureau. However, they could not be employed in our dynamics analysis since that analysis universe is limited to those who have a *Wave 1-8* longitudinal panel weight, thus omitting any respondent who was absent in Wave 1.

Rephrasing

Another possibly significant change has to do with the phrasing of the left-censored start date for spells active in month 1, changing the focus from the initial application date to the initial receipt date. Moore outlines those changes as follows:

In the 2001 panel, these questions were of the following form (e.g., for Food Stamps):

> >FBEG120< (2001)
> When did [NAME/you] ***apply*** for the Food Stamps you ***received***?
>
> CIIG's review (SIPP Continuous Instrument Improvement Group, 1998) found the 2001 approach questionable on two main grounds. First, it did not really focus on or attempt to make clear to respondents the central concept of interest – the start of the spell of receipt that continued into the wave 1 reference period. And second, it offered no hint that its intent was to capture the respondent's past receipt as an adult, and not as a child beneficiary, or as a child covered by benefits received by a parent. Thus, CIIG recommended major changes to these items, the intent of which was to clarify – and, in the case of the "as an adult" criterion, make explicit – these key concepts. This was accomplished in a series of up to four questions, as follows:
>
> >FBEG120< (2004)
> When did [NAME/you] ***start receiving*** Food Stamps?
> *(if the reported date is before the person's 18th birthday, ask FBEG120A; otherwise, skip to FBEG120B)*
>
> >FBEG120A< (2004)
> When did [NAME/you] start receiving Food Stamps on [his/her/your] own, or in [his/her/your] own name?
>
> >FBEG120B< (2004)
> And [has/have] [NAME/you] received Food Stamps every month since then?
> *(if "yes," then end the series, as the spell start date has been established; otherwise, continue with FBEG120C)*
>
> >FBEG120C< (2004)
> When did [NAME/you] start receiving Food Stamps CONTINUOUSLY, every month [.../through [month]]?

If respondents accurately noted the question phrasing subtleties concerning application and receipt dates in the 2001 and 2004 panels, then the 2001 spells could be expected to be somewhat longer due to the gap between the application and receipt dates. This is explored further below.

No Top-Coding

Another factor that may affect SNAP spell length is a lack of top-coding on the Census internal versions of year initiated SNAP. Top-coding affects public-use datasets; however, due to confidentiality restrictions on month data in the RHTM, we assessed the data using Census *internal* datasets in the analysis of a number of RHTM variables. The following is a list of internal variables included; the month variables are exclusively internal, the year variables are equivalent to their public use counterparts but not top-coded, and the year allocation flags are identical in the public use data.

EFBG120Y Year started SNAP receipt for active month 1 spells
AFBG120Y Allocation flag for EFBG120Y

EFBG120M Month started SNAP receipt for active month 1 spells
AFBG120M Month applied for EFBG120M

EFSSTRYR Year first received SNAP
AFSSTRYR Allocation flag for EFSSTRYR

EFSSTRMN Month first received SNAP
AFSSTRMN Allocation flag for EFSSTRMN

EFRMRMN Month ... started the job or business
AFRMRMN Allocation flag for EFRMRMN

ELSTWRKM Month last worked at a paid job or business
ALSTWRKM Allocation flag for ELSTWRKM

EPRVJBMN Month last worked at a paid job or business
(Before first reference month)
APRVJBMN Allocation flag for EPRVJBMN

Two variables--EFBG120Y Year started SNAP receipt for active month 1 spells, and EFSSTRYR Year first received SNAP could be affected by lack of top-coding. However, only the top three percent of cases are top-coded in the public use files. Also, the change does not affect the medians or percentiles reported in the dynamics analysis life tables.

Allocation of reference person dates to others in the SNAP unit

RHTM history questions were asked only of sample members age 18+ authorized to receive the benefits (SNAP "reference persons") in any month of the reference period. The left-censored start date questions were restricted to those with active month 1 SNAP spells. In this study, which uses the individual as the unit of analysis, we need to identify the start dates of left-censored spells for *all* members of recipient households (including both SNAP reference persons and other household members). We adopted the same approach employed by Gleason, et al. as well as Cody, et al. to determine the start date of a left-censored spell for an individual who was not the SNAP reference person but who lived in the same household as the SNAP reference person during the first panel month. In general, this approach assigns parents' start dates to children, and assumes adults in the SNAP household had the same start date as the reference person unless they moved in after the reference person's start date.[10]

[10] Specifically, the four rules are: (1) If the individual was a child of a SNAP reference person and less than age 18, the child's start date was the start of the reference person's spell if the spell began after the child was born, and the child's birth date otherwise. (2) If the individual was more than age 18, we determined when the individual and the SNAP reference person moved into their current residence using information in the Wave 2 topical module. The spell start date of the individual was then calculated using information on the calendar order of the move dates and the spell start date. For example, if the individual moved into his or her month 1 address after the reference person did but before the reference person's spell started, the spell start date of the individual was set to the start date of the reference person's spell. In some instances, we also used Wave 2 topical module information on the prior residence of household members before they moved into their current address. (3) If the individual was a child of an adult in the household who was not a reference person but has SNAP, the start date of the child was the start date of the parent (as calculated using rule 2) if the child was born before that start date. (4) If the individual was a child

Results of Testing

Gleason, et al. found evidence that the RHTM data were problematic in the 1991 SIPP, while Cody, et al. found fewer problems with the 2001 data. Gleason, et al. attributed the problems to the fact that, for the 1991 SIPP panel, the recipiency history data were collected in Wave 2, eight months *after* the first month of the panel, and decided to exclude the month 1 spells from the main spell analysis. In contrast, Cody, et al. found that the 2001 recipiency history data were markedly better than the 1991 data and suitable for analysis for all waves. Our analysis, detailed below, finds that while some problems persist, the data for Waves 1-8 of the 2004 SIPP panel appear to be sufficient for dynamics research.

All of the RHTM data in Tables A.12-21 are reported only for panel members to whom we have assigned a Wave 1-8 longitudinal panel weight with the addition of newborns who join SIPP households during the study period. Those newborns, who appear in any table that is not limited to Wave 1 spells, have been assigned their parents' or a surrogate's weight. Some tables include both weighted and unweighted data for those with longitudinal weights so that the sufficiency of the sample can be assessed. Other tables show only weighted results.

Table A.12 shows some basic parameters of the 2004 SIPP sample of SNAP recipients, emphasizing the extent to which the start date of the month 1 spell is missing or imputed. We found an unweighted sample of just over 5,000 active SNAP spells in month 1, substantially more than the 2,700 found in 2001, which ensures an adequate sample size. Reference persons and other members of the SNAP units increased by 85 percent, corresponding directly to the total persons increase. Table A.12 shows that all of the SNAP reference persons have information available about when they began receiving SNAP, although those data were imputed for one-third of them. Of SNAP reference persons who had imputed start dates, nearly 70 percent had only an imputed start month, having provided the starting year (this represents those for whom only month is imputed divided by all those for whom date is imputed). Another way to look at the reporting is that only ten percent of reference persons required full imputation of SNAP starting date.

unrelated to any household member, then we used rule 2 if the child was at least age 15, and rule 1 otherwise. We used this procedure because the residence history questions were not asked of children who were less than age 15.

Table A.12 Extent of Missing and Imputed Start Dates of Month 1 Spells by SNAP Reference Person Status

	Number						Percentages					
	All Persons		SNAP Reference Persons		Other Members of the SNAP Unit		All Persons		SNAP Reference Persons		Other Members of the SNAP Unit	
	Weighted	Sample Size	Weighted	Sample Size	Weighted	Sample Size	Weighted	Sample Size	Weighted	Sample Size	Weighted	Sample Size
SNAP Participants in Month 1	19,094,136	5,070	7,892,927	2,143	11,201,209	2,927	100.0	100.0	100.0	100.0	100.0	100.0
Begin Date Provided	18,238,654	4,874	7,892,927	2,143	10,345,728	2,731	95.5	96.1	100.0	100.0	92.4	93.3
Missing Begin Date	855,481	196	0	0	855,481	196	4.5	3.9	0.0	0.0	7.6	6.7
SNAP Participants in Month 1 with Begin Date Provided	18,238,654	4,874	7,892,927	2,143	10,345,728	2,731	100.0	100.0	100.0	100.0	100.0	100.0
Imputed Begin Date	5,549,304	1,465	2,612,728	711	2,936,576	754	30.4	30.1	33.1	33.2	28.4	27.6
SNAP Participants in Month 1 with Imputed Begin Date	5,549,304	1,465	2,612,728	711	2,936,576	754	100.0	100.0	100.0	100.0	100.0	100.0
Only Month is Imputed	2,839,564	752	1,814,110	488	1,025,453	264	51.2	51.3	69.4	68.6	34.9	35.0

Source: Decision Demographics tabulations of Wave 1 of the 2004 SIPP Panel.

