# SNAP, SSI, and Economic Security of Older Adults*

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**Abstract**

Both the SNAP and SSI programs provide critical assistance in reducing economic insecurity among older nondisabled low-income adults. In this study, we examine how policy changes in those programs over the 1996 to 2013 period affected SNAP benefit receipt and SNAP-SSI joint benefit receipt by older nondisabled adults and, in turn, whether the changes in participation induced by those policies affected outcomes for home and vehicle ownership, food hardship, and other variables, with particular attention to how the results differ across households with different asset levels. We find strong effects of several program policies on older nondisabled adult SNAP and SNAP-SSI participation, but the effects of different policies differ markedly by a household's level of liquid assets. The increases in program participation resulting from the policies reduce food hardship for all households, but lead higher-asset households to also reduce their holdings of illiquid assets.

**Keywords:** SNAP, SSI, Economic Security, Older Adults

**JEL Codes:** I38, J14, J18, Q18

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# 1 Introduction

The two most significant non-medical, income-conditioned transfer programs for older nondisabled adults in the U.S. are the Supplemental Nutrition Assistance Program (SNAP) and the Supplemental Security Income (SSI) program. SNAP offers food assistance to low-income individuals and families, while SSI provides cash benefits to low-income individuals, including those without disabilities. In 2022, approximately 6.5 million older adults received SNAP benefits, and around 2.3 million received SSI. There is considerable overlap between the two programs: about 80% of SSI recipients also received SNAP, and roughly 35% of older SNAP recipients were also SSI beneficiaries. Together, these programs play a critical role in supporting low-income older adult households.

This paper presents new estimates of the effects of policy changes in the SNAP and SSI programs over the 1996 to 2013 period on participation in those programs among the older non-disabled population and how participation in those programs affected several important economic outcomes, such as homeownership, vehicle ownership, and food hardship. We leverage cross-state SNAP and SSI-SNAP policy variation over time–both policy changes that affect eligibility as well as policies that affect participation conditional on eligibility–to generate changes in participation, which we then relate to our outcomes of interest. We examine the effects of two eligibility policies and six "cost-related" policies that affect the ease or difficulty of applying for and continuing program participation. Most of these are related to SNAP, but one directly affects joint SNAP-SSI participation. However, policies affecting SNAP participation can, in principle, affect SSI participation as well if SNAP becomes more attractive relative to SSI and SSI has participation costs.

The most important policy we study is the set of SNAP Broad-Based Categorical Eligibility (BBCE) policies, which relaxed gross income, liquid asset, and vehicle eligibility rules (among others) and have been shown in the literature to have increased SNAP participation in the general population (Stacy et al., 2018; Ganong and Liebman, 2018; Dickert-Conlin et al., 2021). However, our focus on nondisabled older adults and on SSI has important implications for the analysis, which

requires us to focus separately on adults with relatively high and relatively low liquid asset levels, for two reasons. First, prior to the introduction of BBCE, older adults were already exempt from SNAP gross income eligibility tests, so BBCE rules relaxing those tests should have had little impact on older adults' SNAP participation. But BBCE also increased asset limits for older adults, making those with higher assets more likely to be affected. Second, because SSI has significantly lower asset limits than SNAP, the BBCE rules for higher-asset adults are unlikely to directly impact joint SNAP-SSI participation unless through "woodwork effects" (increases in participation among those who were already eligible before the reform)(Anders and Rafkin, 2022). Cost-related policies are more relevant for this group. For both these reasons, differential response by asset level will consequently be a focus of our analysis.

Using 1996-2013 data from the Survey of Income and Program Participation (SIPP) on nondisabled older adults, we estimate the effects of these policies on SNAP and joint SNAP-SSI joint participation and then use those policies as instruments for the effect of program participation on adult-level outcomes. For higher-asset households, our results show that eligibility and cost-related policies increase SNAP participation but have no effect on joint SNAP-SSI participation, and that the increase in SNAP participation leads to reduced food hardship but also to lower homeownership and vehicle ownership. We hypothesize that, while homeownership is often regarded as strengthening economic security among older adults, greater financial support through SNAP may provide households with greater flexibility in managing their illiquid assets, such as homes or vehicles (e.g., allowing them to downsize their housing). And the reduction in food hardship among these households underscores the effectiveness of these policies in enhancing economic security.

For lower-asset households, our findings show that several policies increase both SNAP-only participation and joint SNAP-SSI participation with the exception of the relaxation of vehicle restrictions, which decreases joint SNAP-SSI participation. Increases in SNAP-only participation are associated with reduced food hardship, while increases in joint SNAP-SSI participation show statistically insignificant effects on food hardship. There are no effects of program participation on homeownership and vehicle ownership, not surprisingly given the low level of such ownership

among lower-asset households.

Our work contributes to the literature on the SNAP program for the older population and a smaller literature on SSI for the non-disabled older population. For the study of SNAP participation among the older population, the studies of Jones et al. (2022) and Easterday and Ginther (2022) are closest to our work. Jones et al. (2022) examined the effect of changes in a variety of SNAP policies on SNAP participation of older individuals from 2001 to 2014, finding that few individual policies had a significant effect but that some grouped eligibility variables and outreach campaigns had some positive effects. Easterday and Ginther (2022) examined the effect of changes in state-level SNAP policies separately for disabled individuals and older adults over the same period as in Jones et al. (2022), but used a much larger set of policies and new sets of policy indices. Their analysis of the older population found positive effects on SNAP participation of a generosity index and a transactions cost index, as well as positive effects of some individual policies like simplified reporting, combined application with SSI, and income-related rules. While our work categorizes some policies differently than in these studies, and we also only focus on the nondisabled older population, perhaps the primary difference is our differentiation of policy effects by household asset level.

A few other studies have adopted much less comprehensive examinations, studying only a few individual policies, often finding positive effects on participation among older adults (Kauff et al., 2014; Adams et al., 2017; Levin et al., 2020). There is also a larger literature that generally does not study the effects of SNAP policies but explores other determinants of SNAP participation among the older population (Gabor et al., 2003; Wilde and Dagata, 2002; Haider et al., 2003; Wu, 2009; Rutledge and Wu, 2014; Giordono et al., 2022; Heflin et al., 2023; Zuo and Heflin, 2023), with some studeis finding relatively low levels of SNAP participation among the aged. Relative to this body of work, our main contribution is to focus on a broader range of policies, on the specific population of nondisabled older adults, and to distinguish the population by assets where different policies should have different effects.

There is very little literature on the determinants of participation in SSI by older adults, especially

the non-disabled (see Duggan et al. (2015) for a review). The small body of literature includes the early study of McGarry (1996), who found that SSI takeup (=participation conditional on eligibility) was primarily influenced by the level of financial resources, and the study of Elder and Powers (2006), who found that the lack of indexation of asset limits and income disregards had contributed to the decline in SSI participation. McGarry and Schoeni (2015) found that potential benefits strongly affected participation while Nichols et al. (2017) found SSI applications to be countercyclical. Relative to this literature, we provide new evidence on SSI participation but also focus more on its relationship to SNAP participation.

There is also a small literature on SNAP-SSI interactions, not always focused on the non-disabled population (Trenkamp and Wiseman, 2007; Issar, 2010; Coe and Wu, 2014; Rutledge and Wu, 2014; Hammond et al., 2020; Hembre et al., 2024). These studies variously look at the effect of one program on participation in the other, and sometimes look at cyclical relationships and other issues. No study has examined the impact of the policy reforms we are concerned with.

Our focus on the impact of SNAP and SSI participation on the financial well-being of older adult households, rather that just policy impacts on participatio alone, is also new the literature, for this has not been a focus heretofore.[1] However, there is a literature on examining the impact of SNAP asset limits on asset holdings, finding that less restrictive asset limits are associated with increased holdings(McKernan et al., 2010; Ratcliffe et al., 2016; Baek and Raschke, 2016; Pirog et al., 2017; Todd et al., 2019).[2] While this literature is not focused on older adults (but Neumark and Powers (1998) found that SSI benefits can negatively impact savings near retirement age), it does raise the possibility that asset levels among the older adult population is endogenous and affected by SNAP and SSI policies. This could affect our stratification by liquid asset level in our analysis,

[1]There is also little work examining the impact of such participation on material hardship, although Han (2016, 2020) utilized an instrumental variable approach based on SNAP Broad-Based Categorical Eligibility (BBCE) to examine the impacts of SNAP participation on material hardship and involvement in other government safety net programs, including school lunch and the Women, Infants, and Children (WIC) program.

[2]There is also a body of research on this issue for other welfare programs. Hubbard et al. (1995) developed a model explaining low savings among lower-income households, considering the impacts of social assistance and asset tests. Later studies built on this, finding that Medicaid Gruber and Yelowitz (1999) and unemployment insurance Engen and Gruber (2001) reduced asset accumulation, with asset tests amplifying Medicaid's effects. Ziliak (2003) observed that transfer income discourages liquid asset building, but mainly among near-poor and rich households, not the poorest.

as described above. We test for these effects in our work and find that, at least for the policies we examine and for our nondisabled older adult population, liquid asset levels do not appear to be significantly affected by the policies. But we do find that the policies we examine affect the level of illiquid assets (housing and vehicles), which we interpret as allowing older households to better manage and allocate their financial resources.

The next section of the paper provides an overview of the SNAP and SSI programs, detailing how policies affecting eligibility and participation have evolved over time and their potential impacts on household economic security. Section 3 describes the data sources used in our analysis and presents summary statistics. Section 4 introduces the estimation model and explains the construction of the instrumental variables. Section 5 presents the results of our analysis, followed by a concluding section that summarizes the findings and discusses their implications.

# 2 Institutional Background and Policy Categorization

The Supplemental Nutrition Assistance Program (SNAP) and the Supplemental Security Income (SSI) program are two of the most important non-medical, income-conditioned transfer programs for older adults in the United States. Both programs impose eligibility requirements based on income and asset limits, which play a critical role in determining access to benefits for low-income older adults.

As of 2020, to qualify for SNAP benefits, a household's gross monthly income must generally be at or below 130% of the federal poverty line, which equates to approximately $2,379 per month for a three-person household. Additionally, the household's net income, calculated as gross income minus allowable deductions, must be at or below 100% of the poverty line. Asset limits for SNAP are set at $3,000 for households without an elderly (aged 60 or older) or disabled member, and $4,500 for households with such a member. These limits include countable resources such as cash, bank accounts, and certain vehicles while excluding primary residences and retirement assets.[3]

In contrast, SSI is available to individuals aged 65 or older, blind, or disabled, provided they

[3]For more details, visit https://www.fns.usda.gov/snap/recipient/eligibility

meet strict income and resource limits. As of 2020, the income limit for SSI is $1,971 per month from work for individuals, and the asset limits are $2,000 for individuals and $3,000 for couples. Parents applying for a child may have an additional $2,000 in countable resources, bringing the limit to $4,000 for a child. Countable assets include cash, bank accounts, and certain vehicles.[4]

## 2.1 Categorizing SNAP State Policies

Many studies have emphasized the importance of examining multiple SNAP policies simultaneously to avoid omitted variable bias, as policies are often correlated with each other and their effects may overlap. While early research primarily focused on the general population and analyzed individual policies without combining them into policy categories or indexes (Hanratty, 2006; Ratcliffe et al., 2008; Ziliak, 2013), Dickert-Conlin et al. (2021) advanced the field by categorizing 11 SNAP policies into four key areas: eligibility, transaction costs, stigma, and outreach. Eligibility-related policies include Broad-Based Categorical Eligibility (BBCE), vehicle asset test exemptions, and noncitizenship restrictions; transaction cost policies encompass longer recertification periods, simplified reporting, and availability of call center and online applications; stigma-related policies involve electronic benefits transfer (EBT) usage and fingerprinting requirements during application; and outreach policies include federally funded radio or TV ads. This categorization has become a valuable framework for consolidating and interpreting the effects of SNAP policies in subsequent studies, which have often constructed policy indices composed of multiple similar policies (Stacy et al., 2018; Ganong and Liebman, 2018).

Recent studies have applied these frameworks to specific demographic groups, such as older adults and people with disabilities. For instance, Easterday and Ginther (2022) examined how the four policy indices and specific policies affect older adult and disabled households. Their results indicate that policies improving eligibility and reducing transaction costs increase participation among older adults and people with disabilities.[5] Similarly, Jones et al. (2022) focused on older

[4]For more information, visit https://www.ssa.gov/ssi/eligibility

[5]Their analysis also incorporated additional SNAP policy variables from SNAP State Options Reports, such as the Elderly Simplified Application Project (ESAP), Standard Medical Deduction (SMD), and Able-Bodied Adults Without Dependents (ABAWD) waivers.

adults, employing the policy index developed by Stacy et al. (2018) and constructing a simulated eligibility variable to measure policy impacts. They found that expanding eligibility increased SNAP participation among both older adults and non-older adults, though the effect was stronger for the latter. They also found limited evidence that outreach or transaction cost policies significantly influenced participation.

Our study is closely aligned with Easterday and Ginther (2022) and Jones et al. (2022) in its focus on older adults. In terms of SNAP policies, we build on previous findings by concentrating on policies related to eligibility and transaction costs, which have been shown to be most effective in increasing SNAP participation ((Stacy et al., 2018; Ganong and Liebman, 2018; Easterday and Ginther, 2022). We exclude policies that had minimal impact on program participation in our first-stage results, such as noncitizen eligibility restrictions and stigma- and outreach-related policies, including EBT usage, fingerprinting, and TV/radio ads.[6] This targeted approach allows us to explore and discuss more deeply the mechanisms through which these policies influence participation among older adults.

## 2.2 SNAP State Policies and Program Participation

We group policies into three types: BBCE asset limits, vehicle-related asset limits, and policies aimed at reducing application and transactions costs. The first two primarily focus on eligibility, while the third focuses on take-up rates among those already eligible by affecting application and transaction costs.

**BBCE Asset Limits**: Beginning in the early 2000s, many states adopted BBCE to raise SNAP gross income limits and either relax or eliminate asset limits, the latter partly motivated by the supposition that low asset limits could discourage savings among low-income households (Dean et al., 2008) and create administrative burdens for states. In our analysis, we focus on changes in SNAP asset limits rather than expansions of income eligibility thresholds because older adults are exempt from the SNAP gross income test before BBCE and only need to meet the net income limit, which

[6]These policies are included as part of a robustness check in Appendix Table A4, where our main results remain largely unchanged.

is unaffected by BBCE implementation. The first policy we consider is therefore the relaxation or elimination of asset limits under BBCE. Figure 3, Panel (a), illustrates the number of states that have implemented BBCE to relax or eliminate asset limits. By 2016, most states had eliminated asset limits, reflecting the widespread adoption of BBCE, particularly during the economic downturns of 2001 and 2008.

