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Asset Limits, SNAP Participation, and Financial Stability

Caroline Ratcliffe
URBAN INSTITUTE

Signe-Mary McKernan
URBAN INSTITUTE

Laura Wheaton
URBAN INSTITUTE

Emma Kalish
URBAN INSTITUTE

Catherine Ruggles
ORLIN RESEARCH

Sara Armstrong
ORLIN RESEARCH

Christina Oberlin
ORLIN RESEARCH

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Executive Summary

Assets can help households weather financial emergencies, such as a sudden income drop caused by a job loss or an expenditure spike from an unexpected medical or car repair bill. Assets can also bolster long-term economic gains by enabling investment for the future (e.g., in education). Such savings, however, can make low-income households ineligible for benefits from means-tested programs, such as the Supplemental Nutrition Assistance Program (SNAP).

Asset limits, or asset tests, in means-tested programs are designed to limit program eligibility and benefits to those people who are most in need. In doing so, the limits channel program dollars to those with a weak financial safety net. However, if asset limits discourage low-income households from saving, they could impose barriers to financial security and long-term financial advancement.

Asset tests can decrease government costs by limiting eligibility and decreasing the number of people who receive SNAP. But changes in household behavior may offset some of the savings. First, if SNAP asset tests reduce savings, they could, in turn, increase SNAP program costs if financially vulnerable households resort to SNAP. Second, the resources needed to implement asset limits and to determine eligibility can increase administrative costs. Those costs could also rise if the increased documentation required for program recertification results in people leaving the program for administrative reasons and reentering SNAP shortly afterwards, also known as SNAP churn.

This study advances knowledge about the effects of SNAP asset limits on lower income households' participation in traditional financial markets (such as having a bank account) and their savings and assets, which can help them weather financial shocks. We also examine how asset limits affect SNAP eligibility and patterns of SNAP receipt—specifically, SNAP churn and the duration of SNAP receipt. To look at this broad frame, we examine six research questions:

1. What are the characteristics of low-income, high-asset households?[1]
2. What is the effect of SNAP asset limits on SNAP eligibility?

[1] Low-income households are households with income below 130 percent of the poverty level (200 percent of the poverty level if the household contains an elderly or disabled member). High-asset households are those with countable assets (excluding vehicles) that exceed $2,000 ($3,000 if the household contains an elderly or disabled member). All other households are categorized as low-asset households.
Under SNAP eligibility rules, countable assets include cash, resources easily converted to cash, and some nonliquid assets. The value of retirement and education savings accounts, family homes, business property, and tools of a trade are excluded from countable assets.

3. What are the asset holdings of SNAP households, overall and by state asset policy?
4. What is the effect of SNAP asset limits on assets and wealth?
5. What is the effect of SNAP asset limits on SNAP churn and spell length?
6. How are wealth and debt related to SNAP spell length?

These research questions focus on key questions being asked by program administrators, who aim to provide effective and efficient programs, and advocates in the asset-building field, who strive to help families build wealth and achieve greater economic security.

The individual-level data for the analysis come from the 1996, 2001, 2004, and 2008 panels of the Survey of Income and Program Participation (SIPP). Some analyses use only the most recent 2008 panel, while other analyses take advantage of all four SIPP panels and are based on data from January 1997 through March 2013.[2] The asset and liability data come from the asset and liability topical modules, which were administered 12 times during the years covered by our analysis (1997–2006 and 2009–11).[3] These SIPP panels capture SNAP participation and asset holdings at a time when SNAP asset limits were changing and during both strong and weak economic times. The quality of the SIPP depends on respondents' willingness to participate in the survey and on the completeness and accuracy of their survey responses. SIPP limitations include sample loss, item nonresponse, the seam effect (i.e., transitions disproportionately occurring between interviews), and underreporting of SNAP receipt and wealth.[4] Our analyses also use the Micro Analysis of Transfers to Households (MATH) SIPP+ microsimulation model to obtain estimates of how SNAP asset limits affect SNAP eligibility.

The table below presents a summary of the unit of analysis, sample, primary data source, and analytic approach for each of the six research questions. Below we summarize our findings, by research question.

What are the characteristics of low-income, high-asset households? Understanding the demographic and economic characteristics of low-income, high-asset households is important because it provides insight into which demographic groups are most affected by SNAP asset limits.

Looking at all households regardless of SNAP participation, we find that low-income households with high assets (i.e., countable assets excluding vehicles above the federal SNAP asset limit) are more

[2] There is a seven-month gap from March 2000 through September 2000 and a four-month gap from January 2008 through April 2008.
[3] Due to the design of the SIPP, waves may span multiple years, resulting in 12 asset and liability topical modules across 13 calendar years.
[4] These limitations are detailed in the data section of the report and in appendix A (data limitations).

Summary of Sample and Approach by Research Question

Research questions	Unit of analysis	Sample	Primary data source	Analytic approach
1. What are the characteristics of low-income, high-asset households?	Household	Households below 130% of the federal poverty level (FPL) or below 200% of FPL if a member is elderly or disabled	2008 SIPP, wave 10 (fall 2011)	Descriptive
2. What is the effect of SNAP asset limits on SNAP eligibility?	SNAP unit	All households	MATH SIPP+ 2011 baseline	Simulation
3. What are the asset holdings of SNAP households, overall and by state asset policy?	Household	Households below 130% of FPL or below 200% of FPL if a member is elderly or disabled	2008 SIPP, wave 10 (fall 2011)	Descriptive
4. What is the effect of SNAP asset limits on assets and wealth?	Person	Adults below 200% of FPL	1996–2008 SIPP[a]	Multivariate
5. What is the effect of SNAP asset limits on SNAP churn and spell length?	Person	SNAP participants	1996–2008 SIPP	Multivariate
6. How are wealth and debt related to SNAP spell length?	Person	SNAP participants	1996–2008 SIPP	Multivariate and descriptive

a. Data for these analyses are limited to months when asset and liability data were collected.

likely than low-income, low-asset households to be older and to include an elderly adult.[5] This finding is consistent with the fact that older Americans tend to have lower incomes but substantial assets, as their incomes drop in retirement but they have assets built up during their working lives (Steuerle et al. 2013). We also find that low-income households with high assets are more likely to be non-Hispanic white, educated beyond high school, headed by two adults, and without children. For example, 22 percent of high-asset households contain children, compared with 38 percent of low-asset households.

We find that rates of asset ownership (such as a home or vehicle) and the median value of all types of assets are much higher among high-asset households than among low-asset households. Nearly all high-asset households have a bank account. The median balance (of those with a bank account) is $10,200 for high-asset households with a member who is elderly or disabled and $5,000 for households without a member who is elderly or disabled. In contrast, only about one-half of low-asset households have bank accounts, and the median balance of those accounts is less than $200.

Another key question is to what extent low-income, high-asset households have assets just above the SNAP asset eligibility limit and therefore may not be that different from low-asset households. We

[5] This study follows SNAP rules and defines a person as elderly if he or she is age 60 or older.

find that most high-asset households have assets well above the federal SNAP asset limit. For example, less than 10 percent have countable assets within $1,000 of the asset limit, whereas more than one-half have countable assets of more than $10,000.

What is the effect of SNAP asset limits on SNAP eligibility? We find that asset tests in place in 2011 across all states reduced the number of eligible SNAP households (referred to as "units") by 3 percent (1.2 million units). This effect is smaller than found in earlier studies, because of the increase in the number of states that have eliminated asset tests through broad based categorical eligibility (BBCE) policies or that have modified their vehicle rules.[6] On the flip side, we find that if BBCE policies were eliminated, 16 percent of SNAP-eligible units with incomes below the SNAP federal eligibility limit would be ineligible because of the federal asset test.

If federal vehicle tests were also reinstated, a total of 19 percent of all income-eligible units would be ineligible because of the asset test. These estimates focus on eligibility; the effects on participation are likely much smaller, assuming that eligible households with higher assets are less likely to participate than those with few or no assets. Indeed, previous research finds that only 4 percent of SNAP participants with incomes below the SNAP federal eligibility limit have assets above the federal limit (Eslami 2015).

We also examine what types of SNAP units are most affected by asset limits. Across the simulation scenarios, income-eligible households are most likely to fail the asset test if they contain members who are elderly, are headed by a non-Hispanic white, or have gross income above 130 percent of the federal poverty level. They are less likely to fail the asset test if they contain disabled members or children, are headed by a non-Hispanic black, have gross income below 100 percent of the poverty level, or contain noncitizens.

What are the asset holdings of households participating in SNAP, overall and by state asset policy? SNAP asset tests clearly affect eligibility. But to what extent do asset tests affect the composition of the SNAP caseload? And to what extent do they affect SNAP households' assets? These questions are of interest because asset tests may reduce participation among households with assets, even if their assets are below the allowed limit. This can occur if people inaccurately assume that having a bank account or assets of any amount renders them ineligible for SNAP. It can also occur if they decide not to

[6] States have the option of adopting BBCE, which expands SNAP categorical eligibility to households that receive non-cash benefits that are at least 50 percent funded by Temporary Assistance for Needy Families (TANF) assistance or maintenance of effort funds. Under BBCE, states align their SNAP asset rules with the rules of the TANF program used to confer eligibility. States also have the option of substituting the vehicle rules used in their TANF programs for federal SNAP vehicle rules when it results in a lower attribution of household assets.

participate because of concern over requirements for documentation or verification of their asset holdings.

SNAP households have lower assets and lower wealth than low-income, non-SNAP households.[7] For example, roughly one-half (52 percent) of SNAP households have a bank account, compared with more than two-thirds (70 percent) of non-SNAP households. Asset holdings of low-income, non-SNAP households are higher than for SNAP households, but are still modest. The median bank account amount for SNAP households is $150 (among those with an account), whereas it is $600 for low-income, non-SNAP households. Looking at all liquid assets shows a similar pattern. Less than one-half of SNAP households have liquid assets, compared with more than two-thirds of low-income, non-SNAP households. The median value of assets (for those with assets) is also substantially lower among SNAP households ($450 compared with $3,525 for low-income, non-SNAP households).

All else equal, we expect to see greater asset holdings among SNAP households in BBCE states than in non-BBCE states. By and large, this pattern is borne out by the data—SNAP households in BBCE states tend to have higher assets than those living in non-BBCE states, although asset holdings are still quite low and well below federal asset limits. Fifty-two percent of SNAP households in BBCE states have a bank account, compared with 46 percent in non-BBCE states. Among those with a bank account, the median amount in the account is slightly higher ($160) in BBCE states than in non-BBCE states ($100). In contrast, low-income, non-SNAP households are more likely to have a bank account if they are in a non-BBCE state than if they are in a BBCE state. There is no significant difference in the share of SNAP households with liquid assets in BBCE and non-BBCE states, although the median value of liquid assets ($500) is higher in BBCE than in non-BBCE states ($250). The pattern for home and vehicle ownership differs. Here we find higher home and vehicle ownership among SNAP households in non-BBCE states, perhaps reflecting the less urban nature of most of these states.

What is the effect of SNAP asset limits on assets and wealth? Our analysis examines the effect of relaxed asset limits via BBCE and vehicle exemptions on six asset-related measures—household has a bank account, bank account with at least $500, bank account with at least $2,000, liquid asset amount, wealth minus home equity, and vehicle ownership. SNAP asset limits are hypothesized to affect asset holdings in two key ways. First, because asset tests restrict the level of assets that families can have and still receive SNAP benefits, asset tests can discourage lower income households from accumulating assets that are subject to asset tests. Families may also spend down their assets to become or remain

[7] Wealth is defined as the value of all assets (e.g., value of bank accounts, stocks, bonds, homes, vehicles) minus the value of all liabilities (e.g., value of credit card balances, student loans, mortgages, vehicle loans).

eligible for benefits. Second, program rules that affect only specific types of asset holdings can encourage families to substitute one type of asset for another. For example, more generous vehicle asset exemptions could lead families to use their savings (thus lowering liquid assets) to purchase a vehicle (thus increasing vehicle assets).

Our analyses suggest that SNAP asset limits affect people's decisions around savings and asset building for some, but not all, of the measures examined. Focusing on households with incomes below 200 percent of the federal poverty level, we find that SNAP asset limits affect behavior at lower levels of wealth—levels below the federal asset limit. Specifically, we find that being in a state with BBCE (no asset limit or an asset limit higher than the federal limit) increases the likelihood that a person is in a banked household by 3 percentage points. This represents a 5 percent increase in the percentage of people in lower income households with a bank account. We also find that BBCE increases the likelihood that people are in a household with at least $500 in a bank account (by 2 percentage points, or 8 percent). We do not find any effect of BBCE policies on the four other measures—at least $2,000 in a bank account, liquid asset amount, wealth minus home equity, or vehicle ownership.

Across the board, we find no statistically significant effect of relaxed SNAP vehicle asset rules on any of our asset outcomes, including vehicle ownership.

What is the effect of SNAP asset limits on SNAP churn and spell length? More relaxed asset limits are hypothesized to reduce SNAP churn and have an ambiguous effect on SNAP spell length.[8] More relaxed asset limits can make the recertification process less burdensome, making it easier for households to stay on SNAP, reducing SNAP churn, and potentially increasing spell length. More relaxed asset limits can also reduce SNAP spell lengths if households save more as a result of increased or eliminated asset limits and become self-sufficient, so that they no longer need SNAP assistance. These potential offsetting effects result in the hypothesized ambiguous overall effect of asset limits on spell length.

The results suggest that more relaxed asset limits through BBCE reduce SNAP churn, which could result from a less burdensome recertification process. Specifically, we find that being in a state with BBCE decreases the likelihood of SNAP churn by 2 percentage points, representing a substantial 26 percent decline in SNAP churn. We do not, however, find that SNAP asset-limit policies affect SNAP spell length. The offsetting positive and negative hypothesized effects of asset limits are consistent with an overall effect that is not statistically significantly different from zero. This finding is consistent with Mabli et al. (2014) who find no statistically significant effect of BBCE (or excluding all or most vehicles)

[8] We define SNAP churn as a break in SNAP participation of four months or less.

on median SNAP spell length. We find no evidence that relaxing vehicle asset limits affects SNAP churn or SNAP spell length.

How are wealth and debt related to SNAP spell length? Households with higher asset holdings are a select group of more advantaged households than those with less wealth. As a result, we expect low-income households with higher assets to be better off in other ways and thus have shorter SNAP spell lengths. Households with more debt can also be more advantaged, as they are a select group with access to credit.

We find that people in households with higher wealth and with debt have shorter SNAP spell lengths. This relationship holds even after controlling for state-level policy and economic variables, individual demographic characteristics, and unobserved state and year characteristics that are fixed over time. For example, the median SNAP spell length is 15 months for people with debt and 17 months for people without debt. The wealth finding is consistent with Mabli, Godfrey, et al. (2011) who find that families with positive wealth are less likely to enter SNAP and spend less time on the program. Whether the decrease in spell length associated with increased wealth and debt is the effect of wealth and debt or the result of differences in the types of households that accumulate wealth and debt is a question for future research.

Taken together, this research shows that asset limits decrease the number of households eligible for SNAP, but may increase the program's administrative costs by increasing churn. The results also suggest that asset limits have the unintended consequence of reducing emergency savings and mainstream financial sector participation, which has the potential to increase program costs as households face greater financial instability.

Decisions around asset limits and the right level of asset limits are complex. This research shows that asset limits have negative consequences in the form of lower financial market participation, lower likelihood of having some emergency savings (at least $500), and increased SNAP churn. Future research could further weigh these negative consequences against the reduced program costs and benefits that come with reduced eligibility and participation.

Asset Limits, SNAP Participation, and Financial Stability

Assets can cushion households against sudden income losses or expenditure spikes. They can also bolster long-term economic gains by enabling investment for the future, for example, in education. Savings held as financial assets, however, can make low-income households ineligible for benefits from means-tested programs such as the Supplemental Nutrition Assistance Program (SNAP).

Since 2000, SNAP asset policy has undergone considerable change, as states have increasingly adopted broad based categorical eligibility (BBCE). BBCE enables states to increase SNAP income limits and to eliminate or raise the asset limit. As of 2012, 36 states had used BBCE to eliminate the asset test and 5 had used it to raise the asset limit. States have also increasingly made use of an option enabling them to increase the extent to which vehicles are excluded from countable assets.

Although most states have eliminated SNAP asset tests, asset limits continue to affect SNAP eligibility in states that have retained them, so it is important to understand the effects of these limits. Information regarding the effect of SNAP asset limits can also inform policy discussions about whether to reinstate them. By focusing on a period in which SNAP asset policy was undergoing considerable change, this study provides insight into the effect of SNAP asset limits on state governments and households.

Asset limits, or asset tests, are designed to limit program eligibility and benefits to people most in need. In doing so, they channel program dollars to those with a weak financial safety net. But do these restrictions have unintended consequences for households and program administration? For example, asset limits may discourage low-income households from saving and thereby impose barriers to financial security and long-term financial advancement.

If asset limits reduce savings among the low-income population, they could, in turn, increase program costs because households that might otherwise have used savings to buy food during a lean time may instead rely on SNAP for assistance. Additionally, the resources needed to implement asset limits and determine eligibility can lead to increased administrative costs. Administrative costs could also rise if the increased documentation required for program recertification results in people missing their recertification date and reentering the program shortly afterward (i.e., SNAP churn). Conversely, asset limits may reduce government costs by decreasing the number of people who receive SNAP.

This study advances knowledge of the effects of SNAP asset limits on patterns of SNAP receipt and low-income households' participation in traditional financial markets (having a bank account) and their savings and assets, which can help them weather financial shocks. Having assets can improve household stability such that they rely less on SNAP and other assistance programs over time. To look at this broad frame, we examine six research questions:

1. What are the characteristics of low-income, high-asset households?
2. What is the effect of SNAP asset limits on SNAP eligibility?
3. What are the asset holdings of SNAP households, overall and by state asset policy?
4. What is the effect of SNAP asset limits on assets and wealth?
5. What is the effect of SNAP asset limits on SNAP churn and spell length?[9]
6. How are wealth and debt related to SNAP spell length?

These research questions focus on central questions being asked by program administrators who aim to provide effective and efficient programs and by advocates in the asset-building field who strive to help families build wealth and achieve greater economic security. Findings from this study provide some empirical evidence that more relaxed asset limits (or the elimination of limits) can achieve both of these goals—reducing administrative costs through reduced caseload churn and verification requirements and increasing household financial security through savings. On the other hand, our findings also suggest that more relaxed asset limits increase eligibility and thus have the potential to raise program costs.

This study builds on and updates previous literature. Earlier studies find that the widespread adoption of BBCE over the past decade decreased the number of households made ineligible for SNAP because of their asset holdings (Laird and Trippe 2014; Trippe and Schechter 2007, 2010). This study updates the literature by using a more recent version of the Micro Analysis of Transfers to Households (MATH) SIPP+ model to simulate the effect of SNAP asset limits on SNAP eligibility and also shows the role that asset limits would play if BBCE were eliminated.

Beyond eligibility, previous research shows that less restrictive SNAP asset limits are associated with some changes in the dynamics of SNAP participation. For example, previous studies find that individuals living in a state with BBCE are more likely to enter SNAP, but provide no evidence that BBCE is related to SNAP spell duration (Mabli, Godfrey, et al. 2011, 2014). Another study finds that

[9] SNAP churn is a break in SNAP participation of four months or less, and SNAP spell length is the continuous period of time that an individual spends on SNAP.

broad-based categorical eligibility increases SNAP participation by about 2 percentage points (Ratcliffe, McKernan, and Finegold 2008). This study builds on the earlier ones by using additional years of data (1997–2013) to better control for differences across states and over time in estimating the effect of SNAP asset limits on SNAP churn and spell length.[10] The effect of asset limits on SNAP churn has been little studied, but interviews with SNAP recipients suggest a relationship between the two, because asset fluctuations can render participants temporarily ineligible (Mills et al. 2014).

The literature is more mixed on the effect of relaxed vehicle asset limits on participation. One study finds that exempting vehicles from asset tests increases SNAP participation (Ratcliffe, McKernan, and Finegold 2008), while another study concludes that more relaxed vehicle rules do not affect SNAP participation (Hanratty 2006).

Previous research finds some effects of relaxed asset limits on specific asset holdings. Relaxed vehicle exemptions and broad-based categorical eligibility have been found to increase vehicle ownership (Baum and Owens 2010; McKernan, Ratcliffe, and Nam 2010; Sullivan 2006) and vehicle equity (McKernan, Ratcliffe, and Nam 2010). Higher asset limits and relaxed vehicle exemptions were not found to significantly affect liquid asset holdings (McKernan, Ratcliffe, and Nam 2010; Hurst and Ziliak, 2006; Sullivan, 2006). However, Nam (2008) finds that the probability that a welfare recipient has financial assets increases the longer the relaxed asset limit has been in place. McKernan, Ratcliffe, and Nam (2010) find mixed evidence on the effects of BBCE on wealth (net worth), finding increases in wealth only among low-education single-mother families. This study builds on this literature by using more years and more recent data and by examining additional outcomes, such as mainstream financial sector participation.

The remainder of this report is organized as follows. Section two describes the research approach, including the data used for the study, key variable measures, and the empirical approach for each research question. Section three presents the results by research question, and section four summarizes key findings and their implications.

[10] For example, Mabli, Godfrey, et al. (2011) examine the mid-2000s using the 2004 Survey of Income and Program Participation (SIPP) panel, and Mabli, Godfrey, et al. (2014) examine the 2008–12 time period using the 2008 SIPP panel. This study measures the effect of BBCE over the 1997–2013 time period using the 1996, 2001, 2004, and 2008 SIPP panels.

Research Approach

In this section, we describe the data and research approach used to address the study's objectives. We begin by describing the data used for the study—the Survey of Income and Program Participation (SIPP), MATH SIPP+ microsimulation model (to obtain SNAP eligibility estimates), state-level SNAP policy variables, and state minimum wage and earned income tax credit (EITC) policy information. We next describe the variable measures constructed from the data, including both individual and household characteristics and SNAP policy variables. Finally, we describe our empirical approach, which includes descriptive, multivariate, and microsimulation analyses. We present the key points regarding the data and methodological approach here. In some cases, additional details are provided in the appendices.

Data

Survey of Income and Program Participation (SIPP)

The individual-level data for the analysis come from the 1996, 2001, 2004, and 2008 panels of SIPP. Each of these panels contains a nationally representative (noninstitutional) sample of between 36,000 and 46,000 households. Some analyses use only the most recent 2008 panel, whereas other analyses take advantage of all four SIPP panels and are based on data from January 1997 through March 2013.[11] These data capture SNAP participation and asset holdings at a time when SNAP asset limits were changing and during both strong and weak economic times.

A primary strength of the SIPP panels used for these analyses is the monthly data on SNAP participation, income, and household composition.[12] In these panels, SIPP respondents are interviewed every four months about the previous four months, a period referred to as a "wave." SIPP monthly data are collected through the core questionnaire, which is administered in each wave. SNAP benefits are received monthly, so the monthly SIPP data allow us to examine participation over the same time period that benefits are received and to observe movements into and out of SNAP. Households and individuals

[11] There is a seven-month gap from March 2000 through September 2000 and a four-month gap from January 2008 through April 2008. We use the first 14 (of 16) waves of the 2008 SIPP, which provide data through March 2013. We use data from January 1997 forward because we examine SNAP policies lagged one year, and the SNAP policy data are only available starting in January 1996.

[12] In the 2014 SIPP panel, SIPP respondents are interviewed annually, with data collected using an event history calendar.

are categorized as receiving SNAP if anyone in the household receives SNAP benefits. Key demographic and household characteristics include age, race and ethnicity, gender, educational attainment, income, and citizenship status, as well as household composition variables such as a household headed by a female, a household headed by two adults, and the number of children and adults in the household.

The SIPP also includes topical modules that collect supplemental information on a variety of topics and are administered periodically. Asset and liability data come from the asset and liability topical modules, which are administered two to four times per panel. Asset and liability data are collected 10 times during the years covered by our analysis, including in years 1997–2002, 2004–05, and 2009–10.[13]

LIMITATIONS OF THE DATA

The quality of the SIPP depends on respondents' willingness to participate in the survey and on the completeness and accuracy of their survey responses. Below, we summarize SIPP limitations related to sample loss, item nonresponse, seam effect, and underreporting and indicate how we address limitations in our analysis. Appendix A provides a more detailed analysis of these limitations.