Table A.12 also shows that we were unable to assign a start date to 7.6 percent of other members of SNAP units compared to 6.1 percent in the 2001 panel. This is either because we don't know when the person moved into the month 1 SNAP household or we don't know, with certainty, the order of the move dates and the spell start date. Spell dates for household members who were not reference persons were imputed either because their pre-panel residence information was imputed or because the spell start dates of the SNAP reference person were imputed. Imputation patterns among the other members of SNAP units for whom we have provided start dates are similar to those of the reference persons, with most having only the month imputed. This similarity is expected since other unit members were assigned data from reference persons.

Since the Census Bureau only collects start dates from the SNAP reference person and we assigned start dates to all others in SNAP units through the process described above, our analysis of underlying data quality is focused primarily SNAP reference persons—their imputations were done by the Census Bureau and are present in the original dataset. The imputations of Other Members of the SNAP Unit were carried out by us, based largely on the reference person data. Generally, the reference person left-censored start date information is of high quality and demonstrates reasonable patterns. Table A.13 presents the elapsed length of the month 1 spells, as of month 1, for SNAP reference persons. Over 93 percent of reference persons have valid spell lengths.

Table A.13 Elapsed Length of Month 1 Spells and Imputation Status

	SNAP Reference Persons		
	Weighted Estimate	Sample Size	Weighted Percent
All Persons			
Number of Elapsed Years Spell Was in Progress (up to month 1)	7,892,927	2,143	100.0
Less than Zero (began after month 1)	521,664	126	6.6
Zero (began in month 1)	384,625	87	4.9
Less than 1 Year	2,378,174	612	30.1
1 Year	855,753	232	10.8
2 Years	513,253	143	6.5
3 Years	467,423	133	5.9
4 Years	484,365	120	6.1
5 Years	262,435	80	3.3
More than 5 Years	2,025,235	610	25.7

Table A.13, *continued*

Imputed Begin Date			
Number of Elapsed Years Spell Was in Progress (up to month 1)	2,612,728	711	100.0
Less than Zero (began after month 1)	287,122	67	11.0
Zero (began in month 1)	3,214	1	0.1
Less than 1 Year	377,174	102	14.4
1 Year	269,815	72	10.3
2 Years	184,912	53	7.1
3 Years	145,951	40	5.6
4 Years	179,210	47	6.9
5 Years	106,014	28	4.1
More than 5 Years	1,059,316	301	40.5
Nonimputed Begin Date			
Number of Elapsed Years Spell Was in Progress (up to month 1)	5,280,199	1,432	100.0
Less than Zero (began after month 1)	234,542	59	4.4
Zero (began in month 1)	381,411	86	7.2
Less than 1 Year	2,000,999	510	37.9
1 Year	585,937	160	11.1
2 Years	328,340	90	6.2
3 Years	321,473	93	6.1
4 Years	305,155	73	5.8
5 Years	156,421	52	3.0
More than 5 Years	965,919	309	18.3
Only Imputed Begin Month			
Number of Elapsed Years Spell Was in Progress (up to month 1)	1,814,110	488	100.0
Less than Zero (began after month 1)	244,052	53	13.5
Zero (began in month 1)	3,214	1	0.2
Less than 1 Year	185,393	52	10.2
1 Year	205,423	53	11.3
2 Years	145,159	40	8.0
3 Years	102,030	26	5.6
4 Years	131,667	36	7.3
5 Years	93,486	25	5.2
More than 5 Years	703,687	202	38.8

Source: Decision Demographics tabulations of Wave 1 of the 2004 SIPP Panel.

About 7 percent of the SNAP reference persons' month 1 spells started after month 1, resulting in a negative elapsed duration. This is the same level documented by Cody, et al., while Gleason, et al. found about 10 percent of reference persons having negative durations in the 1991 panel. Negative durations occur when the SIPP-core-based questions reveal that an individual was receiving SNAP in month 1, but the response to the question about the starting date of the month 1 spell was *after month 1*. Negative durations are explored further in Table A.14.

As documented in the analysis of Table A.12, 70 percent of imputations are of month only, since the respondents provided a year response. Table A.13's bottom panel, which shows elapsed years for month-only imputations, suggests that respondents have difficulty remembering the specific

starting month for spells that began further in the past. The modal category of month-only imputations, at 39 percent, is those who have been on SNAP more than five years. About 56 percent of month-only imputations have been on SNAP for three years or more, compared with only 33 percent of non-imputed cases.

Table A.14 explores patterns among the seven percent of reference persons who have negative durations. About half of those who have a negative duration provided the illogical answer themselves, suggesting that a within-instrument logic test could potentially eliminate some errors. Among those with an imputed begin date, 85 percent only had the month imputed. However, it appears that the SIPP month imputation routine has problems that have persisted from the 2001 panel into 2004. In both panels, about 95 percent of imputations set the start date well after Wave 1; in fact, the month of December (regardless of rotation group) accounted for the vast majority of negative spells, while only one record in either SIPP had an imputed start month equal to month 1 (see Table A.13 panels 2 and 4). Cody, et al. suggested that perhaps the Census Bureau meant to impute December of the previous year, but did not alter the year variable. Although the time for revising the instrument logic and imputation routines for the 2008 SIPP Wave 1 RHTM has already passed, we are providing this information to the SIPP staff to help improve procedures for the 2014 Re-engineered SIPP panel.

Table A.15 returns to an analysis of *normal* SIPP spells that began before the 2004 panel—left-censored spells—comparing elapsed durations of *all* persons with those of SNAP reference persons. Among the SNAP reference persons whose month 1 spells began before month 1, 23 percent have been in progress for 6 months or less, and 35 percent have been in progress for 1 year or less, patterns very similar to those from 2001. At the other extreme of duration, 29 percent have been in progress for more than 6 years, virtually the same as 2001. The median elapsed time for reference persons was 2.3 years, and the mean elapsed time was 5.3 years, both over 10 percent higher than they were in 2001 when the median was 2.1 and mean 4.8. The large difference between the mean and median reflects the predominance of long spells. Some of the growth in the mean spell could be due to the lack of top-coding in internal 2004 data, but it does not seem out of range compared to the growth in the median. As expected, the elapsed spell durations were greater for reference persons than for all persons because some household members join SNAP households after the spell starts.

Table A.14 Month 1 Spells that Began after Month 1 and Imputation Status

	SNAP Reference Persons		
	Weighted Estimate	Sample Size	Weighted Percent
All Persons			
Spell Began After Month 1 (negative elapsed length)	521,664	126	100.0
1 month after Month 1	113,234	28	21.7
2 months after Month 1	58,311	15	11.2
3 months after Month 1	64,310	17	12.3
After Wave 1	285,809	66	54.8
Imputed Begin Date			
Spell Began After Month 1 (negative elapsed length)	287,122	67	100.0
1 month after Month 1	7,066	2	2.5
2 months after Month 1	0	0	0.0
3 months after Month 1	0	0	0.0
After Wave 1	280,056	65	97.5
Nonimputed Begin Date			
Spell Began After Month 1 (negative elapsed length)	234,542	59	100.0
1 month after Month 1	106,168	26	45.3
2 months after Month 1	58,311	15	24.9
3 months after Month 1	64,310	17	27.4
After Wave 1	5,753	1	2.5
Only Imputed Begin Month			
Spell Began After Month 1 (negative elapsed length)	244,052	53	100.0
1 month after Month 1	7,066	2	2.9
2 months after Month 1	0	0	0.0
3 months after Month 1	0	0	0.0
After Wave 1	236,986	51	97.1

Source: Decision Demographics tabulations of Wave 1 of the 2004 SIPP Panel.