BBCE asset limits can have a significant impact on SNAP participation, particularly for higher-asset households that become eligible after the relaxation or elimination of asset limits. For lower-asset households, while BBCE itself does not directly affect eligibility for older adults since they were already eligible prior to BBCE, it can still influence participation through "woodwork effects," which occur when expanding eligibility criteria raises take-up rates among previously eligible households by reducing information frictions (Anders and Rafkin, 2022). This suggests that BBCE may indirectly increase SNAP participation among older adults by making the program more accessible and reducing stigma or confusion about eligibility. In addition, however, BBCE may also affect SSI participation if, as SNAP's asset limits become more generous relative to SSI's stricter limits, households that newly qualify for SNAP because of relaxed asset limits may face reduced incentives to apply for SSI. This could lead to a type of substitution effect that could lead to a decline in SSI participation among certain households.

**Vehicle-Related Asset Limits:** The second group of policies concerns the treatment of vehicles in SNAP asset tests. We focus on whether states exclude at least one vehicle from the SNAP asset test, as this policy has the most significant impact on participation.[7] Figure 3, Panel (a), shows the number of states that have implemented vehicle-related asset limits over time. The exclusion of at least one vehicle was implemented earlier than the exclusion of all vehicles, and these exclusions generally preceded the broader elimination of asset tests. Vehicle-related asset limits have a positive impact on SNAP participation by broadening eligibility criteria but, in addition, as for BBCE asset limits, they may also create substitution effects between SNAP and SSI, which could lead to a decline in SSI participation among certain households.

[7]Other vehicle-related policies, such as excluding all vehicles or excluding vehicles through BBCE, are included in Appendix Table A4 and show less contribution to the second stage of our analysis.

**Application and Transaction Costs:** The third group of policies focuses on reducing application and transaction costs, which can act as significant barriers to program participation. These policies include simplified reporting requirements, waiving face-to-face interviews, offering online applications or call center availability, longer recertification periods, and implementing combined application processes (CAP) which allows older adults to apply for SSI and SNAP simultaneously, streamlining the application process. Figure 3, Panel (b), illustrates the number of states that have implemented these cost-related policies over time. By reducing administrative burdens and simplifying access, these policies aim to increase participation rates among eligible households, particularly older adults who may face mobility or technological challenges.

Policies that reduce application and transaction costs can have a positive impact on SNAP participation by making it easier for eligible households to enroll and remain in the program for both higher-and lower-asset households. The SSI-Combined Application Project (CAP) is particularly noteworthy, as it enables simultaneous applications for SSI and SNAP, potentially increasing joint participation. However, the overall impact on SNAP-SSI joint participation remains uncertain, as it depends on the interplay between reduced application costs and potential substitution effects between the two programs.

**Policy Indices:** To capture state-level policy variation in SNAP, we construct policy indices, as other studies have done, which combine multiple policies together. Our Policy Index I reflects the adoption of eight key state-level policies. As described above, those policies include BBCE, vehicle asset test exemption, and policies that reduce application and transaction costs. For each policy adopted by a state, the index increases by one. The policy index ranges from 0 to 8, with an average of 3. Figure 4 illustrates the average trend of Policy Index I over time, as well as state-level variation at the beginning and end of the sample period, along with the year preceding the 2008 recession (specifically, 1996, 2007, and 2013). At the beginning of the sample period, most states had adopted at most 1 or 2 policies, while by the end, the average number of policies adopted had risen to 6. There is substantial cross-state variation in policy adoption, which, along with the variation over time, helps us identify the impact of SNAP participation on household outcomes.

These variations serve as instrumental variables in our analysis.

For some specifications, we are particularly interested in the distinct impacts of SNAP-only participation and SNAP-SSI joint participation. This requires two instrumental variables. To address this, we decompose Policy Index I into Policy Index II, which captures state-level policy variations excluding vehicle asset test exemptions, and a binary indicator, Vehicle, which equals 1 if a state exempts at least one vehicle from the asset test and 0 otherwise.[8]

## 2.3 Program Participation and Economic Security

Participation in SNAP or SSI programs can significantly influence household economic security, providing households with additional financial resources, enhancing their ability to meet basic needs such as food, housing, and healthcare. This, in turn, reduces economic vulnerability and improves overall well-being. In addition, policies like BBCE asset limits can empower older adults to make more effective use of illiquid assets, as we discuss further below. In our empirical work, we explore the impact of participation in these programs by examining their effects on three sets of variables that measure household economic security and that are available in the SIPP. These include income-related variables, housing and vehicle asset-related variables, and indicators of material hardship. Income-related variables capture changes in household earnings and benefit receipt, while housing and vehicle asset-related variables reflect the ability to maintain or leverage these assets for financial stability. Material hardship indicators, such as food insecurity or difficulty paying utility bills, provide direct measures of economic vulnerability. Together, these variables offer a comprehensive picture of how participation in SNAP and SSI influences household economic outcomes. The details of these variables and their measurement are introduced in the next section.

[8]We explored alternative decompositions of Policy Index I, but this approach yielded higher first-stage F-statistics. This is likely because vehicle asset test exemptions appear to have differential effects on SNAP-only and SNAP-SSI joint participation, as discussed later.

# 3 Data

We utilize data from the 1996, 2001, 2004, and 2008 panels of the Survey of Income and Program Participation (SIPP). The SIPP is a nationally representative survey, with each panel following a sample of between 36,000 and 46,000 households for approximately 4 years. As a result, our analysis sample covers the period from 1996 to 2013, which overlaps with substantial changes in SNAP policy during both strong and weak economic conditions.

We restrict our analysis sample to low-income older adult households, which include two types of households: older adults living alone and older adult couples. We exclude anyone who is living with others in the household because most of those households are living with children, which significantly affects the measurement of economic well-being (Schmidt et al., 2025). An older adult is defined as anyone aged 60 or older.[9] To avoid confounding effects from disability or intergenerational cohabitation, we also exclude households with a disabled member, multiple families, or younger individuals.[10]

Using the SIPP's household income and poverty threshold variables, we construct an income-to-poverty ratio and limit the sample to observations with a ratio of 200% or less. The sample selection process is detailed in Appendix Table A1. Our final analysis sample consists of 26,011 observations across 9,484 households, representing approximately 25 percent of low-income households in the SIPP. We then merge the SIPP data with state-level policy data for further analysis.[11]

The SIPP has a unique structure, with respondents interviewed every four months about the previous four-month period, known as a "wave" (interviews shifted to annual in 2014). Each wave consists of a core module and one or more topical modules. The core module, collected in every wave, provides detailed information on household participation in programs like SSI and SNAP,

[9]While our primary focus is on adults over 65, we expand the sample to include those aged 60 and above to test whether the relaxation or elimination of SNAP asset limits begins to influence asset accumulation at earlier ages.

[10]Disability is defined based on a SIPP question that asks respondents whether they have a physical, mental, or health condition that limits the kind or amount of work they can perform, consistent with the literature.

[11]Our sample contains between one and six observations per household, with an average of three observations per household during the survey period. In our baseline analysis, we employ two-way clustering at both the household and state levels to account for potential correlations in outcomes within households and across households within the same state. Robustness checks using only state-level clustering yield similar results to our baseline specification, suggesting that within-household error correlation over time is relatively modest.

as well as other key demographic and economic variables such as employment status and income sources. In addition, the topical modules rotate across waves, collecting supplementary data on specific topics like assets and liabilities, which are included approximately every three waves or annually. Given that some key variables, such as housing and vehicle equity amounts, are defined annually, we collapse our analysis sample to the year level.[12]

We define annual participation in SNAP and SSI programs at the household level using the SIPP core module. Specifically, a household is categorized as participating in a given program if any member receives benefits during the last 12-month period. We focus on the household level rather than the individual level because SNAP eligibility is determined at the household level, and households often pool financial resources. Consequently, our analysis sample is constructed at the household-year level.

**Variables.** One advantage of the SIPP for this project is its provision of a broad range of household financial variables, which allows us to categorize households and explore the differential effects of SNAP policies across asset levels, a dimension not extensively examined in the existing literature. For example, the SIPP reports detailed amounts of various liquid and semi-liquid assets.[13] These asset variables are derived from the SIPP topical modules, which are available in most years between 1996 and 2013 but are missing in 2000, 2006, 2007, 2008, 2012, and 2013. All monetary values are adjusted for inflation using 1996 as the base year.

Using these variables, we define SNAP countable assets as including liquid assets (e.g., cash, savings, checking, and deposit accounts) and semi-liquid assets (e.g., stocks, businesses, non-residential properties, and other assets). Notably, SNAP excludes certain assets, such as the primary residence, vehicles, and retirement accounts (e.g., IRAs and 401(k)s), from countable assets. We calculate the average SNAP-accountable assets for each household over all years observed for each

[12]The estimated effects of SNAP policies on welfare program participation remain robust using both wave-level and monthly data specifications.

[13]Liquid assets include holdings in interest-bearing checking accounts, non-interest-bearing checking accounts, savings accounts, money market funds, and certificates of deposit (CDs) Semi-liquid assets include holdings that respondents can convert to cash or borrow against within a few days, such as stocks, mutual funds, bonds (corporate or municipal), IRAs, and 401(k) plans. The overall quality of wealth data in the SIPP is discussed in Czajka et al. (2003) and Eggleston and Klee (2015), which find that wealth data in the SIPP are comparable to those in the Survey of Consumer Finances.

household and use this measure to classify households into higher- and lower-asset categories. Specifically, households are categorized as higher-asset if their average SNAP countable assets exceed $2,000, and as lower-asset if their average assets are $2,000 or less over the sample period. This cutoff was selected as a conservative measure of asset limits, ensuring sufficient sample sizes across categories and aligning with the estimation results. Our main findings remain robust to adjustments of the cutoff definition within a $500 range. We should also note that the use of an average asset value over all years makes our asset classification partly a function of lagged values and not current values, reducing the impact of any endogenous asset responses. But we directly test below whether the policies we examine affect asset values and we find no effects.

Based on the SIPP, we define household economic security from three perspectives (groups of variables). The first focuses on total income and income from different sources, including SNAP benefits, SSI income, labor income, and other income. Given that individuals in our sample are aged 60 or older and about 85 percent of them are retired, the impact on labor income is likely to be limited.

The second group of outcome variables focuses on illiquid assets,[14] primarily housing and vehicles. We examine homeownership status, vehicle ownership counts, and the relative share of housing and vehicle equity in households' asset portfolios. This share is calculated as the proportion of housing and vehicle equity relative to total household assets, where total assets comprise housing equity, vehicle equity, and SNAP-countable assets.[15] We also investigate additional housing and vehicle-related variables, including whether households are private market renters or subsidized renters (live in public housing or receive housing vouchers), the absolute values of housing and vehicle equity, and monthly housing and utility expenditures.

We are particularly interested in housing and vehicle assets for two main reasons. First, as we

[14]Notably, the SIPP also provides detailed information on the amounts and holdings of various liquid financial assets, such as savings, checking, and investment accounts. However, these results were not significantly affected by SNAP policy changes and are therefore not discussed in detail here.

[15]Homeownership status is recorded in the core module, while home equity data comes from the asset and liability topical module. Home equity is calculated using self-reported home market value minus outstanding mortgage principal. Vehicle-related measures include the number of vehicles owned, including cars, vans, and trucks, excluding recreational vehicles and motorcycles, and vehicle equity is defined as self-report vehicle value less outstanding loans. Both vehicle ownership and equity information are collected in the asset and liability topical modules.

have already suggested, for older adults, these assets represent critical financial resources that can be liquidated to meet immediate needs or unexpected expenses. Home equity, typically the largest component of older adults' wealth, can be accessed through mechanisms such as reverse mortgages, downsizing, or selling the property to cover healthcare costs, daily expenses, or emergencies. Similarly, vehicles, which many older adults own outright, can be sold or used as collateral to generate funds. These assets are especially important for low-income older adults, who often have limited savings or retirement income. The ability to leverage housing and vehicle equity can enhance older adults' financial security and independence, particularly during periods of economic stress or rising costs. Thus, policies and programs that facilitate access to these resources play a crucial role in supporting the financial well-being of aging populations.

Second, our analysis examines how SNAP's BBCE policies, which relax or eliminate asset tests for program eligibility, influence the housing and vehicle asset holdings of older adults. By removing asset-based eligibility constraints, BBCE policies may encourage older adults to make more flexible decisions about their assets. For example, older adults may be more willing to access home equity through downsizing or discontinuing homeownership, as they no longer need to maintain high levels of housing consumption or pay large utility bills, and also because the transfer of large housing equity into more liquid assets will not disqualify them for SNAP benefits. Similarly, they may choose to liquidate vehicle assets or reduce vehicle ownership, as these decisions no longer risk disqualifying them from assistance. By allowing older adults to transfer housing equity into liquid assets for daily expenditures without losing SNAP eligibility, BBCE policies support more efficient asset management. These policies enhance older adults' financial stability by enabling them to make decisions based on their needs rather than program eligibility requirements, ultimately improving their long-term well-being and quality of life.

The third group of variables defines material hardship which includes food, bill-paying, health, housing, and neighborhood hardship. Hardship variables in the SIPP include food hardship (food did not last, could not afford balanced meals, cut or skipped meals, ate less than should, did not eat for a full day), health hardship (did not see or go to a doctor or dentist when needed care),

bill-paying hardship (did not pay the utility bill, rent, or mortgage), housing hardship (the house has pests, leaks, broken windows, plumbing problems, cracks in walls, or holes in the floor), and neighborhood hardship (face problems such as noise, street repair problems, trash, and abandoned buildings). These material hardship variables are drawn from the adult well-being topical modules in the SIPP and are available only for the years 1992, 1998, 2003, 2005, 2010, and 2011. For years when these variables are unavailable, the values are imputed using linear interpolation.