Sample loss is inevitable in longitudinal surveys as households drop out of the survey over time. For example, 45 percent of the original 2008 SIPP sample was lost by the 14th wave of the panel (US Census Bureau 2015).[14] Sample loss in the SIPP has worsened across the 1996 to 2008 panels.[15] To adjust for sample loss, we use the weights constructed by the US Census Bureau. Most analyses use the cross-sectional weights, which are available for each reference month. The SNAP duration analyses, which follow people over time, use the longitudinal weight.

Item nonresponse occurs when a household fails to respond to a particular survey question. In such cases, the Census Bureau imputes a response to the household. In the 2008 SIPP panel, SNAP receipt is imputed for 4 percent to 6 percent of respondents in each month. For the wealth-related variables, SIPP has relatively low imputation rates for the value of checking accounts (3 percent to 4 percent) but

[13] The asset and liability topical module was administered in the following waves of the SIPP panels: 1996 panel waves 3, 6, 9, and 12; 2001 panel waves 3, 6, and 9; 2004 panel waves 3 and 6; and 2008 panel waves 4, 7, and 10.
[14] Sample loss increased from 44.9 percent in wave 14 of the 2008 SIPP, to 46.5 and 53.0 percent in waves 15 and 16 respectively (US Census Bureau 2015).
[15] Comparing sample loss across SIPP panels is not trivial, as the panels vary in duration and interview strategies and policies. For example, the 2001 panel altered the policy for attempting to interview respondents who missed consecutive waves, the 2004 panel had a half-sample reduction after wave 8, and the 2008 panel is considerably longer than the other panels (56 months for 2008, 48 months for 2004 and 1996, and 36 months for 2001). Sample loss rates at wave 8 were 38 percent for the 2008 panel, 33 percent for the 2004 panel, 30 percent for the 2001 panel, and 31 percent for the 1996 panel (Killion 2009; Killion 2015; Westat 2001).

higher rates for most other variables, with the value of savings accounts imputed for 11 percent to 15 percent of respondents, vehicle ownership for 13 percent, and stock values for 5 percent of respondents.[16] When describing the asset holdings of SNAP households, we note findings that appear to be affected by imputation and provide results excluding imputation in appendix C. Our analysis suggests that the SIPP imputation procedure overestimates SNAP recipients' asset values. In other words, SNAP recipients with imputed asset values have asset values that are substantially higher than those with reported asset values.

In analyses that examine the effect of state policies on SNAP churn and spell length, we exclude observations with imputed SNAP data because available SIPP documentation suggests that SIPP imputation procedures do not take state or program eligibility into account. Similarly, we exclude observations with imputed asset values in analyses that measure the effect of state policies on assets and wealth. Analyses of SNAP eligibility based on the MATH SIPP+ model use the imputed asset data. The Internet version of the MATH SIPP+ model used for this analysis does not allow us to exclude households with imputed asset data when simulating the effect of asset limits on SNAP eligibility.

Seam effect refers to a well-known limitation of the SIPP in which transitions (e.g., between receiving and not receiving SNAP) disproportionately occur between interviews (or at the "seams") versus within the four-month interview period. In the absence of the seam effect, we expect SNAP entries and exits to occur equally across the months of a wave, which is equivalent to 25 percent of transitions occurring in each month. However, in the 2008 SIPP we find that 75 percent of SNAP entries and 63 percent of SNAP exits occur in the seam month. The seam effect is most relevant for analyses that examine SNAP spell length (which are based on SNAP exit models); in these models, we control for the seam with an indicator variable for seam month.

Underreporting refers to the shortfall in total recipients or dollars observed in survey data compared with external benchmarks. Across the months of 2009 and 2010 (average), the SIPP captures 92 percent of SNAP receipt. This rate of SIPP underreporting is similar to rates found in earlier SIPP panels—85.5 percent in August 2008 and 94.5 percent in December 2008 (Mabli, Godfrey, et al. 2014).[17]

[16] The imputation rates for lower income households are similar to the rates for the full population. They are as follows: value of checking accounts (2 percent to 5 percent), value of savings accounts (7 percent to 14 percent), vehicle ownership (12 percent), and value of stocks (3 percent).

[17] Analyses have also found greater underreporting in wave 1 versus wave 2 of the SIPP (Mabli, Godfrey, et al. 2014).

SIPP asset and liability data are underreported relative to the Survey of Consumer Finances (SCF). While the SCF is often used as a benchmark for wealth data in other surveys, it oversamples high-income families. We find that the SIPP captures 76 percent of the SCF target of mean wealth of lower income households—$78,363 in the SIPP versus $103,191 in the SCF.[18] Median wealth of low-income households is also lower in the SIPP—$6,373 in the SIPP compared with $10,543 in the SCF. It should be noted, however, that the SCF (like the SIPP) is calculated on the basis of self-reported wealth and thus does not necessarily provide the true distribution of wealth.

Our multivariate analyses control for any differential underreporting by states and different patterns in underreporting over time by including state and year fixed effects.

Micro Analysis of Transfers to Households (MATH) SIPP+

We use the MATH SIPP+ microsimulation model to obtain estimates of how SNAP asset limits affect SNAP eligibility.[19] The model applies SNAP eligibility rules to the income and demographic characteristics of each SIPP household to calculate the household's eligibility status under baseline and alternative scenarios. The model does not incorporate possible changes in behavior in response to rule changes. We use estimates derived from the fiscal year 2011 MATH SIPP+ baseline, which provides estimates for August 2011 using data from the 2008 SIPP panel. Additional details are provided in the discussion of our empirical approach below.

State-Level SNAP Policy Data

Measures of state-specific SNAP rules come from the US Department of Agriculture's SNAP Policy Database, which provides SNAP policy data from 1996 through 2013.[20] We examine three SNAP asset limit variables: (1) state eliminates asset tests via BBCE, (2) state relaxed asset tests via BBCE, and (3) state excludes at least one vehicle from asset limits. We also examine several other state SNAP rules

[18] The SCF was considered for this analysis but does not break out SNAP from other benefits and does not identify the state of residence.
[19] The MATH SIPP+ model is a detailed microsimulation model funded by the US Department of Agriculture's Food and Nutrition Service and developed by Mathematica Policy Research, Washington, DC.
[20] For more information about the SNAP Policy Database, visit http://www.ers.usda.gov/data-products/snap-policy-database.aspx. Although the online version of the database provides data only through December 2011, the US Department of Agriculture's Economic Research Service (ERS) provided the Urban Institute with a version that extends through 2013.

that can influence SNAP duration or churn including reporting requirements, recertification periods, noncitizen eligibility rules, and outreach spending (described below). In cases where source data are not available for a given month, missing data are filled in using the closest available month. The state-level policy data are merged with the SIPP data by state, year, and month.

Other State-Level Policy and Economic Data

Other state-level policy and economic data come from multiple sources. The two additional state policy variables—minimum wage and EITC—are constructed from sources including the Internal Revenue Service, Urban-Brookings Tax Policy Center, and the US Department of Labor. State economic characteristics—the unemployment rate and annual per capita income—were obtained from the US Bureau of Labor Statistics and the US Census Bureau. Like the SNAP policy data, these state-level data are merged with the SIPP data by state, year, and month. The next section describes the individual-, household-, and state-level variables created from these data sources.

Variable Measures

Individual- and Household-Level Variables

All individual and household characteristics are measured using SIPP data. A description of the variables used in the analyses is provided in the top panel of table 1. The table first lists the key SNAP and wealth measures, followed by demographic, economic, and geographic measures. Most variables are available monthly, although the wealth variables are only available at specific points in time based on when the asset and liability topical module was administered.[21] We discuss key SNAP and wealth measures below.

[21] Another exception is citizenship status, which is only available once in the 1996 and 2001 panels.

Table 1: Description of Variable Measures

Measure	Description
Individual- and household-level variables	
SNAP	
SNAP spells	SNAP spell length measured in months.
SNAP churn	Break in SNAP participation of four months or less.
Assets, debts, and wealth	
Bank account	Household member has checking/savings account; account value is at least $500; account balance is at least $2,000.
Liquid assets	Household liquid (or financial) assets, which includes checking and savings accounts, other interest-earning accounts (e.g., money market accounts), stocks and bonds, retirement accounts (e.g., 401(k)s, IRAs), and other financial assets.
Liquid assets minus retirement savings	Household liquid assets (defined above) minus dollars saved in retirement accounts.
Emergency savings	Two measures: (1) at least $2,000 in liquid assets and (2) enough liquid assets to live above the federal poverty line for at least 3 months (roughly $5,000 for a family of 3).
Countable assets	Includes value of liquid assets less retirement accounts, which approximates the value of all assets countable under federal asset limits. Includes vehicle value calculated according to federal rules.
Total wealth	Household assets minus liabilities. Assets include financial assets (e.g., bank accounts, stocks, 401(k)s) and nonfinancial assets (e.g., value of homes, businesses, vehicles). Liabilities include unsecured debt (e.g., credit card balances) and secured debt (e.g., value of mortgages and vehicle loans).
Wealth minus home equity	Household wealth (defined above) minus home equity (home value minus mortgage).
Vehicle ownership	Household member owns a vehicle; value of all vehicles.
Home ownership	Household member owns a home.
Debt holdings	Household has debt; household has debt over $5,000.
Demographic and economic	
Age	Age 18–29, 30–49, 50–64, and 65+.
Race and ethnicity	White non-Hispanic, black non-Hispanic, Hispanic, Asian/Pacific Islander, and other.
Education level	Less than high school education, high school completion, and more than high school.
Immigrant	Not native-born US citizen.
Citizenship status	Household contains noncitizens.
Household composition	Household headed by two adults; household headed by single female; household headed by single male; household with a member who is elderly (age 60 or older) or disabled.
Number of children	Number of children in household birth to age 5; number of children age 6–18.
Number of adults	Number of adults in household.
Income	Income as a percentage of federal poverty level (less than 100%, 100%–130%, 130%–200%); household has earned income.
Geographic	Whether the household lives in a metropolitan statistical area; four census regions.
State-level variables	
SNAP policies	
Broad-based categorical eligibility (BBCE)	State asset test eliminated under BBCE; state asset test increased but not eliminated under BBCE; state does not have BBCE.
Vehicle asset limits	Whether at least one vehicle is exempt from the asset limit.
Simplified reporting	Simplified reporting for earners.
Recertification periods	Percentage of units with earnings with 1–3, 4–6, 7–12, or 13+ month recertification periods.
Noncitizen eligibility rules	All or some noncitizens under age 65 are eligible for federal- or state-funded food assistance benefits.
Outreach spending	Value of state outreach spending (federal, state, and grants) divided by the population below 150 percent of the poverty line.
Other state policies	
Earned income tax credit (EITC)	Refundable EITC amount for a family with two children (combined state and federal EITC).
Minimum wage	Minimum wages for federally covered categories (higher of state and federal).
Economic conditions	State unemployment rate; state per capita income.

SNAP spells: Monthly reporting of SNAP receipt allows us to examine SNAP spells and the length of SNAP participation. We measure SNAP receipt at the household level and create SNAP spells for each adult in a household that receives SNAP. SNAP spells are created using data from January 1997 through March 2013.[22] The data allow us to examine the length of the SNAP spell (in months) and the month the person exits SNAP. Following much of the SNAP dynamics literature, we close up one-month gaps in participation (e.g., Burstein 1993; Cody et al. 2007; Cody, Gleason, et al. 2005; Gleason, Schochet, and Moffitt 1998; Mabli, Tordella, et al. 2011). Across all waves of the 2008 panel, for example, a relatively modest share of SNAP recipients (4.2 percent) ever had a one-month gap in participation.

SNAP churn: Our SNAP churn measure identifies people who leave and then return to SNAP with a gap of four or fewer months. Following Mills et al. (2014) we look at whether people churn within a series of one-year periods. People at risk of churning in a year are those receiving SNAP in the month prior to the start of the year (month t−1). This design allows a churn spell to begin in any month, including the first month, of the one-year period. Similar to Mills et al. (2014), a person is identified as a churner if he or she ceases participating in SNAP during the year and then returns to SNAP with no more than four months of nonreceipt. While a person has to have a churn spell begin in the year to be considered a churner, the spell does not have to conclude in the 12-month period. If a person leaves SNAP in year 1, month 12 and returns to SNAP in year 2, month 3 (month 15), then the person is identified as having churned in year 1. Our analysis includes nine one-year periods, which span 1997 through 2011.[23] Consistent with the SNAP spell analyses, the churn measures are based on data that close one-month gaps in SNAP participation.

Assets, debts, and wealth: Asset and debts, and thus wealth, are measured at the household level. Person-level analyses use the assets and debts of the household the person lives in. Unlike SNAP receipt, assets and debts are collected intermittently in the asset and liability topical module— not monthly.[24] Across the descriptive and multivariate analyses, we group the asset and debt data into 10 measures (table 1).

We capture participation in the financial mainstream with a variable that indicates whether someone in the household has a checking or savings account (i.e., the household is "banked"). We also

[22] Data on recipiency history are available through information collected in topical modules. We do not use these data in this study, because they do not provide sufficient granularity and are likely less accurate than data collected in the core waves (Mabli, Godfrey, et al. 2014). We exclude left-censored spells from the spell length analyses.
[23] The timing of the SIPP survey limits the number of years we can observe.
[24] See the data section for more detailed information on the timing of the asset and liability topical module.

examine the amount held in those accounts and particular dollar amounts (at least $500, at least $2,000). A broader asset measure—liquid assets—includes checking and savings accounts, as well as other interest-earning accounts (e.g., money market accounts), stocks and bonds, dollars saved in retirement accounts (e.g., 401(k)s, IRAs), and any other financial assets.

A key benefit of having savings is the ability of those resources to help families weather income shocks. Two thresholds in the asset-building literature are as follows: (1) having at least $2,000 in liquid resources and (2) having enough liquid resources to live above the federal poverty level for at least three months (roughly $5,000 for a family of three in 2015). A family without three months of resources is considered asset poor. More than 40 percent of American households are liquid asset poor (Wiedrich et al. 2016) and about 70 percent of lower income families are liquid asset poor (Ratcliffe 2013).[25] Asset-poor families are substantially more likely to experience material hardship (e.g., food insecurity) after an income shock (e.g., job loss) than families that are not asset poor (McKernan et al. 2016; McKernan, Ratcliffe, and Vinopal 2009).

We also examine the value of assets countable under federal SNAP asset limits. Under SNAP eligibility rules, countable assets include cash, resources easily converted to cash, and some nonliquid assets. The value of retirement and education savings accounts, family homes, business property, and tools of a trade are excluded from countable assets. For the purpose of this analysis, we define SNAP countable assets as liquid assets less assets in retirement accounts (which have been excluded from federal SNAP asset limits since October 2008). Although federal SNAP asset limits also exclude dollars saved in education savings accounts, we cannot separate these dollars as they are not individually captured in the SIPP.

Vehicle ownership is examined separately, because it is considered important for SNAP participants (e.g., to get to work). Vehicle value exceeding $4,650, subject to certain exclusions, is included in countable assets under federal SNAP eligibility rules, although most states now exempt at least one vehicle when determining SNAP eligibility (most of the changes were implemented after 2000).[26] Given the widespread exclusion of vehicles under state policy, we present measures of

[25] Ratcliffe (2013) finds that 81 percent of families in the bottom income quintile are liquid asset poor, while 60 percent of families in the second income quintile are liquid asset poor.
[26] While 39 states currently exclude the value of all vehicles, a majority of states used the federal standard exemption in the early 2000s.

countable assets both including and excluding the countable value of vehicles as defined by federal eligibility rules.[27] We also examine homeownership rates.

Total wealth has the benefit of capturing shifts between different types of assets and between assets and debts, thereby accounting for substitutions among different categories of assets and debts. Total wealth is also important to look at because consumers may not understand the difference between assets that do and do not count toward asset limits (O'Brien 2006). While there are benefits of looking at total wealth, we focus on total wealth minus home equity in some analyses, since home equity has been volatile in recent years and tends to swamp the value of all other assets for the subpopulation of people who own a home.

Finally, we examine unsecured debt—which includes credit-card debt, installment loans, and student loans, for example, but excludes debt secured by tangible assets such as mortgages and vehicle loans. Unsecured debt is a better measure of economic distress than debt secured by a home or automobile, as the household cannot sell something (e.g., a house or vehicle) to pay off the debt. We examine indicators of whether the household has any unsecured debt and has more than $5,000 in unsecured debt. Because a person must have access to credit to have debt, having more debt is not necessarily an indicator of greater economic distress.

State-Level Policy Variables

SNAP POLICY VARIABLES

We examine three SNAP asset limits variables: state eliminates asset tests through BBCE, state increases asset tests through BBCE, and state excludes at least one vehicle from asset limits. We also examine several other SNAP policies that can influence SNAP spell length (duration) or churn. Descriptions of these variables are presented in the bottom panel of table 1 and discussed next.

SNAP asset limit policies: BBCE is an optional policy that extends categorical eligibility for SNAP to units that receive non-cash benefits or services funded by Temporary Assistance for Needy Families

[27] Federal SNAP rules count the fair market value in excess of $4,650 for the following vehicles: one vehicle per adult and any vehicle used by a person under 18 for work or school. For other vehicles with fair market value in excess of $4,650, the greater of the amount in excess of $4,650 or the equity value is counted. Vehicles with equity of less than $1,500 are excluded from SNAP countable assets, as are vehicles used as a home, to produce income, to transport physically disabled household members, or to transport fuel or water needed for the household. The SIPP provides the detail required to calculate countable vehicle value for the first three vehicles in a household. We approximate the countable value of the remaining vehicles by setting the fair market value and equity of the remaining vehicles equal to their average net value. Our methodology assumes that all drivers under the age of 18 use a vehicle for work or school.

(TANF) or maintenance of effort funds.[28]The service can be simple, such as making an informational brochure available to all applicants. Many states have eliminated asset tests through BBCE, while a few have used BBCE to increase the asset limit. States that eliminated asset tests through BBCE do not have restrictions on the value of liquid assets a SNAP unit can have nor are there restrictions on nonliquid, tangible assets, such as vehicle values. In July 1999, one state had eliminated asset tests through BBCE, while 36 states had this policy in July 2012 (table 2). In terms of increasing the asset limit through BBCE, only two states had this policy in July 2011, while five states had this policy in July 2012. Because so few states increased asset limits through BBCE (versus eliminated them through BBCE), we combine the two sets of states in our multivariate analyses (BBCE versus no BBCE).

States also have the option to relax the federal vehicle rules to conform to the vehicle rules in effect for other programs, such as TANF or child care assistance, and many states have done so.[29] We capture vehicle exemptions with a variable that indicates whether the state exempts at least one vehicle from the asset test. In July 1996, only three states had such a policy, but by July 2012, the balance had shifted—with 49 states exempting at least one vehicle from the asset test, most through BBCE policies.

Other SNAP policies: SNAP policy variables beyond asset limits are hypothesized to affect SNAP churn and SNAP duration, and thus are incorporated into these analyses. We examine four additional SNAP policies: simplified reporting, recertification periods (i.e., percentage of units with earnings with recertification periods of 0–3, 4–6, 7–12, and 13 or more months),noncitizen eligibility rules (i.e., all noncitizen adults eligible and some noncitizen adults eligible), and outreach spending. There were relatively large shifts in these policies over time—simplified reporting has been implemented in nearly all states, SNAP units with earnings have generally moved toward longer recertification periods, and outreach spending has trended upward. Noncitizen eligibility rules changed markedly. Prior to the enactment of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) in 1996, most noncitizens lawfully residing in the United States were eligible for SNAP benefits on the same basis as citizens. With the enactment of PRWORA, most lawfully present noncitizens lost eligibility even if they had been in the country when the law was passed on August 22, 1996.[30]

[28] BBCE expands SNAP categorical eligibility to households that receive non-cash benefits that are at least 50 percent funded by TANF assistance or maintenance of effort funds. Under BBCE, states align their SNAP asset rules with the rules of the TANF program used to confer eligibility. Depending on the specific TANF program used, particular asset restrictions may be lifted for BBCE households.
[29] States have the option of substituting the vehicle rules used in their TANF programs for federal SNAP vehicle rules when it results in a lower attribution of household assets.
[30] With the enactment of PRWORA, noncitizens with 40 quarters of work history, who had a military connection, who were admitted as refugees within the past 7 years, or who were naturalized remained eligible for SNAP.

Table 2: Number of States with Policy or Mean Value of Policy by Year (July)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
SNAP asset limits																	
Broad based categorical eligibility																	
Asset limit eliminated	0	0	0	0	1	7	8	8	10	10	10	11	13	25	35	38	36
Asset limit Increased, not eliminated	0	0	0	0	0	0	1	1	1	1	1	2	2	2	2	2	5
Vehicle exemption																	
At least one vehicle exempt	3	3	3	3	3	9	31	37	41	41	42	47	47	49	49	49	49
Other SNAP policies																	
Simplified reporting	0	0	0	0	0	4	16	31	40	44	44	47	47	49	49	49	50
Recertification period (% of units w/ earnings)																	
1–3 month recertification period	18%	21%	29%	31%	36%	32%	18%	12%	6%	4%	4%	3%	2%	2%	0%	1%	2%
4–6 month recertification period	33%	29%	23%	24%	22%	26%	39%	45%	51%	51%	52%	53%	53%	53%	48%	41%	33%
7–12 month recertification period	46%	47%	46%	43%	40%	40%	42%	42%	42%	44%	43%	43%	43%	42%	50%	57%	64%
13+ month recertification period	3%	3%	3%	3%	2%	2%	1%	2%	1%	2%	2%	2%	1%	2%	1%	1%	2%
Noncitizen eligibility																	
All noncitizen adults eligible	51	0	6	8	9	9	9	6	6	6	6	6	6	6	6	3	3
Some noncitizen adults eligible	0	2	6	43	42	42	42	45	45	45	45	45	45	45	45	48	48
Outreach spending ($)	0.02	0.03	0.02	0.01	0.02	0.03	0.05	0.03	0.03	0.04	0.04	0.05	0.04	0.05	0.05	0.06	0.07
State and federal EITC refundable ($)	5,356	5,393	5,488	5,472	5,431	5,473	5,571	5,551	5,532	5,487	5,486	5,564	5,521	5,797	5,708	5,613	5,633
State minimum wage ($)	6.50	7.04	7.45	7.36	7.19	7.07	7.02	6.94	6.81	6.67	6.65	6.97	7.18	7.68	7.96	7.73	7.62

Sources: US Department of Agriculture Economic Research Service SNAP Policy Database, Urban-Brookings Tax Policy Center, and US Department of Labor.
Notes: For further policy definitions, see table 1. All dollars are 2013 dollars.

As a result, PRWORA had, and continues to have, a significant impact on the requirements and policy concerning noncitizen eligibility for SNAP benefits. The 2002 Farm Bill broadly restored SNAP eligibility to most lawfully present noncitizens, including individuals who resided in the United States for five years, children under 18, and individuals receiving disability-related assistance or benefits. We also capture policies in place in some states that use state funds to provide SNAP benefits to qualified noncitizens made ineligible by PRWORA.

OTHER STATE-LEVEL POLICIES

We examine two non-SNAP policies—minimum wage and EITC—because they have the potential to influence lower income families' SNAP receipt and asset accumulation. Many states have set a minimum wage above the federal minimum wage, which we measure as the minimum wage in the state for federally covered job categories.[31] In cases where the state minimum wage has fallen below the federal value, we use the federal minimum wage. Throughout the United States in July 2012, the average minimum wage was $7.62 (in 2013 dollars; table 2), ranging from a low of $7.35 in states that use the federal minimum wage to a high of $9.17 in Washington State.

SNAP does not count EITC refunds as household income or toward resources (asset limits) for 12 months, as long as the household was receiving SNAP at the time the refund was received and remains continuously on SNAP.[32] However, if people exit SNAP or delay SNAP recertification when they get their tax refund, the EITC could increase SNAP churn. We examine this empirically below.

