CENTER for RETIREMENT RESEARCH at BOSTON COLLEGE

WHY DO SSI AND SNAP ENROLLMENTS RISE IN GOOD ECONOMIC TIMES AND BAD?

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Abstract

The number of participants in the Supplemental Security Income Program (SSI) and the Supplemental Nutrition Assistance Program (SNAP) skyrocketed during the Great Recession. But more surprising is that caseloads for both programs increased during the preceding expansion and during the nascent recovery period after the Great Recession. Using both administrative program data and the *Survey of Income and Program Participation* (SIPP), this project investigates the persistent growth in SSI and SNAP since 2000. Whereas the existing literature on program caseloads in the post-welfare reform era generally excludes the elderly from the analysis, this project is the first to investigate differences in elderly and non-elderly caseloads, allowing for differential responsiveness over time. Preliminary estimates suggest that the correlation between SSI and SNAP caseloads and economic well-being, and, separately, caseloads and health, grew stronger over this time. Coupled with a poverty rate that did not fall along with the unemployment rate, and with an increase in the share of the population reporting poor or fair health, these correlations helped lead to caseloads that remained roughly constant (SSI) or even increased (SNAP) during the most recent expansion, rather than falling as expected. The increases in caseloads stem both from increases in the entry rates among the newly eligible – particularly those in poor health – and from decreases in exit rates among low-income beneficiaries.

Introduction

During the Great Recession, participation in SSI and SNAP rose to record levels. But rising caseloads have also occurred when the economy was not in recession. Between fiscal years 2003 and 2007, SNAP caseloads increased by 24 percent, from 21 million to 26 million, the first time in the program's history that caseloads increased during a period of economic growth. During the same period, SSI applications increased, with about 500,000 people added to the rolls (Figure 1). Although SSI eligibility depends on a less cyclical factor – disability status – the pattern in 2003-2007 runs counter to the late 1990s expansion when SSI applications and awards fell. Further, SNAP and SSI caseloads continued to increase after June 2009, the official end point of the Great Recession and the beginning of modest economic growth.

While a rich literature has documented the relationship between macroeconomic conditions and welfare caseloads, few studies have focused on the unexpected increases in SSI and SNAP caseloads in 2003-2007. The most common method of analysis is a dynamic model of state caseload levels in which current levels are predicted by the unemployment rate and by a program's caseload level in the previous year (Grogger 2003; Klerman and Haider 2004; Schmidt 2012). Studies also include policy parameters as explanatory variables to disentangle the effects of the economy from the effects of policy changes on welfare caseloads. The majority of these studies find that the unemployment rate and other macroeconomic conditions account for a large share of the change in caseload levels. For example, Stapleton, Coleman, and Dietrich (1995) report that a 1-percentage-point increase in the unemployment rate leads to a 2-percent increase in SSI caseloads one year later. Ziliak, Gunderson, and Figlio (2003) estimate that the same change in the unemployment rate leads to a 2.3 percent increase in SNAP caseloads. If these historical relationships had held during the recent expansions, the SSI (SNAP) caseloads should have fallen by about 2.8 percent (3.2 percent) during the mid-2000s economic expansion, instead of increasing by more than 5 percent (24 percent).

One plausible explanation for the unexpected growth of SSI and SNAP caseloads is the 1996 welfare reform. Given some substitutability between SSI/SNAP and Temporary Assistance for Needy Families (TANF), potential TANF recipients may switch to alternative safety-net programs because of lifetime limits imposed by welfare reform and stringent work

requirements.[1] Strict time limits may also increase reliance on SNAP. However, increases in SSI applications and SNAP caseloads during the mid-2000s expansion are observed not only among adults with children, but among the elderly, a group for which TANF should have the least impact (Figure 2). The magnitude of the increase among the elderly is comparable to other age groups. Further, the persistent increase in overall SSI caseloads has masked a more complex relationship: first-time awards, rather than rising, have been flat or even decreased for some age groups in the most recent decade. This suggests that factors other than welfare reform played a role.

Using both administrative program data and the *Survey of Income and Program Participation* (SIPP), this paper investigates the continuing growth in SSI and SNAP since 2000 at both the state and individual levels. At the state-level, the project investigates which factors impact SNAP caseloads and SSI caseloads, applications, and first-time awards using state panel data, exploiting both across- and within-state variations over time. While much of the previous work focuses on the SSI rolls - that is, the stock of participants – not as much attention has been paid to application and first-award levels – that is, the flows into and out of the program. The distinction between stocks and flows is critically important here, as caseloads will be slow to respond to the business cycle, but applications and awards can respond more rapidly (Grogger 2003, Klerman and Haider 2004, Wu 2009, Schmidt 2012). We examine how each factor contributes to the changing program rolls, including economic conditions, demographic and health variables, and policy variables. To understand the counter-cyclical growth of SSI and SNAP, we examine how the effect of each factor has changed over time.

At the individual level, the study focuses on the dynamics of public program participation and decomposes the caseload into specific mechanical components for each program, including changes in the number of people who are eligible, and take-up and exit rates among the eligible, to determine which components are responsible for the increased caseloads. The project then examines the direction and magnitude of the effect on each of these components of demographic and economic conditions, program policies, and other policy variables.