Control variables in our analysis are drawn from the SIPP and other sources. From the SIPP, we include key demographic characteristics of the household head, such as age, race and ethnicity, gender, and educational attainment. We also incorporate household-level variables, including marital status, the number of persons in the household, participation in other programs such as Medicare and Medicaid, and the amount of social security benefits. Additionally, we include state-level unemployment rates and employment and wage data from the Quarterly Census of Employment and Wages (QCEW), provided by the Bureau of Labor Statistics.

**Summary Statistics.** Table 1 presents descriptive statistics for the sample households. Approximately 12% of households participate in SNAP, and 11% receive SSI benefits. Among these, 6% receive only SNAP, 5% receive only SSI, and 6% receive both. The average monthly SNAP benefit is $80, while the average SSI benefit is $142. The average age of household members is 76.77 years, with 72% of households headed by females. The sample is predominantly White (81%), with 14% identifying as Black. Only 19% of households are married, and the average household size is 1.2 persons. Educational attainment varies, with 39% having less than a high school education, 33% having a high school diploma, 10% having some college, 16% holding a college degree, and 2% having a graduate degree. The average monthly household income is $1,194, with labor income contributing only $68 on average, reflecting the high retirement rate (84%). Social Security represents the primary income source at $988 per month on average, exceeding all other income categories. Medicare coverage is nearly universal (92%), while 20% of households are enrolled in Medicaid.

About 66% of households own their homes, while 18% are subsidized renters and 16% are private

market renters. Homeowners have an average housing equity of $74,562. Vehicle ownership is common, with households owning an average of 0.73 vehicles and holding $3,018 in vehicle equity. The debt levels among households in the sample are low, with average housing debt at $4,265 (the loan-to-value ratio is 5.4%) and average vehicle debt at $410 (the loan-to-value ratio is 12%). Monthly housing costs include an average of $132 for rent or mortgage payments and $153 for utilities. The average SNAP countable assets, which include liquid and semi-liquid assets, are $11,887. Liquid assets average $7,821, while semi-liquid assets average $40,66. Retirement assets (IRA and 401(k)) average $3,127. Food hardship is reported by 6% of households, payment hardship by 7%, health hardship by 9%, housing hardship by 16%, and neighborhood hardship by 27%. The average state unemployment rate is 6.26%, while the average quarterly employment count is 4,043,110, and the average wage is $40,100. Appendix Table A2 provides additional descriptive statistics disaggregated by asset categories. 46% of households are categorized as higher-asset households.

**Time Trends in Program Participation.** Figure 1 provides a comprehensive overview of program participation rates among low-income older adult households from 1996 to 2013 in the SIPP data. The figure includes five panels that illustrate participation patterns for overall SNAP, overall SSI, SNAP-only, SSI-only, and joint SSI-SNAP participation. The results reveal a notable increase in SNAP participation over time, particularly for SNAP-only participation, while SSI participation remains relatively stable or shows a slight decline. This divergence highlights shifting patterns in program utilization among low-income older adults, suggesting potential changes in eligibility, accessibility, or economic conditions affecting program participation.

Figure 2 extends this analysis by examining program participation among higher-asset and lower-asset households. Similar to Figure 1, this figure includes five panels analyzing overall SNAP, overall SSI, SNAP-only, SSI-only, and joint SSI-SNAP participation. Among higher-asset households, participation rates in both programs are generally low, with SSI participation rates close to zero. However, SNAP participation among higher-asset households shows a noticeable increase after 2008, suggesting a potential shift in program access or eligibility for this group.

In contrast, among lower-asset households, clear divergent trends emerge: SNAP participation increases, driven primarily by SNAP-only participation, while SSI participation decreases, largely due to declines in SSI-only participation. Joint SSI-SNAP participation remains relatively stable, with minor fluctuations over the years.

These findings underscore the complex relationships between policy changes and program participation among low-income older adults. The divergent trends observed between higher-asset and lower-asset households emphasize the importance of stratifying the sample by asset levels to uncover distinct patterns and their implications for household economic outcomes.

# 4 Estimation Model

We estimate the behavioral impacts of welfare program participation using an instrumental variable (IV) approach, specifically a two-stage least squares (2SLS) model. We estimate two second-stage models. The first focuses on the overall effects of SNAP participation:

$$Y_{ist} = \alpha_1 SNAP_{ist} + \alpha_2 X_{ist} + \delta_s + \delta_t + \epsilon_{s,t}, \tag{1}$$

where $Y_{ist}$ represents the outcome of interest for household $i$ in state $s$ in year $t$ (such as income of various types, housing and vehicle status, and material hardship), $SNAP_{ist}$ is dummy variable indicates SNAP participation, $X_{ist}$ is a vector of household-level controls include receipt of other transfer programs, demographic, and local labor market variables such as unemployment rate. $\delta_s$ and $\delta_t$ are state and year fixed effects, respectively, and $\epsilon_{ist}$ is the error term. Our regression models employ two-way clustering at both the state and household levels to account for potential correlations within states, due to state-level policy variations, and within households, as our sample contains multiple observations of the same households over time.[16]

The second model examines the distinct impacts of SNAP-only participation and joint SNAP-SSI

[16]Robustness checks using state-level clustering alone yield results similar to our baseline two-way clustered specification, suggesting relatively modest within-household error correlation over time.

participation:

$$Y_{ist} = \beta_1 SNAPOnly_{ist} + \beta_2 Joint_{ist} + \beta_3 X_{ist} + \delta_s + \delta_t + \epsilon_{s,t}. \quad (2)$$

where $SNAPOnly_{ist}$ indicates participation in SNAP only, $Joint_{ist}$ represents concurrent participation in both SNAP and SSI, and the other terms are defined as above. These models allow us to isolate the effects of SNAP participation alone and the combined effects of SNAP and SSI participation on household outcomes.

Our models do not specify the effect of SSI-only participation because the literature has not developed any plausible instruments for SSI by itself. SSI is a national program and has very little cross-state variation.[17] We also explored alternative model specifications that include the combination of overall SNAP and overall SSI participation or the combination of overall SNAP and SSI-only participation using SNAP policies to also affect SSI-only participation, but our analyses reveal that SNAP policies have minimal impact on SSI-only participation, with the primary effects concentrated on joint SNAP-SSI participation rather than SSI alone. Results from these alternative models are available upon request.

## 4.1 Instrumental Variables

To address the endogeneity issue of SNAP and SSI program participation, we employ state-level policies and their combinations as instrumental variables (IVs). The first-stage regression models are specified as follows:

$$SNAP_{ist} = \gamma_1 \text{Policy Index I} + \gamma_2 X_{ist} + \delta_s + \delta_t + \epsilon_{ist}, \quad (3)$$

where $SNAP_{ist}$ represents SNAP participation for household $i$ in state $s$ in year $t$ and Policy Index I is constructed to reflect the adoption of key state-level policies, including BBCE, participation cost measures (e.g., simplified reporting, no face-to-face interviews, and combined applications), and vehicle asset test exemptions. For each policy adopted by a state, the index increases by one. This

[17] There are some state-level SSI programs, but they are small and not large enough to be studied.

approach is consistent with the literature, such as Jones et al. (2022) and Easterday and Ginther (2022), which find that such policies positively influence SNAP participation among older adults.

For the analysis of SNAP-only and SNAP-SSI joint participation, we estimate separate first-stage models:

$$\begin{aligned} SNAPOnly_{ist} &= \theta_1 \text{Policy Index II} + \theta_2 \text{Vehicle} + \theta_3 X_{ist} + \delta_s + \delta_t + \epsilon_{s,t}, \\ Joint_{ist} &= \theta_1 \text{Policy Index II} + \theta_2 \text{Vehicle} + \theta_3 X_{ist} + \delta_s + \delta_t + \epsilon_{s,t}. \end{aligned} \tag{4}$$

where Policy Index II captures variations in state-level policies, excluding vehicle asset test exemptions, and Vehicle indicates whether a state exempts at least one vehicle from the asset test. These models include two endogenous policy variables, necessitating at least two instrumental variables.[18] As in the second stage, we cluster standard errors at the state and household levels to account for policy-driven spatial correlation and household-level serial correlation. The coefficients of interest, $\alpha_1$ in Equation (1) and $\beta_1$ and $\beta_2$ in Equation (2), represent the local average treatment effects (LATE) of SNAP participation and SNAP-SSI joint participation, respectively.

## 4.2 Higher and Lower-asset Households

While the state policy indices show strong first-stage effects in equations (1) and (2) among low-income households,[19] our primary interest lies in conducting separate analyses by distinguishing between higher-asset households (with SNAP countable assets exceeding $2,000) and lower-asset

[18]To the best of our knowledge, previous studies have not explored the differential impacts of state policies on SNAP-only versus SNAP-SSI joint participation or their effects on household economic security. We experimented with various combinations of state policies to construct the instrumental variables. The results are generally consistent with our main findings. We selected the current specification because it yields relatively large first-stage F-statistics. Certain SNAP policies, such as noncitizen eligibility restrictions, BBCE older adult rule, and stigma- and outreach-related policies, including EBT usage, fingerprinting, and TV/radio ads were excluded from the baseline policy index because they contributed little to the first-stage results, as shown in Appendix Table A4.

[19]Columns (1)-(3) of Table A3 shows how state policies affect SNAP and SSI participation among low-income older adults which includes both higher and lower asset households. Policy Index I increases overall SNAP participation by 0.5 percentage points ($p < 0.01$). Policy Index II raises SNAP-only participation by 0.4 points ($p < 0.01$), with vehicle exemptions showing a similar 0.4 percentage point increase ($p < 0.05$). For joint SNAP-SSI participation, Policy Index II leads to a 0.3 percentage point gain ($p < 0.01$), while vehicle exemptions reduce participation by 0.3 percentage points ($p < 0.05$). The Cragg-Donald F-statistics exceed Stock-Yogo thresholds, confirming robust instruments for asset-level analysis.

households (with assets of $2,000 or below). This distinction is critical for several reasons. First, as we described earlier, state policies such as BBCE can affect lower-and higher-asset households differently. Second, higher-asset households are less responsive to policies affecting SSI participation, while lower-asset households exhibit significant variation in both SNAP-only and SNAP-SSI participation. These patterns, along with the divergent second-stage results across asset levels presented later, underscore the importance of accounting for asset disparities when assessing welfare program impacts.

A key concern regarding this categorization is whether households strategically adjust their asset holdings in response to SNAP policy changes, a behavior that could bias our estimates. We address this potential endogeneity through two approaches. First, our classification scheme uses average asset values across all observation years rather than contemporaneous measures, ensuring that our asset thresholds reflect persistent wealth rather than short-term behavioral adjustments.

Second, we directly test for policy-induced asset changes as presented in Table 2. The table examines four distinct outcome variables to assess potential endogenous responses: (1) a binary indicator for higher-asset status (defined as mean countable assets exceeding $2,000), (2) the log amount of SNAP-countable assets, (3) the log change in countable assets over time, and (4) a dummy variable indicating asset increases. The latter two variables leverage the household panel structure of the SIPP, requiring households to be observed for two consecutive years. Across all specifications, we find consistently null results. The estimated coefficients for Policy Index I are statistically insignificant in every column, with economically negligible point estimates ranging from -0.000 to -0.008. These results demonstrate that our asset classification approach using multi-year averages effectively avoids contamination from short-term behavioral responses, and that SNAP policy changes did not systematically induce meaningful asset accumulation or depletion behaviors among older adult households. The consistency of these null results across different model specifications and alternative measures of asset holdings strongly supports our assumption that any endogenous asset adjustments are sufficiently small as to not meaningfully affect our analysis of SNAP participation effects.

In the remainder of the paper, we examine higher-and lower-asset households separately to better understand how state policies shape program participation and economic outcomes.

# 5 Results: Higher-Assets Households

## 5.1 First-stage Results

Table 3 presents first-stage regression results examining the impact of state SNAP policies on program participation among higher-asset households using equation (1). The analysis includes four specifications to test robustness, with reported robust standard errors, adjusted R-squared values, and Cragg-Donald (CD) F-statistics compared against Stock-Yogo (2004) critical values.

In Column 1 (the baseline specification), Policy Index I demonstrates a statistically significant positive effect (0.003, p < 0.01), indicating that a one-unit increase in the policy index corresponds to a 0.3 percentage point rise in SNAP participation. The CD F-statistic of 55.597 substantially exceeds the Stock-Yogo critical value of 8.96, establishing strong instrument validity for this specification. Meanwhile, results from equation (2) presented in Table A3 (columns 5-6) reveal considerably weaker first-stage F-statistics for both SNAP-only and SNAP-SSI participation. The particularly low F-statistic of 0.516 for SNAP-SSI participation (compared to the 4.58 threshold) reflects the minimal SSI participation observed in this population. Given these results, our primary specification for higher-asset households employs equation (1) to analyze aggregate SNAP participation, rather than separately estimating SNAP-only and SNAP-SSI participation.

Column 2 disaggregates the Policy Index I into different components: BBCE, cost-saving measures, and vehicle asset test exemptions. The results reveal that BBCE has the largest impact on SNAP participation, with a coefficient of 0.006 ($p < 0.01$). The Cost Index and vehicle exemption policies also show statistically significant effects, with coefficients of 0.003 ($p < 0.01$) and 0.003 ($p < 0.05$), respectively. The CD F-statistic is 20.319, exceeding the Stock-Yogo critical value of 11.59.

Column 3 adopts the same model specification as in column 1 and restricts the sample to

households with income below 180% of the federal poverty line. The coefficient for Policy Index I increases slightly to 0.004 ($p < 0.01$), showing that state-level policies have a stronger effect on SNAP participation for households with lower incomes. The CD F-statistic of 51.782 confirms strong instrument validity. Column 4 tests the robustness of the results regarding the cutoff of the higher-asset household category by limiting the sample to households with SNAP countable assets over $2,500. The coefficient for Policy Index I remains significant at 0.003 ($p < 0.01$), consisting with the results in Specification I. The CD F-statistic of 50.449 again exceeds the Stock-Yogo threshold, reinforcing the robustness of the findings.

The results consistently show that state-level SNAP policies, particularly BBCE, significantly influence program participation among higher-asset older adults. While BBCE appears to be the primary driver of these effects, other policy changes, such as simplified application procedures and the reduction in application costs may also contribute to increased participation. These findings underscore how policy design shapes program access and suggest that flexible asset tests and streamlined administrative procedures can be effective tools for reaching eligible older adults who might otherwise forgo benefits despite their food assistance needs.