Previous literature suggests that the EITC reduces SNAP participation (e.g., Ratcliffe, McKernan, and Finegold 2008). Although research has not identified the reason the EITC reduces SNAP participation, possibilities include greater financial security for households that receive the EITC, misinformation that the lump-sum EITC payment makes a household ineligible for SNAP, or increased labor-force participation and earnings resulting from the EITC that reduce SNAP benefit levels. The EITC encourages work and could make families ineligible for SNAP or less likely to participate.

[31] Workers in nonfederally covered categories include workers in seasonal or recreational jobs; workers delivering newspapers or engaged in fishing operations; many workers in private households; and executive, administrative, and professional employees. Also, for workers who earn tips, employers can treat those tips as a component of their wages and therefore may pay such workers a lower direct hourly wage rate (US Department of Labor 2014).
[32] The EITC can result in SNAP ineligibility in certain situations. If a household is not participating in SNAP (and not applying for SNAP) at the time it receives the EITC, then any EITC remaining at the time of application would count as a resource. If a household applies for SNAP at the time the EITC is received, then the EITC would not count as a resource for the month in which the EITC is received and the following month. If a household is participating in SNAP, receives the EITC, leaves SNAP and then reapplies, any remaining EITC would be counted as a resource at the time of reapplication.

We measure the EITC policy variable as the total maximum EITC amount for a family with two children (state and federal combined) that is refundable in the household's state of residence. Across states in 2012, the average maximum EITC amount was $5,633 (in 2013 dollars; table 2), ranging from a low of $5,312 in states without a state EITC (i.e., the federal EITC amount) to a high of $7,437 in the District of Columbia. The next section describes our empirical approach.

Empirical Approach

This section presents the empirical approach for each research question (with questions 1 and 3 and questions 5 and 6 grouped together). Accompanying this discussion, table 3 presents a summary of the unit of analysis, sample, primary data source, and analytic approach for each of the research questions.

Table 3: Summary of Sample and Approach by Research Question

Research questions	Unit of analysis	Sample	Primary data source	Analytic approach
1. What are the characteristics of low-income, high-asset households?	Household	Households below 130% of the federal poverty level (FPL) or below 200% of FPL if a member is elderly or disabled[a]	2008 SIPP, wave 10 (fall 2011)	Descriptive
2. What is the effect of SNAP asset limits on SNAP eligibility?	SNAP unit	All households	MATH SIPP+ 2011 baseline	Simulation
3. What are the asset holdings of SNAP households, overall and by state asset policy?	Household	Households below 130% of FPL or below 200% of FPL if a member is elderly or disabled	2008 SIPP, wave 10 (fall 2011)	Descriptive
4. What is the effect of SNAP asset limits on assets and wealth?	Person	Adults below 200% of FPL	1996–2008 SIPP[b]	Multivariate
5. What is the effect of SNAP asset limits on SNAP churn and spell length?	Person	SNAP participants	1996–2008 SIPP	Multivariate
6. How are wealth and debt related to SNAP spell length?	Person	SNAP participants	1996–2008 SIPP[c]	Multivariate and descriptive

a. The study follows SNAP rules and defines a person as elderly if he or she is age 60 or older.
b. Data for these analyses are limited to months when asset and liability data were collected.
c. The descriptive analyses use data from the 2008 SIPP panel only.

What Are the Characteristics of Low-Income, High-Asset Households? What Are the Asset Holdings of SNAP Households, Overall and by State Asset Policy? (Research Questions 1 and 3)

We address research questions 1 and 3 through descriptive analysis using the most recent SIPP asset and liability data—wave 10 of the 2008 panel (covers interview months September 2011 to December 2011). Both research questions use the SIPP household as the unit of analysis and focus on low-income households, where "low income" is defined as having gross income below 130 percent of the federal poverty level (200 percent if the household contains a member who is elderly or disabled).[33] Research question 1 examines the characteristics of low-income households with low and high assets, where "high asset" is defined as having countable assets (excluding vehicles) above the 2011 federal limit of $2,000 for households without a member who is elderly or disabled ($3,000 for households with a member who is elderly or disabled). Research question 3 compares the characteristics of low-income SNAP and non-SNAP households by whether they live in a state with BBCE policies in effect in 2011. A household is classified as having SNAP if at least one member receives SNAP. SNAP participation status and income reflect the household's characteristics in the last month of the reference period, allowing greatest consistency with the asset and liability information collected at the time of the interview.

What Is the Effect of SNAP Asset Limits on SNAP Eligibility? (Research Question 2)

As discussed above, we use the MATH SIPP+ microsimulation model to examine the effect of SNAP asset limits on SNAP eligibility.[34] The model constructs SNAP filing units from the households in the SIPP and applies detailed eligibility rules to each unit to identify which units are eligible for SNAP. In many cases, the SNAP unit is the same as the SIPP household. However, households that contain multiple families or unrelated individuals may have more than one SNAP unit. Also, certain ineligible persons (such as undocumented immigrants) are excluded from eligibility.

The estimates use the fiscal year (FY) 2011 MATH SIPP+ baseline as the starting point for the policy simulations. The FY 2011 MATH SIPP+ baseline simulates FY 2011 eligibility rules using SIPP data for August 2011. Except where noted, the eligibility rules reflect the eligibility rules in effect in FY 2011, including state BBCE policies.

[33] We use a higher threshold for units with a member who is elderly or disabled member because they are not subject to the SNAP gross income test.
[34] We use the Internet version of the model.

We examine the effect of SNAP asset limits on eligibility in 2011 by performing a simulation in which the asset test is eliminated and comparing the results with the 2011 baseline. We then examine the effect of asset tests on SNAP units that meet federal income eligibility requirements. We begin by conducting a simulation that requires households to pass the federal income-eligibility test but eliminates the asset test. We then compare the results of this simulation with results from three simulations that apply federal income-eligibility tests and impose different asset tests: (1) the federal asset test, but with vehicles excluded; (2) the federal asset test using state vehicle rules; and (3) the federal asset test using federal vehicle rules.

What Is the Effect of SNAP Asset Limits on Assets and Wealth? How Do Asset Limits Affect SNAP Churn and Spell Length? (Research Questions 4 and 5)

Measuring the effects of asset limits on outcomes—such as the ability of households to adequately save or prepare for income shocks (question 4) and SNAP caseload churn and spell length (question 5)—requires an econometric approach that disentangles the effect of asset limits from other factors that affect these outcomes. Our approach uses data from 1997 through 2013 (1996, 2001, 2004, and 2008 SIPP panels), regression analyses, and variation in asset limit (and other) policies across states and time to disentangle the effect of asset limits from other factors that affect outcomes, such as other policy variables (e.g., EITC, minimum wage) and state economic conditions (e.g., unemployment rate). All policy variables are measured one year before the outcome is measured because we expect that it takes time for policy changes to ripple through and affect household outcomes.

The models capture unobservable state and time differences with state and year fixed effects, which control for differences across states and years that do not vary over time. For example, federal changes to programs and policies are captured with the year fixed effects, and unobservable state characteristics (e.g., public sentiment toward welfare recipients) are captured with the state fixed effects.

Our models identify a causal effect of SNAP asset limits on our outcomes of interest (household assets, SNAP churn, and SNAP spell length) under the assumption that (1) the models do not exclude time varying characteristics (e.g., other state policies) that are correlated with state SNAP asset limits and (2) the outcomes do not induce states to change their policies—so that the outcome in year t-1 affects policies in year t. Details of the models and explanatory variables are presented in appendix B.

SAMPLE, UNIT OF ANALYSIS, AND FUNCTIONAL FORM

The regression models for the asset and wealth, SNAP churn, and SNAP spell length outcomes all use the 1996, 2001, 2014, and 2008 SIPP panels, but the sample, unit of analysis, and functional form for each outcome variable are tailored to reflect the dependent variable measure. Appendix tables B.1, B.2, and B.3 provide the descriptive statistics for the regressions. As mentioned, all models measure the effect of SNAP asset limits while controlling for other state policies, state economic conditions, individual demographic characteristics, and unobservable state and year fixed effects.

Asset and wealth models. The sample for the asset holdings and wealth models is adults (ages 18 and older) below 200 percent of the federal poverty level in months where asset and liability data are available, which includes 13 calendar years from 1997 to 2011 (1997–06, and 2009–11). People are included in the analysis in each year they are observed in the SIPP with asset and liability data.[35] Although the analyses are estimated at the person level, assets and wealth are measured at the household level. The asset and wealth models have a different functional form depending on the outcome variable being examined. We estimate probit models for whether an individual lives in a household that participates in the financial mainstream (i.e., has a bank account), has a bank account above a particular value (i.e., at least $500, at least $2,000), and owns a vehicle. We estimate Tobit models for outcomes measuring the value of liquid assets and wealth without home equity (natural log), where the Tobit model accounts for the relatively large fraction of households that do not hold liquid assets (57 percent) or have positive wealth (30 percent).[36] The asset and wealth models use the SIPP cross-sectional person weights and cluster standard errors at the state level.

SNAP churn. The SNAP churn model uses a sample of SNAP participants over nine one-year periods from 1997 to 2011. Individuals are defined as at risk of churning in any given year if they are receiving SNAP in the month before the one-year period begins. We then define an individual as a churner if he or she ceases participating in SNAP during the year and then returns to SNAP with no more than four months of nonreceipt. These one-year periods over which an individual is at risk of churning are each considered one observation in the dataset, so the unit of analysis is the person-year. The churn model is estimated using a probit model capturing whether the individual exits and returns to SNAP within a one-year period. Overall, 7 percent of SNAP recipients in our sample churn per year. The

[35] With this design, a person can be included in the analysis up to three times.

[36] The natural log of liquid assets is calculated by adding one to all values and taking the natural log. The natural log of wealth minus home equity is calculated by setting all negative values to zero and then adding one to all values and taking the natural log.

SNAP churn model uses the SIPP cross-sectional person weight and cluster standard errors at the state-level.

SNAP spell length. Analyses that examine the effect of SNAP asset limits on SNAP spell length use data from January 1997 through March 2013. The analyses rely on four SIPP panels with the maximum spell lengths limited to the length of each SIPP panel.[37] The unit of analysis is the person-month, although SNAP receipt is measured at the household level. The SNAP spell length outcome is estimated in a discrete-time multivariate hazard model (a duration model) with a binary 0/1 dependent variable capturing when an individual exits SNAP, if at all during the period we observe him or her. Thus, a person has to be a SNAP recipient to be included in our model (i.e., at risk of exiting SNAP). The hazard model measures the probability an individual ends the spell by exiting SNAP given that the individual participated in SNAP in the previous month. Each individual appears each month he or she is observed participating in SNAP and in one exit month. Thus an individual can contribute multiple observations to the sample depending on how long he or she remains in SNAP (i.e., the spell length). We transform the regression coefficients into regression-adjusted estimates of SNAP spell lengths by calculating the cumulative SNAP exit rate (predicted median spell length), then by taking the median across all spells in the data.[38] The SNAP spell length models exclude left-censored spells, similar to Mabli et al. (2014). Those models use the SIPP longitudinal person weight and cluster standard errors at the state level.

How Are Wealth and Debt Related to SNAP Spell Length? (Research Question 6)

Identifying the extent to which asset or debt holdings contribute to SNAP spell length is complicated by the fact that households with and without assets or debts can differ systematically. Low-income households with higher asset or higher debt holdings are less disadvantaged than other low-income households. For example, households with higher asset holdings may have access to inherited money, be better able to delay gratification, or have a greater propensity to save. Households with higher debt may have access to credit. Our multivariate duration models do not control for unobserved differences between people with and without assets or debt beyond state and year fixed effects, so we measure the

[37] The number of months of data used in each of the four SIPP panels is as follows: 1996 panel, 48 months; 2001 panel, 36 months; 2004 panel, 48 months; 2008 panel, 56 months.

[38] The models are estimated on a sample of person-month observations. The observations are then collapsed at the mean to create one observation per spell. The coefficients are then applied to this spell-level dataset and medians are calculated. The overall median spell length is calculated by taking the median of the predicted median spell lengths, while the median spell lengths for each policy, economic, or demographic variable are calculated by setting each equal to one individually, reapplying the estimated coefficients to the modified dataset, and taking the median.

conditional relationship between wealth or debt and SNAP spell lengths; we do not identify a causal effect.[39]

Our regression model for estimating the relationship between wealth, debt, and spell lengths is similar to the approach above but with a focus on wealth or debt, not state asset limit policies. The sample, unit of analysis, and functional form are identical to those for the SNAP spell length models described above. More details are provided in appendix B.

We also descriptively examine whether there are differences in SNAP spells for households with and without unsecured debt and for those with different levels of unsecured debt ($1 to $5,000 and more than $5,000). We examine unsecured debt, which excludes debt secured by a tangible asset such as a mortgage and vehicle loan, because it can identify greater economic stress as there is no specific asset (e.g., house, vehicle) that can be sold to pay down the debt.

Information on household debt comes from wave 4 of the 2008 SIPP, the first available topical module of the 2008 SIPP data with information about household assets and debts. We look at assets and debts early in the panel and then examine subsequent SNAP receipt. We compare the SNAP spells of individuals in households with and without debt (or with and without debt above or below the set thresholds). We note any statistically significant differences in SNAP spell characteristics across individuals in households across the debt groupings.

We differentiate between individuals who were and were not receiving SNAP when their debt was measured. For individuals who were receiving SNAP, we measure how far into the next two years the current spell extends. For low-income individuals who were not receiving SNAP when their debt was measured, we look at the percentage of these individuals who enter SNAP in the next year, and then the duration of the spells for the individuals that do enter SNAP.

[39] As discussed above, we examine unsecured debt (e.g., credit-card debt, installment loans, and student loans), which excludes debts that can be paid off by selling the asset securing it (e.g., vehicle loan and mortgage).

Results

This section describes findings from analyses aimed at understanding how SNAP asset limits affect households' asset holdings, SNAP eligibility, and SNAP benefit receipt (specifically, SNAP duration and SNAP churn). Looking at these multiple aspects of household well-being provides a broad picture of how asset limits affect lower income households' behaviors and outcomes.

1. What Are the Characteristics of Low-Income, High-Asset Households?

This section examines the characteristics of low-income households (both SNAP and non-SNAP households) based on their level of assets—countable assets (excluding vehicles) above or below the federal SNAP asset limit.[40] Comparing the characteristics of low-income, high-asset households to low-income, low-asset households provides insight into the types of households likely to be excluded from eligibility under a SNAP asset limit.[41]

Low-income households with high assets (i.e., assets above the federal SNAP asset limit) are more likely than low-income, low-asset households to be older, non-Hispanic white, educated beyond high school, headed by two adults, and without children (table 4). Most high-asset households have assets well above the federal asset limit. Less than 10 percent have countable assets within $1,000 of the asset limit, while more than one-half have countable assets above $10,000.

Below we provide additional details about the demographic and economic characteristics of low-income, high-asset households, followed by a discussion of the liquid and tangible (e.g., home and vehicle) assets these households hold. The asset levels reported here reflect the amounts reported by SIPP respondents, plus values imputed by the Census Bureau in cases when a SIPP respondent failed to provide a response to a question about the existence or amount of an asset. In general, the SIPP imputations have the effect of increasing the mean and median asset holdings of low-income households. Results excluding imputed values are included in appendix table C.1.

[40] We refer to low-income households as those with income below 130 percent of the federal poverty level or below 200 percent of the federal poverty level if the household includes a member who is elderly or disabled.
[41] As discussed in the empirical approach, a household is categorized as "high-asset" if it has countable assets (excluding vehicles) above the 2011 federal limit of $2,000 or $3,000 (for households without/with an elderly or disabled member, respectively). All other households are categorized as "low-asset" households.

Table 4: Characteristics of Low-Income Households by Level of Countable Assets (Excluding Vehicles) in 2011

	Households without elderly or disabled (<130% of poverty)			Households with elderly or disabled (<200% of poverty)			All low-income households		
	Asset level[a]			Asset level[a]			Below	Above	
	≤ $2,000	> $2,000		≤ $3,000	> $3,000		asset level	asset level	
Percentage of households	86.5%	13.5%		79.60%	20.4%		82.1%	17.9%	
Demographic characteristics									
Household contains									
Children (<18)	64.0%	51.1%	***	22.7%	11.3%	***	38.4%	22.1%	***
Adults (18–59)	100.0%	100.0%		54.1%	31.9%	***	71.6%	50.4%	***
Elderly (60+)	0.0%	0.0%		59.9%	84.6%	***	37.1%	61.6%	***
Nonelderly disabled	0.0%	0.0%		45.4%	19.1%	***	28.1%	13.9%	***
No children, elderly, or disabled	36.0%	48.9%	***	0.0%	0.0%		13.7%	13.3%	
Household composition									
Headed by two adults	30.7%	42.2%	***	25.6%	35.3%	***	27.5%	37.2%	***
Headed by single female	46.6%	33.4%	***	51.2%	47.0%	***	49.4%	43.3%	***
Headed by single male	22.7%	24.4%	***	23.3%	17.7%	***	23.1%	19.5%	***
Age of head									
18–29	29.2%	22.0%	***	4.4%	0.6%	***	13.8%	6.4%	***
30–49	55.6%	53.2%	***	21.2%	9.0%	***	34.3%	21.0%	***
50–64	15.2%	24.8%	***	30.7%	22.8%	***	24.8%	23.3%	***
65+	0.0%	0.0%	***	43.7%	67.6%	***	27.1%	49.2%	***
Race of head									
White, non-Hispanic	44.9%	76.4%	***	61.0%	86.2%	***	54.9%	83.5%	***
Black, non-Hispanic	20.8%	6.1%	***	19.9%	3.9%	***	20.2%	4.5%	***
Hispanic	28.2%	10.3%	***	13.2%	5.5%	***	18.9%	6.9%	***
Other, non-Hispanic	6.1%	7.2%	***	5.9%	4.3%	***	6.0%	5.1%	***
Household contains noncitizens	21.1%	12.3%	***	7.4%	4.3%	***	12.6%	6.5%	***
Educational attainment of head									
Less than high school	18.6%	7.0%	***	25.2%	12.7%	***	22.7%	11.2%	***
High-school degree or equivalent	32.6%	14.7%	***	33.2%	33.4%	***	33.0%	28.3%	***
Post-secondary education but no degree	27.4%	28.9%	***	27.1%	25.2%	***	27.2%	26.2%	***
College degree or higher	21.5%	49.3%	***	14.5%	28.7%	***	17.1%	34.3%	***
Geographic characteristics									
Region									
Northeast	15.3%	20.2%	***	18.1%	19.8%	***	17.0%	19.9%	***
Midwest	18.5%	21.2%	***	20.5%	26.6%	***	19.7%	25.1%	***
South	41.5%	31.4%	***	43.2%	31.5%	***	42.5%	31.4%	***
West	24.7%	27.1%	***	18.3%	22.1%	***	20.8%	23.5%	***
In metropolitan statistical area	80.5%	85.0%	**	76.7%	75.1%		78.1%	77.9%	
Economic characteristics									
Income as a percentage of poverty									
<=100%	75.3%	72.9%		41.8%	21.3%	***	54.6%	35.3%	***
>100% to <130%	24.7%	27.1%		20.0%	19.8%	***	21.8%	21.8%	***
130% to <200%	0.0%	0.0%		38.2%	59.0%	***	23.7%	42.9%	***
Household has earned income	64.3%	59.6%	*	28.4%	24.0%	***	42.1%	33.7%	***
Assets and wealth									

Continued on next page

Table 4: Characteristics of Low-Income Households by Level of Countable Assets (Excluding Vehicles) in 2011

	Households without elderly or disabled (<130% of poverty)			Households with elderly or disabled (<200% of poverty)			All low-income households		
	Asset level[a]			Asset level[a]			Below	Above	
	≤ $2,000	> $2,000		≤ $3,000	> $3,000		asset level	asset level	
Has bank account	49.9%	99.4%	***	56.2%	96.0%	***	54.0%	98.6%	***
Median (among those with account)	$157	$5,000	***	$115	$10,200	***	$130	$9,000	***
Mean (among those with account)	$372	$13,996	***	$460	$27,562	***	$429	$23,956	***
Has liquid assets	47.8%	100.0%	***	51.4%	100.0%	***	50.0%	100.0%	***
Median (non-zero)	$440	$16,500	***	$400	$45,200	***	$400	$36,000	***
Mean (non-zero)	$9,137	$77,576	***	$11,339	$117,297	***	$10,538	$106,500	***
Has retirement savings	13.8%	46.5%	***	12.0%	45.0%	***	12.7%	45.4%	***
Median (non-zero)	$7,400	$25,000	***	$14,000	$45,000	***	$10,000	$40,000	***
Mean (non-zero)	$30,140	$81,579	***	$46,219	$100,835	***	$39,549	$95,477	***
Has nonretirement liquid assets	43.1%	100.0%	***	47.8%	100.0%	***	46.0%	100.0%	***
Median (non-zero)	$204	$9,000	***	$200	$23,000	***	$200	$18,000	***
Mean (non-zero)	$449	$39,645	***	$565	$71,905	***	$524	$63,136	***
Countable assets (including vehicles)									
$0	42.7%	0.0%	***	40.3%	0.0%	***	41.2%	0.0%	***
$1 to $1,000	27.6%	0.0%	***	30.0%	0.0%	***	29.1%	0.0%	***
$1,001 to $2,000	5.9%	0.0%	***	5.6%	0.0%	***	5.7%	0.0%	***
$2,001 to $3,000	9.5%	9.7%	***	10.5%	0.0%	***	10.1%	2.6%	***
$3,001 to $5,000	6.8%	11.7%	***	5.2%	8.1%	***	5.8%	9.1%	***
$5,000 to $10,000	4.2%	22.1%	***	5.4%	17.3%	***	4.9%	18.6%	***
$10,000+	3.3%	56.5%	***	3.0%	74.7%	***	3.1%	69.7%	***
Countable assets (excluding vehicles)									
$0	56.9%	0.0%	***	52.2%	0.0%	***	54.0%	0.0%	***
$1 to $1,000	37.1%	0.0%	***	38.5%	0.0%	***	37.9%	0.0%	***
$1,001 to $2,000	6.1%	0.0%	***	6.1%	0.0%	***	6.1%	0.0%	***
$2,001 to $3,000	0.0%	18.1%	***	3.2%	0.0%	***	2.0%	4.9%	***
$3,001 to $5,000	0.0%	18.6%	***	0.0%	12.0%	***	0.0%	13.8%	***
$5,000 to $10,000	0.0%	18.6%	***	0.0%	18.1%	***	0.0%	18.3%	***
$10,000+	0.0%	44.7%	***	0.0%	69.8%	***	0.0%	63.0%	***
Vehicle ownership									
Owns vehicle	69.4%	84.4%	***	62.6%	84.0%	***	65.2%	84.1%	***
Owns vehicle with countable value	29.8%	52.1%	***	26.0%	45.9%	***	27.4%	47.6%	***
Owns home	30.3%	57.6%	***	47.5%	78.3%	***	40.9%	72.7%	***
Total wealth (includes home equity)									
Median (all)	$3,287	$62,312	***	$7,129	$185,725	***	$5,152	$160,000	***
Mean (all)	$42,329	$216,784	***	$67,018	$282,994	***	$57,609	$264,997	***
Wealth excluding home equity									
Median (all)	$2,550	$32,025	***	$1,812	$67,394	***	$2,063	$56,113	***
Mean (all)	$24,097	$136,565	***	$22,328	$164,439	***	$23,002	$156,862	***
Sample size (households)	2,498	420		5,300	1,355		7,798	1,775	

Source: 2008 SIPP panel, wave 10.
Notes: "Countable assets" and "countable vehicle assets" are assets that are countable under federal SNAP eligibility rules. Table calculated using cross-sectional weights.
a. The asset level refers to countable assets excluding vehicles.
Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent

What Are the Demographic and Economic Characteristics of Low-income, High-Asset Households?

Understanding the demographic and economic characteristics of low-income, high-asset households is important because it provides insight into which demographic groups are most likely to lose eligibility if SNAP federal asset limits are reinstated and which groups are most likely to benefit if asset limits are eliminated. Policy considerations may differ based on the groups affected—for example, the elderly or women with children.

High assets are somewhat more common among low-income households with an elderly or disabled member than among those without (table 4). Twenty percent of low-income households with an elderly or disabled member have high assets, compared with 14 percent of those without an elderly or disabled member.