Table A.15 Elapsed Length of Month 1 Spells Beginning Before Month 1

	All Persons		SNAP Reference Persons	
	Percent	Cumulative Percent	Percent	Cumulative Percent
Number of Elapsed Years				
0.5 or less	24.0	24.0	22.7	22.7
> 0.5 - 1.0	13.7	37.8	12.4	35.1
> 1.0 - 1.5	7.5	45.3	7.5	42.7
> 1.5 - 2.0	4.8	50.1	4.3	47.0
> 2.0 - 3.0	8.5	58.6	7.2	54.2
> 3.0 - 4.0	7.5	66.0	7.1	61.3
> 4.0 - 5.0	5.8	71.9	6.0	67.4
> 5.0 to 6.0	3.7	75.6	3.7	71.0
> 6.0 to 10	10.2	85.8	10.4	81.4
More than 10	14.2	100.0	18.6	100.0
Median	2.0		2.3	
Mean	4.4		5.3	

Source: Decision Demographics tabulations of Wave 1 of the 2004 SIPP Panel.

Emulating Cody, et al. as well as Gleason, et al., we used five "in-sample" methods to assess the accuracy of the recipiency history information. The results of this analysis are discussed below. This analysis, presented in Tables A.16 through 21, is based on SNAP spells among all persons.

1. **Compare the proportion of spells that began in month 1 with the proportion of spells that began in other panel months.** First, we determine whether the proportion of month 1 spells that began in month 1 is similar to the proportion of ongoing spells that began in each of the other panel months (Table A.16). If the Wave 1 topical module information is accurate, then the month 1 proportions should be similar to the proportions in the other panel months, particularly those that correspond to the first month of each wave (e.g. months 5, 9, 13, 17, 21, 25, and 29). The proportion of month 1 spells starting in month 1 is 5.3 percent, substantially lower than the average 13.1 percent observed in the first months of other waves. The corresponding figures for 2001 panel are the same at 5.3 percent of month 1, while 16.3 percent of cases began in first months of later waves, so the 2004 data show some improvement. This still suggests that the recipiency history data do not accurately identify which spells start in month 1. If we assume spells with a negative elapsed duration actually started *in* Month 1, the percent starting in month 1 increases to 11.3 percent, much closer to the average observed in other waves, although given the imputation patterns discussed above, this is probably an incorrect assumption.

2. **Compare spell durations by start month.** We compared the cumulative duration of non-left-censored month 1 spells (spells with zero elapsed duration in month 1) to four other samples, including:

   - Non-left-censored spells that started after month 1

- Non-left-censored spells that started in month 5
- Month 1 spells that began after month 1 (i.e. negative elapsed duration)
- Month 1 spells that began one to six months prior to the first panel month (i.e. left-censored elapsed duration of one to six months)

Non-left-censored spells starting in month 1 have somewhat longer participation spells than non-left-censored spells starting after month 1 (Table A.17). The median spell duration for month 1 spells with zero duration is 10 months, compared with 8 for non-left censored spells starting after month 1. Non-left censored spells starting in month 5 as well as those of negative duration also have a median length of 10. These medians are fairly close to one another given their different universes, closer than those of either Cody, et al. or Gleason, et al.

In the analysis conducted by Gleason, et al., with the 1991 panel, the difference between month 1 spells and other spells was substantially greater (Table A.18). The median spell length for month 1 spells with zero elapsed duration was 28 months compared with 8 months for other non-left censored spells. This led Gleason, et al. to conclude the data on spells with zero elapsed duration in month 1 were not usable.

Given that we find smaller disparities than even the 2001 panel data, we conclude the cases starting in month 1 could be added to the analysis of participation spells, following the 2001-based practice. Any bias present in the month 1 spells is not likely to affect overall estimates when these observations are combined with spells starting in subsequent months, particularly given the relatively small unweighted number of such spells: 223 vs. 8,164. Nor are the negative elapsed durations likely to affect overall estimates disproportionately. The 2004 left-censored spells with durations of 1 to 6 months as of month 1 had longer median length (19 months) than Cody, et al. at 14 months, but not as long as Gleason, et al. at 23 months for 1991.

Table A.16 SNAP Spells Beginning in that Panel Month as a Percentage of on-Going Spells

Panel Month	On-Going SNAP Spells Weighted	SNAP Spells that Began in this Month Weighted	SNAP Spells that Began in this Month Weighted
Month 1[a]			
Excluding Negative Durations	17,103,716	910,274	5.3
Including Negative Durations	18,238,654	2,045,212	11.2
Month 2	19,530,931	652,346	3.3
Month 3	20,005,992	683,666	3.4
Month 4	20,288,019	675,329	3.3
Month 5	22,113,502	3,706,650	16.8
Month 6	21,467,043	248,528	1.2
Month 7	21,315,809	434,824	2.0
Month 8	21,337,411	671,263	3.1
Month 9	22,104,877	2,864,597	13.0
Month 10	21,736,244	397,537	1.8
Month 11	21,799,812	659,601	3.0
Month 12	21,858,577	663,241	3.0
Month 13	22,929,466	2,819,279	12.3
Month 17	23,463,029	2,944,386	12.5
Month 21	23,472,666	3,058,548	13.0
Month 25	23,996,255	3,028,845	12.6
Month 29	23,680,708	2,709,042	11.4
Average, Months 5, 9, 13, 17, 21, 25, and 29	23,108,643	3,018,764	13.1

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes:

[a] Month 1 spells that were reported to have started after the first panel month were assumed to be non-left-censored spells that began in month 1.

Table A.17 Weighted Cumulative Exit Rate for Five Samples of Spells, by Duration

	Non-Left-Censored Spells				Left Censored Spell
Duration of Spell (in Months)	Month 1 Spells with Zero Elapsed Duration	Non-Left Censored Spells Starting After Month 1	Non-Left Censored Spells Starting in Month 5	Month 1 Spells with Negative Elapsed Durations	Month 1 Spells with Elapsed Durations of 1 to 6 Months
1	5.0	6.3	4.6	2.7	0.0
2	6.1	12.4	7.3	6.4	1.0
3	9.9	18.0	9.9	10.6	2.6
4	20.8	32.4	31.7	21.8	4.2
5	25.1	37.4	37.5	28.6	9.7
6	34.5	41.8	38.5	29.4	13.5
7	36.7	45.4	42.0	35.9	19.2
8	46.4	**50.7**	46.8	48.1	21.8
9	49.1	52.8	49.2	49.2	27.8
10	**50.8**	54.6	**50.7**	**50.8**	31.5
11	52.9	57.1	52.7	52.5	35.0
12	55.1	61.2	58.3	53.5	37.3
13	55.1	62.7	58.9	56.5	39.4
14	55.1	63.7	60.8	57.7	41.5
15	55.7	64.9	61.1	58.7	43.8
16	60.7	67.0	65.3	59.0	44.5
17	61.2	68.1	66.6	59.0	46.3
18	62.2	68.8	66.6	59.9	47.5
19	62.2	69.6	66.8	60.2	**51.1**
20	66.0	71.9	69.9	62.4	51.8
21	66.0	73.3	70.2	62.6	52.5
22	66.0	74.1	70.5	62.6	54.1
23	66.0	74.6	70.9	62.6	55.4
24	67.2	75.9	72.9	64.4	57.1
25	68.6	77.0	74.0	65.3	57.7
26	68.6	77.3	74.1	65.3	58.5
27	69.4	77.9	74.7	65.3	59.6
28	69.8	79.1		66.3	60.7
29	72.4	79.5		66.3	62.5
30	74.2	79.5		66.3	62.6
Sample Size	223	8,164	897	283	1,028

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes: [a] Median duration bolded.