Our estimated baseline effect of SNAP policy changes on program participation among higher-asset households (coefficient=0.003) is consistent with the range reported in prior literature, especially for senior households. For example, Easterday and Ginther (2022) analyzed a generosity index including BBCE provisions and found effect sizes of 0.005-0.009 for elderly populations (Table 2). Likewise, Jones et al. (2022) reported a 0.004 increase in participation rates with BBCE adoption among eligible households (Table 2). However, neither study accounts for differences in household asset levels.

## 5.2 Second-stage Results

Table 4 presents second-stage regression results examining the effects of SNAP participation on various economic and financial outcomes among higher-asset older adults. The analysis uses the same model specifications as in Table 3 to ensure consistency and robustness. The outcomes

include SNAP amount, homeownership, vehicle ownership, house/car asset share percentage, and food hardship.[20]

The regression results reveal several significant effects of SNAP participation on economic outcomes among higher-asset older adults. Panel A (log of SNAP Amount) shows coefficients ranging from 4.087 to 4.149 ($p < 0.01$). These coefficients exceed 100 percentage points, which might seem counterintuitive for a linear probability model. However, they represent Local Average Treatment Effects (LATE) for compliers, households whose participation is influenced by state SNAP policies. The large magnitudes suggest strong effects among this group. For practical interpretation of these effects, we examine our baseline specification in column (1). Given the first-stage estimate of 0.003, implying that participation increases benefits by around 1.2%. Based on the sample's average monthly SNAP benefit of $86 per household, this effect translates to an estimated increase of $1.032 per month in the baseline model. This represents a direct increase in the liquid resources available to older adults, helping to alleviate financial constraints.

Panel B (Homeownership) and Panel C (Vehicle Ownership) show significant negative coefficients. Homeownership effects range from -1.098 to -1.944, and vehicle ownership effects range from -1.689 to -2.009. Households responsive to SNAP policy changes demonstrate a significantly higher propensity to adjust their asset holdings. This pattern likely reflects strategic portfolio reallocation, with households shifting away from illiquid assets (homes and vehicles) toward more liquid resources that facilitate program eligibility. For practical interpretation of these effects, we examine our baseline specification in column (1). Given the first-stage estimate of 0.003, the implied marginal effects translate to a 0.42 percentage point decrease in homeownership probability ($-1.397 \times 0.003 \times 100$) and a 0.58 percentage point reduction in vehicle ownership probability ($-1.943 \times 0.003 \times 100$).

There is literature on homeownership among older adults, which reveals that homeownership in later life is a double-edged sword, serving as both a potential source of financial wealth and

[20]We have also examined a wide range of additional economic outcomes, including the ownership of various of financial accounts such as saving, checking, investment, and retirement accounts, the amounts of various financial assets, and other hardship measures such as bill-paying, health, and housing hardship. However, most of these results are not statistically significant. Detailed findings for these outcomes are available upon request.

a financial burden. While home equity represents a significant asset for many older adults, the costs associated with maintenance, property taxes, and housing market volatility can undermine its benefits (Trawinski, 2012; Case and Shiller, 2003; Davidoff et al., 2017). Housing tenure transitions, influenced by life cycle, demographic, and familial factors, further complicate the financial implications of homeownership in later life (Venti and Wise, 2004; Painter and Lee, 2009). Our findings are consistent with those of Skinner (1996), who emphasizes the illiquidity of housing wealth as a barrier to financial flexibility, and Davidoff et al. (2017), who note that older adults often hesitate to access home equity due to high costs and complexity.

Panel D (House/Car Share Percentage) presents statistically significant negative coefficients (ranging from -1.109 to -1.765), indicating that SNAP participation meaningfully reduces the proportion of household wealth allocated to housing and vehicles. Based on our baseline specification (column 1) with a first-stage estimate of 0.003, we estimate that SNAP participation decreases the housing/vehicle wealth share by 0.42 percentage points. Although modest in magnitude, this effect, when considered alongside our homeownership and vehicle ownership results, demonstrates a consistent reallocation of assets among participants from illiquid holdings (houses and cars) toward more liquid forms of wealth. This pattern suggests that SNAP participation may enable older adults to optimize asset liquidity for meeting immediate financial needs.[21]

Panel E (Food Hardship) demonstrates progressively stronger effects across specifications, with the baseline model in column (1) indicating that SNAP participation reduces the probability of food hardship by 0.163 percentage points. These substantial effects suggest that the observed asset reallocation patterns are helping households improve their food security.

These findings carry important policy implications, particularly for understanding how asset-rich but cash-poor older adults ("Wealthy hand-to-mouth" households as studied in Kaplan et al. (2014)) respond to SNAP policies. The large coefficients reflect significant behavioral responses among policy-sensitive households, indicating that BBCE asset limit exemptions effectively enable older adults to optimize their asset portfolios while maintaining food security. This interpretation

[21]The smaller sample sizes in Panels B-D reflect how these variables were constructed from topical modules.

is further supported by the consistent patterns observed across multiple asset-related outcomes and different model specifications. Together, these results underscore the importance of flexible asset tests in SNAP for helping older adults balance their financial resources and meet essential needs.

**Additional Outcomes.** To complement the main economic outcomes, Table 5 presents second-stage IV regression results examining SNAP's effects on additional economic outcomes organized into three panels.

Panel A examines the effects of SNAP participation on housing-related outcomes. After scaling by the first-stage estimate (0.003), the results indicate that SNAP participation significantly increases subsidized renter status by 0.328%, while the effect on market renter status, though positive, is statistically insignificant (0.09%). This pattern suggests that older adults may strategically transition into subsidized housing, such as public housing or voucher programs, potentially as a means of reducing living costs. The data further reveal that while housing expenses show no significant change (a modest and statistically insignificant 0.7% increase), utility expenses decline significantly by 1.048%. Together, these findings imply that SNAP participation facilitates access to subsidized housing, which in turn helps older adults lower their utility costs. The results are consistent with the interpretation that selling homes and moving into subsidized housing serves as a cost-saving strategy, particularly for reducing utility expenditures, a critical expense for older adults on fixed incomes.

Panel B examines the effects of SNAP participation on asset-related outcomes. After scaling by the first-stage estimate (0.003), the results show that SNAP participation leads to significant reductions in both housing assets (5.787 %), vehicle assets (3.376 %), and retirement assets (2.867 %). These findings are consistent with a strategic shift away from illiquid asset holdings and align with the patterns observed in Table 4, which similarly documents reduced housing and vehicle ownership among participants. In contrast, the estimated declines in SNAP-countable assets (1.235 %) is not statistically significant. Notably, the reduction in homeownership among higher-asset households does not appear to be offset by increases in liquid assets. This pattern suggests that the proceeds from asset sales may be being spent, potentially on medical expenses or other needs, or

transferred rather than retained as savings. While our data do not allow us to directly verify these potential expenditure patterns, this remains an important question for future research to explore.

Panel C analyzes income and labor market outcomes. We find no statistically significant effects of SNAP participation on: (1) log total income, (2) log labor income, (3) Log Supplemental Security Income (SSI) amounts, or (4) retirement probability. This implies that SNAP's influence on higher-asset older adults operates primarily through asset adjustments rather than income or labor supply changes. The lack of significant effects on retirement behavior is particularly notable, as it suggests that SNAP does not discourage workforce participation among this demographic.

Taken together, these results reveal a consistent pattern of asset reallocation: households receiving SNAP benefits show an increased likelihood of utilizing housing subsidies, while simultaneously reducing their holdings in vehicle assets and decreasing utility expenses. This suggests that SNAP participation enables older adults to shift away from maintaining illiquid assets toward more flexible financial arrangements. The magnitude of these effects, particularly among households whose program participation is influenced by state SNAP policies (the complier population), indicates that policy changes can substantially impact older adults' asset portfolio decisions. These results support the broader conclusion that SNAP's asset test modifications allow higher-asset older adults to better optimize their wealth holdings while preserving their ability to meet basic needs, potentially providing them with greater financial flexibility and security.

## 5.3 Sub-sample Results

Table A5 presents second-stage regression results examining the effects of SNAP participation on economic outcomes among higher-asset households, stratified across various sub-samples. The analysis is organized into five panels: Panel A (log of SNAP Amount), Panel B (Homeownership), Panel C (Vehicle Ownership), Panel D (House/Car Share Percentage), and Panel E (Food Hardship). Each panel explores how SNAP participation impacts these outcomes across different groups, including households with low vs. high Social Security income (Columns 1-2),[22] White vs. Non-

[22]We observe similar patterns when categorizing households based on total income levels.

White households (Columns 3-4), female vs. male-headed households (Columns 5-6), and early (1996-2003) vs. late (2004-2013) time periods (Columns 7-8).[23]

While we are cautious in interpreting heterogeneous effects due to variations in sample sizes and first-stage strength across sub-samples, the results still offer meaningful insights. For example, the significant effects observed during the early period (1996-2003), such as reductions in vehicle ownership and food hardship, suggest that the results are not solely driven by the Great Recession. Instead, they underscore the broader importance of SNAP policies in providing financial flexibility across economic cycles.

# 6 Results: Lower-Assets Households

## 6.1 First-stage Results

Table 6 presents first-stage regression results analyzing the effects of state-level SNAP policies on program participation among lower-asset households. As for the higher-asset households, the analysis includes four specifications to assess robustness, with a particular focus on both SNAP-only and joint SNAP-SSI participation.

The baseline specification (Columns 1-2) using equation (2) shows that Policy Index II has statistically significant positive effects on both SNAP-only participation (0.003, $p < 0.05$) and joint SNAP-SSI participation (0.004, $p < 0.01$). In contrast, the vehicle exemption policy has opposing effects: it increases SNAP-only participation by 0.003 ($p < 0.10$) while decreasing joint participation by 0.005 ($p < 0.05$). The Cragg-Donald F-statistic of 7.518, which exceeds the Stock-Yogo critical value of 4.58, confirms strong instrument validity. For lower-asset households, we use equation (2) as our primary specification to examine differential effects across SNAP-only and SNAP-SSI joint participations. For completeness, Column 7 of Table A3 presents results from equation (1), which analyzes overall SNAP participation and similarly demonstrates strong instrument strength.

[23] We have also tried interaction models where we interact the SNAP participation dummy with sub-sample dummies; however, most of the interactions are not statistically significant.

Columns 3 and 4 disaggregate Policy Index II into its components: BBCE and the Cost Index. The results reveal that BBCE has an insignificant effect on SNAP-only participation but a significant positive effect on joint SNAP-SSI participation (0.008, $p < 0.01$). The Cost Index and vehicle exemption policies also show statistically significant effects on both SNAP-only and joint participation, with coefficients of 0.004 ($p < 0.05$) and 0.003 ($p < 0.05$), respectively. However, the CD F-statistic of 5.105 falls below the Stock-Yogo critical value of 8.18, suggesting weaker instrument strength in this specification. We choose to present this specification here to show the different impacts of different types of policies.

Columns 5 and 6 restrict the sample to households with income below 180% of the federal poverty line. Policy Index II continues to show a significant positive effect on SNAP-only participation (0.003, $p < 0.01$) and joint SNAP-SSI participation (0.003, $p < 0.05$). The vehicle exemption policy again exhibits contrasting effects: an insignificant positive effect on SNAP-only participation and an insignificant negative effect on joint participation (0.003 vs. -0.003). The CD F-statistic is 7.424, exceeding the Stock-Yogo critical value of 4.58.

Columns 7 and 8 test the robustness of the results by limiting the sample to households with SNAP countable assets below $1,500. Policy Index II shows a significant positive effect on SNAP-only participation (0.004, $p < 0.01$) and joint SNAP-SSI participation (0.003, $p < 0.01$). The vehicle exemption policy continues to exhibit contrasting effects: a positive effect on SNAP-only participation (0.007, $p < 0.01$) and a negative effect on joint participation (-0.005, $p < 0.05$). The CD F-statistic of 6.064 again exceeds the Stock-Yogo threshold, reinforcing the robustness of the findings.

Our analysis reveals that state-level SNAP policies significantly influence program participation patterns among lower-asset older adults, though with distinct effects on SNAP-only versus joint SNAP-SSI participation. We find that policy impacts vary systematically across participation types. BBCE and cost-reduction measures show complementary positive effects on both SNAP-only and joint program participation. In contrast, vehicle exemption policies exhibit opposing effects: they increase SNAP-only participation but decrease joint SNAP-SSI participation. While these results

demonstrate the importance of state policies in shaping program access, the mechanisms driving these differential effects remain unclear. Given that many policies overlap in their implementation, we cannot definitively attribute the observed impacts to specific factors such as information sharing between programs or reduced administrative burdens. This ambiguity about underlying mechanisms, particularly for joint program participation, represents an important avenue for future research.

## 6.2 Second-stage Results

Table 7 presents second-stage regression results examining how SNAP participation affects economic outcomes among low-asset older adults, focusing on SNAP benefit amounts and food hardship. The analysis is organized into five panels: Panel A (log of SNAP Amount), Panel B (Homeownership), Panel C (Vehicle Ownership), Panel D (House/Car Share Percentage), and Panel E (Food Hardship). Each panel explores the effects of SNAP-only and joint SNAP-SSI participation across four specifications, including variations in income thresholds and asset cutoffs.

For log of SNAP benefit amounts in Panel A, households participating only in SNAP show consistently larger gains (6.474-6.953, $p < 0.01$), implying that participation increases benefits by 1.942% to 2.085%, after scaling by the first-stage estimate (0.003). This is larger than the effect of SNAP participation on SNAP benefit among higher-asset households presented in Table 4 (around 1.2%). Based on the sample's average monthly SNAP benefit of $86 per household, this effect translates to an estimated increase of $1.72 per month in the baseline model. While joint SNAP-SSI participation also increases benefits, the effects are smaller (4.243-4.386, $p < 0.01$).

The estimated effects on homeownership, vehicle ownership, and house/car share percentage (Panels B-D) are largely statistically insignificant. Two key factors may explain these null results. First, the BBCE policy's impact was theoretically concentrated among higher-asset households, as lower-asset households already qualified for SNAP prior to the reform. Consequently, BBCE-induced changes in SNAP participation and subsequent financial decisions were inherently limited for this subgroup. Second, the low baseline rates of homeownership and vehicle ownership among

lower-asset older adults (Appendix Table A2) reduced our power to detect meaningful effects.