Among low-income households, high-asset households are less likely to contain children and are more likely to be headed by two adults than are low-asset households. This holds for households with and without a member who is elderly or disabled. For example, among low-income households without an elderly or disabled member, 51 percent of high-asset households contain children, compared with 64 percent of low-asset households. The comparable numbers for households with an elderly or disabled member are 11 percent and 23 percent, respectively.

Older Americans often stand out as having low incomes but substantial assets, because their incomes drop in retirement but they have built up assets during their working lives. Non-elderly disabled persons, in contrast, have not had as much opportunity to build up assets. Among low-income households with an elderly or disabled member, 85 percent of the high-asset households have an elderly member, compared with 60 percent of low-asset households. In contrast, households with a disabled member make up a much lower share of households with elderly or disabled members with high assets (19 percent) than of those with low assets (45 percent).

Among low-income households, high-asset households are more likely than low-asset ones to be headed by someone who is older, is non-Hispanic white, and has a college degree. For example, 49 percent of high-asset households without an elderly or disabled member are headed by someone with a college degree, compared with 22 percent of low-asset households. High-asset households are less likely than other low-income households to include noncitizens or to reside in the South. The pattern holds regardless of elderly or disabled status, with the exception of living in a metropolitan area. High-asset households without an elderly or disabled member are slightly more likely to live in a metropolitan

area than are low-asset households. However, no similar difference exists between low-asset and high-asset households with an elderly or disabled member.

For economic characteristics, 59 percent of high-asset households with an elderly or disabled member have income between 130 percent and 200 percent of the poverty level, compared with 38 percent of low-asset elderly or disabled households. There is no statistically significant difference in income level among low-asset and high-asset households without an elderly or disabled member.

High-asset households are somewhat less likely than low-asset households to have earnings. For example, 60 percent of high-asset households without an elderly or disabled member have earnings, compared with 64 percent of low-asset households. A possible explanation for the lower rate of earnings among the high-asset group is that the nonelderly nondisabled high-asset group includes some households that typically have higher earnings (and have acquired more substantial assets), but are currently in a spell without earnings.

What Are the Assets and Wealth of High-Asset Households?

In addition to understanding the demographic and economic characteristics of low-income, high-asset households, it is also important to understand the types and amounts of assets they hold. Are the differences between their assets and those of other low-income households small or large? How does their wealth compare?

We find that ownership rates and the median value of all types of assets are much higher among high-asset households than low-asset households (table 4). Nearly all high-asset households have a bank account. The median balance (of those with a bank account) is $10,200 for high-asset households with an elderly or disabled member and $5,000 for households without an elderly or disabled member. In contrast, only about one-half of low-asset households have bank accounts and the median balance of those accounts is less than $200 for both groups. Median liquid assets among high-asset households are $45,200 for households with an elderly or disabled member and $16,500 for households without an elderly or disabled member. The medians for low-asset households with some liquid assets are $400 and $440 respectively.

Although retirement savings are not countable for SNAP purposes, information about these savings provides insight into the extent to which low-income households have accumulated (or retained) resources to help sustain themselves in retirement. Almost half of high-asset households have retirement savings, compared with less than 15 percent of low-asset households in both groups.

Another key question with respect to assets is the extent to which households have assets just above the federal asset eligibility limit, so they may not be that different from lower-asset households. Our estimates of countable assets show that, among households without an elderly or disabled member, 10 percent of high-asset households have countable assets (including vehicles) of between $2,000 and $3,000 (no more than $1,000 above the SNAP asset limit). Yet more than one-half of high-asset households (57 percent) have assets above $10,000. When vehicles are excluded from countable assets, 18 percent have assets between $2,000 and $3,000 and 45 percent have assets above $10,000. Among households with a member who is elderly or disabled, 8 percent have countable assets between $3,000 and $5,000 (no more than $2,000 above the federal asset limit) and 75 percent have assets above $10,000. When vehicles are excluded, the numbers are 12 percent and 70 percent, respectively.

The exemption of all vehicles in 43 states and at least one vehicle in 49 states suggests widespread consensus that vehicles are a necessity for most households. Nevertheless, vehicle ownership is by no means universal among low-income households. Eighty-four percent of high-asset households in both elderly/disabled households and nonelderly/nondisabled households own a vehicle and about one-half own a vehicle that would be countable under federal eligibility rules. Fewer low-asset households own vehicles (69 percent of those without an elderly or disabled member and 63 percent of those with an elderly or disabled member) and less than a one-third own a vehicle that would be countable under federal eligibility rules.

Although home equity is not counted as an asset when determining SNAP eligibility, we provide information on homeownership to give a well-rounded picture of the assets of high-asset households. Households with high assets are much more likely than those with low assets to own a home. Nearly 80 percent of high-asset households with an elderly or disabled member own a home, compared with 48 percent of low-asset households. Among households without an elderly or disabled member, 58 percent of high-asset and 30 percent of low-asset households own homes.

Given the higher liquid assets, vehicle ownership, and homeownership among high-asset households, it is not surprising that median wealth is much higher among high-asset than low-asset households. Median wealth, including home equity, is $185,725 for high-asset households with an elderly or disabled member and is $62,312 for high-asset households without an elderly or disabled member. In contrast, median wealth for low-asset households is below $8,000. Excluding home equity reduces the median wealth of high-asset households with an elderly or disabled member by nearly two-thirds (to $67,394) and the median wealth of other high-asset households by nearly one-half (to $32,025). Among low-asset households, median wealth without home equity is less than $3,000.

2. What Is the Effect of SNAP Asset Limits on SNAP Eligibility?

This section examines the extent to which potential SNAP households (referred to as "units") that meet SNAP income eligibility limits (under federal rules or their state's BBCE policy) are ineligible because they have assets exceeding the asset limit in their state (if any).[42] Because most states have eliminated or increased asset limits through BBCE and all states have adopted vehicle rules that are more lenient than federal SNAP rules, we first take BBCE, asset limits, and vehicle rules into account when examining the effect of asset limits on eligibility. We then provide estimates of the extent to which units that meet the federal SNAP income eligibility criteria have assets above the federal asset limit, under varying assumptions regarding the treatment of vehicles.

Overall, we find that asset tests in 2011 reduced the number of eligible SNAP units by 3 percent (table 5). This effect is smaller than found in earlier studies, because of the increase in the number of states that have eliminated asset tests through BBCE policies or modified their vehicle rules. On the flip side, we find that if BBCE policies were eliminated and SNAP federal vehicle tests were reinstated, 19 percent of otherwise SNAP-eligible units with incomes below the SNAP federal eligibility limit would be ineligible because of the asset test. It should be noted that our estimates focus on eligibility. The effects on participation are likely smaller, assuming that eligible units with higher assets are less likely to participate than those with few or no assets.[43] Indeed, previous research finds that only 4 percent of individuals participating in SNAP with incomes below the SNAP federal eligibility limit have assets above the federal limit (Eslami 2015).[44] In addition, the effect of asset limits on eligibility may be overstated because the estimates are based on SIPP data that include imputed asset values; our analysis of the SIPP suggests that the imputed asset data overstate the amount of assets held by some households with incomes below the federal eligibility limit.

[42] A SNAP unit is the group of people in a household who file as a single unit for SNAP benefits. There can be multiple SNAP units in a single physical household (for example, if two unrelated families share the same household and buy and prepare their food separately, each would be a potential SNAP unit). The MATH SIPP+ model uses the unit as the basis of analysis when simulating eligibility.

[43] Trippe and Schechter (2010) find a higher rate of asset ownership and a higher value of assets, for most asset sources, among households that are eligible for SNAP but do not participate than among SNAP households that participate. This finding suggests that eligible households with assets are less likely to participate in SNAP than those with little or no assets, even when eligible. Their results do not hold income and benefit amounts constant, however. To the extent households with higher assets also tend to have higher income (and are thus eligible for lower benefits), their lower participation may be explained in part by the lower benefit amounts for which they are eligible, rather than by the asset holdings themselves.

[44] Eslami (2015) estimates that 2.0 million individuals had income within the SNAP federal eligibility limit but assets above the federal limit in FY 2013, and 43.2 million had both income and assets within the federal limit. Thus, 4 percent (2 million divided by 45.2 million) of individuals participating in SNAP in FY 2013 had income within the federal limit but assets exceeding the federal limit.

Table 5: Effect of Asset Limits on SNAP Eligibility Under Various Policy Scenarios

	Eligible units (thousands)	Reduction in eligibility due to asset limit	
		Number (thousands)	Percent
Units eligible under 2011 rules (including BBCE)			
If no asset limit	37,000	0	0.0
With 2011 asset limits (if any in state)	35,827	1,174	3.2
Units eligible under federal rules (without BBCE)			
If no asset limit	30,213	0	0.0
With federal asset limit:			
If all vehicles are excluded	25,977	4,236	14.0
If vehicles are counted according to state rules	25,496	4,716	15.6
If vehicles are counted according to federal rules	24,509	5,704	18.9

Source: MATH SIPP+ model. Estimates based on the MATH SIPP+ FY2011 baseline, using SIPP data from August 2011.
Note: All changes shown are statistically different from zero at a 10% level of significance.

To What Extent Are Households Ineligible for SNAP because of the SNAP Asset Limits (if any) in their State?

Simulations from the MATH SIPP+ model suggest that 37 million units would have been eligible for SNAP in August 2011 in the absence of an asset test (table 5). The baseline simulation shows that 36 million units were eligible for SNAP in that month, given the asset tests in effect in 2011. Therefore, asset tests reduced the number of eligible units by 1.2 million (3 percent).

The estimates presented here show less effect from asset limits than has been observed in previous studies using the MATH SIPP+ model (Trippe and Schechter 2007, 2010). This observation is not surprising, given the growing number of states that have eliminated the asset test under BBCE or increased the extent to which vehicle assets are excluded from the asset test (see table 2).

Previous MATH SIPP+ estimates showed that asset tests reduced the number of eligible SNAP units by 9 percent in 2010 and by 20 percent in 2002. The larger effect in 2002 is not surprising given that few states had implemented BBCE in 2002 and state BBCE policies are only partially captured in the estimate.[45] In contrast, 26 states had eliminated the asset test for most households by January 2010 (the date of the policies reflected in the 2010 MATH SIPP+ estimate), and 38 states had eliminated the asset test by 2011.[46] The asset holdings of households also changed during this period,

[45] The 2002 estimate reflects elimination of the vehicle test in five states with BBCE in 2002, but it does not otherwise capture BBCE policies. The gross income test, net income test, asset limit, and countable assets (other than vehicles) reflect federal rules (Trippe and Schechter 2007, page A-4, footnote 4). State vehicle rules for non-BBCE states are also reflected in the 2002 estimate.
[46] The 2010 estimate reflects BBCE policies in effect in January 2010, before the implementation of BBCE in 10 additional states (Alabama, Florida, Illinois, Kentucky, Louisiana, Maine, Mississippi, New Jersey, New Mexico, and North Carolina) and the District of Columbia.

with a big decline precipitated by the Great Recession (McKernan, Ratcliffe, Steuerle, and Zhang 2014). Of particular note, the 2010 MATH SIPP+ estimate is based on 2005 SIPP data—predating the recession—rather than on data from 2010 and so does not incorporate the decline in households' asset holdings between 2005 and 2010.

To What Extent Do SNAP Units That Meet Federal Income Eligibility Requirements Have Assets Above the Federal Limit?

Although most states have eliminated the asset test, federal income and asset eligibility requirements remain of policy interest.[47] First, they help us understand the role of asset limits in states that have not adopted BBCE. Second, they provide insight into the potential effect of the asset limit on SNAP eligibility should BBCE be eliminated, as was called for in a House-passed version of the 2014 Farm Bill.[48]

Of the 30.2 million units with income below the federal SNAP income eligibility limit, 14 percent (4.2 million) have countable assets (excluding vehicles) above the federal asset limit. Counting vehicles according to state rules increases the percentage of units failing the asset test by 2 percentage points (from 4.2 million to 4.7 million units). If vehicles are included in assets and their value is counted according to federal rules, the number of units failing the asset test increases by an additional 3 percentage points (from 4.7 million to 5.7 million units). In total, 19 percent of units with incomes below the federal eligibility limit exceed the federal asset limit when vehicles were counted according to federal rules. The finding that 19 percent of SNAP units that meet federal income limits have countable assets above the federal limit is similar to the estimate that 20 percent of otherwise eligible units failed the asset test in 2002 (Trippe and Schechter 2007). This result is not surprising, given that 2002 predated the introduction of BBCE in most states, and BBCE policies do not appear to have been included in the 2002 estimate.[49]

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[47] Some states have tightened asset limits in recent years. Maine and Michigan reversed course and reinstated asset limits in 2015 and 2011 (respectively), but retained asset limits higher than the federal limit (Economic Research Services 2015; Maine.gov 2015). Louisiana ended BBCE in 2014, thereby reinstating the federal asset limit.

[48] BBCE was eliminated in a House-passed version of the bill that became the Agriculture Act of 2014 (PL. 113-79). However, BBCE was retained in the conference agreement on the bill.

[49] Thirty million units have income below the federal SNAP eligibility limit (table 5). This is nearly 20 percent fewer units than the 37 million that meet the income eligibility criteria when state BBCE policies are simulated. This difference may seem large when compared with estimates that eliminating BBCE would reduce the SNAP caseload by 3 percent (Laird and Trippe 2014). The larger effect shown here is explained by the fact that we focus on the eligible population regardless of whether they participate in SNAP. Most units that are eligible as a result of BBCE

What Types of SNAP Units Are Most Affected by Asset Limits?

Across the simulation scenarios, income-eligible units are most likely to fail the asset test if they contain members who are elderly, have a head who is non-Hispanic white, or have gross income above 130 percent of the federal poverty level. They are less likely to fail the asset test if they contain members who are disabled or children, have a head who is non-Hispanic black, have gross income below 100 percent of poverty, or contain noncitizens. These results are consistent with findings from table 4, which highlight subgroups more likely to have high versus low assets.

Table 6 provides additional detail on the extent to which asset limits in effect in 2011 affected the SNAP eligibility of different demographic and economic groups. Table 7 then narrows the focus to units with incomes below the federal eligibility limit, showing the extent to which different groups would be affected by asset tests if BBCE were eliminated.

Focusing on household composition, we see that under the eligibility rules in effect in 2011, 6 percent of income-eligible units with elderly members fail the asset test in effect in their state (if any), compared with 2 percent of units containing children and 1 percent of units containing a person with disabilities (table 6). Among units with incomes below the federal eligibility limit (who would continue to be income-eligible if BBCE were eliminated), 29 percent of elderly units, 14 percent of units with children, and 5 percent of units with a disabled member have assets above the federal asset limit and so would fail the assets test (table 7). Asset limits have similar effects on the eligibility of units with and without earnings, with just over 3 percent of otherwise eligible earner and nonearner units failing the asset test in effect in their state (table 6). Among units with incomes below the federal eligibility limit, 20 percent of units with earnings and 19 percent of units without earnings have assets above the federal limit (table 7).

It is not surprising that units with higher gross income are more likely to have assets above the asset limit than are units with lower gross income. This is due in part because units with higher incomes are more likely to have been able to acquire or retain assets, but it also reflects the inclusion of units with members who are elderly (which typically have higher assets) in the group of units with incomes above 130 percent of the gross income limit.[50] We find that 2 percent of units with gross income below 100 percent of the poverty level fail the asset test (if any) in their state, compared with 6 percent of income-eligible units with gross income above 130 percent of poverty (table 6). Among units meeting

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are eligible for very small benefits and so are less likely to participate than units eligible under federal rules. Thus, BBCE has a greater effect on the number of units eligible for SNAP than on the number of participants.

[50] To be eligible under federal rules, units without an elderly or disabled member must have gross income below 130 percent of poverty.

the federal income eligibility requirements, 15 percent of those with income below 100 percent of poverty have assets above the federal asset limit, compared with 42 percent of those with gross income above 130 percent of poverty (table 7).

Table 6: Effect of Asset Limits on SNAP Eligibility in 2011, Under 2011 Eligibility Rules (Including BBCE)

	Eligible if no asset limit	State asset and vehicle test, percentage change (relative to no asset limit)	
Household characteristics			
Total households (thousands)	37,000	−3.2	*
Household composition (thousands)			
Children (<18)	13,358	−2.0	#
Adults (18–59)	24,320	−2.3	*
Elderly (60+)	12,628	−5.6	#
Disabled	5,215	−0.9	#
Race of head (thousands)			
White alone, not Hispanic	21,382	−4.6	#
Black alone, not Hispanic	6,858	−0.7	#
Hispanic	6,577	−1.4	#
Asian alone	948	−1.4	#
Other	1,235	−3.5	#
Household contains (thousands)			
Noncitizens	3,607	−1.5	
No noncitizens	33,393	−3.3	
Gross income as % of poverty (thousands)			
<=100%	21,390	−2.1	
>100% to 130%	7,044	−2.8	
>130%	8,566	−6.0	
Earnings (thousands)			
Earned income	14,460	−3.1	
No earned income	22,540	−3.2	
Personal characteristics			
Total persons (thousands)	75,208	−3.1	*
Age (thousands)			
Children (<18)	27,146	−2.0	#
Adults (18–59)	33,177	−2.6	#
Elderly (60+)	14,885	−6.1	#
Disabled	5,755	−0.8	#
Sex (thousands)			
Male	33,148	−3.3	*
Female	42,060	−2.9	*
Monthly benefit (millions)	$5,941	−2.9	*
Sample size	10,192	−3.4	

Source: MATH SIPP+ model. Estimates based on the MATH SIPP+ FY2011 baseline, using SIPP data from August 2011.
Statistics key:
* Change is statistically different from zero at a 10% level of significance.
+ Change for subgroup is statistically different from the overall change at a 10% level of significance.
# Both conditions are met.
(Statistics are not available for citizenship, region, gross income as a percent of poverty, or earnings.)

Non-Hispanic whites are much more likely to be affected by asset limits than are non-Hispanic blacks, reflecting higher asset ownership among non-Hispanic white households. We find that 5 percent of non-Hispanic white units are made ineligible for SNAP as a result of the asset test in their state (if

any), compared with less than 1 percent of non-Hispanic black units (table 6). Among units that meet the federal income eligibility limits, 26 percent of non-Hispanic white units and 7 percent of non-Hispanic black units have assets above the federal asset limit (table 7).

Table 7: Effect of Asset Limits on SNAP Eligibility in 2011, Under 2011 Rules, but without BBCE

		Percentage change (relative to no asset limit)					
	Eligible if no asset limit	Federal asset test, liquid assets only		Federal asset test, state vehicle test		Federal asset and vehicle test	
Household characteristics							
Total households (thousands)	30,213	−14.0	*	−15.6	*	−18.9	*
Household composition (thousands)							
Children (<18)	11,785	−8.2	#	−10.5	#	−13.6	#
Adults (18–59)	20,852	−10.8	#	−12.5	#	−15.8	#
Elderly (60+)	9,049	−24.1	*	−25.3	*	−28.6	#
Disabled	4,662	−3.3	#	−4.1	#	−5.4	#
Race of head (thousands)							
White alone, not Hispanic	16,860	−20.9	#	−21.9	#	−26.0	#
Black alone, not Hispanic	5,865	−3.7	#	−5.0	#	−6.7	#
Hispanic	5,572	−4.5	#	−8.6	#	−10.3	#
Asian alone	820	−19.8	#	−20.5	#	−25.8	#
Other	1,096	−8.0	#	−8.7	#	−12.9	#
Household contains (thousands)							
Noncitizens	3,077	−7.1		−10.9		−12.0	
No noncitizens	27,136	−14.8		−16.1		−19.7	
Gross income as % of poverty (thousands)							
<=100%	21,383	−10.8		−12.3		−15.2	
>100% to 130%	6,423	−17.2		−19.0		−22.6	
>130%	2,407	−34.3		−36.2		−41.5	
Earnings (thousands)							
Earned income	11,394	−12.9		−15.3		−19.6	
No earned income	18,819	−14.7		−15.8		−18.5	
Personal characteristics (thousands)							
Total persons	62,668	−13.0	*	−15.0	*	−18.5	*
Age							
Children <18)	24,220	−8.6	#	−11.1	#	−14.2	#
Adults (18–59)	28,096	−12.0	#	−13.8	#	−17.5	#
Elderly (60+)	10,352	−26.0	#	−27.4	#	−31.3	#
Disabled	5,059	−3.2	#	−4.0	#	−5.2	#
Sex							
Male	27,421	−13.5	*	−15.6	*	−19.6	*
Female	35,247	−12.7	*	−14.5	*	−17.6	*
Monthly benefits (millions)	$5,893	−11.3	*	−13.0	*	−16.6	*
Sample size	8,305	−14.1		−15.5		−18.7	

Source: MATH SIPP+ model. Estimates based on the MATH SIPP+ FY2011 baseline, using data from the August 2011 SIPP.

Statistics key:

* Change is statistically different from zero at a 10% level of significance.

+ Change for subgroup is statistically different from the overall change at a 10% level of significance.

Both conditions are met.

(Statistics are not available for citizenship, region, gross income as a percent of poverty, and earnings.)

While patterns are consistent across scenarios for most demographic characteristics, results for units headed by Asians and persons of "other" races differ according to scenario. Asians are similar to Hispanics in the extent to which they fail asset tests (if any) under 2011 eligibility rules in their state (table 6). However, among units meeting federal income eligibility limits, Asians are much more likely than Hispanics to have assets above the federal asset limit (table 7). This difference is explained in part by the fact that low-income Asians are more likely than low-income Hispanics to live in a state that has eliminated the asset test.[51] Although low-income Asians are more likely than low-income Hispanics to have assets above the federal limit, the greater concentration of Asians in states that have eliminated the assets test mitigates the effect of the asset test on Asians relative to Hispanics.

3. What Are the Asset Holdings of SNAP Households, Overall and by State Asset Policy?

SNAP asset tests clearly affect eligibility, but to what extent are SNAP asset limits related to the composition of the SNAP caseload or the extent to which SNAP households have assets? This question is of interest because asset tests may reduce participation among households with assets, even if their assets are below the allowed limit. This reduction can occur if people inaccurately assume that having a bank account or assets of any amount renders them ineligible for SNAP or if they decide not to participate because of concern over requirements for documentation or verification of their asset holdings. This section descriptively examines the relationship between asset limits and asset holdings. The next section analyzes the effect of asset limits on asset holdings using an econometric approach designed to disentangle the effect of asset limits from other factors.

Overall, we find that SNAP households tend to have fewer assets than the general population of low-income households.[52] Less than one-half (48 percent) of SNAP households have liquid assets, compared with more than two-thirds (68 percent) of low-income, non-SNAP households (table 8). The median value of assets (for those with assets) is also substantially lower among SNAP households ($450 compared with $3,525 for low-income, non-SNAP households). SNAP households in BBCE states tend to have higher assets than those living in non-BBCE states.[53] However, we do find higher home and

[51] Based on tabulations of the 2008 SIPP (wave 10), 90 percent of Asian-headed, low-income households and 76 percent of Hispanic-headed, low-income households live in a state that eliminated the asset test.
[52] We refer to low-income households as those with income below 130 percent of the federal poverty level or below 200 percent of the federal poverty level if the household includes an elderly or disabled member.
[53] BBCE states are defined to include those with no asset limit or an asset limit higher than the federal limit. We combine the two types of BBCE states (states eliminated or increased asset limits via BBCE) because few states increased asset limits through BBCE (table 2).

vehicle ownership among SNAP households in non-BBCE states, perhaps reflecting the lower share of households living in metropolitan areas in these states and the higher rates of home and vehicle ownership among the low-income population in these states.[54]

How Do the Assets and Wealth of SNAP Households Compare with Low-Income Non-SNAP Households?

SNAP households have fewer assets and lower wealth than low-income, non-SNAP households. For example, roughly one-half (52 percent) of SNAP households have a bank account, compared with more than two-thirds (70 percent) of non-SNAP households (table 8, columns 1 and 2). Asset holdings of low-income, non-SNAP households are higher than for SNAP households, but are still modest. The median bank account amount for SNAP households is $150 (among those with an account), while it is $600 for low-income, non-SNAP households.