Table A.18 Median Spell Durations for Five Samples of Non-Left Censored Spells in 2004, 2001, and 1991 SIPP Data

	Month 1 Spells with Zero Elapsed Duration	Non-Left Censored Spells Starting After Month 1	Non-Left Censored Spells Starting in Month 5	Month 1 Spells with Negative Elapsed Durations	Month 1 Spells with Elapsed Durations of 1 to 6 Months
2004 SIPP Data	10	8	10	10	19
2001 SIPP Data (Cody, et al.)	12	8	8	19	14
1991 SIPP Data (Gleason, et al.)	28	8	8	16	23

Source: Decision Demographics tabulations of the 2004 SIPP Panel; Cody, et al.; Gleason, et al.

3. **Compare spell durations by elapsed pre-panel time.** We compared the cumulative duration *during the panel* of left-censored month 1 spells (spells that that started prior to the panel). We compare these durations across five subgroups defined by their duration prior to the panel:

   - Month 1 spells with an elapsed duration of 1 to 6 months
   - Month 1 spells with an elapsed duration of 7 to 12 months
   - Month 1 spells with an elapsed duration of 13 to 24 months
   - Month 1 spells with an elapsed duration of more than 24 months
   - All month 1 spells that began before month 1 (all left-censored spells)

   The results show that left-censored spells with longer pre-panel durations have longer durations within the panel (Table A.19). The median spell length during the panel for spells with elapsed pre-panel durations of 1 to 6 months is 17 months; the median spells for pre-panel durations of 7 to 12 months and 13 to 24 months are 29 and 30 months, while the median for spells with pre-panel durations of more than 24 months is more than 30 months. This pattern is expected since people with spells that were in progress for a long time prior to the start of the panel are less likely to stop participating.

   The 2004 panel spells for these groups are significantly longer (five to 13 or more months longer) than for the 2001 panel in every category. The median of all left-censored spells in 2001 was 24 months, whereas in 2004, half of the cases had not yet departed by the 30-month mark. This marks a partial return to patterns found by Gleason, et al. that pertain to the 1991 panel. In the Gleason, et al. study, the median within-panel duration of spells with elapsed durations of 1 to 6 months was 23 months, and spells for the other subgroups were longer still.

Table A.19 Weighted Cumulative Exit Rates for Month 1 Left-Censored Spells by Panel Month and Elapsed Duration [a]

Duration of Spell (in Months)	Month 1 Spells with Elapsed Durations of 1 to 6 Months	Month 1 Spells with Elapsed Durations of 7 to 12 Months	Month 1 Spells with Elapsed Durations of 13 to 24 Months	Month 1 Spells with Elapsed Durations of More than 24 Months	All Left-Censored Spells
1	2.0	1.1	0.2	0.3	0.8
2	5.0	1.2	0.6	0.4	1.6
3	7.7	2.1	1.5	1.0	2.8
4	17.4	7.5	8.1	7.1	9.7
5	24.5	12.1	8.9	8.1	12.7
6	26.5	15.1	10.5	9.1	14.3
7	30.1	17.1	12.9	10.1	16.2
8	35.1	20.4	19.2	13.1	20.1
9	37.8	22.2	22.7	13.6	21.8
10	39.7	24.8	24.1	14.0	22.9
11	40.2	25.1	26.1	14.9	23.8
12	43.0	27.0	28.5	17.6	26.3
13	45.1	29.1	30.6	18.8	28.0
14	45.7	30.6	31.4	19.2	28.6
15	45.7	31.4	32.5	19.5	29.1
16	48.4	32.1	35.3	22.6	31.7
17	**50.4**	34.8	37.9	23.8	33.4
18	52.5	35.0	38.6	24.0	34.2
19	53.7	35.0	39.7	24.3	34.7
20	56.4	39.0	42.1	27.4	37.8
21	57.2	41.4	42.8	28.7	39.0
22	58.2	41.7	43.5	28.8	39.5
23	58.7	41.7	43.5	30.0	40.2
24	59.9	43.4	46.2	32.3	42.2
25	61.0	44.3	46.8	33.3	43.1
26	61.8	44.3	47.8	33.9	43.8
27	62.7	44.6	48.2	34.0	44.1
28	63.1	48.9	49.3	36.0	45.9
29	64.2	**50.0**	49.6	36.5	46.6
30	64.6	51.7	**50.0**	36.5	47.0
Sample Size	1,028	559	533	2,248	4,368

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes: [a] Median duration bolded.

4. **Examine "artificial" cohort of left-censored spells.** We compared a cohort of left-censored spells in month 1 with a cohort of "artificial" left-censored spells. The artificial left-censored spells were created from all active spells in month 12 that started between panel months 2 and 12. We compared the duration (subsequent to month 12) of the artificial cohort spells to the duration (subsequent to month 1) of month 1 spells that were reported to begin 1 to 11 months before the panel. The

distributions of spell durations should be similar for the two samples if the start dates in the topical module are accurate.

The duration of artificial left-censored spells is shorter than the duration of month 1 left censored spells (Table A.20). For the artificial cohort, the median spell length is 20 months, and for the month 1 cohort, the median spell length is 26 months. This is a differential of six months between the two cohorts, halfway between the differentials found by Cody, et al. and Gleason, et al.

In the 1991 data, Gleason, et al. found that the artificial cohort spells were shorter than the Wave 1 cohort spells by nine months, and concluded that individuals in the Wave 1 cohort were under-reporting their pre-panel duration. The nine-month disparity between the artificial and month 1 cohorts represents median spells for the artificial cohort of 15 months and the median spells for the month 1 cohort of 24 months.

With the 2001 panel, Cody, et al. found the smallest differential, and in the opposite direction: the median spell for the 2001 artificial cohort was 21 months and the median spell for the month 1 cohort was 18. Buoyed by the similarity between the two cohorts, Cody, et al. concluded that the 2001 data quality was good. The distinct historic and economic contexts of the three panels, and indeed of the two individual cohorts within each panel, have the potential to create significant differentiation in addition to whatever unique qualities the SIPP instruments may have created. With results from three panels available, it appears that the 2004 patterns are within a reasonable range.

Table A.20 Weighted Cumulative Exit Rates for Artificial and Month 1 Left-Censored Spells

Duration of Spell	Artificial Left-Censored Spells	Month 1 Left Censored Spells with Elapsed Durations of 1 to 11 months
1	0.0	0.0
2	0.5	0.6
3	0.9	1.7
4	1.8	2.7
5	5.4	6.3
6	10.3	8.8
7	13.5	12.6
8	17.5	14.3
9	19.6	18.3
10	22.8	21.0
11	26.9	23.7
12	33.9	26.0
13	36.6	29.3
14	38.8	31.7
15	41.2	34.0
16	45.3	36.2
17	46.9	37.6
18	48.0	38.9
19	48.9	41.8
20	**52.8**	42.7
21	55.1	44.0
22	56.4	45.5
23	57.3	47.2
24	59.5	48.7
25	61.4	49.7
26	61.8	**50.5**
27	62.9	51.4
28	64.9	52.5
29	65.6	54.2
30	65.6	54.7
Sample Size	1,790	1,541

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes: [a] Median duration bolded.

5. **Compare elapsed duration with subsequent duration.** Finally, we compare the cumulative elapsed spell duration of month 1 spells that began before month 1 with the cumulative spell duration of these spells during the panel. Assuming that the distribution of SNAP spell durations has not changed over time and that the economic and policy climates were constant, these spells should be, on average, in the middle of their spells in month 1. Thus, the backward and forward spell duration distributions should be similar if this "stationarity" assumption is valid and if the Wave 1 topical module recipiency history information is accurate.

The 2004 panel forward spell durations are shorter than backward spell durations (Table A.21). About 26 percent cases had exited their forward spells within one year, whereas only 22 percent of spells track backwards for one year or less. The differential rises to over ten percentage points by 30 months, when 47 percent of forward spells had ended and only 36 percent of spells track backwards for 30 months or less. Neither forward nor backward durations reach the median level of spells within 30 months.

Cody, et al. also found forward spells to be shorter than backward. The median duration of 2001-panel forward spells (24 months) was shorter than the median of backward spells (more than 30 months). Both these findings are counter to what was observed in the 1991 data by Gleason, et al. Gleason, et al. found that the forward durations were longer than the backward durations, which they said added support for their conclusion that respondents reported their pre-panel durations to be shorter than they actually were.