For Food Hardship in Panel E, SNAP-only participation shows consistent and statistically significant negative effects across specifications, with coefficients ranging from -1.009 to -1.136. In contrast, joint SNAP-SSI participation shows mixed and statistically insignificant effects, with coefficients ranging from -0.080 to 0.229. This highlights that SNAP-only participation may be more effective at reducing food hardship compared to joint participation.

These findings suggest that while both SNAP-only and joint SNAP-SSI participation increase benefit receipt, SNAP-only participation is more effective at improving economic outcomes, especially in reducing food insecurity among low-asset older adults. This difference may be attributed to the relatively smaller impact of joint SNAP-SSI participation due to SNAP policy changes.

**Additional Outcomes.** Table 8 presents second-stage IV regression results examining the effects of SNAP-only and joint SNAP-SSI participation on various other economic outcomes, including housing, asset, and income-related variables for higher-asset households. In general, the results are not statistically significant, which aligns with the findings in Table 7. There, the effects of SNAP participation were primarily concentrated on SNAP benefit amounts and food insecurity, with little impact on asset allocation or other economic outcomes. This suggests that the primary economic impacts of SNAP participation among low-asset older adults are focused on immediate needs, such as food security, rather than broader asset or income adjustments.

## 6.3 Sub-sample Results

Table A6 shows second-stage estimates of SNAP participation effects on benefit amounts and food hardship for lower-asset households, across subsamples defined by Social Security income, race, gender, and time periods.

For SNAP benefit amounts, SNAP-only participation has significant positive effects for households with low Social Security income, White households, and female-headed households. Joint SNAP-SSI participation also shows positive effects for some groups, though these are generally smaller in magnitude. In contrast, the results for male-headed households and those with high

Social Security income are statistically insignificant, suggesting that the impact of SNAP participation varies across demographic groups. For food hardship, SNAP-only participation significantly reduces hardship for households with low Social Security income, White households, and female-headed households. However, joint SNAP-SSI participation shows no significant effects on food hardship across any sub-samples. This indicates that SNAP-only participation is more effective at addressing food insecurity among vulnerable groups.

The strength of the instrumental variables varies across sub-samples, with some groups showing robust results and others exhibiting weaker instrument validity. As a result, we interpret these findings with caution, particularly for sub-samples where the instrument strength is less reliable.

# 7 Conclusion

Both SNAP and SSI programs play a critical role in providing financial support and stability to low-income older adults, who often face significant economic challenges. This study investigates how SNAP policies influence the interaction between these two programs, examining trends in SNAP participation (or SNAP-only and joint SNAP-SSI) and their impact on household economic security. Our findings have important implications for understanding the effectiveness of safety net programs.

A key contribution of this research is its exploration of how SNAP policies affect households differently based on asset levels. For higher-asset households, BBCE has driven increased SNAP participation, particularly in SNAP-only cases rather than joint SNAP-SSI participation. The evidence suggests that BBCE policies effectively expand program access for households with marginally higher resources, enabling them to maintain financial stability without sacrificing benefit eligibility. This policy approach allows households to adjust non-liquid assets, such as homes and vehicles, while simultaneously accessing needed benefits, thereby enhancing overall financial flexibility. Additional policies, such as vehicle asset exclusions and reduced administrative costs, have further boosted participation. Importantly, these households report reduced food hardship,

highlighting the benefits of these policies in enhancing economic security.

For lower-asset households, BBCE and cost-related policies have increased both SNAP-only and joint SNAP-SSI participation, demonstrating the importance of reducing barriers. However, vehicle-related policies have had mixed effects, increasing SNAP-only participation while decreasing joint SNAP-SSI participation. This divergence underscores the complex interplay between SNAP and SSI eligibility rules, suggesting that some policies may create trade-offs for households navigating multiple programs. Despite these complexities, the overall impact has been positive, increasing SNAP benefits and reducing food hardship for lower-asset households.

These findings have significant implications for policymakers and researchers. First, they highlight the importance of recognizing differences among low-income older adults based on asset levels. Second, the study sheds light on an understudied aspect of asset limits: their role in providing financial flexibility. While traditional discussions often focus on how asset limits discourage savings, this research shows how relaxing these limits can help households better manage and allocate their financial resources. For example, policies like BBCE allow older adults to adjust ownership of homes or vehicles and address immediate financial needs without losing benefits. Third, the study uncovers potential trade-offs, such as the opposing effects of vehicle exclusions on SNAP-only versus joint SNAP-SSI participation. These insights underscore the complexity of designing policies that promote access to multiple safety net programs and emphasize the need for careful consideration of how eligibility rules interact.

Looking ahead, future research should further explore the mechanisms behind why different policies have varying impacts on SNAP and SSI participation, as well as their effects on other populations, such as individuals with disabilities.

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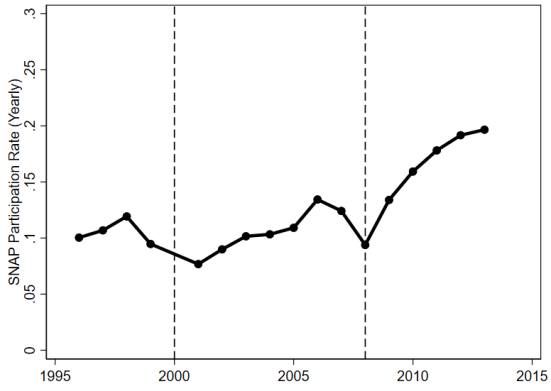
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# Figures and Tables

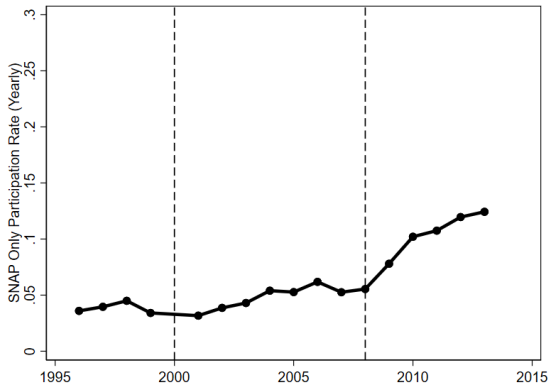
Figure 1: SNAP and SSI participation among Low-income Older Adults



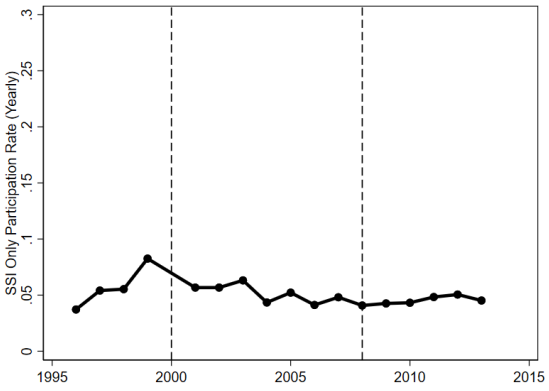

(a) SNAP



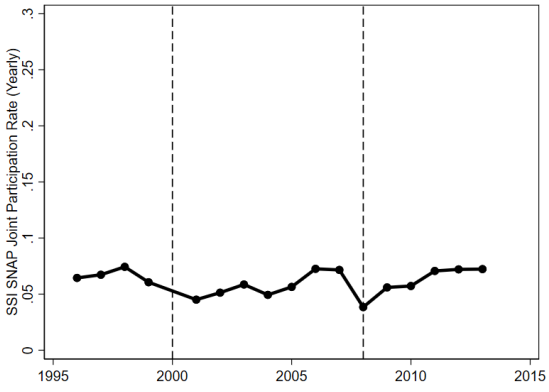

(b) SSI




(c) SNAP Only



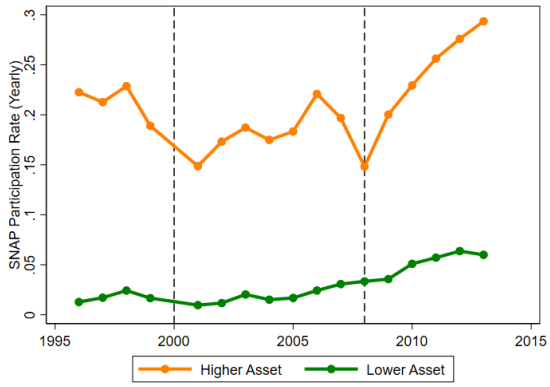

(d) SSI Only



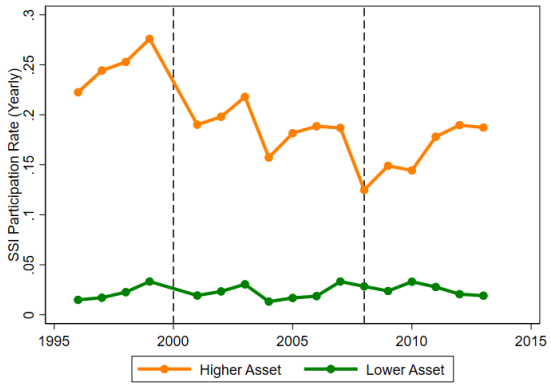

(e) Joint SSI and SNAP

*Notes:* Data from Survey of Income and Program Participation (SIPP) panels of 1996, 2001, 2004, and 2008. Low-income older adults are defined as those with all members aged 60 years or older with total household income below 200% of the poverty line.

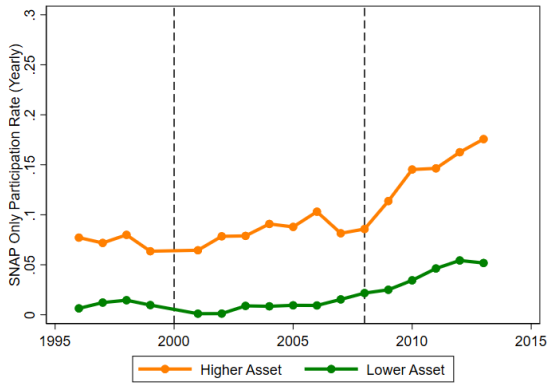
Figure 2: SNAP and SSI Participation among Low-income older adults by Asset Categories



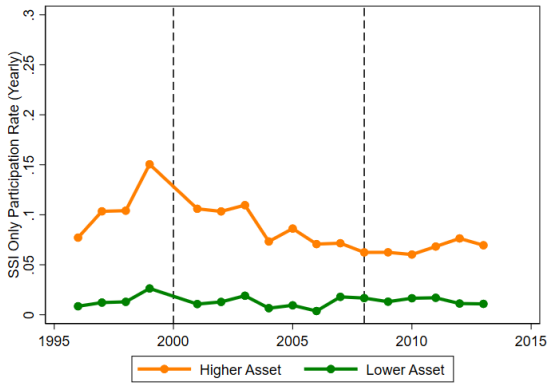

(a) SNAP



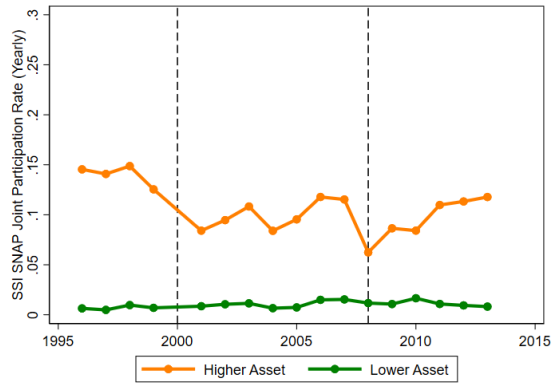

(b) SSI




(c) SNAP Only



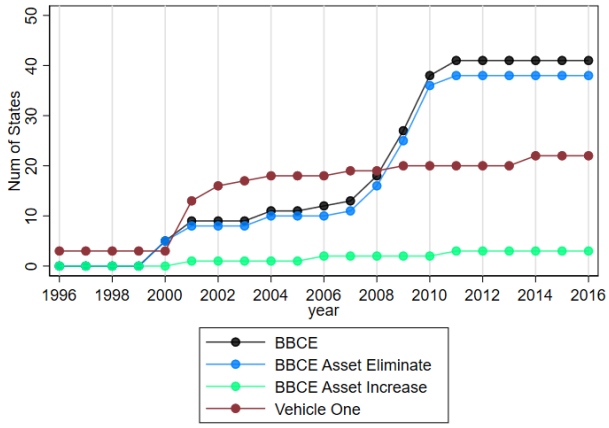

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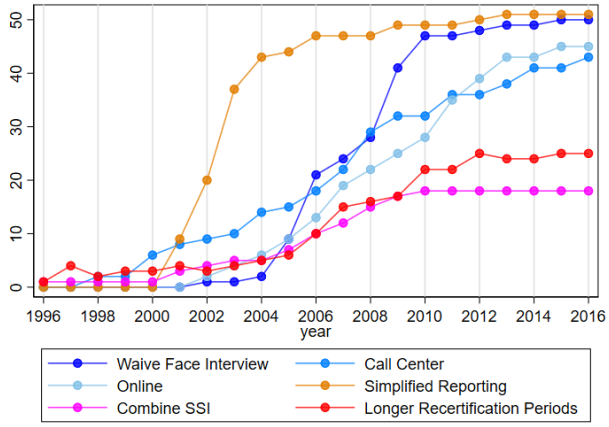

(e) Joint SSI and SNAP

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Figure 3: Accumulated Number of States with different SNAP Policies



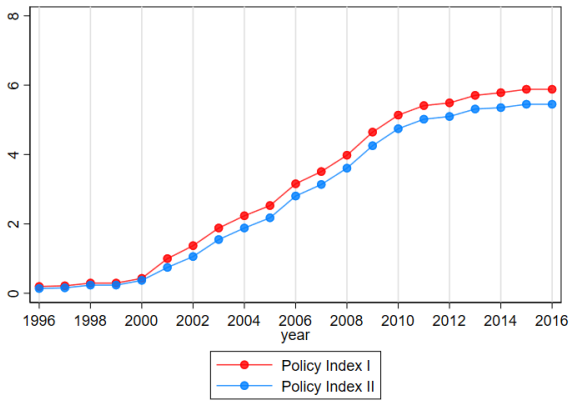

(a) BBCE and Vehicle Asset Limits



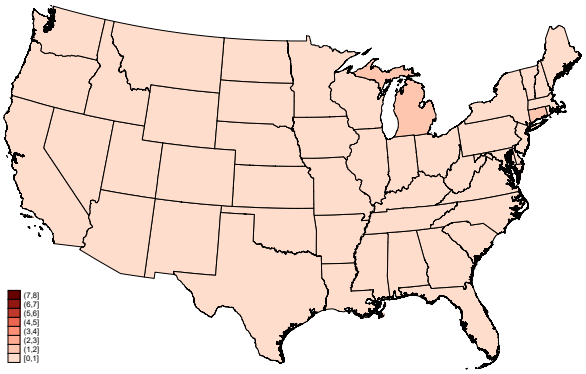

(b) Cost-Related Policies

*Notes:* Data come from the SNAP State Policy Data 1996-2016 from the USDA.