Less than one-half of SNAP households have any liquid assets (48 percent), compared with 68 percent of low-income, non-SNAP households. Of those with liquid assets, the median value is $450 for SNAP households and $3,525 for low-income, non-SNAP households. Just 12 percent of SNAP households have retirement savings, compared with 25 percent of low-income, non-SNAP households. Excluding retirement savings, which are not counted for SNAP eligibility purposes, reduces median liquid assets (among those with liquid assets) to $250 for SNAP households and $1,192 for non-SNAP households. Ten percent of SNAP households and 28 percent of low-income, non-SNAP households have at least $2,000 in liquid assets. Even fewer households are not asset poor—6 percent and 23 percent, respectively.

SNAP households also have much lower wealth than low-income, non-SNAP households. Median wealth of SNAP households is $2,511 compared with $35,863 for low-income, non-SNAP households. Much of the wealth disparity is due to home equity. Fifty-seven percent of low-income, non-SNAP households own a home, compared with 30 percent of SNAP households. However, even without home equity, SNAP households have significantly lower wealth than other low-income households. Median wealth (excluding home equity) is $1,620 for SNAP households and $7,113 for low-income, non-SNAP households.

[54] Home values are excluded from SNAP asset tests in all states and vehicle values are excluded in all BBCE states and most non-BBCE states. Of the five states in July 2012 with BBCE policies that increased (not eliminated) asset limits, two did not exempt at least one vehicle (Texas and Nebraska).

Table 8: Assets of SNAP Households and Low-Income, Non-SNAP Households [a] in States with and without BBCE in 2011

	SNAP households	Low-income, non-SNAP households		SNAP households State has BBCE: Yes	SNAP households State has BBCE: No		Low-income non-SNAP households State has BBCE: Yes	Low-income non-SNAP households State has BBCE: No	
Percentage of households	40.4%	59.6%		88.7%	11.3%		87.5%	12.5%	
Assets									
Has bank account	51.5%	70.3%	***	52.2%	46.0%	***	69.8%	73.8%	**
Median (among those with account)	$150	$600	***	$160	$100	*	$600	$800	
Mean (among those with account)	$3,517	$8,926	***	$3,646	$2,360	**	$9,015	$8,332	
Has liquid assets	48.3%	68.0%	***	48.7%	45.0%		67.1%	74.0%	***
Median (non-zero)	$450	$3,525	***	$500	$250	**	$3,500	$4,010	
Mean (non-zero)	$15,832	$50,506	***	$16,388	$11,096	**	$50,218	$52,341	
Has retirement savings	11.7%	25.0%	***	11.6%	12.2%		24.3%	30.4%	***
Median (non-zero)	$8,200	$23,687	***	$8,200	$8,000		$24,000	$20,000	
Mean (non-zero)	$39,470	$69,791	***	$40,871	$29,018		$70,736	$64,502	
Has nonretirement liquid assets	45.2%	64.1%	***	45.6%	41.6%	*	63.2%	70.1%	***
Median (non-zero)	$250	$1,192	***	$263	$200	*	$1,128	$1,200	
Mean (non-zero)	$6,743	$26,314	***	$7,121	$3,478	***	$26,161	$27,279	
Has emergency savings									
Has $2,000 in liquid assets	10.3%	28.4%	***	10.6%	7.7%	**	28.0%	31.2%	*
Not asset poor[b]	5.9%	23.1%	***	6.0%	5.0%		22.7%	26.1%	**
Total wealth (includes home equity)									
Median (all)	$2,511	$35,863	***	$2,495	$2,586		$33,000	$57,952	***
Mean (all)	$38,762	$130,331	***	$39,627	$31,949	*	$128,960	$139,956	
Wealth excluding home equity									
Median (all)	$1,620	$7,113	***	$1,587	$1,791		$7,113	$8,470	**
Mean (all)	$19,074	$65,462	***	$19,588	$15,031		$63,829	$76,921	*
Countable assets									
Countable assets (including vehicles)									
$0	45.1%	24.8%	***	44.7%	48.4%		25.2%	21.8%	***
$1 to $1,000	25.8%	22.3%	***	25.7%	26.5%		21.9%	25.1%	***
$1,001 to $2,000	4.2%	5.2%	***	4.2%	4.4%		5.2%	5.4%	***
$2,001 to $3,000	7.9%	9.4%	***	8.1%	6.7%		9.9%	6.0%	***
$3,001 to $5,000	5.2%	7.6%	***	5.3%	4.0%		7.6%	7.5%	***
$5,000 to $10,000	5.1%	9.5%	***	5.1%	4.9%		9.4%	10.5%	***
$10,000+	6.6%	21.2%	***	6.8%	5.1%		20.8%	23.8%	***

Continued on next page

Table 8: Assets of SNAP Households and Low-Income, Non-SNAP Households [a] in States with and without BBCE in 2011

	SNAP households	Low-income, non-SNAP households		SNAP households State has BBCE			Low-income non-SNAP households State has BBCE		
				Yes	No		Yes	No	
Countable assets (excluding vehicles)									
$0	54.8%	35.9%	***	54.4%	58.4%		36.8%	29.9%	**
$1 to $1,000	31.6%	31.1%	***	31.7%	30.9%		30.8%	33.7%	**
$1,001 to $2,000	4.1%	5.9%	***	4.2%	3.5%		5.9%	6.2%	**
$2,001 to $3,000	1.7%	3.2%	***	1.7%	1.3%		3.1%	4.0%	**
$3,001 to $5,000	1.5%	3.3%	***	1.5%	1.3%		3.3%	3.7%	**
$5,000 to $10,000	2.1%	4.4%	***	2.3%	1.1%		4.3%	4.7%	**
$10,000+	4.0%	16.1%	***	4.1%	3.5%		15.9%	17.8%	**
Vehicle ownership									
Owns vehicle	61.4%	75.1%	***	60.5%	68.2%	***	73.8%	84.0%	***
Owns vehicle with countable value	23.6%	37.6%	***	23.9%	21.7%		37.5%	37.9%	
Owns home	29.8%	57.3%	***	29.3%	33.8%	**	56.2%	65.0%	***
Lives in metropolitan area	79.6%	78.3%		81.2%	67.2%	***	80.5%	62.5%	***
Sample size (households)	4,294	6,249		3,654	640		5,243	1,006	

Source: 2008 SIPP panel, wave 10.

Notes: Households are considered SNAP households in this table if at least one member receives SNAP. "Countable assets" and "countable vehicle assets" are assets that were countable under federal eligibility rules. Table calculated using cross-sectional weights.

a. Low-income households are households with gross income below 130 percent of the poverty level (200 percent of the poverty level if the household contains an elderly or disabled member).

b. Households are considered not asset poor if they have enough liquid assets to live at the poverty line for three months.

Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent

Given the lower asset holdings of SNAP households relative to low-income, non-SNAP households, it is not surprising that SNAP households are much less likely than low-income, non-SNAP households to have assets that are countable under federal asset and vehicle rules. SNAP households that have countable assets tend to have lower assets than do low-income, non-SNAP households. Nearly one-half (45 percent) of SNAP households have no countable assets, compared with one-quarter of low-income, non-SNAP households. When excluding vehicles, more than one-half (55 percent) of SNAP households have no countable assets, and roughly 8 percent have countable assets over $3,000.[55]

Vehicle ownership is lower among SNAP households than among low-income, non-SNAP households, and SNAP households are less likely to have a vehicle with countable value under federal asset and vehicle rules. Sixty-one percent of SNAP households own a vehicle compared with 75 percent of low-income, non-SNAP households. Just under one-quarter (24 percent) of SNAP households own a vehicle with countable value compared with 38 percent of low-income, non-SNAP households.

Do Assets and Wealth of Low-Income Households Differ in States with and without BBCE?

Most SNAP and other low-income households live in states that have eliminated or increased the SNAP asset limit through state BBCE policies.[56] Ten states continued to use the federal SNAP asset limit in the fall of 2011: Alaska, Arkansas, Indiana, Kansas, Missouri, South Dakota, Tennessee, Utah, Virginia, and Wyoming (Economic Research Service 2015).[57]

All else equal, we expect to see greater asset holdings among SNAP households in BBCE states than in non-BBCE states. For the most part, the results in table 8 are consistent with this expectation. However, as discussed below, we find higher home and vehicle ownership among SNAP households in non-BBCE states, perhaps reflecting the lower share of households living in metropolitan areas in these states and the overall higher rates of home and vehicle ownership among the low-income population in those states. Our multivariate analysis (presented in the next section) controls for state differences.[58]

[55] The share of SNAP households with countable assets over $3,000 (excluding vehicles) drops to 2 percent when imputed values are removed from the calculation (appendix table A2).
[56] In 2011, 88 percent of SNAP and low-income, non-SNAP households lived in a state that had eliminated or increased the asset limit (table 8).
[57] All 10 of these states exempted at least one vehicle from their asset test in the fall of 2011 (Economic Research Service 2015).
[58] The multivariate analysis takes account of whether the household is in a metropolitan area.

Our analysis of households in states with and without BBCE separately examines SNAP households (table 8, columns 3 and 4) and low-income, non-SNAP households (table 8, columns 5 and 6).

SNAP households in BBCE states are somewhat more likely to have a bank account (52 percent) than those in non-BBCE states (46 percent; table 8). Among those with a bank account, the median amount in the account is slightly higher ($160) in BBCE states than in non-BBCE states ($100). In contrast, low-income, non-SNAP households are more likely to have a bank account if they are in a non-BBCE state than if they are in a BBCE state.

There is no significant difference in the share of SNAP households with liquid assets in BBCE and non-BBCE states, although the median value of liquid assets ($500) is higher in BBCE than in non-BBCE states ($250). In contrast, low-income, non-SNAP households are more likely to have liquid assets if living in a non-BBCE state, with 74 percent of those in non-BBCE states having liquid assets compared with 67 percent of those in BBCE states.[59]

As mentioned above, only 12 percent of SNAP households have retirement savings, regardless of whether those households are located in BBCE or non-BBCE states. There is also no statistically significant difference between SNAP households in BBCE and non-BBCE states in the mean or median amount of retirement savings for those with a retirement account. Non-SNAP households are somewhat less likely to have retirement savings if they live in a BBCE state.

When retirement savings are excluded from liquid assets (as under SNAP eligibility rules) we see that SNAP households are more likely to have nonretirement liquid assets and have more in those accounts if they are in a BBCE state and non-SNAP households are less likely to do so. We find that the mean of SNAP recipients' nonretirement liquid assets in non-BBCE states is surprisingly high ($3,478), given the $2,000 and $3,000 federal asset limits in effect in 2011. Upon closer examination, we find that the higher-than-expected mean is due to imputed values assigned to missing data. When imputed values are excluded, the mean drops from $3,478 to $1,201 (appendix table C.2).[60]

Few SNAP households have savings of at least $2,000 in liquid assets, although this is somewhat more common among SNAP households in BBCE states than in non-BBCE states (11 percent and 8 percent respectively). Even fewer SNAP households are not asset poor, and this does not vary by whether the household is in a BBCE or non-BBCE state. Low-income, non-SNAP households are more

[59] The regression analysis under research question 4 provides information on how BBCE policies affect asset holdings.
[60] Note that we drop imputed values from wealth-related analyses conducted under research question 4.

likely to have at least $2,000 in liquid assets and not be asset poor if living in a non-BBCE state than in a BBCE state.

Moving on to wealth, we find no significant difference in median wealth for SNAP households in states with or without BBCE. In contrast, mean wealth is higher in BBCE states than in non-BBCE states. We also find no statistically significant difference in the distribution of countable assets (including or excluding vehicles) for SNAP households in BBCE versus non-BBCE states, although there are differences for low-income, non-SNAP households in BBCE versus non-BBCE states.

Vehicle and home ownership are significantly lower in BBCE states than in non-BBCE states, perhaps reflecting the somewhat more urban nature of states with BBCE.[61] Among SNAP households, 68 percent of those living in non-BBCE states own a vehicle, compared with 61 percent of those in BBCE states. Among other low-income households, the numbers are 84 percent and 74 percent, respectively. Twenty-nine percent of SNAP households in BBCE states own a home, compared with 34 percent in non-BBCE states. The corresponding figures for low-income, non-SNAP households are 56 percent and 65 percent, respectively.

4. What Is the Effect of SNAP Asset Limits on Assets and Wealth?

Do SNAP asset limits lead lower income households (income below 200 percent of the federal poverty level) to lower their savings and assets holdings? Here we provide a brief description of how we expect SNAP asset limits and other policies to affect household savings and wealth, followed by a discussion of the multivariate findings. These analyses provide some evidence that SNAP asset limits reduce asset holdings. Specifically, we find that BBCE increases participation in the financial mainstream (i.e., having a bank account) and having a bank account with at least $500. We do not find evidence, however, for higher levels of savings or assets.

What do we expect? SNAP asset limits are hypothesized to affect asset holdings through two primary mechanisms: the asset test effect and the substitution effect. First, SNAP asset tests restrict the level of assets families can have and still receive SNAP benefits. To preserve program eligibility, asset tests can discourage lower income households from accumulating liquid and vehicle assets that

[61] Sixty-seven percent of SNAP households in non-BBCE states live in metropolitan areas, compared with 81 percent in states without asset limits.

are subject to asset tests. Also, families may spend down their assets to become or remain eligible for income transfer programs (Powers 1998).[62]

Second, program rules that affect only specific types of asset holdings can encourage families to substitute one type of asset for another. For example, more generous vehicle asset exemptions could lead families to use their savings (thus lowering liquid assets) to purchase a vehicle (thus increasing vehicle assets). Since households may shift the composition of assets in response to program changes, it is important to look at multiple asset and wealth measures.

Overall, relaxed asset limits through BBCE are hypothesized to increase savings and wealth (compared with the federal limit; table 9). While there could be some substitution across different types of assets, we hypothesize that the primary effect will be to increase savings and wealth.

Table 9: Hypothesized Effect of SNAP and Other Policies on Wealth and SNAP

	Wealth				SNAP	
	Bank account	Value of liquid assets	Owns vehicle	Wealth – home equity	Churn	Duration
SNAP asset limits						
Increased or eliminated asset limit	+	+	+	+	–	+/–
At least one vehicle exempt	+/–	+/–	+	+/–	–	+/–
Other SNAP policies						
Simplified reporting					–	+
Recertification period						+
4–6 month recertification period					–	+
7–12 month recertification period		No expected effect			–	+
13+ month recertification period					–	+
Noncitizen eligibility						
All noncitizen adults eligible					–	+/–
Some noncitizen adults eligible					–	+/–
Outreach spending					+/–	+/–
State and federal EITC refundable	+/–	+/–	+	+/–	+	–
State minimum wage	+/–	+/–	+/–	+/–	+/–	+/–

Easing vehicle asset restrictions is hypothesized to increase vehicle ownership. The hypothesized effect on other types of wealth is ambiguous. For example, an increase in the vehicle asset limit can decrease liquid asset holdings if families use dollars set aside in a savings account to purchase a vehicle. Conversely, an increase in the vehicle asset limit can increase liquid asset holdings if, for example,

[62] Relaxed asset tests could also increase savings and wealth through their effects on SNAP receipt and benefits (income effect). If people in states with more relaxed asset limits are more likely to receive SNAP benefits, then these additional resources could be used to increase savings. Households could choose to distribute their benefit between increased consumption and increased savings, or alternatively, increase their consumption by the full amount of the SNAP benefit.

household members increase their employment and earnings (as a result of having a reliable vehicle) and save some of the increased earnings.

Our analysis also includes EITC and minimum wage policy variables, as they can affect households' asset holdings. The EITC and minimum wage are not targeted at any particular asset and are expected to primarily affect asset holdings by providing additional income, which could be used to increase all types of asset holdings. However, both policies could also reduce asset holdings. The EITC could reduce liquid asset holdings if families hold fewer liquid emergency savings in anticipation of a tax refund. If an increase in the minimum wage leads some lower income households to lose their jobs, then that increase could result in lower asset holdings. Overall, the hypothesized effect of the EITC and minimum wage on savings and wealth is ambiguous.

What do we find? Our analyses suggest that SNAP asset limits affect people's decisions around savings and asset building for some, but not all, of the measures examined. We find that SNAP asset limits affect behavior at lower levels of wealth—levels below the federal asset limit (table 10). For example, we find that more flexible SNAP asset-limit policies increase the likelihood that lower income adults live in a banked household (at least one member has a bank account) and that there is at least $500 in the account(s). But we find that such policies do not affect whether lower income adults have $2,000 in the account(s). In looking at SNAP policies around vehicle exemptions, we find no evidence that more flexible vehicle exemptions affect households' vehicle ownership or other assets.

Specifically, we find that being in a state with BBCE (no asset limit or asset limit higher than the federal limit) increases the likelihood that a person is in a banked household by 3 percentage points (table 10). This represents a 5 percent increase in the number of people in lower income households with a bank account. We also find that BBCE increases the likelihood people are in a household with at least $500 in a bank account (by 2 percentage points or 8 percent), but not whether they have $2,000 in an account. The asset holdings of lower income households tend to be very low (discussed above), so many people likely do not find the federal asset limit binding. This could account for the small and statistically insignificant effect of BBCE at higher levels of savings ($2,000).

The economically meaningful and statistically significant effects of BBCE on financial market participation and the likelihood of having at least $500 in a bank account are consistent with research that finds that people do not understand program eligibility rules (e.g., Bartlett, Burstein, and Hamilton 2004; O'Brien 2006), so they may unnecessarily keep their assets at very low levels to ensure

Table 10: Effect of SNAP Asset Limits and Other Policies on Asset Holdings and Wealth

	Has bank account		Bank account at least $500		Bank account at least $2,000		Ln(liquid asset value)		Ln(wealth−home equity)		Owns vehicle	
SNAP asset limit policies (lagged one year)												
BBCE (omitted: federal asset limit)	0.030	**	0.018	*	−0.001		0.182		0.082		−0.004	
	(0.012)		(0.009)		(0.006)		(0.112)		(0.114)		(0.010)	
At least one vehicle exempt	−0.014		0.006		−0.002		−0.118		−0.015		−0.006	
	(0.015)		(0.009)		(0.007)		(0.097)		(0.086)		(0.009)	
Other policies (lagged one year)												
EITC for family with two children	−0.024		−0.012		−0.013		0.010		−0.282		−0.007	
($1,000)	(0.027)		(0.021)		(0.012)		(0.294)		(0.276)		(0.015)	
Minimum wage	−0.005		−0.001		0.002		−0.104	*	−0.069		0.002	
	(0.007)		(0.007)		(0.005)		(0.061)		(0.086)		(0.007)	
State economic variables												
Unemployment rate	0.002		−0.003		−0.000		0.002		−0.035		−0.005	
	(0.007)		(0.006)		(0.003)		(0.072)		(0.054)		(0.003)	
Per capita income ($10,000)	0.055		0.039		0.048	**	0.250		−0.595	*	−0.019	
	(0.045)		(0.035)		(0.022)		(0.480)		(0.357)		(0.025)	
Individual demographics												
Age (omitted: age 18–29)												
30–49	0.024	***	0.022	***	0.022	***	0.264	***	0.404	***	0.025	***
	(0.006)		(0.007)		(0.004)		(0.055)		(0.053)		(0.005)	
50–64	0.069	***	0.084	***	0.081	***	0.736	***	1.059	***	0.053	***
	(0.006)		(0.006)		(0.005)		(0.062)		(0.066)		(0.004)	
65+	0.195	***	0.231	***	0.184	***	1.773	***	1.896	***	0.042	***
	(0.009)		(0.011)		(0.008)		(0.092)		(0.109)		(0.007)	
Race and ethnicity (omitted: white non-Hispanic)												
Black non-Hispanic	−0.196	***	−0.176	***	−0.143	***	−1.890	***	−2.634	***	−0.171	***
	(0.012)		(0.009)		(0.007)		(0.109)		(0.160)		(0.012)	
Asian non-Hispanic	−0.026		−0.014		−0.019		−0.336	***	−1.137	***	−0.123	***
	(0.016)		(0.014)		(0.012)		(0.104)		(0.147)		(0.014)	
Hispanic	−0.155	***	−0.097	***	−0.087	***	−1.332	***	−1.433	***	−0.086	***
	(0.018)		(0.010)		(0.007)		(0.150)		(0.289)		(0.022)	
Other non-Hispanic	−0.093	***	−0.104	***	−0.083	***	−1.008	***	−1.288	***	−0.076	***
	(0.019)		(0.015)		(0.013)		(0.158)		(0.244)		(0.020)	
Immigrant	−0.035	***	−0.006		−0.011	*	−0.215	***	0.039		−0.028	***
	(0.008)		(0.008)		(0.007)		(0.046)		(0.120)		(0.008)	

Continued on next page

Table 10: Effect of SNAP Asset Limits and Other Policies on Asset Holdings and Wealth

	Has bank account		Bank account at least $500		Bank account at least $2,000		Ln(liquid asset value)		Ln(wealth–home equity)		Owns vehicle	
Education (omitted: high school)												
Less than high school	−0.097	***	−0.069	***	−0.044	***	−0.808	***	−0.866	***	−0.082	***
	(0.005)		(0.005)		(0.005)		(0.052)		(0.073)		(0.007)	
Some college plus	0.108	***	0.083	***	0.057	***	0.934	***	0.809	***	0.047	***
	(0.005)		(0.004)		(0.004)		(0.035)		(0.056)		(0.005)	
People in household												
Number of children birth to age 5	−0.024	***	−0.023	***	−0.018	***	−0.204	***	−0.225	***	−0.009	***
	(0.004)		(0.004)		(0.003)		(0.041)		(0.048)		(0.003)	
Number of children age 6–18	−0.005	**	−0.009	***	−0.011	***	−0.057	***	0.012		0.013	***
	(0.002)		(0.003)		(0.002)		(0.019)		(0.025)		(0.004)	
Number of adults	0.012	***	0.010	**	0.006		−0.048		0.49	***	0.042	***
	(0.004)		(0.005)		(0.004)		(0.033)		(0.036)		(0.003)	
Household structure (omitted: headed by two adults)												
Headed by single female	−0.109	***	−0.085	***	−0.056	***	−0.941	***	−1.666	***	−0.172	***
	(0.007)		(0.006)		(0.005)		(0.060)		(0.070)		(0.005)	
Headed by single male	−0.129	***	−0.071	***	−0.052	***	−0.989	***	−1.131	***	−0.133	***
	(0.008)		(0.006)		(0.005)		(0.054)		(0.075)		(0.007)	
Household member is elderly or disabled	−0.047	***	−0.081	***	−0.05	***	−0.556	***	−0.988	***	−0.08	***
	(0.009)		(0.009)		(0.005)		(0.078)		(0.070)		(0.005)	
Lives in metropolitan area	0.026	**	0.031	***	0.019	***	0.273	**	−0.187	**	−0.028	***
	(0.012)		(0.009)		(0.006)		(0.106)		(0.078)		(0.010)	
Sample size (person-months)	161,621		124,214		124,214		107,844		91,558		175,711	

Sources: 1996, 2001, 2004, and 2008 SIPP panels; SNAP Policy Database; and multiple other sources for state-level policy and economic characteristics.
Notes: Sample includes people with household incomes below 200 percent of the federal poverty level. Results in columns 1, 2, 3, and 6 are based on probit models, and results in columns 4 and 5 are based on Tobit models. This table presents marginal effects calculated using Stata's margins command, with standard errors presented in parentheses (standard errors are clustered at the state level). Models also include state and year fixed effects and use the cross-sectional weight. The natural log of liquid assets was calculated by adding one to all values and taking the natural log. The natural log of wealth minus home equity was calculated by setting all negative values to zero and then adding one to all values and taking the natural log. These models do not include imputed asset and liability data.
Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent

eligibility.[63] In qualitative interviews with TANF recipients, for example, O'Brien (2006) found that most recipients believed that TANF asset limits were much lower than the actual limits.[64]

We do not find any effect of BBCE policies on three other measures—liquid asset amount, wealth minus home equity, or vehicle ownership.[65] Overall, these results suggest that BBCE affects behavior at levels of assets substantially below the SNAP asset limit.