Conclusion

These five in-sample approaches to assessing the topical module data demonstrate that the recipiency history data could be materially different from within-panel measures of SNAP participation begin dates. The recall demands for within-panel measures are limited to the immediate past four months, the SIPP reference period, and even within that short time respondents display considerable seam bias in their responses. For the RHTM, however, the majority of left-censored spells required greater recall on the part of respondents. One effect of the recall demands is evident in the rising level of month-only imputations with rising left-censored spell length—respondents simply cannot remember back that far. Also, when comparing backward with forward spells, we can expect that the backward spells—all left-censored—are not measured as accurately as the forward spells.

While spells with negative elapsed duration probably are mainly caused by imputation error, there are still some spells that appear to be the result of reporting problems. One solution would be to treat spells with negative elapsed duration as spells that start in month 1. Doing so would increase the proportion of spells starting in month 1 to be more in line with the proportion of spells starting in the first month of other waves. Table A.17 showed that spells with negative elapsed duration in the 2004 panel have nearly the same median duration as other non-left censored spells. That, and the fact that they are a minority of such spells (3.5 percent), means that their inclusion is unlikely to bias results.

Spells with zero elapsed duration are also potentially problematic. The proportion of spells active in month 1 that are reported to start in month 1 is small relative to the proportions starting in the first month of subsequent waves. Part of this disparity may be attributed to the fact that Wave 1 participation is under-reported in general. Nevertheless, given the small number of such spells, and that the median durations of these spells is virtually the same as for spells starting in later months, we included these spells in the dynamics analysis.

Two changes in the character of the SNAP RHTM data also had the potential to bias the results: the lack of top-coding and the change in phrasing in favor of SNAP receipt date rather than application date. Overall length of spells increased in 2004 compared with 2001, however both the median and mean spell length increased by about ten percent. Had the lack of top-coding had a significant effect, the mean spell length would have increased more than the median. The change in phrasing should have resulted in 2004 spells being shorter than 2001 spells, other things being equal. Any change due to phrasing change probably would have been small, limited to the gap between application and receipt among successful SNAP applicants in 2001. If there was such a depressing influence on the change in spell length from 2001 to 2004, it cannot be identified—perhaps the ten percent overall increase in spell length between the two panels would have been higher otherwise.

Overall, the results of this evaluation place the 2004 RHTM data within a normal range of what can be expected from the 2001 and 1991 data, and the data appear to be reliable and not in need of adjustment.

Table A.21 Weighted Forward and Backward Spell Duration Distributions of Month 1 Left-Censored Spells

Duration of Spell	Backward Elapsed Duration (Cumulative Distribution)	Forward (Within Panel) Cumulative Exit Rates
1	0.8	0.8
2	1.4	1.6
3	2.3	2.8
4	9.0	9.7
5	10.8	12.7
6	12.1	14.3
7	13.4	16.2
8	17.0	20.1
9	18.0	21.8
10	18.8	22.9
11	19.7	23.8
12	21.9	26.3
13	22.9	28.0
14	23.3	28.6
15	23.6	29.1
16	26.0	31.7
17	27.1	33.4
18	27.4	34.2
19	27.7	34.7
20	29.9	37.8
21	30.9	39.0
22	31.0	39.5
23	31.7	40.2
24	33.5	**42.2**
25	34.1	43.1
26	34.5	43.8
27	34.6	44.1
28	35.7	45.9
29	36.1	46.6
30	36.1	47.0
Sample Size	4,368	4,368

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

Notes: Median duration bolded.

2. Employment History

In the Wave 1 topical module, respondents are asked about their employment history. Individuals who are unemployed in the first month of the panel are asked about any previous employment. In the 2001 panel there was some evidence that the information was biased, showing lower rates of historic employment for individuals in month 1 than later in the panel. There is no such bias apparent in the 2004 panel, so the employment history data should be useful in constructing measures of "usual circumstances."

Table A.22 examines the proportion of individuals unemployed in month 1 that were employed six and 12 months prior. It also shows analogous rates for individuals unemployed in months 12, 24 and 32. In general, the proportions with prior employment for the month 1 unemployed and for unemployed individuals later in the panel are comparable and within an expected range of variation. There is a small proportion (3.1 percent) of month 1 unemployed individual for whom employment history cannot be determined. Given the falling unemployment rates during the period as measured by the CPS, we might expect to find rising proportions employed in the past six or 12 months. While this is true for percent employed all of the previous six months among employed adults, the other employment series fluctuate somewhat. Since the CPS and SIPP are independent instruments and the unemployment rate is not directly comparable with the employment measures over the past six and 12 months, this can be expected.

We believe that the employment history topical module data provide a sound basis for creating measures of usual circumstances. For instance, for a given individual, we can determine whether being unemployed month 6 was typical or not typical relative to the past year by combining their employment information during the first 5 months with either (a) the start date of their job(s) in month 1 (reported in the core data), if employed, or (2) their employment history from the topical module data). These estimates can be used to assess the relationship between usual circumstances and participation dynamics.

Table A.22 Distribution of Adults by Employment History

	Percent of Adults			
	2004 SIPP Month 1 Full Panel Weights	2004 SIPP Month 12 Full Panel Weights	2004 SIPP Month 24 Full Panel Weights	2004 SIPP Month 32 Full Panel Weights
Average Unemployment Rate (CPS)	5.9	5.5	4.9	4.4
Total Not Employed Adults (Age 18-75)	63,629,346	59,394,785	59,036,322	58,521,043
Percent Employed within Previous 6 Months	15.9	19.7	18.5	15.3
Percent Employed within Previous 12 Months	23.5	25.0	26.8	25.1
Don't Know	3.1	0.0	0.0	0.0
Total Employed Adults (Age 18-75)	135,786,722	138,282,664	138,558,462	140,087,470
Percent Employed All of Previous 6 Months	NA	89.5	89.6	90.6
Percent Employed All of Previous 12 Months	NA	82.4	81.8	82.3

Source: Decision Demographics tabulations of the 2004 SIPP Panel.

VII. GAPS IN SNAP PARTICIPATION

This section presents the results of our assessment of "gaps" in SNAP participation in the 2004 SIPP panel. We examine the incidence of gaps of different sizes; the lengths of spells prior to and following the gaps; characteristics associated with having a gap; and other data features related to gaps. The analysis was conducted to help inform the decision of whether to recode one-month gaps, or even two-month gaps, in participation by "closing them up."

Incidence of Gaps and Distribution across Reference Months

In the 2004 SIPP panel, 2.7 million families participating in SNAP had a one- or two-month gap in their participation spell (686 families, unweighted) (Table A.23). This makes up 7 percent of all families participating in SNAP. The number with at least one one-month gap (1.6 million) is larger than the number with at least one two-month gap (1.2 million). (Because some families have both a one- and a two-month gap within the panel, these numbers sum to an amount greater than the 2.7 million families. No families have three or more one-month gaps or three or more two-month gaps, though some have a mix of one- and two-month gaps.

Table A.23 Percentage of SNAP Persons with One- and Two-Month Gaps

Percentages					Weighted Counts					Unweighted Counts				
Number of One-Month Gaps	Number of Two-Month Gaps				Number of One-Month Gaps	Number of Two-Month Gaps				Number of One-Month Gaps	Number of Two-Month Gaps			
	0	1	2	3+		0	1	2	3+		0	1	2	3+
0	93.06	2.61	0.13	0.00	0	36,205,545	1,014,983	50,346	0	0	9110	264	15	0
1	3.57	0.33	0.02	0.00	1	1,387,415	126,904	9,415	0	1	343	33	6	0
2	0.21	0.08	0.00	0.00	2	81,329	31,170	0	0	2	19	6	0	0
3+	0.00	0.00	0.00	0.00	3+	0	0.00	0	0	3+	0	0	0	0

Source: Decision Demographics, weighted tabulations of the 2004 SIPP Panel.