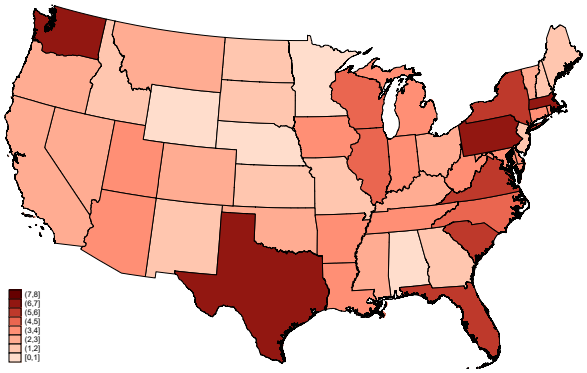
Figure 4: Policy Index over Years and across States



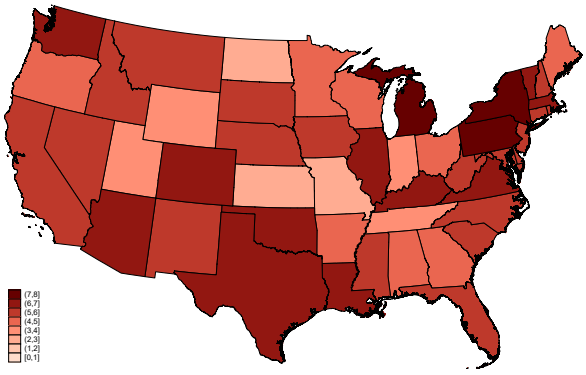

(a) Time Trends



(b) Policy Index I in 1996



(c) Policy Index I in 2007



(d) Policy Index I in 2013

*Notes:* Data come from the SNAP State Policy Data 1996-2016 from the USDA. The policy index is calculated based on 8 state-level SNAP policies.

Table 1: Detailed Summary Statistics: Low-Income Older Adult Household

| | (1) Count | (2) Mean | (3) S.D | (4) Min | (5) Max |
|---|---|---|---|---|---|
| SNAP and SSI Variables | | | | | |
| SNAP Dummy | 26011 | 0.12 | 0.33 | 0.00 | 1.00 |
| SSI Dummy | 26011 | 0.11 | 0.31 | 0.00 | 1.00 |
| SNAP only | 26011 | 0.06 | 0.24 | 0.00 | 1.00 |
| SSI only | 26011 | 0.05 | 0.22 | 0.00 | 1.00 |
| Joint SNAP SSI | 26011 | 0.06 | 0.23 | 0.00 | 1.00 |
| SNAP Amount | 3163 | 80.32 | 67.65 | 11.17 | 315.00 |
| SSI Amount | 2831 | 142.33 | 46.90 | 25.02 | 168.28 |
| Demographic Variables | | | | | |
| Age | 26011 | 76.77 | 7.05 | 60.00 | 89.00 |
| Female | 26011 | 0.72 | 0.45 | 0.00 | 1.00 |
| White | 26011 | 0.81 | 0.39 | 0.00 | 1.00 |
| Black | 26011 | 0.14 | 0.35 | 0.00 | 1.00 |
| Married | 26011 | 0.19 | 0.39 | 0.00 | 1.00 |
| Number of Persons | 26011 | 1.20 | 0.40 | 1.00 | 2.00 |
| Less than HS | 26011 | 0.39 | 0.49 | 0.00 | 1.00 |
| High School | 26011 | 0.33 | 0.47 | 0.00 | 1.00 |
| Some College | 26011 | 0.10 | 0.30 | 0.00 | 1.00 |
| College | 26011 | 0.16 | 0.37 | 0.00 | 1.00 |
| Graduate | 26011 | 0.02 | 0.14 | 0.00 | 1.00 |
| Income and Labor Market Variables | | | | | |
| Monthly Income | 26011 | 1194.17 | 678.97 | 0.00 | 20255.73 |
| Labor Income | 26011 | 67.75 | 357.66 | 0.00 | 13863.21 |
| Social Security Amount | 23821 | 987.59 | 372.66 | 396.40 | 1904.78 |
| Retired | 26011 | 0.84 | 0.37 | 0.00 | 1.00 |
| Medicare Dummy | 26011 | 0.92 | 0.27 | 0.00 | 1.00 |
| Medicaid Dummy | 26011 | 0.20 | 0.40 | 0.00 | 1.00 |

Table 1: Detailed Summary Statistics: Low-Income Older Adult Household (Continued)

| | (1) Count | (2) Mean | (3) S.D | (4) Min | (5) Max |
|---|---|---|---|---|---|
| Housing and Vehicle Variables | | | | | |
| Homeowner | 26011 | 0.66 | 0.47 | 0.00 | 1.00 |
| Subsidized Renter | 26011 | 0.18 | 0.38 | 0.00 | 1.00 |
| Private Market Renter | 26011 | 0.16 | 0.37 | 0.00 | 1.00 |
| Housing Equity | 18498 | 74562.80 | 91777.47 | 0.00 | 353930.72 |
| Home Debt | 18498 | 4265.01 | 21011.98 | 0.00 | 258564.42 |
| Num of Vehicles | 18498 | 0.73 | 0.70 | 0.00 | 3.00 |
| Vehicle Equity | 18498 | 3017.76 | 4580.29 | 0.00 | 24039.26 |
| Vehicle Debt | 18498 | 410.05 | 2326.93 | 0.00 | 27704.31 |
| House/Car Share (%) | 16597 | 0.75 | 0.36 | 0.00 | 1.00 |
| Rent or Mortgage Payment | 18498 | 132.02 | 316.88 | 0.00 | 2132.68 |
| Utilities | 18498 | 153.29 | 112.16 | 0.00 | 550.00 |
| Asset Variables | | | | | |
| Higher Asset | 26011 | 0.46 | 0.50 | 0.00 | 1.00 |
| SNAP Countable Assets | 18498 | 11887.16 | 25242.30 | 0.00 | 194394.13 |
| Liquid Assets | 18498 | 7820.96 | 17772.34 | 0.00 | 71995.16 |
| Semi Liquid Assets | 18498 | 4066.20 | 15373.37 | 0.00 | 144877.05 |
| IRA and 401 Equity | 18498 | 3126.59 | 14143.15 | 0.00 | 98119.43 |
| Hardship Variables | | | | | |
| Food Hardship | 26011 | 0.06 | 0.24 | 0.00 | 1.00 |
| Payment Hardship | 26011 | 0.07 | 0.25 | 0.00 | 1.00 |
| Health Hardship | 26011 | 0.09 | 0.28 | 0.00 | 1.00 |
| Housing Hardship | 26011 | 0.16 | 0.37 | 0.00 | 1.00 |
| Neighborhood Hardship | 26011 | 0.27 | 0.44 | 0.00 | 1.00 |
| State-level Economics Variables | | | | | |
| State Unemployment Rate | 26011 | 6.26 | 2.13 | 2.70 | 13.50 |
| QCEW Employment Count (1000) | 26011 | 4043.11 | 3104.36 | 193.80 | 13216.73 |
| QCEW Wage Count (1000) | 26011 | 40.10 | 8.55 | 21.84 | 76.92 |

Note: Data from Survey of Income and Program Participation (SIPP) panels of 1996, 2001, 2004, and 2008. Low-income older adult households are defined as those with all members aged 60 years or older with total household income below 200% of the poverty line. SNAP countable assets include liquid assets (e.g., cash, savings, checking, and deposit accounts) and semi-liquid assets (e.g., stocks, businesses, non-residential properties, and other assets). The resident's house, vehicle, and retirement (IRA and 401) assets are not included as countable assets. These asset amount variables are based on the SIPP topical module information, which is available in most years between 1996-2013 but not in years 2000, 2006, 2007, 2008, 2012, and 2013. All monetary values are adjusted for inflation using 1996 as the base year.

Table 2: State Policy and Changes in Household Assets

| | Higher-Asset Dummy (1) | Log Amount of SNAP Asset (2) | Log Change in Amount of SNAP Asset (3) | Increase Dummy of SNAP Asset (4) |
|---|---|---|---|---|
| Policy Index I | -0.000 | -0.008 | -0.002 | -0.001 |
| | (0.002) | (0.010) | (0.015) | (0.001) |
| Observations | 26011 | 25577 | 5915 | 9876 |
| Adj. $R^2$ | 0.202 | 0.243 | 0.217 | 0.027 |

Note: Data from Survey of Income and Program Participation (SIPP) panels of 1996, 2001, 2004, and 2008. Low-income older adult households are defined as those with all members aged 60 years or older with total household income below 200% of the poverty line. SNAP countable assets include liquid assets (e.g., cash, savings, checking, and deposit accounts) and semi-liquid assets (e.g., stocks, businesses, non-residential properties, and other assets). The resident's house, vehicle, and retirement (IRA and 401) assets are not included as countable assets. These asset amount variables are based on the SIPP topical module information, which is available in most years between 1996-2013 but not in years 2000, 2006, 2007, 2008, 2012, and 2013. Households are categorized as higher-asset if the mean of SNAP countable assets exceeds $2,000 and as lower-asset if their assets are $2,000 or below. Monetary variables are measured in logarithmic form, with zero values transformed to log(1).

Table 3: First-Stage Results: State Policy and SNAP Participation among Higher-Asset Households

| | Spec I (1) | Spec II (2) | 1.8*Poverty Line (3) | Asset>2500 (4) |
|---|---|---|---|---|
| | SNAP | | | |
| Policy Index I | 0.003*** | | 0.004*** | 0.003*** |
| | (0.001) | | (0.001) | (0.001) |
| BBCE | | 0.006*** | | |
| | | (0.002) | | |
| Cost Index | | 0.003*** | | |
| | | (0.001) | | |
| Vehicle | | 0.003** | | |
| | | (0.001) | | |
| Observations | 12027 | 12027 | 9457 | 11443 |
| Adj. $R^2$ | 0.173 | 0.173 | 0.188 | 0.153 |
| CD F | 55.597 | 20.319 | 51.782 | 50.449 |
| Minimum F | 8.96 | 11.59 | 8.96 | 8.96 |

Note: Data from SIPP panels of 1996, 2001, 2004, and 2008. The sample in columns (1)-(2) includes low-income and higher-asset older adult households, defined as those with all members aged 60 years or older, total household income below 200% of the federal poverty line, and SNAP countable assets exceeding $2000. In column (3), the sample is restricted to households with income below 180% of the poverty line. In column (4), the sample is restricted to households with SNAP countable assets exceeding $2,500. *Policy Index I= BBCE+Cost Index+Vehicle* where *Cost Index* = simple reporting + no face-to-face interview+online+call center+combined application+ longer recertification period and *Vehicle* indicates whether at least one vehicle is eliminated from the asset test. The minimum F-statistic is based on Stock and Yogo (2004) critical values.

Table 4: Second-Stage Results: SNAP and Main Economic Outcomes among Higher-asset Households

| | Spec I | Spec II | 1.8*Poverty Line | Asset>2500 |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | Panel A: Log SNAP Amount | | | |
| SNAP Dummy | 4.087*** | 4.095*** | 4.120*** | 4.149*** |
| | (0.150) | (0.151) | (0.165) | (0.152) |
| Observations | 12027 | 12027 | 9457 | 11443 |
| Adj. $R^2$ | 0.936 | 0.936 | 0.937 | 0.932 |
| CD F | 55.597 | 20.319 | 51.782 | 50.449 |
| | Panel B: Homeownership | | | |
| SNAP Dummy | -1.397** | -1.310** | -1.098* | -1.944** |
| | (0.680) | (0.621) | (0.649) | (0.781) |
| Observations | 12027 | 12027 | 9457 | 11443 |
| Adj. $R^2$ | -0.070 | -0.045 | 0.011 | -0.250 |
| CD F | 55.597 | 20.319 | 51.782 | 50.449 |
| | Panel C: Num of vehicles | | | |
| SNAP Dummy | -1.943*** | -1.689** | -1.616* | -2.009*** |
| | (0.730) | (0.680) | (0.827) | (0.773) |
| Observations | 8615 | 8615 | 6783 | 8187 |
| Adj. $R^2$ | 0.199 | 0.229 | 0.215 | 0.195 |
| CD F | 53.290 | 18.957 | 51.673 | 48.203 |
| | Panel D: House/Car Share (%) | | | |
| SNAP Dummy | -1.406*** | -1.319*** | -1.109*** | -1.765*** |
| | (0.410) | (0.382) | (0.408) | (0.417) |
| Observations | 8533 | 8533 | 6706 | 8112 |
| Adj. $R^2$ | -0.187 | -0.153 | -0.087 | -0.337 |
| CD F | 50.311 | 18.977 | 48.926 | 46.390 |
| | Panel E: Food Hardship | | | |
| SNAP Dummy | -0.543** | -0.364 | -0.429* | -0.510** |
| | (0.243) | (0.279) | (0.238) | (0.243) |
| Observations | 12027 | 12027 | 9457 | 11443 |
| Adj. $R^2$ | -0.230 | -0.093 | -0.147 | -0.200 |
| CD F | 55.597 | 20.319 | 51.782 | 50.449 |
| Minimum F | 8.96 | 11.59 | 8.96 | 8.96 |

Note: Data from SIPP panels of 1996, 2001, 2004, and 2008. The analysis sample and model specifications follow those defined in Table 3. House/Car Share measures the proportion of housing and vehicle equity relative to total household assets (excluding retirement assets), which include housing and vehicle equity as well as SNAP countable assets. Food Hardship is imputed for years when the variable is not available. The minimum F-statistic is based on Stock and Yogo (2004) critical values.