Across the board, we find no statistically significant effect of relaxed SNAP vehicle asset rules on any of our asset outcomes, including vehicle ownership. Earlier research, however, did find that easing SNAP vehicle asset rules increased vehicle ownership among single-mother families (McKernan, Ratcliffe, and Nam 2010). The easing of vehicle asset limits can happen through changes to policies directed specifically at vehicles (e.g., state exempts one or more vehicles from asset limits), but also indirectly through BBCE. As a result, the effect of these policy changes on vehicle ownership could be imprecisely estimated and difficult to disentangle, because the effect is spread across the two SNAP policy variables.

By and large, we do not find evidence that the EITC or minimum wage is significantly related to asset holdings or wealth. The one exception is the value of liquid assets. We find that a higher minimum wage lowers household liquid assets. This exception could happen if a higher minimum wage leads to lower employment, although it cannot be confirmed here because we do not examine the effect of the minimum wage on employment. Also, this minimum wage finding should be interpreted in the context that we find no effect of the minimum wage on five of the six asset and wealth outcomes examined.

We find that assets and wealth increase with age, with the lowest levels for adults under age 30 and the highest levels for those ages 65 and older. Consistent with literature that shows large racial wealth disparities (Boshara, Emmons, and Noeth 2015; McKernan et al. 2013; McKernan et al. 2015), we find that people of color have substantially lower assets and wealth than non-Hispanic whites. We also find fewer assets among immigrants and people with lower levels of education. In household composition and structure, we generally find that households with children have lower wealth, as do households

[63] Other people could have somewhat higher assets that are still below the federal SNAP threshold and mistakenly think they are ineligible for SNAP, so do not apply for benefits.
[64] Focusing on SNAP-eligible nonparticipants, Bartlett, Burstein, and Hamilton (2004) found that more than one-half of these nonparticipants believed themselves ineligible for benefits or were not sure of their eligibility.
[65] Homes are excluded from SNAP asset tests and home values can be imprecisely reported. Therefore we focus on the value of wealth minus home equity, rather than on the value of total wealth.

headed by a single male or single female (versus a household headed by two adults) and those with a member who is elderly or disabled.[66]

5. What Is the Effect of SNAP Asset Limits on SNAP Churn and Spell Length?

Do more relaxed SNAP asset limits reduce SNAP caseload churn or shorten SNAP spells? Conversely, do they lead to longer spells or more churn? Our empirical analysis finds that BBCE reduces SNAP churn, but has no statistically significant effect on SNAP spell lengths.

What do we expect? More relaxed asset limits are hypothesized to reduce SNAP churn and have an ambiguous effect on SNAP spell length (table 9).[67] More relaxed asset limits can make the recertification process less burdensome, thus making it easier for households to stay on SNAP and in turn reducing SNAP churn and potentially increasing spell length. More relaxed asset limits can also reduce SNAP spell lengths if households save more as a result of the asset limits and become self-sufficient so that they no longer need SNAP assistance. These potential offsetting effects result in the hypothesized ambiguous overall effect of asset limits on spell length.

Simplified reporting requirements and increases in the length of certification periods are hypothesized to increase the likelihood recipients remain continuously on SNAP and thus reduce SNAP churn and increase spell lengths. Policies that more directly affect eligibility and participation (i.e., noncitizen eligibility rules and outreach spending) are not expected to directly affect SNAP churn or spell lengths. They can, however, have a secondary effect through their effect on who enters SNAP. It is unclear how these policies will ripple through to affect SNAP churn or spell length, so the overall effects are ambiguous.

More generous EITC policies are hypothesized to increase SNAP churn and decrease SNAP spell lengths.[68] The federal EITC and most state EITCs are refundable income tax credits, which not only reduces a person's tax liability but also allows refunds in excess of the income tax liability. Thus, a

[66] Our regression models control for age, so in large part this variable captures the effect of having a household member who is disabled.
[67] SNAP churn captures whether a household leaves SNAP and returns to the program with a gap of four or fewer months. SNAP spell length measures months receiving SNAP in one go before leaving the program, possibly to return again.
[68] Across the 50 states and DC, the maximum refundable EITC (federal plus state) for a family with two children ranged from $5,312 to $7,437 in 2012 (reported in 2013 dollars).

refundable credit can create an incentive to work—even for very low-income families who have little or no tax liability. An increase in the EITC can reduce spell lengths through these additional work incentives or by enabling households to go off SNAP when the household receives the refund. However, the EITC can increase SNAP churn if households that exit SNAP when they get the tax refund subsequently return to SNAP (after the refund is spent).

A higher state minimum wage policy is hypothesized to have ambiguous effects on SNAP churn and spell length. Increases in the minimum wage are expected to reduce spell lengths through the minimum wage's positive effect on earned income (through a rising wage rate and thus better-paying job). However, a potentially opposite effect comes from the employer demand side: as the minimum wage increases, employers may hire fewer (and lay off more) low-skilled workers, thus increasing SNAP spell lengths. The link between the minimum wage and churn is less clear and may be zero.

What do we find? Beyond their influence on savings, we find that SNAP asset limits affect some interactions with the SNAP program. The results suggest that more relaxed asset limits reduce SNAP churn, which could result from a less burdensome recertification process (table 11). Specifically, we find that being in a state with BBCE (versus no BBCE) decreases the likelihood of SNAP churn by 2 percentage points. With 7 percent of SNAP recipients churning per year (based on SIPP data), this 2 percentage-point decline represents a substantial 26 percent decline in SNAP churn. We do not, however, find that SNAP asset limit policies (living in a state with BBCE versus no BBCE) affect SNAP spell length (table 12).[69] The offsetting positive and negative hypothesized effects of asset limits are consistent with an overall effect that is not statistically significantly different from zero. This finding is consistent with Mabli et al. (2014) who find no statistically significant effect of BBCE (or excluding all or most vehicles) on median SNAP spell length. We find no evidence that relaxing vehicle asset limits (exempting at least one vehicle versus no vehicles) affects SNAP churn or SNAP spell length. Simplified reporting has no statistically significant effect on SNAP churn or spell lengths as reported in tables 11 and 12, respectively. We do find, however, that, as hypothesized and consistent with Mabli et al. (2014), increasing the recertification period increases median SNAP spell length (table 12). For example, our results suggest that moving from a 1–3 month recertification period to a 13-month or longer recertification period increases the median spell length from 14 to 24 months. Longer recertification periods are also found to reduce SNAP churn.

[69] See appendix table C.3 for the accompanying SNAP exit model regression coefficients.

Table 11: Effect of Asset Limits on SNAP Caseload Churn

	SNAP churn	
Asset limit variables (lagged one year)		
BBCE	−0.019	**
	(0.008)	
At least one vehicle exempt	−0.012	
	(0.011)	
Other SNAP policy variables (lagged one year)		
Simplified reporting	0.013	
	(0.011)	
Recertification period for units with earnings (omitted: 1–3 months)		
4–6 months	0.009	
	(0.017)	
7–12 months	0.002	
	(0.019)	
13+ months	−0.097	***
	(0.037)	
All legal noncitizens eligible	0.021	
	(0.017)	
Outreach spending per capita	−0.135	
	(0.091)	
Other relevant policies (lagged one year)		
EITC ($1,000)	−0.015	
	(0.018)	
Minimum wage	−0.013	
	(0.010)	
State economic variables		
Unemployment rate	−0.003	
	(0.003)	
Per capita income ($10,000)	0.026	
	(0.034)	
Individual demographics		
Age (omitted: age 18–29)		
30–49	−0.027	***
	(0.008)	
50–64	−0.039	***
	(0.008)	
65+	−0.055	***
	(0.013)	
Race and ethnicity (omitted: white non-Hispanic)		
Black non-Hispanic	0.015	***
	(0.005)	
Asian non-Hispanic	−0.022	
	(0.020)	
Hispanic	0.005	
	(0.009)	
Other non-Hispanic	−0.005	
	(0.013)	
Immigrant	0.009	
	(0.009)	

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Table 11: Effect of Asset Limits on SNAP Caseload Churn

	SNAP churn
Education (omitted: high school)	
Less than high school	−0.006
	(0.006)
Some college plus	−0.005
	(0.006)
People in household	
Number of children birth to age 5	−0.006 *
	(0.003)
Number of children age 6–18	−0.002
	(0.003)
Number of adults	0.014 ***
	(0.003)
Household structure (omitted: household headed by two adults)	
Headed by single female	0.006
	(0.008)
Headed by single male	0.004
	(0.012)
Household member is elderly or disabled	−0.016 **
	(0.007)
Lives in metropolitan area	−0.005
	(0.007)
Sample size (person-years)	15,608

Sources: 1996, 2001, 2004, and 2008 SIPP panels; SNAP Policy Database; and multiple other sources for state-level policy and economic characteristics.
Notes: Results are based on a probit model. This table presents marginal effects calculated using Stata's margins command, with standard errors presented in parentheses (standard errors are clustered at the state level). Models also include state and year fixed effects and use the cross-sectional weight. This model does not include imputed SNAP receipt data.
Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent

We find no evidence that noncitizen eligibility rules, outreach spending, nor the EITC affects SNAP churn or SNAP spell length. We also find no evidence that the minimum wage affects SNAP churn, but do find that a higher minimum wage increases SNAP spell length. Specifically, raising the state minimum wage from $7.25 to $10.00 per hour increases the median SNAP spell length from 16 to 21 months (table 12). While our hypothesis about the effects of the minimum wage is ambiguous, this finding may be inconsistent with other findings in the literature suggesting that an increased minimum wage reduces SNAP receipt (see, for example, Ratcliffe, McKernan, and Finegold 2008) and warrants further investigation. One possibility is that an increased minimum wage selectively reduces SNAP participation and results in a caseload with more needy participants who tend to have longer SNAP spells.

Table 12: Effect of Asset Limits on SNAP Spell Lengths

	Median SNAP spell length, months
Overall	16
Asset limit variables (lagged one year)	
BBCE	16
No BBCE	15
At least one vehicle exempt	16
No vehicles exempt	16
Other SNAP policy variables (lagged one year)	
Simplified reporting	16
No simplified reporting (omitted)	15
Recertification period for units with earnings	
1–3 months (omitted)	15
4–6 months	16
7–12 months	16
13+ months	25 *
Noncitizen eligibility	
All legal noncitizens eligible	14
Some legal noncitizens eligible	16
No noncitizens eligible (omitted)	16
Outreach spending per capita ($0.03, mean)	16
Outreach spending per capita ($0.09)	16
Other relevant policies (lagged one year)	
EITC ($5,525, mean)	16
EITC ($6,025)	16
Minimum wage ($7.25)	16
Minimum wage ($10)	21 **
State economic variables	
Unemployment rate (6.7%, mean)	16
Unemployment rate (7.7%)	16 ***
Per capita income ($35,000, mean)	16
Per capita income ($45,000)	19
Individual demographics	
Age	
18–29 (omitted)	15
30–49	16
50–64	16 *
65+	17 *
Race and ethnicity	
White non-Hispanic (omitted)	15
Black non-Hispanic	16
Asian non-Hispanic	23 ***
Hispanic	16
Other non-Hispanic	18 *
Immigrant	17 **
Native-born US citizen (omitted)	15
Educational attainment	
Less than high school	19 ***
High-school diploma (omitted)	16
Some college plus	13 ***

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Table 12: Effect of Asset Limits on SNAP Spell Lengths

	Median SNAP spell length, months
People in household	
Number of children birth to age 5 (0.5, mean)	16
Number of children age birth to age 5 (1.5)	19***
Number of children age 6–18 (0.8, mean)	16
Number of children age 6-18 (1.8)	17***
Number of adults (2.0, mean)	17
Number of adults (3.0)	14***
Household structure	
Headed by single female	17***
Headed by single male	14
Headed by two adults (omitted)	15
Household member is elderly or disabled	18***
No household member is elderly or disabled (omitted)	13
Lives in metropolitan area	15
Does not live in metropolitan area (omitted)	16
Sample size (person-months)	153,220

Sources: 1996, 2001, 2004, and 2008 SIPP panels; SNAP Policy Database; and multiple other sources for state-level policy and economic characteristics.
Notes: This model also includes state and year fixed effects, a prior participation indicator, and a seam indicator for the first reference month of each SIPP wave. Spells that were left-censored at the beginning of the SIPP panel are excluded. The model uses longitudinal person weights and does not include imputed SNAP receipt data. Standard errors are clustered at the state level. Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent for regression coefficients in the SNAP spell length model.

Our results suggest that household demographic characteristics relate to both SNAP churn and SNAP spell length. We find that SNAP churn is lower among older adults, as well as among those who live with a person who is elderly or disabled (table 11). An earlier analysis of SNAP churn also found that cases with an elderly or disabled member are less likely to churn, finding that 3 percent of churn cases had household heads over age 65, compared with 12 percent of cases overall (Mills et al. 2014). The study suggests that this is because cases with an elderly or disabled member generally have longer recertification periods. Looking only at the time of recertification, when most churn happens, cases with an elderly or disabled member are more likely to churn than cases with children and no elderly or disabled member (Mills et al. 2014). We also find that people in households with young children (birth to age 5) are less likely to churn, perhaps because of the importance of SNAP benefits before these children go to school and become eligible for free and reduced-priced school breakfast and lunch. African Americans (non-Hispanic) and people who live in households with more adults are more likely to churn (table 11).

Longer SNAP spell lengths are experienced by immigrants and people who are older, Asian, or less educated and who live in a household with more children, fewer adults, a person who is elderly or disabled, and a household head who is single and female. We also find longer SNAP spell lengths for people in states with a higher unemployment rate (table 12).

6. How Are Wealth and Debt Related to SNAP Spell Length?

Are greater asset holdings associated with shorter SNAP spells? What about debt? Do households with higher levels of debt have longer or shorter SNAP spells? We find that both higher assets (measured by household total wealth minus home equity) and holding debt are associated with shorter SNAP spells. The surprising debt finding is likely attributed to access to credit (described below). As mentioned in the empirical approach, these models control for some differences between households, but not enough to consider our results causal. As a result, we interpret our results as associations.

What do we expect? Households with higher asset holdings are a select group of more advantaged households than those with less wealth. As a result, we expect low-income households with higher assets to be better off in other ways and thus have shorter SNAP spell lengths. Contrary to what most people expect, households with more debt can be more advantaged than those without debt. For example, earlier research shows that families who hold debt have higher income, are headed by persons who are married or cohabiting, and are better educated (Carasso and McKernan 2008). As a result, we expect low-income households with debt to have shorter SNAP spells, as they identify a select group of households that have access to credit.

What do we find? We find that people in households with higher wealth and with (unsecured) debt have shorter SNAP spell lengths (table 13).[70] This relationship holds even after controlling for state-level policy and economic variables, individual demographic characteristics, and unobserved state and year characteristics that are fixed over time. For example, the median SNAP spell length is 15 months for people with debt and 17 months for people without debt. The wealth finding is consistent with Mabli, Godfrey et al. (2011) who find that families with positive wealth are less likely to enter SNAP and spend less time on the program. The debt finding is interesting and new. Whether the decrease in spell length associated with increased wealth and debt is the effect of wealth and debt or the result of differences in the types of families who accumulate wealth and debt is a question for future research.

Do SNAP spells differ for households with versus without debt? To further examine whether there are differences in SNAP spells for households with and without debt, we also conduct descriptive analyses that examine SNAP spells for individuals in households with different debt levels.

[70] See appendix table C.4 for the accompanying SNAP exit model regression coefficients.

Table 13: Relationship between SNAP Spell Length and Wealth and Debt

	Median SNAP spell length	
	Wealth model, months	Unsecured debt model, months
All individuals	16	16
Asset variables		
Ln wealth minus home equity (6.3, mean)	16	
Ln wealth minus home equity (10.0)	15 ***	
Has unsecured debt		14 ***
Does not have unsecured debt (omitted)		17
SNAP policy variables (lagged one year)		
Simplified reporting	16	16
No simplified reporting (omitted)	15	15
Recertification period for units with earnings		
1–3 months (omitted)	14	15
4–6 months	16	16
7–12 months	16	16
13+ months	25 *	25 *
Noncitizen eligibility		
All legal noncitizens eligible	14	14
Some legal noncitizens eligible	16	16
No noncitizens eligible (omitted)	16	16
Outreach spending per capita ($0.03, mean)	16	16
Outreach spending per capita ($0.09)	16	16
Other relevant policies (lagged one year)		
EITC ($5,525, mean)	16	16
EITC ($6,025)	16	16
Minimum wage ($7.25)	16	16
Minimum wage ($10.00)	20 **	20 *
State economic variables		
Unemployment rate (6.7%, mean)	16	16
Unemployment rate (7.7%)	16 **	16 **
Per capita income ($35,000, mean)	16	16
Per capita income ($45,000)	19	20
Individual demographics		
Age		
18–29 (omitted)	15	15
30–49	16	16
50–64	16 **	16 *
65+	17 **	17 *
Race and ethnicity		
White non-Hispanic (omitted)	15	15
Black non-Hispanic	16	16
Asian non-Hispanic	23 ***	23 ***
Hispanic	16	16
Other non-Hispanic	18 *	18 *
Immigrant	17 **	17 *
Native-born US citizen (omitted)	15	15
Educational attainment		
Less than high school	19 ***	19 ***
High-school diploma (omitted)	16	16
Some college plus	14 ***	14 ***

Continued on next page

Table 13: Relationship between SNAP Spell Length and Wealth and Debt

	Median SNAP spell length	
	Wealth model, months	Unsecured debt model, months
People in household		
Number of children birth to age 5 (0.5, mean)	16	16
Number of children birth to age 5 (1.5)	19 ***	19 ***
Number of children age 6–18 (0.8, mean)	16	16
Number of children age 6–18 (1.8)	17 ***	17 ***
Number of adults (2.0, mean)	16	16
Number of adults (3.0)	15 ***	14 ***
Household structure		
Headed by single female	17 ***	17 ***
Headed by single male	14	14
Headed by two adults (omitted)	15	15
Household member is elderly or disabled	18 ***	18 ***
No household member is elderly or disabled (omitted)	13	13
Lives in metropolitan area	15	15
Does not live in metropolitan area (omitted)	16	16
Sample size (person-months)	153,220	153,220

Sources: 1996, 2001, 2004, and 2008 SIPP panels; SNAP Policy Database; and multiple other sources for state-level policy and economic characteristics.
Notes: Models also include state and year fixed effects, a prior participation indicator, and a seam indicator for the first reference month of each SIPP wave. Models do not include spells that were left-censored at the beginning of the SIPP panel. Models use longitudinal person weights and do not include imputed SNAP receipt data. Standard errors are clustered at the state level.
Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent for regression coefficients in the SNAP spell length models.

These descriptive analyses show the same pattern as in the multivariate analyses. People in households with no unsecured debt have longer SNAP spells, likely identifying more economically vulnerable households who do not have access to credit. Among a cross-section of SNAP recipients in households that have no members who are elderly or disabled, 61 percent of people with no (unsecured) debt were still on SNAP two years later, while 48 percent of people with (unsecured) debt remained on SNAP two years later (table 14, top panel). This pattern also holds for people in households with a member who is elderly or disabled.

We see the same pattern when we examine the subset of people in households with debt, comparing people with $1–$5,000 in debt to people with more than $5,000 in debt (although less statistical significance; table 14, columns 3 and 4). Among SNAP recipients in households with an elderly or disabled member, for example, 68 percent of people with lower debt ($1–$5,000) were still on SNAP two years later compared with 54 percent of people in the higher debt group (over $5,000).

Looking at a group of low-income new SNAP recipients, we tend to find fewer statistically significant differences for people with higher and lower debt levels (table 14, bottom panel). This finding could reflect a smaller sample size. One exception is among people in households with a member who is

elderly or disabled—new SNAP entrants without debt stay on the program longer than those with debt, which is consistent with the pattern described above.

Table 14: Characteristics of SNAP Spells of Low-Income Individuals by Household Debt Level

	Has unsecured debt		Unsecured debt (non-zero)	
	No	Yes	$1–$5,000	>$5,000
SNAP participants				
Households with no elderly or disabled member				
Percentage of persons	52.0%	48.0%	53.1%	46.9%
Length of spell over next 2 years				
<6 months	19.1%	28.9%***	26.8%	31.3%
6 months to < 1 year	6.9%	11.3%***	9.6%	13.1%
1 year to <2 years	13.2%	12.1%***	10.9%	13.5%
2 years+	60.8%	47.7%***	52.7%	42.0%
Sample size	539	456	252	204
Households with elderly or disabled member				
Percentage of persons	61.9%	38.1%	52.1%	47.9%
Length of spell over next 2 years				
<6 months	15.1%	19.9%**	16.9%	23.2%***
6 months to <1 year	5.4%	6.7%**	4.6%	9.1%***
1 year to <2 years	10.4%	12.0%**	10.1%	14.1%***
2 years+	69.1%	61.3%**	68.4%	53.6%***
Sample size	1,118	649	334	315
Low-income new SNAP participants[a]				
Households with no elderly or disabled member				
Length of spell over next 2 years				
<6 months	17.0%	26.7%	33.3%	21.9%
6 months to <1 year	23.8%	15.2%	15.4%	15.0%
1 year to <2 years	14.0%	22.2%	17.5%	25.7%
2 years+	45.1%	35.9%	33.8%	37.4%
Sample size	123	110	44	65
Households with elderly or disabled member				
Length of spell over next 2 years				
<6 months	24.6%	39.3%***	43.8%	35.8%
6 months to <1 year	17.7%	22.0%***	15.4%	27.4%
1 year to <2 years	23.1%	14.5%***	15.0%	14.0%
2 years+	34.6%	24.2%***	25.8%	22.8%
Sample size	317	202	106	88

Source: 2008 SIPP panel.

Notes: Debts and current SNAP receipt are from the wave 4 interview. For "SNAP participants," debts are measured at the time of the interview, and SNAP recipiency is measured in the previous month (the final reference month of wave 4). "Length of spell over next 2 years" measures the remaining duration of the active spell (active in the last month of wave 4) over the next 24 months (waves 5 to 10). For low-income people who were not receiving SNAP in the final month of wave 4, "new SNAP participants" are people who enter SNAP in the next 12 months, using data from waves 5 to 7. "Length of spell over next 2 years" measures the spell duration for these people over the next 24 months (waves 5 to 13).

a. Low income is defined as having income below 130% of the poverty level for households without a member who is elderly or disabled and 200% of the poverty level for households with a member who is elderly or disabled.

Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent

Summary and Implications

This report provides empirical evidence on the relationships between asset limits, asset holdings, SNAP eligibility, and patterns of SNAP receipt. Looking first at asset holdings, we find SNAP households have lower assets than low-income, non-SNAP households and the general population of low-income, low-asset households. Although the extent of asset holdings among different types of low-income households varies somewhat, asset holdings are low, with only 10 percent of SNAP households and 28 percent of other low-income households having $2,000 or more of liquid assets.

We find evidence that SNAP asset limits reduce asset holdings and increase SNAP caseload churn, but have no effect on SNAP spell lengths.[71] We find no evidence that more flexible vehicle exemptions affect asset holdings or SNAP participation. Specifically, we find that relaxing asset limits through BBCE increases the likelihood a person lives in a banked household and has at least some emergency savings—$500 in a bank account. We do not, however, find any effect of relaxed asset limits on four other asset measures—$2,000 in a bank account, liquid asset amount, wealth minus home equity, and vehicle ownership. These results suggest that asset tests affect behavior at levels of assets substantially below the federal SNAP asset limit, which could stem from a misunderstanding among lower income households about the assets allowed under federal SNAP eligibility rules.

Beyond their influence on savings and mainstream financial sector participation, the results suggest that more relaxed asset limits through BBCE reduce SNAP churn by 26 percent. This substantial reduction could result from a less burdensome recertification process that eliminates gaps in participation when clients recertify for benefits. In addition, relaxation of asset limits enables some households to remain on SNAP that would otherwise temporarily lose eligibility as a result of receiving a lump sum payment (such as an insurance settlement) and then return once the payment has been spent.

These results suggest that eliminating asset tests in all states would increase the number of people in households with a bank account and with some emergency savings, while reducing SNAP churn. On the flip side, requiring asset tests in all states would likely reduce mainstream financial sector

[71] Our models identify a causal effect of SNAP asset limits on our outcomes of interest (household assets, SNAP churn, and SNAP spell length) under the assumption that (1) the model does not exclude time varying characteristics (e.g., other state policies) that are correlated with state SNAP asset limits and (2) the outcomes do not induce states to change their policies—so that the outcome in year *t-1* affects policies in year *t*.

participation and emergency savings among lower income households and lead more households to churn on and off the SNAP caseload.