The majority of one-month gaps (68 percent) occur in the fourth month of the wave (Table A.24)—the month for which we expect the most accurate reporting. Each SIPP interview takes place in the month following the end of the wave. So, for example, the Wave 1 interview takes place in what could be referred to as month 5. The respondent is most likely to report the month 4 information accurately because it was only one month prior to the interview.

Table A.24 Distribution of One-Month and Two-Month Gaps within the Reference Period

	Weighted Number	Percentage
One-Month Gaps		
Gap at month 1	113,768	7
Gap at month 2	263,719	15
Gap at month 3	181,286	10
Gap at month 4	1,189,959	68
Two-Month Gaps		
Gap at month 1	153,446	12
Gap at month 2	524,121	41
Gap at month 3	575,074	44
Gap at month 4	39,938	3

Source: Decision Demographics, weighted tabulations of the 2004 SIPP Panel.

On the other hand, the information reported for the beginning of the next wave is likely to be the least accurate, which could lead to over-reporting of one-month gaps. Continuing with the example above, even if a person reports SNAP participation in months 1 to 3 of Wave 1, and no SNAP participation in month 4 of Wave 1, their interview for month 5 (month 1 of Wave 2) does not occur until four months later. If the respondent returned to SNAP in the middle of Wave 2, they may erroneously report participation for all months of Wave 2. (The seam bias analysis clearly shows that people do tend to report in this way.) Therefore, it may be that a gap did, in fact, begin in the fourth reference month, but it may be less likely that the gap truly ended after one month. The gaps in months 1 to 3, however, are likely to have been accurately reported, as they do not occur on a seam month.

Most two-month gaps occur in the middle (months 2 and 3) or the end (months 3 and 4) of the wave (Table A.24). Forty-one percent of two-month gaps start in month 2 and 44 percent start in month 3. If we use the same argument above, that recall bias is present in the data, then the two-month gaps starting in month 2 should be the most accurate, as the start and end date do not occur on a seam month of the wave. The two-month gaps starting in month 3 would suffer from the same recall problem, namely that while the gap start months is accurate, the end months (month 4) might be inaccurate if recall bias affected responses for the next wave.

Taken as a whole, Table A.24 provides fairly reassuring evidence that the start months of one- and two-month gaps are being reported accurately, though it is uncertain whether the end months are accurate as well.

Duration of Participation Spells With and Without Closing Gaps

To assess the implication of closing gaps on the average spell length of SNAP participation for participants with gaps, we estimate lengths of SNAP spells prior to and following the gap. We then close the gap and re-estimate the average spell length. We first focus on one-month gaps and then describe whether closing up two-month gaps yields similar conclusions (Table A.25).

Table A.25 Duration of Spells with Gaps and Once Gaps are Closed

	One-Month Gap	Two-Month Gap
Length of spell prior to gap		
Average if not left-censored	5.7	7.3
Percent left-censored	34.3	47.8
Length of spell following gap		
Average	7.2	7.8
Average if not right-censored	6.2	5.4
Percent right-censored	64.2	69.8
Length of spell if gap closed [a]		
Average	19.7	22.8
Average if not left-censored	15.0	18.9
Average if not right-censored	14.5	15.9
Average if not left- or right-censored	10.8	14.7
Percent right- or left-censored	75.5	79.7

Source: Decision Demographics, weighted tabulations of the 2004 SIPP Panel.
Notes: [a] The second column contains estimates for closing both one and two-month gaps.

The average length of spells preceding the gap, among non-left-censored spells, is 5.7 months. A non-left-censored spell is one that begins after the respondent's first month in the panel. We focus on non-left-censored spells because they comprise the majority of SNAP spells prior to the gap, with 65.7 percent of these spells being non-left-censored, and because spell lengths for left-censored spells can only be estimated using SIPP topical module data that are confidential, and that are somewhat different in nature than the monthly, within-panel observations of SNAP participation.

The average length of spells following the gap is 7.2 months. While all spells following the gap are by definition not left-censored because they begin in the month after the gap, almost two-thirds of them are right-censored, meaning that the respondent exits the SIPP panel while still participating in SNAP. The average length of the non-right-censored spells following the gap is 6.2 months. The shorter average spell length among non-right-censored spells reflects the fact that the end of the SIPP panel is more likely to interrupt longer spells that extend past the panel period, rather than spells that are completed within the SIPP panel period.

The average spell length, among non-left-censored spells, once the gap is closed is 15.0 months. We note that all non-left-censored spells prior to the gap remain non-left-censored spells once the gap is closed. Thus, closing one-month gaps more than doubles the average spell length of non-left-censored spells for individuals with one month gaps. This is a sizable difference, but the impact on the average spell length among all SNAP participants, including those without gaps, is much smaller because less than 4 percent of participants have one-month gaps.

The average length of non-left-censored spells prior to the gap of 5.7 months is interesting because it is approximately equal to a certification period of 6 months, which was the certification period for about 40 percent of SNAP participating households in 2005 and over half of households with earnings or with children.[11] This finding supports the idea that one-month gaps truly reflect churning as states have described, with cases being closed due to failure to recertify and participants re-entering shortly after re-applying.

For participants with two-month gaps, the average is 7.3 months prior to the gap (among non-left-censored spells), 7.8 months following the gap (including both right-censored and non-right-censored spells), and 18.9 months once both the two-month gaps and the one-month gaps are closed. While the increase in the length of the spell once the gap is closed is similar in magnitude to the one-month gap case, the length of the spell prior to the two-month gap is longer than the spell length prior to the one-month gap. This may suggest that there are different types of participants with two-month gaps than with one-month gaps.

Characteristics of Participants with and Without Gaps

Tabulating characteristics of SNAP participants with and without participation gaps of one to two months shows that individuals with gaps are more likely to have characteristics associated with shorter recertification periods (Table A.26). For example, individuals with gaps disproportionately live in families without elderly members as opposed to families with elderly members. We find that 94 percent of individuals with a one-month gap live in families without elderly members, compared to 81 percent of individuals without gaps. And, the certification period for households without elderly members is 10 months while the certification period for households with elderly members is 20 months.[12]

[11] Barrett, Allison. "Characteristics of Food Stamp Households: Fiscal Year 2005." Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, September 2006.
[12] Barrett, Allison. "Characteristics of Food Stamp Households: Fiscal Year 2005." Alexandria, VA: U.S. Department of Agriculture, Food and Nutrition Service, September 2006.

Table A.26 Characteristics of Persons with and without Gaps

	No Gaps	One 1-Month Gap	One 2-Month Gap	Multiple Gaps
Total persons	36,205,545	1,387,415	1,014,983	299,164
Average percentage of months in SIPP panel spent participating in SNAP	56.0	68.0	73.0	61.0
Average family benefit	$184	$199	$224	$244
Percent in families with children	71.0	80.0	86.0	81.0
Percent in families without children	29.0	20.0	14.0	19.0
Percent in families with elderly	17.0	7.0	6.0	7.0
Percent in families without elderly	83.0	93.0	94.0	93.0
Percent in families of size 1	15.0	14.0	12.0	17.0
Percent in families of size 2	16.0	17.0	14.0	8.0
Percent in families of size 3 or more	69.0	69.0	74.0	75.0
Percent in families with earned income	59.0	60.0	66.0	79.0
Percent in families without earned income	41.0	40.0	34.0	21.0
Percent in families with unearned income	71.0	67.0	71.0	38.0
Percent in families without unearned income	29.0	33.0	29.0	62.0
Percent in families with SSI	10.0	7.0	7.0	2.0
Percent in families without SSI	90.0	93.0	93.0	98.0
Percent in families with Social Security	23.0	17.0	9.0	14.0
Percent in families without Social Security	77.0	83.0	91.0	86.0
Percent in families with unemployment compensation	4.0	3.0	2.0	6.0
Percent in families without unemployment compensation	96.0	97.0	98.0	94.0
Percent in families with TANF	11.0	11.0	24.0	12.0
Percent in families without TANF	89.0	89.0	76.0	88.0
Percent in families with income increase in gap month	--	20.0	25.0	27.0
Percent in families with income increase in month prior to gap	--	26.0	26.0	42.0
Percent in families with income at or below poverty	52.0	58.0	60.0	58.0
Percent in families with income above poverty	48.0	42.0	40.0	42.0

Source: Decision Demographics, weighted tabulations of the 2004 SIPP Panel.