Table 5: Second-Stage Results: SNAP and More Economic Outcomes among Higher-asset Households

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Panel A: Housing Related Variables | | | |
| | Subsidized Renter | Market Renter | Log Housing Expense | Log Utility Expense |
| SNAP Dummy | 1.093* | 0.303 | 2.334 | -3.494** |
| | (0.652) | (0.459) | (2.459) | (1.497) |
| Observations | 12027 | 12027 | 8615 | 8615 |
| Adj. $R^2$ | -0.102 | 0.017 | 0.016 | -0.088 |
| CD F | 55.597 | 55.597 | 53.290 | 53.290 |
| | Panel B: Asset Related Variables | | | |
| | Log SNAP Asset | Log Housing Asset | Log Vehicle Asset | Log Retirement Asset |
| SNAP Dummy | -4.116 | -19.291*** | -11.252** | -9.555* |
| | (2.881) | (7.037) | (4.582) | (5.636) |
| Observations | 8615 | 8615 | 8615 | 8615 |
| Adj. $R^2$ | 0.033 | -0.135 | 0.055 | -0.013 |
| CD F | 53.290 | 53.290 | 53.290 | 53.290 |
| | Panel C: Income and Labor Market Related Variables | | | |
| | Log Total Income | Log Labor Income | Log SSI income | Retired |
| | -0.328 | 0.030 | -0.812 | 0.306 |
| | (0.762) | (1.115) | (0.698) | (0.329) |
| Observations | 12027 | 12027 | 12027 | 12027 |
| Adj. $R^2$ | 0.297 | 0.157 | 0.247 | 0.105 |
| CD F | 55.597 | 55.597 | 55.597 | 55.597 |

Note: Data from SIPP panels of 1996, 2001, 2004, and 2008. The analysis sample and model specifications follow those defined in Column (1) of Table 3. Subsidized renters include individuals living in public housing or receiving housing vouchers. Asset- and expenditure-related variables are derived from the SIPP topical modules. Monetary variables are measured in logarithmic form, with zero values transformed to log(1).

Table 6: First-Stage Results: State Policy and SNAP/SSI Participation among Lower-Asset Households

| | Spec I | | Spec II | | 1.8*Poverty Line | | Asset<1500 | |
|---|---|---|---|---|---|---|---|---|
| | SNAP only (1) | SNAP-SSI (2) | SNAP only (3) | SNAP-SSI (4) | SNAP only (5) | SNAP-SSI (6) | SNAP only (7) | SNAP-SSI (8) |
| Policy Index II | 0.003** | 0.004*** | | | 0.003*** | 0.003** | 0.004*** | 0.003*** |
| | (0.001) | (0.001) | | | (0.001) | (0.001) | (0.001) | (0.001) |
| BBCE | | | 0.001 | 0.008*** | | | | |
| | | | (0.002) | (0.002) | | | | |
| Cost Index | | | 0.004** | 0.003** | | | | |
| | | | (0.001) | (0.001) | | | | |
| Vehicle | 0.003* | -0.005** | 0.004 | -0.005** | 0.003 | -0.003 | 0.007*** | -0.005** |
| | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) | (0.002) |
| Observations | 13984 | 13984 | 13984 | 13984 | 12764 | 13260 | 12764 | 13260 |
| Adj. $R^2$ | 0.062 | 0.286 | 0.062 | 0.286 | 0.066 | 0.064 | 0.289 | 0.288 |
| CD F | | 7.518 | | 5.105 | | 7.424 | | 6.064 |
| Minimum F | | 4.58 | | 8.18 | | 4.58 | | 4.58 |

Note: Data from SIPP panels of 1996, 2001, 2004, and 2008. The sample in columns (1)-(4) includes low-income and lower-asset older adult households, defined as those with all members aged 60 years or older, total household income below 200% of the federal poverty line, and SNAP countable assets below $2000. In columns (5) and (6), the sample is restricted to households with income below 180% of the poverty line. In columns (7) and (8), the sample is restricted to households with SNAP countable assets below $1,500. *Policy Index II= BBCE+Cost Index* where *Cost Index* = simple reporting + no face-to-face interview+online+call center+combined application+ longer recertification period and *Vehicle* indicates whether at least one vehicle is eliminated from the asset test. The minimum F-statistic is based on Stock and Yogo (2004) critical values.

Table 7: Second-Stage Results: SNAP and Main Economic Outcomes among Lower-asset Households

| | Spec I | Spec II | 1.8*Poverty Line | Asset<1500 |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| | Panel A: Log SNAP Amount | | | |
| SNAP only | 6.750*** | 6.474*** | 6.953*** | 6.772*** |
| | (0.694) | (0.720) | (0.765) | (0.733) |
| Joint SNAP SSI | 4.386*** | 4.341*** | 4.300*** | 4.243*** |
| | (0.773) | (0.639) | (0.779) | (0.916) |
| Observations | 13984 | 13984 | 12764 | 13260 |
| Adj. $R^2$ | 0.683 | 0.729 | 0.644 | 0.673 |
| CD F | 7.518 | 5.105 | 7.424 | 6.064 |
| | Panel B: Homeownership | | | |
| SNAP only | -0.381 | -0.433 | 0.292 | -3.922 |
| | (0.513) | (0.535) | (0.488) | (0.547) |
| Joint SNAP SSI | -0.387 | -0.472 | -0.329 | -0.591 |
| | (0.591) | (0.584) | (0.522) | (0.755) |
| Observations | 13984 | 13984 | 12764 | 13260 |
| Adj. $R^2$ | 0.360 | 0.452 | 0.280 | 0.338 |
| CD F | 7.518 | 5.105 | 7.424 | 6.064 |
| | Panel C: Num of vehicles | | | |
| SNAP only | 0.485 | 0.396 | 0.241 | 0.439 |
| | (0.714) | (0.771) | (0.604) | (0.679) |
| Joint SNAP SSI | 0.359 | 0.483 | 0.224 | 0.112 |
| | (0.540) | (0.429) | (0.456) | (0.604) |
| Observations | 9883 | 9883 | 9046 | 9352 |
| Adj. $R^2$ | 0.206 | 0.209 | 0.228 | 0.221 |
| CD F | 5.958 | 3.466 | 6.548 | 5.567 |
| | Panel D: House/Car Share (%) | | | |
| SNAP only | 0.586 | 0.846 | 0.411 | 0.585 |
| | (0.706) | (0.825) | (0.580) | (0.714) |
| Joint SNAP SSI | 0.275 | 0.347 | 0.039 | 0.091 |
| | (0.447) | (0.475) | (0.359) | (0.500) |
| Observations | 8064 | 8064 | 7302 | 7558 |
| Adj. $R^2$ | -0.056 | -0.266 | 0.068 | -0.049 |
| CD F | 7.446 | 3.011 | 8.867 | 6.836 |
| | Panel E: Food Hardship | | | |
| SNAP only | -1.009*** | -1.136** | -1.037*** | -1.245*** |
| | (0.382) | (0.466) | (0.353) | (0.422) |
| Joint SNAP SSI | 0.080 | -0.185 | 0.179 | 0.229 |
| | (0.376) | (0.348) | (0.373) | (0.525) |
| Observations | 13984 | 13984 | 12764 | 13260 |
| Adj. $R^2$ | -1.170 | -1.373 | -1.318 | -1.865 |
| CD F | 7.518 | 5.105 | 7.424 | 6.064 |
| Minimum F | 4.58 | 8.18 | 4.58 | 4.58 |

Note: Data from SIPP panels of 1996, 2001, 2004, and 2008. The analysis sample and model specifications follow those defined in Table 7. House/Car Share measures the proportion of housing and vehicle equity relative to total household assets (excluding retirement assets), which include housing and vehicle equity as well as SNAP countable assets. Food Hardship is imputed for years when the variable is not available. The minimum F-statistic is based on Stock and Yogo (2004) critical values. Monetary variables are measured in logarithmic form, with zero values transformed to log(1).

Table 8: Second-Stage Results: SNAP and More Economic Outcomes among Lower-Asset Households

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Panel A: Housing Related Variables | | | |
| | Subsidized Renter | Market Renter | Log Housing Expense | Log Utility Expense |
| SNAP only | 0.203 | -0.330 | -2.008 | -3.967* |
| | (0.410) | (0.403) | (2.892) | (2.206) |
| Joint SNAP SSI | 0.177 | 0.210 | 1.459 | -1.818 |
| | (0.386) | (0.501) | (2.536) | (1.175) |
| Observations | 13984 | 13984 | 9883 | 9883 |
| Adj. $R^2$ | 0.190 | -0.076 | -0.052 | -0.364 |
| CD F | 7.518 | 5.105 | 7.424 | 6.064 |
| | Panel B: Asset Related Variables | | | |
| | Log SNAP Asset | Log Housing Asset | Log Vehicle Asset | Log Retirement Asset |
| SNAP only | -0.379 | -0.434 | 1.595 | -3.910 |
| | (5.107) | (6.447) | (5.076) | (3.150) |
| Joint SNAP SSI | -2.628 | -1.419 | 4.051 | 0.306 |
| | (4.179) | (5.076) | (3.072) | (2.022) |
| Observations | 9883 | 9883 | 9883 | 9883 |
| Adj. $R^2$ | 0.024 | 0.192 | 0.137 | -0.363 |
| CD F | 5.958 | 5.958 | 5.958 | 5.958 |
| | Panel C: Income and Labor Market Related Variables | | | |
| | Log Total income | Log Labor income | Log SSI income | Retired |
| SNAP only | -0.959 | -0.592 | 1.446 | -0.652 |
| | (1.133) | (1.526) | (1.178) | (0.559) |
| Joint SNAP SSI | 0.014 | 0.053 | 1.917 | 0.100 |
| | (1.088) | (1.167) | (1.500) | (0.536) |
| Observations | 13984 | 13984 | 13984 | 13984 |
| Adj. $R^2$ | 0.396 | 0.219 | 0.505 | -0.114 |
| CD F | 7.518 | 7.518 | 7.518 | 7.518 |

Note: Data from SIPP panels of 1996, 2001, 2004, and 2008. The analysis sample and model specifications follow those defined in Column (1) of Table 7. Subsidized renters include individuals living in public housing or receiving housing vouchers. Asset- and expenditure-related variables are derived from the SIPP topical modules. Monetary variables are measured in logarithmic form, with zero values transformed to log(1).

# Appendix Figures and Tables

Table A1: Sample Selection: Low-Income Older Adult Households in the SIPP

| Sample | No.Obs | No.HH | Dropped HH. | Dropped HH. (%) |
|---|---|---|---|---|
| Original Sample | 375,070 | 122,514 | | |
| Keep low-income HHs | 106,776 | 37,971 | 84,543 | 69% |
| Keep older adult HHs | 31,860 | 11,168 | 35,599 | 22% |
| Drop older adult HHs with disabled members | 26,011 | 9,484 | 1,684 | 1.4% |
| Final Analysis Sample | 26,011 | 9,484 | | |

Note: Data from Survey of Income and Program Participation (SIPP) panels of 1996, 2001, 2004, and 2008. Low-income older adult households are defined as those with all members aged 60 years or older with total household income below 200% of the poverty line.

Table A2: Detailed Summary Statistics:
Low-Income Older Adult Household By Asset Categories

| | (1) Total | (2) Higher-Asset | (3) Lower-Asset | (4) Differences |
|---|---|---|---|---|
| SNAP and SSI Variables | | | | |
| SNAP Dummy | 0.12 | 0.03 | 0.20 | 0.17*** |
| SSI Dummy | 0.11 | 0.02 | 0.18 | 0.16*** |
| SNAP only | 0.06 | 0.02 | 0.10 | 0.09*** |
| SSI only | 0.05 | 0.01 | 0.08 | 0.07*** |
| Joint SNAP SSI | 0.06 | 0.01 | 0.10 | 0.09*** |
| SNAP Amount | 80.32 | 87.13 | 79.51 | -7.61* |
| SSI Amount | 142.33 | 143.17 | 142.23 | -0.94 |
| Demographic Variables | | | | |
| Age | 76.77 | 77.63 | 76.02 | -1.61*** |
| Female | 0.72 | 0.71 | 0.73 | 0.02*** |
| White | 0.81 | 0.92 | 0.72 | -0.20*** |
| Black | 0.14 | 0.05 | 0.22 | 0.17*** |
| Married | 0.19 | 0.23 | 0.16 | -0.07*** |
| Number of Persons | 1.20 | 1.24 | 1.17 | -0.07*** |
| Less than HS | 0.39 | 0.30 | 0.46 | 0.16*** |
| High School | 0.33 | 0.38 | 0.30 | -0.08*** |
| Some College | 0.10 | 0.12 | 0.08 | -0.04*** |
| College | 0.16 | 0.17 | 0.15 | -0.03*** |
| Graduate | 0.02 | 0.02 | 0.02 | -0.01*** |
| Income and Labor Market Variables | | | | |
| Monthly Income | 1194.17 | 1352.65 | 1057.86 | -294.79*** |
| Labor Income | 67.75 | 57.43 | 76.63 | 19.20*** |
| Social Security Amount | 987.59 | 1047.79 | 933.30 | -114.49*** |
| Retired | 0.84 | 0.87 | 0.82 | -0.05*** |
| Medicare Dummy | 0.92 | 0.94 | 0.91 | -0.03*** |
| Medicaid Dummy | 0.20 | 0.07 | 0.32 | 0.26*** |
| Observations | 26,011 | 12,049 | 13,962 | |