Asset limits are designed to limit program eligibility and target program dollars and benefits to people most in need. Because most states have already eliminated SNAP asset tests through BBCE, asset tests have a much smaller effect on SNAP eligibility (as measured for 2011) nationally than has been found in previous research for earlier years. We find that asset tests in 2011 reduce the number of eligible SNAP units by 3 percent. However, our results show that if BBCE were eliminated, as has been proposed in past legislation, 16 percent eligible units with income below the federal limit would fail the federal asset test.[72] This amount is likely an upper-bound estimate, as the SIPP data underlying this estimate include imputed asset values, and analyses of the SIPP data suggest that the SIPP imputation procedure overestimates SNAP recipients' asset values.

To the extent that eligible households with assets are less likely than those with few or no assets to participate in SNAP, changes in the size of the participating caseload because of changes in asset policy are likely smaller than changes in eligibility. Future research could directly examine the effect of asset limits on SNAP participation.

The resources needed to implement asset tests to determine and recertify program eligibility can lead to higher administrative costs. The results of this study further suggest that asset limits may be increasing program administrative costs by increasing churn. The increased cost of program churn can work to offset some of the cost savings from reduced participation. The results also suggest that asset limits have the unintended consequence of reducing emergency savings and mainstream financial sector participation. These lower savings have the potential to increase program costs as households have greater financial instability.

Decisions around asset limits and the right level of asset limits are complex. This research sheds additional light that shows that there are negative consequences to asset limits in the form of lower financial market participation, lower likelihood of having some emergency savings (at least $500), and increased SNAP churn. Future research could further weigh these negative consequences with the reduced program costs and benefits that come with reduced eligibility and participation.

[72] This assumes that states would retain their vehicle rules.

Appendix A. Data Limitations

This appendix provides details of Survey of Income Program and Participation (SIPP) data limitations: sample loss, Supplemental Nutrition Assistance Program (SNAP) item nonresponse and imputation, seam bias, and SNAP and asset underreporting.

Sample Loss

Given the longitudinal nature of the SIPP, sample loss is inevitable. For example, less than 60 percent of the initial sample completed four years of the 2008 panel (Census Bureau 2015). The SIPP loses about 4 percent of the sample each wave. Table A.1 shows the sample loss rates by SNAP participation status for waves 1 through 14 of the 2008 SIPP (we exclude waves 15 and 16 from the analysis because of the additional sample loss in these waves) and the full duration of the 1996, 2001, and 2004 SIPP panels.

Table A.1: Sample Loss Rates by SNAP Participation Status

SNAP participation	Percentage of sample	Months observed Mean	Months observed Median	Share observed over all waves, percent
2008 panel (56-month duration)[a]				
On SNAP for all observed months	2.8	41	52	42.4
On SNAP for some observed months	17.0	45	52	37.1
No SNAP participation	80.2	43	52	43.3
Total	100.0	43	52	42.2
2004 panel (48-month duration)				
On SNAP for all observed months	2.1	35	36	36.3
On SNAP for some observed months	9.9	38	40	35.3
No SNAP participation	88.0	36	40	38.0
Total	100.0	36	40	37.7
2001 panel (36-month duration)				
On SNAP for all observed months	1.7	25	36	50.0
On SNAP for some observed months	7.9	32	36	58.2
No SNAP participation	90.4	28	36	56.8
Total	100.0	28	36	56.8
1996 panel (48-month duration)				
On SNAP for all observed months	1.7	33	44	45.7
On SNAP for some observed months	10.5	41	48	56.9
No SNAP participation	87.7	39	48	58.7
Total	100.0	39	48	58.3

Universe: All persons age 18+ observed in month one of the panel.
Source: 1996, 2001, and 2004 SIPP panels; 2008 SIPP panel, waves 1–14.
Notes: In the 2008 panel, individuals who were on SNAP for some but not all observed months received SNAP for an average of 17 months. The median number of months was 12. In 2004, the numbers were 14 and 9 respectively; in 2001, 11 and 8; and in 1996, 14 and 9. The initial unweighted sample size is 78,160 in the 2008 panel, 80,523 in the 2004 panel, 65,186 in the 2001 panel, and 68,001 in the 1996 panel. Table uses month 1 wave 1 person weight.
a. Analyses are based on waves 1–14 of the 2008 SIPP panel.

With our focus on SNAP, we examine sample loss for SNAP versus non-SNAP recipients. In the 2008 panel, for example, individuals who received SNAP in every month they are observed are present in the data for slightly fewer months (41, on average), than are individuals who received SNAP only some months (44

months) or who never received SNAP (43 months; table A.1, top panel). However, the median number of months observed for all three subgroups is 52 months, or 13 waves. For the different groups, the share of adults observed from wave 1 through wave 14 ranges from 37.1 percent to 43.3 percent. Interestingly, while individuals who are on SNAP for all observed months are observed for slightly fewer months on average, they are more likely to be observed over the entire panel than those who are on SNAP for some months (42.5 percent versus 37.1 percent). Given that the differences are small, we do not believe they are significant enough to warrant concerns for the analysis.

The three earlier panels follow similar patterns along some dimensions, but not others. Across all four panels (which range in length from 36 to 56 months), the average time span observed is 28 to 43 months (total), about three-fourths of the panel length (ranging from 75 percent to 81 percent). However, there are larger differences between the subgroups in the earlier panels. Individuals in the 1996 and 2001 panels who received SNAP in every month they are observed are present in the data an average four to nine fewer months than individuals who received SNAP only some months, or who never received SNAP. The median values are identical across subgroups in the 2001 and 2008 panels, but the median months observed is lower for individuals on SNAP for all observed months than in other subgroups in the 1996 and 2004 panels. The 2004 panel has the smallest share of people who are observed over the entire panel.

Given the level of sample loss present, we consider differences that exist when using longitudinal versus cross-sectional weights. Cross-sectional weights are available for each SIPP reference month, compensating for the respondents who were not present in that month. By and large, the SIPP longitudinal weights used in these analyses only have non-zero values for people who completed the full panel (or 14 waves in the 2008 panel), although people who left the sample because they died, moved abroad, or were institutionalized are still included. The longitudinal weights increase the weight of remaining respondents representing subpopulations with high attrition rates so as to be representative of the initial sample, compensating for the sample loss (Shaefer 2013).

Table A.2 shows selected characteristics using longitudinal and cross-sectional weights for three waves of the 2008 panel. The share of the adult population receiving SNAP is very similar with the different weights, although there is significant increase in the SNAP receipt rate from wave 1 to wave 8, which is expected given the substantial increase in the SNAP caseload during this time period. The gender balance remains stable throughout the panel regardless of the weights—about 48 percent of the sample is male and 52 percent is female, with both longitudinal and cross-sectional weights. However, although the racial composition of the sample is consistent across panels when the longitudinal weight is used, the cross-sectional weight shows somewhat fewer non-Hispanic whites and somewhat more Hispanics in wave 14 than is found using the longitudinal weight. This result is consistent with variation found between longitudinal and cross-sectional weights in previous analyses of the SIPP (Mabli et al. 2014).

Table A.2: Characteristics of Adults in Waves 1, 8, and 14 of 2008 SIPP Using Longitudinal and Cross-Sectional Weights

	Wave 1			Wave 8			Wave 14		
	Weight			Weight			Weight		
	Cross-sectional	Longitudinal	Difference	Cross-sectional	Longitudinal	Difference	Cross-sectional	Longitudinal	Difference
Receives SNAP in 1+ months in wave	6.7%	6.6%	0.1%	10.1%	10.1%	0%	11.1%	10.9%	0.2%
Gender									
Male	48.3%	48.2%	0.1%	47.8%	47.8%	0%	47.5%	47.6%	−0.1%
Female	51.7%	51.8%	−0.1%	52.2%	52.2%	0%	52.5%	52.4%	0.1%
Race or ethnicity									
Non-Hispanic white	68.9%	68.8%	0.1%	69.0%	69.4%	0.3%	67.5%	69.4%	−1.9%
Non-Hispanic black	11.2%	11.3%	−0.1%	11.2%	11.1%	0.1%	11.1%	11.2%	−0.1%
Hispanic	13.5%	13.6%	−0.1%	13.4%	13.2%	0.2%	14.1%	13.2%	0.9%
Other	6.4%	6.3%	0.1%	6.4%	6.2%	0.2%	7.3%	6.2%	1.0%

Universe: All persons age 18+ observed in month one of the panel.
Source: 2008 SIPP panel, waves 1–14.
Note: Table uses cross-sectional person weight (WPFINWGT) and longitudinal full panel weight through December 2012 (LGTPN4WT).

SNAP Item Nonresponse and Imputation

Item nonresponse occurs when a household fails to respond to a particular question. In such cases, the Census Bureau imputes a response to the household. While item nonresponse affects all questions to some extent, nonresponse to questions about SNAP receipt, assets, and wealth are of most relevance to our analysis. We summarize the extent of nonresponse for these variables in the body of the report. Because the question about SNAP receipt is key to identifying SNAP recipients and defining spells of SNAP receipt, we provide further detail about SNAP nonresponse and imputation here.

Table A.3 shows the extent to which SNAP receipt is imputed in each of the four SIPP panels. The top panel shows the pattern of imputation for adults with at least one reported month of SNAP receipt, meaning that they have at least one month of positive SNAP receipt that was not imputed. Between 4.7 percent (2004 panel) and 10.9 percent (1996 panel) of these adults have at least one month of imputed SNAP receipt. The second panel shows the same figures for lower income adults with no reported months of SNAP receipt. These individuals could still have SNAP receipt on their record as long as it was imputed. These individuals have less than 1 percent of their SNAP recipiency status (received SNAP or did not receive SNAP) imputed in each of the four panels, substantially lower than the 5 percent to 11 percent found above. The average number of months of SNAP that is imputed (five to eight months) is very similar for those with imputed SNAP receipt, regardless of whether the individual has some reported SNAP receipt or not.

Table A.3: Imputation of SNAP Receipt by Reported SNAP Receipt

	1996 panel	2001 panel	2004 panel	2008 panel
Adults with 1+ months of reported SNAP in panel				
No responses (months) imputed	89.0%	90.1%	95.3%	92.8%
Some responses imputed	10.9%	9.9%	4.7%	7.2%
Average number of responses imputed	7	6	5	6
Lower income adults with no reported months of SNAP				
All responses imputed	0.0%	0.0%	0.0%	0.0%
No responses imputed	99.2%	99.3%	99.7%	99.6%
Some responses imputed	0.8%	0.7%	0.3%	0.4%
Average number of responses imputed	8	6	5	6

Universe: SNAP recipients age 18+ and lower income, nonrecipient adults age 18+.
Sources: 1996, 2001, 2004 SIPP panels; 2008 SIPP panel, waves 1–14.
Notes: An adult is classified as "lower income" if he or she is in a household with income below 200 percent of the federal poverty level in at least one month of the panel. One respondent had all months imputed in 1996; no other panels had respondents with all months imputed.

Imputations in the SIPP are done in three ways—logical editing, hot deck, and cold deck (Pennell 1993). All but two cases of SNAP imputation are done using the hot-deck technique, which replaces

missing values with values from a similar case within the same wave. Available SIPP documentation suggests that the SNAP hot-deck imputation procedure does not take state or program eligibility rules into account. For this reason, analyses that examine the effect of state policies (or wealth and debt) on SNAP exclude observations with imputed SNAP data. We follow the same approach when examining the effect of state policies on asset holdings and wealth—observations with imputed asset and wealth data are excluded from the analyses.

Table A.4 provides additional information about SNAP imputations. Specifically, it shows the share of people who receive SNAP using all data (imputed and nonimputed) and only nonimputed data in two waves of the four most recent SIPP panels. When imputed data are excluded, the share of people who receive SNAP decreases slightly. The changes are not large, suggesting that the imputations are not distorting the overall picture of SNAP receipt. With the exceptions noted above (analyses examining state policies, wealth, and debt), our analyses use the imputed data.

Table A.4: SNAP Receipt Rates with and without Imputed Data

	1996 SIPP		2001 SIPP		2004 SIPP		2008 SIPP	
	Wave 2	Wave 8	Wave 2	Wave 8	Wave 2	Wave 8	Wave 2	Wave 8
Receives SNAP in 1+ months in wave (all data)	6.8%	4.9%	4.7%	5.4%	6.0%	6.1%	7.7%	10.3%
Receives SNAP in 1+ months in wave (only reported data, not imputed data)	6.5%	4.6%	4.5%	5.0%	5.9%	6.0%	7.6%	10.1%

Universe: SNAP recipients age 18+ and lower income, nonrecipient adults age 18+.
Sources: 1996, 2001, 2004 SIPP panels; 2008 SIPP panel, waves 1–14.
Note: This analysis uses variables RCTYP27, AR27 as a proxy for RCUTYP27 imputation.

Seam Bias

A well-known limitation of the SIPP is that transitions (e.g., between receiving a benefit and not receiving a benefit) disproportionately occur between interviews (or at the "seams") versus within the four-month interview period. In the absence of the seam effect, we expect SNAP entries and exits to occur equally in the seam month (the first month of the reference period) and the other three months in the reference period (e.g., 25 percent of transitions occurring in each month of the wave). However, in the 2008 SIPP, we find that 75 percent of SNAP entries occur in the seam month, with an average of 8

percent occurring in nonseam months (table A.5). For SNAP exits, 59 percent occur in the seam month, with an average of 14 percent occurring in nonseam months.

Table A.5: The Seam Effect on SNAP Entry and Exit

	Seam month	Off-seam month	Expected
Entry	75%	8%	25%
Exit	59%	14%	25%

Source: 2008 SIPP panel.
Note: Table uses cross-sectional person weight.

When analyzing the SIPP monthly data, seam effect concerns are often addressed in one of two ways: (1) using wave (interview month only or summary, such as average, of the wave) data rather than monthly data or (2) using monthly data and controlling for the seam with an indicator variable that identifies the seam month (Cellini, McKernan, and Ratcliffe 2008). Many analyses of dynamics using SIPP data use the monthly rather than the wave data (e.g., Eller 1996; McKernan and Ratcliffe 2005; Naifeh 1998; and Ruggles 1990). In addition, an analysis of the seam effect in the SIPP suggests that using the monthly data with a seam month indicator variable is preferred to using wave data (Ham, Li, and Shore-Sheppard 2007). The seam effect is most relevant for analyses that examine SNAP spell length (which are based on SNAP exit models); in these models, we control for the seam with an indicator variable for seam month.[73]

Underreporting

Underreporting refers to the shortfall in total recipients or dollars observed in survey data compared to external benchmarks. Below, we present our findings regarding underreporting of SNAP and wealth in the SIPP.

SNAP receipt underreporting: Across the months of 2009 and 2010 (average), the SIPP captures 92 percent of SNAP receipt (table A.6). This rate of SIPP underreporting is similar to rates found in earlier SIPP panels (e.g., 85.5 percent in August 2008 and 94.5 percent in December 2008, per Mabli, Godfrey, et al. [2014]). Over the 2009–10 period, SIPP underreporting is less prevalent in states that

[73] In analyses that examine trigger events in SNAP dynamics, Mabli et al. (2014) use "trigger 'windows' of four and eight months to capture transition events that may have been reported on a seam" (p. 23). Because we are not examining trigger events, this method is not necessary for our analyses.

have increased or eliminated asset limits via BBCE than in states that have not implemented BBCE. For example, we find that the SIPP captures 95 percent of SNAP receipt in states with BBCE, and only 88 percent of SNAP receipt in states without BBCE (table A.6). Interestingly, analyses of the Panel Study of Income Dynamics (PSID) show the opposite pattern—80 percent in states with BBCE and 95 percent in states without BBCE (not shown).

Different patterns across the SIPP and PSID suggest no underlying reason for the SIPP's greater underreporting of SNAP receipt in states with BBCE versus states without BBCE. Our multivariate analyses lessen the concern of differential underreporting by state by including state fixed effects. The state fixed effects allow us to control for state differences that are fixed over time. In this case, the variation that allows us to estimate the effect of asset limits on outcomes such as SNAP churn comes from the variation within states over time.

Table A.6: Benchmarking Comparison of SIPP SNAP Participation to Administrative Totals

	Administrative data	SIPP	
	Total	Total	Percent difference
2009–2010 Average			
All states	38,496,843	35,506,868	92
States without BBCE	12,593,323	11,023,898	88
States with BBCE	25,903,520	24,482,970	95

Sources: Administrative SNAP totals; 2009–10 SIPP (2008 SIPP panel).
Notes: Annual totals are averages of monthly totals for each dataset. Table uses cross-sectional person weight.

An additional concern is greater underreporting of SNAP participation in wave 1 than in subsequent waves of the SIPP. Mabli, Tordella, et al. (2011) find that people underreport program participation in wave 1, then correct that underreporting in wave 2. For that reason, we exclude wave 1 when constructing cohorts for the churn analysis. We include wave 1 when constructing the duration model, because only SNAP participants enter the model and excluding wave 1 participants, even if underreported, would only further reduce measured spell length.

Asset and liability underreporting: To analyze the quality of the asset and liability data, we compared wealth in the SIPP to wealth in the Survey of Consumer Finances (SCF). It is important to bear in mind, however, that the SCF (like the SIPP) is based on self-reported wealth, so it does not necessarily provide the true distribution of wealth. With more than 100 wealth-related questions in the SCF (designed to capture the assets and debts of high-wealth families), some double counting is possible—and that double counting could be more prevalent among low-wealth families who may be less financially savvy.

We find that the SIPP captures 76 percent of the SCF target of mean wealth of lower income households[74]—$78,363 in the SIPP versus $103,191 in the SCF (table A.7). The median lower income household in the SCF has $10,543 in wealth, compared with $6,373 in the SIPP. For lower income households, SIPP shortfalls only occur below the 70th percentile; SIPP and SCF values for the 70th through 90th percentiles are similar. Liquid asset amounts (e.g., amounts in checking and savings accounts, stocks, bonds, etc.) are also higher in the SCF. For example, the median lower income household in the SCF has $702 in liquid assets, compared with $100 in the SIPP.

To the extent that there is differential underreporting by states and over time, our multivariate analyses control for the differences by including state and year fixed effects.

Table A.7: Benchmarking Comparison of SIPP Wealth to SCF Wealth, Families with Incomes below 200 Percent of the Poverty level

	SCF	SIPP	
Wealth decile	Dollars	Dollars	Percentage of SCF
10th	−$4,764	-$7,644	160
20th	$0	$0	100
30th	$1,705	$6	0
40th	$5,136	$1,775	35
50th	$10,543	$6,373	60
60th	$23,474	$18,525	79
70th	$50,990	$51,605	101
80th	$99,211	$112,463	113
90th	$215,425	$236,300	110
Mean	$103,191	$78,363	76

Sources: 2010 Survey of Consumer Finances; 2010 SIPP (2008 SIPP panel, wave 7).
Note: Table uses cross-sectional person weight.

[74] Lower income households are defined as households with income below 200 percent of the poverty level.

Appendix B. Empirical Approach

This appendix presents the empirical model used to address research questions 4 and 5, followed by the empirical model used to address research question 6. Appendix tables B.1, B.2, and B.3 provide the descriptive statistics for the regression models.

Research questions 4 and 5 examine multiple asset-related outcomes, Supplemental Nutrition Assistance Program (SNAP) churn, and SNAP spell length. The following discussion of the model focuses on liquid assets as the outcome, but the model follows similarly for SNAP churn and spell length. The sample, unit of analysis, and functional form for each outcome are described further below.

The dependent variable Y_{ist} represents the liquid assets of individual "*i*" living in state "*s*" at time "*t*."

$$Y_{ist} = \alpha + \beta_1 'AssetLimit_{s,t\text{-}1year} + \beta_2 'Policy_{s,t\text{-}1year} + \beta_3 'Economic_{st} + \beta_4 'Demographic_{ist} + \mu_s + \tau_t + \nu_{ist}.$$

Asset Limit represents state-specific SNAP asset limit policies in place in state *s* one year earlier, and Policy represents earned income tax credit (EITC) and minimum wage policies in state *s* one year earlier.[75] The SNAP churn and spell length models include additional SNAP policy variable controls (simplified reporting, certification period, noncitizen eligibility, and outreach spending) because these SNAP policies are hypothesized to directly affect SNAP participation but not assets or wealth. All policy variables are measured one year before the outcome is measured because we expect that it takes time for policy changes to affect household outcomes.

Economic represents state economic variables at time *t* and includes unemployment rate and per capita income. Demographic represents demographic characteristics for individual *i* in state *s* in time *t*. These characteristics include age, race and ethnicity, immigration status, educational attainment, number of children in household, number of adults in household, household structure (headed by single female or single male), household with member who is elderly or disabled, and whether the individual lives in a metropolitan area. The spell models also include a prior SNAP participation indicator and, because they use monthly Survey of Income and Program Participation (SIPP) data, a seam indicator for the first reference month of each SIPP wave.[76]

[75] In models that include state fixed effects, we exclude individuals in states that have fewer than 30 observations across all years. The excluded states are North Dakota, South Dakota, Wyoming, Vermont, and the District of Columbia.

[76] We do not include a seam indicator in the asset or SNAP churn models because we are examining outcomes in a year, not in a month.

The model captures unobservable state and time differences with state fixed effects μ_s (which control for differences across states) and year fixed effects τ_t (which control for differences across years). By including state and year fixed effects, the model captures federal changes that occur over time and fixed differences across states over time. ν_{ist} is the random error term.

Our model identifies a causal effect of SNAP asset limits on our outcomes of interest (household assets, SNAP churn, and SNAP spell length) under the assumption that (1) the model does not exclude time-varying characteristics (e.g., other state policies) that are correlated with state SNAP asset limits and (2) the outcomes do not induce states to change their policies—so that the outcome in year *t*-1 affects policies in year *t*.

Our regression model for estimating the relationship between wealth, debt, and spell lengths is similar to the equation above but with wealth or debt taking the place of the asset limit policies:

$$Y_{ist} = \alpha + \beta_1 'Wealth_{st} + \beta_2 'Policy_{s,t\text{-}1year} + \beta_3 'Economic_{st} + \beta_4 'Demographic_{ist} + \mu_s + \tau_t + \nu_{ist.}$$

Here the dependent variable represents the SNAP spell of individual *i* living in state *s* in month *t*. Wealth is measured as the household total wealth minus home equity of individual *i* in state *s* in the asset and liability topical module month closest to *t*.[77] A second model substitutes whether the household has debt for wealth as the key explanatory variable.

Policy represents the other state-specific SNAP, EITC, and minimum wage policies in state *s* during month *t*-12. Economic represents state economic conditions in state *s* in month *t*. Demographic represents demographic characteristics for individual *i* in state *s* in month *t*. Consistent with the spell length models above, this model also includes a prior SNAP participation indicator and SIPP seam month indicator. Unobservable state and time differences are captured with state fixed effects, similar to the equation above. The sample, unit of analysis, and functional form are identical to those for the spell length model described above.

[77] The asset and liability topical module was administered in the following waves of the SIPP panels: 1996 panel waves 3, 6, 9, and 12; 2001 panel waves 3, 6, and 9; 2004 panel waves 3 and 6; and 2008 panel waves 4, 7, and 10.

Appendix Table B.1: Sample Means for Effect of SNAP Asset Limits and Other Policies on Asset Holdings and Wealth

Variable	Mean	Standard deviation
Household member has a checking or savings account	62%	49
$500 in bank account	24%	43
$2,000 in bank account	13%	34
Household member owns vehicle	75%	43
Natural log of value of liquid assets	2.8	3.7
Natural log of wealth minus home equity	5.7	4.0
BBCE	25%	43
At least one vehicle exempt	47%	50
EITC	$5,518	$451
Minimum wage	$7.28	$0.70
Unemployment rate	6.4%	2.3
Per capita income	$32,655	$6,891
Age 30–49	37%	48
Age 50–64	17%	38
Age 65+	22%	42
Black non-Hispanic	17%	37
Asian non-Hispanic	3%	17
Hispanic	20%	40
Other non-Hispanic	2%	15
Immigrant	18%	38
Less than high school	29%	46
Some college plus	37%	48
Number of children birth to age 5	0.3	0.7
Number of children age 6–18	0.7	1.1
Number of adults	2.0	0.9
Household headed by single female	38%	49
Household headed by single male	16%	37
Household member is elderly or disabled	51%	50
Lives in metropolitan area	75%	43

Sources: 1996, 2001, 2004, and 2008 SIPP panels; SNAP Policy Database; and multiple other sources for state-level policy and economic characteristics.
Notes: Statistics are calculated using the cross-sectional weight. The natural log of liquid assets was calculated by adding one to all values and taking the natural log. The natural log of wealth minus home equity was calculated by setting all negative values to zero and then adding one to all values and taking the natural log. These models do not include imputed asset and liability data.