We find this same relationship for most other subgroups: characteristics associated with gaps are also associated with shorter certification periods. This includes families with children, with earned income, without SSI, and without Social Security. However, we find little association between living in a family with TANF or unemployed compensation and experiencing a gap.

The percentage of individuals with an increase in family income at or just prior to the break in participation is slightly higher among individuals with a two-month gap than a one-month gap (Table A.26). It is also higher among individuals with multiple gaps (of either one- or two-month) than a single one- or two-month gap.

Timing of Changes in Individuals' Family Characteristics

In Table A.27 we compare how characteristics of participating individuals differ before, during, and after the gap. We determine how often an individual with a one- or two-month gap in participation experiences a change in his or her family characteristics around the time of the gap (before the gap to within the gap, before the gap to after the gap, or within the gap to after the gap). This information is presented in the first column of Table A.27. This compares to the percentage of individuals that experience such changes within a participation spell (indicating the change may not lead to a break in participation) in the second column or during a longer gap in participation of three or more months in the third column.

Table A.27 Timing of Changes in Family Characteristics (Percent)

Characteristics	In Families with 1- or 2-Month Gap Experiencing Change Across Gap [a]	Families with no Gap that had Change within Spell	In Families with 3- or More Month Gap Experiencing Change Across Longer Gap [a]
Increase in family size	4.5	15.6	23.6
Decrease in family size	5.4	11.6	22.5
No change in family size	90.6	78.1	59.7
Increase in benefit level	28.2	21.1	29.8
Decrease in benefit level	28.2	19.4	28.6
No change in benefit level	69.9	73.7	66.6
Increase in number of children	4.0	11.9	14.4
Decrease in number of children	3.1	11.6	18.2
No change in number of children	93.0	80.3	71.1
Increase in number of elderly	0.1	2.9	4.2
Decrease in number of elderly	0.2	1.4	3.9
No change in number of elderly	99.7	96.2	92.0
Increase in earned income	22.7	52.4	65.0
Decrease in earned income	30.2	46.6	59.6
No change in earned income	56.7	41.2	26.0
Increase in unearned income	27.1	55.2	66.6
Decrease in unearned income	24.3	50.6	54.5
No change in unearned income	57.1	36.8	23.6

Table A.27, *continued*

Characteristics	In Families with 1- or 2-Month Gap Experiencing Change Across Gap a	Families with no Gap that had Change within Spell	In Families with 3- or More Month Gap Experiencing Change Across Longer Gap a
Increase in SSI	8.3	16.6	21.0
Decrease in SSI	3.4	13.1	14.6
No change in SSI	88.9	81.3	74.5
Increase in Social Security Income	4.8	17.9	21.3
Decrease in Social Security Income	4.4	12.5	15.5
No change in Social Security Income	91.0	79.4	72.8
Increase in unemployment compensation	5.5	6.0	11.7
Decrease in unemployment compensation	0.5	6.5	5.7
No change in unemployment compensation	94.0	92.3	85.8
Increase in TANF	5.3	12.3	14.0
Decrease in TANF	9.1	12.5	13.3
No change in TANF	88.5	84.7	79.8

Source: Decision Demographics, weighted tabulations of the 2004 SIPP Panel.
Notes: [a] Characteristic changes across any two of the three time periods: before gap, within gap, following gap.

We learn from the table that changes in circumstances are common within spells. Twelve to 15 percent of individuals in families with no gaps in participation have a change within the spell in the number of family members or the number of children. Forty-five to 55 percent of these individuals have a change within the spell in earned or unearned income.

However, changes are even more prevalent, around the gap, for individuals in families with a relatively long gap in participation (three or more months). We generally accept that individuals with these long gaps are truly experiencing a gap in participation. Around 55 to 65 percent of these individuals have a change in earned income or a change in unearned income; close to one-quarter have a change in the family size.

If the individuals in families with shorter gaps were also exiting and re-entering because of changes in circumstances, we would expect to see a relatively high prevalence of these changes in the first column. In other words, we would expect them to look more like the people with longer gaps than the people with shorter gaps. However, only about 5 percent of these individuals have changes in family size and 23 to 30 percent have changes in earned income or changes in unearned income. We must note that the opportunities for such changes are fewer for individuals in families with these shorter gaps relative to individuals in the other two columns—the changes are measured over at most four months (one month before the gap, up to two months of the gap, and one month after the gap) for individuals in the first column. The changes can be captured over longer periods in the other columns. Although the difference in the number of months over which the changes can be captured is so different across columns, the percentages

of changes in circumstances for the individuals in families with one- and two-month gaps as to suggest that a change in circumstances is not the cause of their participation gap.

Amount of Income Change Around Participation Gap

Because many individuals in the panel experience changes in income throughout the panel, it is useful to look at the magnitudes of changes in selected variables. Table A.28 presents the magnitude of income changes just prior to a one- or two-month gap in participation (from two months before the gap to one month before the gap), at the gap (from the month prior to the gap to the month(s) of the gap), or after the gap (the last month of the gap to the first month of the new spell).

Table A.28 is the first table to indicate that some of the individuals with gaps in participation may actually be gaps related to changes in circumstances. In particular, we see that 40.2 percent of individuals experience a change in earnings just before the gap, 30.9 percent at the gap, and 43.9 percent at the end of the gap. Major changes at any time during these months could trigger SNAP exits and entry, although changes of a few dollars would probably not lead to an exit or entry. In fact, we see that about half of the gaps with changes in earnings were changes of at least $400. The distribution of magnitudes for changes in other income types is more widely distributed, often with the highest percentages of changes at the smallest and highest amounts.

Table A.28 Amount of Income Change around Participation Gap

	Percent of Gaps with Individuals Experiencing Change in Month Income Amount [a]		
Change in Monthly Income	Month Prior to Gap	Month(s) of Gap	Month Following Gap
Earned Income	40.2	30.9	43.6
$1-200	9.4	8.2	12.7
$201-400	8.3	6.9	4.3
$401+	22.5	15.8	26.6
Unearned Income	26.8	29.8	37.9
$1-200	16.0	15.2	17.6
$201-400	1.4	7.8	7.2
$401+	9.4	6.8	13.1
SSI	3.3	3.7	7.1
$1-200	1.4	1.4	2.1
$201-400	0.2	0.2	0.4
$401+	0.2	0.5	0.9
Social Security	3.3	2.8	6.5
$1-200	1.3	1.3	3.4
$201-400	0.0	0.2	0.0
$401+	1.9	1.3	3.1
Unemployment Compensation	2.6	1.3	6.0
$1-200	0.2	0.4	0.5
$201-400	1.0	0.5	1.8
$401+	1.4	0.5	3.7

Table A.28, *continued*

Change in Monthly Income	Percent Of Gaps With Individuals Experiencing Change In Month Income Amount [a]		
	Month Prior to Gap	Month(s) of Gap	Month Following Gap
TANF	4.7	10.7	6.3
$1-200	1.3	5.5	0.9
$201-400	0.5	3.5	4.1
$401+	2.9	1.7	1.4

Source: Decision Demographics, weighted tabulations of the 2004 SIPP Panel.
Notes: [a] Individuals experience change from the month prior to the column heading to the month identified in the column heading.

Conclusion

To avoid overestimating the entry rate, researchers conducting the previous studies opted to "close up" one-month gaps (not two-month gaps), assuming that the respondent made a mistake in reporting and did not experience an actual break in participation. Anecdotal evidence from the states, however, indicates that "churning," short-term nonparticipation in the program, is somewhat common.

In assessing whether to close one-month gaps in this current analysis, we focused on three possible explanations for short-term gaps:

1. Individuals had a change in circumstances that led them to exit and then another change that led them to re-enter, within a very short time period
2. Individuals hit the end of their certification period without completing the recertification process, leading them to exit the program; then within a month or two, they reapplied and entered back into the program (what we refer to as churning below).
3. The gap is misreported and participation continued across this period.