Table A2: Detailed Summary Statistics:
Low-Income Older Adult Household By Asset Categories (Continue)

| | (1) Total | (2) Higher-Asset | (3) Lower-Asset | (4) Differences |
|---|---|---|---|---|
| Homeowner | 0.66 | 0.78 | 0.56 | -0.22*** |
| Subsidized Renter | 0.18 | 0.09 | 0.26 | 0.17*** |
| Private Market Renter | 0.16 | 0.13 | 0.19 | 0.05*** |
| Housing Equity | 74562.80 | 98393.22 | 53789.85 | -44603.37*** |
| Home Debt | 4265.01 | 4244.70 | 4282.71 | 38.01 |
| Num of Vehicles | 0.73 | 0.92 | 0.57 | -0.34*** |
| Vehicle Equity | 3017.76 | 4206.35 | 1981.66 | -2224.69*** |
| Vehicle Debt | 410.05 | 460.06 | 366.47 | -93.59*** |
| House/Car Share (%) | 0.75 | 0.69 | 0.81 | 0.12*** |
| Rent or Mortgage Payment | 132.02 | 129.42 | 134.29 | 4.87 |
| Utilities | 153.29 | 163.50 | 144.39 | -19.11*** |
| Asset Variables | | | | |
| Higher Asset | 0.46 | 1.00 | 0.00 | -1.00 |
| SNAP Countable Assets | 11887.16 | 24848.78 | 588.54 | -24260.24*** |
| Liquid Assets | 7820.96 | 16584.47 | 181.83 | -16402.64*** |
| Semi Liquid Assets | 4066.20 | 8264.32 | 406.71 | -7857.61*** |
| IRA and 401 Equity | 3126.59 | 5498.49 | 1059.00 | -4439.49*** |
| Hardship Variables | | | | |
| Food Hardship | 0.06 | 0.03 | 0.09 | 0.06*** |
| Payment Hardship | 0.07 | 0.03 | 0.11 | 0.08*** |
| Health Hardship | 0.09 | 0.05 | 0.12 | 0.07*** |
| Housing Hardship | 0.16 | 0.13 | 0.19 | 0.06*** |
| Neighborhood Hardship | 0.27 | 0.25 | 0.28 | 0.04*** |
| State-level Economics Variables | | | | |
| State Unemployment Rate | 6.26 | 6.02 | 6.47 | 0.45*** |
| QCEW Employment Count (1000) | 4043.11 | 3870.72 | 4191.89 | 321.17*** |
| QCEW Wage Count (1000) | 40.10 | 39.20 | 40.88 | 1.69*** |
| Observations | 26,011 | 12,049 | 13,962 | |

Note: Data from Survey of Income and Program Participation (SIPP) panels of 1996, 2001, 2004, and 2008. Low-income older adult households are defined as those with all members aged 60 years or older with total household income below 200% of the poverty line. SNAP countable assets include liquid assets (e.g., cash, savings, checking, and deposit accounts) and semi-liquid assets (e.g., stocks, businesses, non-residential properties, and other assets). The resident's house, vehicle, and retirement (IRA and 401) assets are not included as countable assets. These asset amount variables are based on the SIPP topical module information, which is available in most years between 1996-2013 but not in years 2000, 2006, 2007, 2008, 2012, and 2013. Households are categorized as higher-asset if their mean of SNAP countable assets exceeds $2,000 and as lower-asset if their assets are $2,000 or below. All monetary values are adjusted for inflation using 1996 as the base year.

Table A3: First-Stage Results: State Policy and SNAP/SSI Participation among Low-income Households
(Both Higher- and Lower-Assets Households)

| | All HH | | | Higher-Asset | | | Lower-Asset | | |
|---|---|---|---|---|---|---|---|---|---|
| | SNAP (1) | SNAP only (2) | SNAP-SSI (3) | SNAP (4) | SNAP only (5) | SNAP-SSI (6) | SNAP (7) | SNAP only (8) | SNAP-SSI (9) |
| Policy Index I | 0.005*** | | | 0.003*** | | | 0.004** | | |
| | (0.001) | | | (0.001) | | | (0.002) | | |
| Policy Index II | | 0.004*** | 0.003*** | | 0.004*** | 0.000 | | 0.003** | 0.005*** |
| | | (0.001) | (0.001) | | (0.001) | (0.000) | | (0.001) | (0.001) |
| Vehicle | | 0.004** | -0.003** | | 0.003** | -0.000 | | 0.004* | -0.005** |
| | | (0.002) | (0.001) | | (0.001) | (0.001) | | (0.002) | (0.002) |
| Observations | 26011 | 26011 | 26011 | 12027 | 12027 | 12027 | 13984 | 13984 | 13984 |
| Adj. $R^2$ | 0.293 | 0.075 | 0.269 | 0.173 | 0.068 | 0.154 | 0.285 | 0.062 | 0.286 |
| CD F | 66.577 | 12.314 | | 55.597 | 0.516 | | 17.500 | | 6.977 |
| Minimum F | 8.96 | | 4.58 | 8.96 | | 4.58 | 8.96 | | 4.58 |

Note: Data from SIPP panels of 1996, 2001, 2004, and 2008. Low-income older adult households are defined as those with all members aged 60 years or older with total household income below 200% of the poverty line. SNAP countable assets include liquid assets (e.g., cash, savings, checking, and deposit accounts) and semi-liquid assets (e.g., stocks, businesses, non-residential properties, and other assets). Households are categorized as higher-asset if their SNAP countable assets exceed $2,000 and as lower-asset if their assets are $2,000 or below. *Policy Index I= BBCE+Cost Index+Vehicle* where *Cost Index* = simple reporting + no face-to-face interview+online+call center+combined application+ longer recertification period and *Vehicle* indicates whether at least one vehicle is eliminated from the asset test. *Policy Index II=BBCE+Cost Index.* The minimum F-statistic is based on Stock and Yogo (2004) critical values.

Table A4: Robustness Check: More SNAP Policy Variables

| | Higher-Asset | | Lower-Asset | | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| | SNAP | | SNAP Only | SNAP-SSI | SNAP Only | SNAP-SSI |
| Policy Index I Test | 0.003*** | | | | | |
| | (0.000) | | | | | |
| Policy Index II Test | | | 0.001 | 0.004*** | | |
| | | | (0.001) | (0.001) | | |
| BBCE | | 0.005*** | | | 0.001 | 0.007*** |
| | | (0.002) | | | (0.002) | (0.002) |
| Cost Index | | 0.003** | | | 0.004** | 0.002 |
| | | (0.001) | | | (0.002) | (0.001) |
| Vehicle | | 0.003** | 0.004** | -0.005*** | 0.003 | -0.005*** |
| | | (0.001) | (0.002) | (0.002) | (0.002) | (0.002) |
| EBD Transfer | | -0.001 | | | -0.010** | 0.005 |
| | | (0.003) | | | (0.004) | (0.005) |
| Fingerprint | | -0.060 | | | -0.217** | -0.068 |
| | | (0.088) | | | (0.092) | (0.121) |
| Outreach | | 0.005 | | | -0.003 | 0.005 |
| | | (0.005) | | | (0.009) | (0.009) |
| Noncitizen Eligibility | | -0.012 | | | -0.020 | -0.007 |
| | | (0.010) | | | (0.022) | (0.015) |
| BBCE senior | | 0.002 | | | 0.005 | 0.005 |
| | | (0.004) | | | (0.007) | (0.005) |
| Observations | 12027 | 12027 | 13984 | 13984 | 13984 | 13984 |
| Adj. $R^2$ | 0.173 | 0.173 | 0.062 | 0.286 | 0.062 | 0.286 |
| CD F | 62.079 | 9.198 | | 5.759 | | 3.105 |

Note: Data from Survey of Income and Program Participation (SIPP) panels of 1996, 2001, 2004, and 2008. Low-income older adult households are defined as those with all members aged 60 years or older with total household income below 200% of the poverty line. Households are categorized as higher-asset if the mean of SNAP countable assets exceeds $2,000 and as lower-asset if their assets are $2,000 or below. *Policy Index I Test= BBCE+Cost Index+ Vehicle+ EBD Transfer+ Fingerprint+ Outreach+ Noncitizen + BBCE Senior* and *Policy Index II Test= BBCE+Cost Index+ BBCE Senior + EBD Transfer+ Fingerprint+ Outreach+ Noncitizen + BBCE Senior*.

Table A5: Second-Stage Results: SNAP and Main Economic Outcomes among Higher-asset Households and across Sub-samples

| | SS<$1000 | SS>$1000 | White | Non-White | Female | Male | 1996-2003 | 2004-2013 |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Panel A: Log of SNAP Amount | | | | | | | |
| SNAP Dummy | 4.040*** | 4.240*** | 4.193*** | 14.657 | 4.001*** | 4.216*** | 4.341*** | 4.302*** |
| | (0.174) | (0.226) | (0.158) | (71.492) | (0.236) | (0.182) | (0.251) | (0.368) |
| Observations | 6036 | 5991 | 11057 | 970 | 8530 | 3497 | 6799 | 5228 |
| Adj. $R^2$ | 0.943 | 0.907 | 0.934 | -4.189 | 0.933 | 0.950 | 0.916 | 0.942 |
| CD F | 48.009 | 22.045 | 60.647 | 0.048 | 16.802 | 55.378 | 16.653 | 7.540 |
| | Panel B: Homeownership | | | | | | | |
| SNAP Dummy | -0.461 | -2.799* | -1.621*** | 0.268 | -1.351 | -1.611*** | -0.041 | -0.604 |
| | (0.566) | (1.654) | (0.503) | (12.873) | (1.379) | (0.473) | (0.826) | (1.089) |
| Observations | 6036 | 5991 | 11057 | 970 | 8530 | 3497 | 6799 | 5228 |
| Adj. $R^2$ | 0.116 | -0.376 | -0.120 | 0.262 | -0.067 | -0.045 | 0.099 | 0.104 |
| CD F | 48.009 | 22.045 | 60.647 | 0.048 | 16.802 | 55.378 | 16.653 | 7.540 |
| | Panel C: Num of vehicles | | | | | | | |
| SNAP Dummy | -1.969** | -2.378 | -1.560** | 39.041 | -1.987 | -2.471** | -3.012* | 0.884 |
| | (0.844) | (1.651) | (0.711) | (282.164) | (1.501) | (1.037) | (1.539) | (1.092) |
| Observations | 4387 | 4228 | 7950 | 665 | 6088 | 2527 | 6413 | 2202 |
| Adj. $R^2$ | 0.091 | 0.241 | 0.250 | -115.738 | 0.110 | 0.142 | 0.136 | 0.196 |
| CD F | 40.945 | 22.710 | 59.739 | 0.033 | 16.615 | 52.891 | 17.006 | 2.390 |
| | Panel D: House/Car Share (%) | | | | | | | |
| SNAP Dummy | -0.698* | -2.602** | -1.364*** | 8.145 | -1.438* | -1.311*** | -1.396* | -1.447 |
| | (0.396) | (1.026) | (0.321) | (32.231) | (0.859) | (0.465) | (0.732) | (1.599) |
| Observations | 4335 | 4198 | 7886 | 647 | 6030 | 2503 | 6368 | 2165 |
| Adj. $R^2$ | 0.024 | -0.505 | -0.158 | -20.699 | -0.189 | -0.136 | -0.098 | -0.436 |
| CD F | 39.307 | 19.671 | 57.845 | 0.122 | 18.180 | 42.381 | 16.771 | 1.465 |
| | Panel E: Food Hardship | | | | | | | |
| SNAP Dummy | -0.299 | -1.051 | -0.485* | 4.034 | -1.458** | 0.357 | -0.614** | -0.400 |
| | (0.213) | (0.805) | (0.274) | (27.001) | (0.582) | (0.282) | (0.313) | (0.436) |
| Observations | 6036 | 5991 | 11057 | 970 | 8530 | 3497 | 6799 | 5228 |
| Adj. $R^2$ | -0.072 | -0.514 | -0.186 | -11.863 | -1.893 | 0.031 | -0.289 | -0.099 |
| CD F | 48.009 | 22.045 | 60.647 | 0.048 | 16.802 | 55.378 | 16.653 | 7.540 |

Note: Data come from the SIPP 1996, 2001, 2004, and 2008 panels. The analysis sample and model specifications follow those defined in Column (1) of Table 3. Columns (1) and (2) break down the sample by the amount of social security. House/Car Share measures the proportion of housing and vehicle equity relative to total household assets (excluding retirement assets), which include housing and vehicle equity as well as SNAP countable assets. Food Hardship is imputed for years when the variable is not available. Monetary variables are measured in logarithmic form, with zero values transformed to log(1).

Table A6: Second-Stage Results: SNAP and Economic Outcomes among Lower-Asset Households and across Sub-samples

| | SS<$1000 | SS>$1000 | White | Non-White | Female | Male | 1996-2003 | 2004-2013 |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | Panel A: Log of SNAP Amount | | | | | | | |
| SNAP only | 7.855*** | 6.210** | 5.693*** | 9.295 | 5.792*** | -25.378 | 0.164 | 5.877*** |
| | (1.089) | (3.007) | (0.430) | (6.158) | (0.448) | (294.262) | (17.050) | (1.074) |
| Joint SNAP SSI | 5.069*** | 1.617 | 4.153*** | 8.393** | 4.498*** | -2.521 | 0.151 | 4.382*** |
| | (0.966) | (5.151) | (0.628) | (3.540) | (0.585) | (88.192) | (15.351) | (1.259) |
| Observations | 9200 | 4784 | 10100 | 3884 | 10180 | 3804 | 6750 | 7234 |
| Adj. $R^2$ | 0.501 | 0.511 | 0.816 | -0.045 | 0.817 | -22.411 | 0.334 | 0.838 |
| CD F | 4.884 | 0.503 | 9.163 | 1.048 | 13.650 | 0.014 | 0.029 | 2.328 |
| | Panel B: Food Hardship | | | | | | | |
| SNAP only | -1.222*** | -0.746 | -0.838** | -0.941 | -0.649* | 7.961 | 1.399 | -0.323 |
| | (0.459) | (1.319) | (0.398) | (2.115) | (0.353) | (77.611) | (7.376) | (0.400) |
| Joint SNAP SSI | -0.053 | 0.365 | 0.372 | -1.380 | 0.068 | 1.718 | 1.917 | 0.371 |
| | (0.334) | (2.309) | (0.376) | (1.028) | (0.284) | (23.101) | (6.635) | (0.458) |
| Observations | 9200 | 4784 | 10100 | 3884 | 10180 | 3804 | 6750 | 7234 |
| Adj. $R^2$ | -1.723 | -0.484 | -1.085 | -1.753 | -0.506 | -50.708 | -4.704 | -0.220 |
| CD F | 4.884 | 0.503 | 9.163 | 1.048 | 13.650 | 0.014 | 0.029 | 2.328 |

Note: Data come from the SIPP 1996, 2001, 2004, and 2008 panels. The analysis sample and model specifications follow those defined in Column (1) of Table 7. Columns (1) and (2) break down the sample by the amount of social security. Food Hardship is imputed for years when the variable is not available. Monetary variables are measured in logarithmic form, with zero values transformed to log(1).