Appendix Table B.2: Sample Means for Effect of Asset Limits on SNAP Caseload Churn

Variable	Mean	Standard deviation
Churn spell in this period	7.2%	26
BBCE	32%	47
At least one vehicle exempt	53%	50
Simplified reporting	57%	50
Recertification period 4–6 months	43%	38
Recertification period 7–12 months	41%	39
Recertification period 13+ months	3%	7
Noncitizen adults fully eligible	20%	40
Outreach spending per capita	$0.02	$0.05
EITC	$5,560	$498
Minimum wage	$7.24	$0.71
Unemployment rate	7.2%	2.4
Per capita income	$34,077	$7,427
Age 30–49	41%	49
Age 50–64	19%	39
Age 65+	16%	37
Black non-Hispanic	27%	45
Asian non-Hispanic	3%	16
Hispanic	23%	42
Other non-Hispanic	3%	17
Immigrant	18%	38
Less than high school	40%	49
Some college plus	28%	45
Number of children birth to age 5	0.5	0.8
Number of children age 6–18	0.8	1.2
Number of adults	1.9	1.0
Household headed by single female	52%	50
Household headed by single male	15%	35
Household member is elderly or disabled	62%	48
Lives in metropolitan area	74%	44

Sources: 1996, 2001, 2004, and 2008 SIPP panels; SNAP Policy Database; and multiple other sources for state-level policy and economic characteristics.
Notes: Statistics are calculated using the cross-sectional weight. This model does not include imputed SNAP receipt data.

Appendix Table B.3: Sample Means for Effect of Asset Limits and Wealth on SNAP Spell Length

Variable	Mean	Standard deviation
In a state with BBCE	44%	50
In a state where at least one vehicle exempt from asset test	69%	46
Ln wealth minus home equity	5.9	4.0
Has debt	42%	49
Simplified reporting	70%	46
Recertification period 4–6 months	45%	40
Recertification period 7–12 months	45%	41
Recertification period 13+ months	2%	5
All legal noncitizens eligible	16%	37
Some legal noncitizens eligible	78%	41
Outreach spending per capita	$0.03	$0.06
EITC	$5,577	$508
Minimum wage	$7.35	$0.75
Unemployment rate	7%	2
Per capita income	$36,530	$7,765
Age 30–49	42%	49
Age 50–64	16%	37
Age 65+	10%	30
Black non-Hispanic	26%	44
Asian non-Hispanic	3%	16
Hispanic	22%	41
Other non-Hispanic	4%	19
Immigrant	17%	37
Less than high school	33%	47
Some college plus	33%	47
Number of children birth to age 5	0.5	0.8
Number of children age 6–18	0.8	1.1
Number of adults	2.2	1.1
Household headed by single female	46%	50
Household headed by single male	14%	35
Household member is elderly or disabled	56%	50
Lives in metropolitan area	77%	42

Sources: 1996, 2001, 2004, and 2008 SIPP panels; SNAP Policy Database; and multiple other sources for state-level policy and economic characteristics.
Notes: Statistics are calculated using the longitudinal person weight. The model does not include spells that were left-censored at the beginning of the SIPP panel or imputed SNAP receipt data.

Appendix C. Additional Analysis Tables

Appendix Table C.1: Characteristics of Low-Income Households by Level of Countable Assets (Excluding Vehicles) in 2011, Excluding Results Based on Imputed Asset Data

	Households without elderly or disabled *(<130% of poverty)*			Households with elderly or disabled *(<200% of poverty)*			All low-income households		
	Asset level[a]			Asset level[a]			Below	Above	
	≤ $2,000	> $2,000		≤ $3,000	> $3,000		asset level	asset level	
Percentage of households	86.5%	13.5%		79.6%	20.4%		82.1%	17.9%	
Demographic characteristics									
Household contains									
Children (<18)	64.0%	51.1%	***	22.7%	11.3%	***	38.4%	22.1%	***
Adults (18–59)	100.0%	100.0%		54.1%	31.9%	***	71.6%	50.4%	***
Elderly (60+)	0.0%	0.0%		59.9%	84.6%	***	37.1%	61.6%	***
Nonelderly disabled	0.0%	0.0%		45.4%	19.1%	***	28.1%	13.9%	***
No children, elderly, or disabled	36.0%	48.9%		0.0%	0.0%		13.7%	13.3%	
Household composition									
Headed by two adults	30.7%	42.2%	***	25.6%	35.3%	***	27.5%	37.2%	***
Headed by single female	46.6%	33.4%	***	51.2%	47.0%	***	49.4%	43.3%	***
Headed by single male	22.7%	24.4%	***	23.3%	17.7%	***	23.1%	19.5%	***
Age of head									
18–29	29.2%	22.0%	***	4.4%	0.6%	***	13.8%	6.4%	***
30–49	55.6%	53.2%	***	21.2%	9.0%	***	34.3%	21.0%	***
50–64	15.2%	24.8%	***	30.7%	22.8%	***	24.8%	23.3%	***
65+	0.0%	0.0%	***	43.7%	67.6%	***	27.1%	49.2%	***
Race of head									
White, non-Hispanic	44.9%	76.4%	***	61.0%	86.2%	***	54.9%	83.5%	***
Black, non-Hispanic	20.8%	6.1%	***	19.9%	3.9%	***	20.2%	4.5%	***
Hispanic	28.2%	10.3%	***	13.2%	5.5%	***	18.9%	6.9%	***
Other, non-Hispanic	6.1%	7.2%	***	5.9%	4.3%	***	6.0%	5.1%	***
Household contains noncitizens	21.1%	12.3%	***	7.4%	4.3%	***	12.6%	6.5%	***
Educational attainment of head									
Less than high school	18.6%	7.0%	***	25.2%	12.7%	***	22.7%	11.2%	***
High-school degree or equivalent	32.6%	14.7%	***	33.2%	33.4%	***	33.0%	28.3%	***
Post-secondary education but no degree	27.4%	28.9%	***	27.1%	25.2%	***	27.2%	26.2%	***
College degree or higher	21.5%	49.3%	***	14.5%	28.7%	***	17.1%	34.3%	***
Geographic characteristics									
Region									
Northeast	15.3%	20.2%	***	18.1%	19.8%	***	17.0%	19.9%	***
Midwest	18.5%	21.2%	***	20.5%	26.6%	***	19.7%	25.1%	***
South	41.5%	31.4%	***	43.2%	31.5%	***	42.5%	31.4%	***
West	24.7%	27.1%	***	18.3%	22.1%	***	20.8%	23.5%	***
In metropolitan statistical area	80.5%	85.0%	**	76.7%	75.1%		78.1%	77.9%	
Economic characteristics									
Income as a percentage of poverty									
<=100 %	75.3%	72.9%		41.8%	21.3%	***	54.6%	35.3%	***
>100% to <130%	24.7%	27.1%		20.0%	19.8%	***	21.8%	21.8%	***
130% to <200%	0.0%	0.0%		38.2%	59.0%	***	23.7%	42.9%	***

Continued on next page

Appendix Table C.1: Characteristics of Low-Income Households by Level of Countable Assets (Excluding Vehicles) in 2011, Excluding Results Based on Imputed Asset Data

	Households without elderly or disabled *(<130% of poverty)*			Households with elderly or disabled *(<200% of poverty)*			All low-income households		
	Asset level[a]			Asset level[a]			Below asset level	Above asset level	
	≤ $2,000	> $2,000		≤ $3,000	> $3,000				
Household has earned income	64.3%	59.6%	*	28.4%	24.0%	***	42.1%	33.7%	***
Assets and wealth									
Has bank account	49.0%	99.7%	***	56.1%	98.4%	***	53.4%	98.7%	***
Median (among those with account)	$100	$5,000	***	$100	$10,000	***	$100	$8,760	***
Mean (among those with account)	$315	$14,522	***	$380	$25,293	***	$357	$22,023	***
Has liquid assets	33.6%	100.0%	***	36.5%	100.0%	***	35.4%	100.0%	***
Median (non-zero)	$200	$11,100	***	$200	$30,000	***	$200	$24,000	***
Mean (non-zero)	$1,962	$67,595	***	$3,012	$101,905	***	$2,618	$91,285	***
Has retirement savings	5.5%	25.6%	***	4.3%	25.6%	***	4.7%	25.6%	***
Median (non-zero)	$5,000	$28,000	***	$12,000	$51,000	***	$7,000	$45,000	***
Mean (non-zero)	$16,279	$84,641	***	$33,026	$104,667	***	$25,676	$99,627	***
Has nonretirement liquid assets	32.1%	100.0%	***	35.3%	100.0%	***	34.0%	100.0%	***
Median (non-zero)	$200	$6,300	***	$165	$20,000	***	$200	$14,440	***
Mean (non-zero)	$348	$40,830	***	$462	$65,188	***	$419	$57,624	***
Countable assets (including vehicles)									
$0	55.5%	0.0%	***	54.5%	0.0%	***	54.9%	0.0%	***
$1 to $1000	26.8%	0.0%	***	27.0%	0.0%	***	26.9%	0.0%	***
$1,001 to $2,000	4.2%	0.0%	***	4.2%	0.0%	***	4.2%	0.0%	***
$2,001 to $3,000	4.9%	10.6%	***	6.4%	0.0%	***	5.8%	3.3%	***
$3,001 to $5,000	4.1%	17.8%	***	2.7%	11.2%	***	3.3%	13.3%	***
$5,000 to $10,000	2.7%	22.2%	***	3.6%	16.4%	***	3.2%	18.2%	***
$10,000+	1.8%	49.3%	***	1.6%	72.4%	***	1.7%	65.3%	***
Countable assets (excluding vehicles)									
$0	68.10%	0.00%	***	65.20%	0.00%	***	66.30%	0.00%	***
$1 to $1000	29.10%	0.00%	***	29.90%	0.00%	***	29.60%	0.00%	***
$1,001 to $2,000	2.80%	0.00%	***	3.20%	0.00%	***	3.00%	0.00%	***
$2,001 to $3,000	0.00%	13.60%	***	1.70%	0.00%	***	1.00%	4.20%	***
$3,001 to $5,000	0.00%	26.40%	***	0.00%	14.70%	***	0.00%	18.30%	***
$5,000 to $10,000	0.00%	21.10%	***	0.00%	18.90%	***	0.00%	19.60%	***
$10,000+	0.00%	38.90%	***	0.00%	66.40%	***	0.00%	57.80%	***
Vehicle ownership									
Owns vehicle	69.4%	84.4%	***	62.6%	84.0%	***	65.2%	84.1%	***
Owns vehicle with countable value	23.7%	47.3%	***	20.5%	40.5%	***	21.7%	42.3%	***
Owns home	30.3%	57.6%	***	47.5%	78.3%	***	40.9%	72.7%	***
Total wealth (includes home equity)									
Median (all)	$1,200	$26,500	***	$1,075	$140,000	***	$1,134	$100,700	***
Mean (all)	$9,338	$163,402	***	$25,815	$256,239	***	$19,202	$228,253	***
Wealth excluding home equity									
Median (all)	$1,144	$18,815	***	$991	$42,688	***	$1,000	$32,377	***
Mean (all)	$3,519	$91,736	***	$5,296	$139,715	***	$4,609	$125,299	***
Sample size	2,498	420		5,300	1,355		7,798	1,775	

Source: 2008 SIPP panel, wave 10.

Note: "Countable assets" and "countable vehicle assets" are assets that are countable under federal SNAP eligibility rules.

Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent

a. The asset level refers to countable assets excluding vehicles.

Appendix Table C.2: Assets of SNAP Households and Low-Income[a] Non-SNAP Households in States with and without BBCE in 2011, Excluding Results Based on Imputed Asset Data

	SNAP households	Low-income non-SNAP households		SNAP households State has BBCE			Low-income non-SNAP households state has BBCE		
				Yes	No		Yes	No	
Percentage of households	40.4%	59.6%		88.7%	11.3%		87.5%	12.5%	
Total households	15,349,587	22,650,952		13,621,177	1,728,410		19,826,628	2,824,324	
Assets									
Has bank account	48.5%	70.2%	***	49.3%	42.4%	***	69.7%	73.3%	**
Median (among those with account)	$75	$400	***	$86	$50	*	$377	$500	
Mean (among those with account)	$1,162	$7,076	***	$1,193	$885		$7,079	$7,056	
Has liquid assets	33.3%	47.8%	***	33.5%	31.6%		47.0%	54.5%	***
Median (non-zero)	$100	$800	***	$105	$60		$800	$760	
Mean (non-zero)	$5,178	$30,794	***	$5,601	$1,680	**	$30,831	$30,559	
Has retirement savings	4.1%	10.9%	***	3.8%	6.1%		10.7%	12.6%	
Median (non-zero)	$4,800	$19,100	***	$5,000	$4,000		$20,000	$16,000	
Mean (non-zero)	$25,848	$59,746	***	$26,659	$21,049		$61,882	$48,401	
Has nonretirement liquid assets	32.5%	46.3%	***	32.9%	29.7%		45.3%	53.6%	***
Median (non-zero)	$100	$600	***	$100	$55	**	$600	$700	
Mean (non-zero)	$2,742	$18,990	***	$2,926	$1,201		$18,108	$24,383	
Has emergency savings									
Has $2,000 in liquid assets	10.3%	28.4%	***	10.6%	7.7%	**	28.0%	31.2%	*
Not asset poor[b]	5.9%	23.1%	***	6.0%	5.0%		22.7%	26.1%	**
Total wealth (includes home equity)									
Median (all)	$729	$4,432	***	$625	$1,042	**	$4,074	$7,113	
Mean (all)	$11,561	$64,589	***	$11,825	$9,510		$62,510	$80,462	
Owns home	29.8%	57.3%	***	29.3%	33.8%	**	56.2%	65.0%	***
Wealth excluding home equity									
Median (all)	$568	$2,474	***	$385	$1,010	***	$2,425	$2,646	
Mean (all)	$4,357	$25,088	***	$4,591	$2,615	**	$23,997	$33,205	
Countable assets									
Countable assets (including vehicles)									
$0	60.5%	38.9%	***	60.1%	62.8%		39.5%	34.9%	***
$1 to $1,000	24.7%	24.5%	***	24.9%	22.7%		23.8%	29.4%	***
$1,001 to $2,000	3.5%	4.5%	***	3.5%	3.3%		4.4%	5.2%	***
$2,001 to $3,000	4.4%	7.0%	***	4.5%	3.8%		7.5%	3.5%	***
$3,001 to $5,000	2.5%	5.7%	***	2.5%	2.3%		6.0%	4.3%	***
$5,000 to $10,000	2.7%	6.6%	***	2.6%	3.1%		6.5%	7.3%	***
$10,000+	1.8%	12.7%	***	1.8%	1.9%		12.3%	15.4%	***

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Appendix Table C.2: Assets of SNAP Households and Low-Income[a] Non-SNAP Households in States with and without BBCE in 2011, Excluding Results Based on Imputed Asset Data

	SNAP households	Low-income non-SNAP households		SNAP households State has BBCE			Low-income non-SNAP households state has BBCE		
				Yes	No		Yes	No	
Countable assets (excluding vehicles)									
$0	68.9%	51.6%	***	68.5%	71.7%		52.6%	44.0%	
$1 to $1,000	26.6%	28.2%	***	27.0%	23.7%		27.7%	31.6%	
$1,001 to $2,000	1.9%	3.7%	***	1.9%	2.0%		3.6%	4.8%	
$2,001 to $3,000	0.6%	2.0%	***	0.6%	0.9%		2.0%	2.0%	
$3,001 to $5,000	0.6%	2.7%	***	0.5%	0.7%		2.6%	3.1%	
$5,000 to $10,000	0.4%	2.9%	***	0.5%	0.2%		2.9%	3.0%	
$10,000+	1.0%	8.9%	***	1.0%	0.8%		8.5%	11.4%	
Vehicle ownership									
Owns vehicle	61.4%	75.1%	***	60.5%	68.2%	***	73.8%	84.0%	***
Owns vehicle with countable value	17.2%	31.6%	***	17.3%	16.8%		31.5%	32.5%	
In metropolitan statistical area	79.6%	78.3%		81.2%	67.2%	***	80.5%	62.5%	***
Sample size	4,294	6,249		3,654	640		5,243	1,006	

Source: 2008 SIPP panel, wave 10.

Notes: Households are considered SNAP households in this table if at least one member receives SNAP. "Countable assets" and "countable vehicle assets" are assets that were countable under federal eligibility rules.

a. Low-income households are households with gross income below 130 percent of the poverty level (200 percent of the poverty level if the household contains an elderly or disabled member).

b. Households are considered not asset poor if they have enough liquid assets to live at the poverty line for three months.

Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent

Appendix Table C.3: Effect of Asset Limits on SNAP Spell Lengths (Coefficients and Standard Errors)

	Median SNAP spell length, months	
Asset limit variables (lagged one year)		
BBCE	−0.039	
	(0.048)	
At least one vehicle exempt		
	(0.074)	
Other SNAP policy variables (lagged one year)		
Simplified reporting	−0.036	
	(0.071)	
Recertification period for units with earnings (omitted: 0–3 months)		
4–6 months	−0.074	
	(0.099)	
7–12 months	−0.071	
	(0.084)	
13+ months	−0.531	*
	(0.310)	
Noncitizen eligibility (omitted: no legal noncitizens eligible)		
All legal noncitizens eligible	0.116	
	(0.126)	
Some legal noncitizens eligible	−0.031	
	(0.072)	
Outreach spending per capita	0.017	
	(0.385)	
Other relevant policies (lagged one year)		
EITC ($1,000)	0.012	
	(0.084)	
Minimum wage	−0.100	**
	(0.050)	
State economic variables		
Unemployment rate	−0.046	**
	(0.018)	
Per capita income ($10,000)	−0.214	*
	(0.152)	
Individual demographics		
Age (omitted: age 18–29)		
30–49	−0.015	
	(0.034)	
50–64	−0.055	*
	(0.033)	
65+	−0.120	*
	(0.071)	
Race and ethnicity (omitted: white non-Hispanic)		
Black non-Hispanic	−0.058	
	(0.046)	
Asian non-Hispanic	−0.414	***
	(0.107)	
Hispanic	−0.044	
	(0.071)	
Other non-Hispanic	−0.182	*
	(0.089)	
Immigrant	−0.095	**
	(0.039)	

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Appendix Table C.3: Effect of Asset Limits on SNAP Spell Lengths (Coefficients and Standard Errors)

	Median SNAP spell length, months	
Educational attainment (omitted: high school)		
Less than high school	−0.200	***
	(0.042)	
Some college plus	0.157	***
	(0.033)	
People in household		
Number of children birth to age 5	−0.186	***
	(0.017)	
Number of children age 6–18	−0.085	***
	(0.012)	
Number of adults	0.141	***
	(0.020)	
Household structure (omitted: headed by two adults)		
Headed by single female	−0.161	***
	(0.040)	
Headed by single male	0.050	
	(0.066)	
Household member is elderly or disabled	−0.328	***
	(0.040)	
Lives in metropolitan area	0.067	
	(0.044)	
Constant	−1.514	*
	(0.838)	
Sample size (person-months)	153,220	

Sources: 1996, 2001, 2004, and 2008 SIPP panels; SNAP Policy Database; and multiple other sources for state-level policy and economic characteristics.
Notes: This model also includes state and year fixed effects, a prior participation indicator, and a seam indicator for the first reference month of each SIPP wave. The model does not include spells that were left-censored at the beginning of the SIPP panel. The model uses longitudinal person weights and does not include imputed SNAP receipt data. This table presents coefficients with standard errors in parentheses. Standard errors are clustered at the state level.
Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent for regression coefficients in the SNAP spell length duration models.

Appendix Table C.4: Effect of Assets and Debts on SNAP Spell Lengths (Coefficients and Standard Errors)

	Wealth model		Unsecured debt model	
Asset variables				
Ln wealth minus home equity (10)	0.020	***		
	(0.005)			
Has debt			0.159	***
			(0.035)	
SNAP policy variables (lagged one year)				
Simplified reporting	−0.040		−0.042	
	(0.073)		(0.071)	
Recertification period for units with earnings (omitted: 0–3 months)				
4–6 months	−0.080		−0.060	
	(0.106)		(0.106)	
7–12 months	−0.080		−0.059	
	(0.083)		(0.083)	
13+ months	−0.538	*	−0.540	*
	(0.298)		(0.325)	
Noncitizen eligibility (omitted: no legal noncitizens eligible)				
All legal noncitizens eligible	0.102		0.121	
	(0.123)		(0.132)	
Some legal noncitizens eligible	−0.034		−0.027	
	(0.072)		(0.075)	
Outreach spending per capita	−0.045		−0.004	
	(0.368)		(0.368)	
Other relevant policies (lagged one year)				
EITC ($1,000)	−0.020		−0.001	
	(0.076)		(0.082)	
Minimum wage	−0.096	**	−0.096	*
	(0.049)		(0.050)	
State economic variables				
Unemployment rate	−0.045	**	−0.047	**
	(0.021)		(0.021)	
Per capita income ($10,000)	−0.208		−0.226	*
	(0.153)		(0.154)	
Individual demographics				
Age (omitted: age 18–29)				
30–49	−0.024		−0.018	
	(0.034)		(0.034)	
50–64	−0.066	**	−0.056	*
	(0.033)		(0.033)	
65+	−0.133	**	−0.116	*
	(0.069)		(0.070)	
Race and ethnicity (omitted: white non-Hispanic)				
Black non-Hispanic	−0.024		−0.042	
	(0.048)		(0.044)	
Asian non-Hispanic	−0.408	***	−0.406	***
	(0.111)		(0.113)	
Hispanic	−0.024		−0.034	
	(0.078)		(0.075)	
Other non-Hispanic	−0.166	*	−0.168	*
	(0.089)		(0.088)	
Immigrant	−0.086	**	−0.079	*
	(0.040)		(0.041)	

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Appendix Table C.4: Effect of Assets and Debts on SNAP Spell Lengths (Coefficients and Standard Errors)

	Wealth model		Unsecured debt model	
Educational attainment (omitted: high school)				
Less than high school	−0.192	***	−0.191	***
	(0.041)		(0.041)	
Some college plus	0.143	***	0.139	***
	(0.033)		(0.035)	
People in household				
Number of children birth to age 5	−0.184	***	−0.189	***
	(0.017)		(0.017)	
Number of children age 6–18	−0.086	***	−0.085	***
	(0.012)		(0.012)	
Number of adults	0.126	***	0.135	***
	(0.021)		(0.020)	
Household structure (omitted: headed by two adults)				
Headed by single female	−0.143	***	−0.148	***
	(0.039)		(0.039)	
Headed by single male	0.066		0.075	
	(0.066)		(0.065)	
Household member is elderly or disabled	−0.313	***	−0.321	***
	(0.038)		(0.400)	
Lives in metropolitan area	0.067		0.062	
	(0.044)		(0.042)	
Constant	−1.662		−1.715	
	(0.823)		(0.835)	
Sample size (person-months)	153,220		153,220	

Sources: 1996, 2001, 2004, and 2008 SIPP panels; SNAP Policy Database; and multiple other sources for state-level policy and economic characteristics.
Notes: Models also include state and year fixed effects, a prior participation indicator, and a seam indicator for the first reference month of each SIPP wave. Models do not include spells that were left-censored at the beginning of the SIPP panel. Models use longitudinal person weights and do not include imputed SNAP receipt data. This table presents coefficients with standard errors in parentheses. Standard errors are clustered at the state level. Significance level: * = 10 percent, ** = 5 percent, *** = 1 percent for regression coefficients in the SNAP spell length duration models.

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