If we had found solid evidence that the first case was most prevalent, we would have suggested not closing the gaps, as the exits and entries would then appear real. Aside from the last table, concerning the magnitudes of the changes, however, we did not find much evidence to support this. Table A.27 showed us that individuals with short-term gaps do not seem to experience a similarly high level of changes in circumstances as seen with those with longer gaps.

Thus we were left trying to identify if the gaps are due to churning or misreporting. From Table A.24, we find that most one-month gaps are reported in the last month of the wave – the month we expect to be most accurately reported. Although reporting bias in the next wave may lead to an underrepresentation of the gap, it appears likely that there was a gap. From Table A.25 we see that the gap often occurs about six months into a spell, which is consistent with the six-month certification period of 40 percent of participating households. Then, in Table A.26, we find that individuals who are more likely to have short gaps in participation are also the ones with the

shorter participation spells. In other words, they come up for recertification more often, and have more opportunities to experience a short-term break in participation.

Because the tabulations are consistent with an explanation of churning, and the highest incidence is in a month that we expect to be most accurate, we believe that the gaps may in fact be due to churning rather than misreporting.

The question that remained, then, was whether to close the gaps or not. On one hand, the gaps appear to be true breaks in participation—individuals exited the program and re-entered very quickly. On the other hand, the exits and entries were not triggered by changes in circumstances, but instead by an end of the certification period. If we were to close the one-month gaps, our analysis would include longer single spells and examine trigger events only around their entry before the long spell. If we were not to close the one-month gaps, we would have multiple shorter spells and will include triggers for individuals who did not experience a change in circumstances that led to their entry. In other words, closing the gap would result in longer median participation spells, lower entry rates, and an entry trigger analysis based on a more reasonable set of entries. Not closing the gaps would result in shorter median participation spells and have an entry trigger analysis that has been diluted by families that entered without a change in circumstances. Given the percentage of individuals with gaps in Table A.23, however, this dilution is likely to be minimal.

While methodologically we believe either approach is appropriate and defensible, we decided in consultation with FNS to close the gaps. If states and policymakers generally consider the churners to be longer-term participants, then closing the gaps allows the analysis to focus on entries, durations, and triggers among those who are not simply churning.

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Appendix B

Subgroup Definitions in SNAP Dynamics Research

In this appendix, we provide information about how selected subgroup definitions have evolved across a series four SNAP dynamics research reports.

In Chapter III, we present SNAP dynamics data for the total population and nine subgroups from Burstein 1993; Gleason et al. 1998; Cody et al. 2007; and the current project. The reports use data from SIPP panels that started in 1984, 1991, 2001, and 2004 respectively, and this appendix will refer to each study by the date the SIPP panel started. Some of those subgroups are affected by evolution in their definitions. Poverty status differentials affect all of the 1991 data, including subgroups, while the use of family versus household data affected subgroup determinations starting in 2001.

Universe as defined by the official poverty level

In the 1991 data, the population at risk of SNAP entry was the total population of person-months that was not in the SNAP program. In the 1984, 2001, and 2004 data, there is a further restriction on the universe at risk of entry, which is that it includes only those below 300 percent of poverty level. Poverty status restrictions only affect the at-risk and entering population tabulations. For the life-table analyses of SNAP spells, that makes up the majority of the data presented in Chapter III. All spells are included regardless of the ratio of income to poverty.

Households, families, and subgroup determination

The second distinction has to do with the Census concepts of household or family. The 1984 and 1991 data use the Census household—all persons living in an occupied housing unit—to define and construct subgroups. In 2001 and 2004, however, Census family units are used to define and construct subgroups. The primary family in a SIPP household is defined as including all persons who are related to the head of that household, including members of related subfamilies in the household. It could be argued that members of a family are more likely to pool resources and eat together and form a SNAP unit, and that the family is the more relevant unit of analysis. We present data for four subgroups in Chapter III for whom this is a particularly important issue. The first two subgroups are:

- Single parents
- Children of single parents

The single parents subgroup actually corresponds to two different definitions: in 1984 and 1991 it is adults in *households* with children and one adult, while in 2001 and 2004 it is adults in *families* with children and one adult. Similarly, the children of single parents subgroup corresponds to the following two definitions: in 1984 and 1991 it is children in *households* with

children and one adult, while in 2001 and 2004 it is children in *families* with children and one adult. While a single parent with children is probably the modal formation in these definitions, there are many variations of household and family relationships that can correspond to people age 18 and over being part of the same household or family as people under 18. It is those simple age tests that determine whether a 1984 or 1991 household, or a 2001 or 2004 family, qualifies to be part of these subgroups.

The next two subgroups that we track in Chapter III are:

- Married adults with children
- Children of married adults

In 1986 and 1991, those subgroups were unavailable. Rather, the following two subgroups were provided, based on household-level tests:

- Adults in households with children and multiple adults
- Children in households with children and multiple adults

Married adults with children and children of married adults are *family* constructs that probably comprise the modal categories of households in which multiple adults and children who share a household find themselves. Again, there are many other variations of household and family relationships that can correspond to multiple people age 18 and over being part of the same household as people under 18, and it is those simple tests of age and sharing of a household that determine the subgroup. Thus, the 1986 and 1991 subgroups were more broadly constituted.

In the 2001 and current 2004-based analysis, four mutually-exclusive subgroup definitions have been employed at the *family* level. The first two subgroup titles appear to be close to what was provided in 1986 and 1991 for households, but by separating the married contingent from the others, we actually create two sets of subgroups that are fairly different from each other.

- Adults in *families* with children and multiple adults
- Children in *families* with children and multiple adults
- Adults in *families* with children and a married head
- Children in *families* with children and a married head

Table B.1 provides at-risk population, SNAP entrants, and SNAP entry rates for the above four categories in 2004. It is clear that families with married heads and children account for the majority of the population at risk, but it is also clear that the SNAP entry rates and the percent of entrants accounted for by the families headed by other multiple adults are disproportionately high. The wave-based SNAP entry rates are about four times higher for the multiple adults categories, and the same differentials applied to the 2001-based analysis.

Table B.1 At-Risk Populations, SNAP Entrants, and SNAP Entry Rates, 2004 Panel

Subgroup	At Risk: Income under 300 Percent of Poverty	Percent of All SNAP Entrants	Wave-Based SNAP Entry Rate
Total: All Person-Months	100.0	100.0	2.0
Family Composition			
Adults in families with children and multiple adults	3.4	9.5	5.8
Children in families with children and multiple adults	1.9	7.7	8.2
Adults in families with children and a married head	22.7	15.5	1.4
Children in families with children and a married head	18.6	16.2	1.8

Source: Decision Demographics, weighted tabulations of the 2004 SIPP panel

Notes: At Risk: Not receiving SNAP benefits for at least 2 months and income under 300 percent of poverty at some point during the panel period

Reference Months: 3 to 31

Sample: Person months for entry rates; persons for percent of entrants

[a] Characteristics as of reference month; for wave-based estimates, as of Month 4

Subgroup determinations. At-risk and entrants: person month basis, reference month. Entry rates: last month preceding the wave of entry for wave-based entry rates.

In Chapter III, we limited the 2001 and 2004 data to

- Married adults with children (Adults in families with children and a married head)
- Children of married adults (Children in families with children and a married head)

Therefore, the categories that we label married adults with children, and children of married adults in these time series tables represent different populations for the 1986 and 1991 panel analyses than they do in the 2001 and 2004 panels. The household- versus family-level construct is also relevant for three other subgroups in Chapter III:

- Individuals in childless families without elderly or disabled members
- People living in families with earnings
- People living in families with TANF income

Each of these subgroups is constituted slightly differently at the family level than at the household level. A household may include multiple families, so its characteristics will represent the combination of the families.

Additionally, the first category called “able-bodied childless adults” in 1986, and “individuals in households with only able-bodied prime-age childless adults” in 1991, but both concepts referred to individuals in households that contained no children, elderly, or disabled. The differences for

these groups between the first two and second two studies are minor, especially in comparison to the adults and children subgroup distinctions mentioned above. For those who are interested in contrasting nonelderly disabled adults with nonelderly nondisabled childless adults as individuals, there are new subcategories in the main body of the current study that pertain to those groups defined as individuals.