[1] The populations served by the SSI, SNAP, and TANF programs have historically been similar in terms of observable characteristics, such as sporadic employment history and low educational attainment. In addition, TANF recipients have high rates of physical and mental disabilities (Danziger et al. 2000; Nadel, Wamhoff, and Wiseman 2003/2004).

While the existing literature on caseloads in the post-welfare reform era generally excludes the elderly from the analysis, this project specifically investigates differences between the elderly and the non-elderly, allowing for differential responsiveness over time. The SSI caseload of elderly individuals has increased over the past two decades, but first-time awards have been flat or even declined, emphasizing the importance of decomposing the changing caseload by age.

The state-level results find several reasons that SNAP caseloads increased during the mid-2000s expansion. First, the positive correlation between a state's poverty rate and its non-elderly SNAP enrollment has grown stronger over time. Since the poverty rate did not fall with the unemployment rate during the economic recovery, SNAP's increased responsiveness to the poverty rate contributes to the rising caseload. Second, as the share of the state's non-elderly population reporting fair or poor health has trended upward, the positive correlation between the proportion in fair or poor health and the non-elderly caseload has also grown stronger. Further, the correlation between elderly SNAP enrollment and this health measure has become weaker over time, while the proportion of the elderly reporting fair or poor health has declined. Taken together, the changing responsiveness of the caseload to poverty levels and health, when coupled with changes in the mean values of these variables, offer an explanation for the continuing growth of SNAP since 2000, including expansionary periods.

For the SSI program, the rich data allow us to explore both stocks (caseloads) and flows (applications and first-time awards) at the state level. SSI enrollment is actually negatively correlated with the unemployment rate over the entire period, but this relationship has grown less negative over time and even turned positive during the Great Recession, just as unemployment rates spiked upward. As with SNAP, the positive correlation between non-elderly SSI caseloads and poor health grew stronger, and the correlation between elderly SSI caseloads and poor health became weaker and even negative. For SSI applications, we find that increasing responsiveness to poor health and a weakening correlation with the unemployment rate help explain the unexpected growth in SSI applications during the expansion and continuing upward trend since 2000.

Our individual-level analysis indicates there are two primary drivers of the continuing growth in SNAP and SSI since 2000: a fall in the rate at which low-income participants who remain eligible leave the programs and a rise in the rate at which newly eligible individuals

reporting poor health enter the programs. These factors were also likely to be behind the unexpected increase in SSI and SNAP caseloads specifically during the 2003-2007 economic expansion.

The onset of a new economic expansion should allow for public program budgets to recover from their increased outlays during the preceding recession. But recent expansions suggest that the budgetary burden may not ease, as SSI and SNAP caseloads continued to grow even as the unemployment rate fell. Our study suggests that further reductions in SNAP and SSI caseloads likely will require not only a declining unemployment rate, but commensurate improvements in poverty rates and health for a low-income population that is only tenuously attached to the labor force.

The paper proceeds as follows. Section 2 briefly outlines the SNAP and SSI programs and reviews the existing literature. Section 3 describes the data and sample construction. Section 4 discusses empirical methods and Section 5 summarizes the results, followed by concluding remarks in Section 6.

Background

The Supplementary Nutrition Assistance Program (SNAP). SNAP is the largest nutrition program for low-income Americans and a mainstay of the federal safety net. In fiscal year 2012, the program served an average of 46.6 million people per month and paid out over $74.6 billion in benefits (USDA 2013). To receive SNAP, households must meet three financial criteria: a gross-income test, a net-income test, and an asset test.[2] Gross income is defined as the total income for all household members, including earnings, investment, and transfers, but excludes most non-cash income and in-kind benefits. The gross income limit is set at 130 percent of the poverty line ($1,640 per month for fiscal year 2012 for a two-person household). Net income is then computed by allowing for various deductions from the household's gross income, with the net income limit set at 100 percent of the poverty line ($1,261). The asset limit in 2012 was $2,000. A household is automatically or "categorically" eligible for SNAP through the receipt of SSI, TANF, or General Assistance programs.

[2] Under SNAP rules, a household is defined as individuals who share a residential unit and purchase and prepare food together.

Eligibility rules for households with an elderly (age 60 and over) or disabled member are more liberal than for the rest of the population. First, these households are exempt from the gross income test, and the net income test is more generous by removing the shelter deduction cap and by allowing out-of-pocket medical expenses in excess of $35 per month per household to be deducted. Second, the asset limit increases from $2,000 to $3,250.

The amount of SNAP benefit that a household receives is equal to the maximum benefit level less 30 percent of the household's net income (reflecting that an average household will spend approximately 30 percent of its net income on food). In 2012, an eligible two-person household could receive SNAP benefits of between $16 and $367 each month.[3]

The Supplementary Security Income Program (SSI). Designed to provide financial support to low-income blind, disabled, and elderly individuals, SSI is currently the largest federal means-tested cash assistance program in the United States.[4] Enacted in 1972, the SSI program has expanded tremendously over time, with the number of recipients growing from 4 million in 1974 to over 8 million in 2012.

The SSI program provides a guaranteed income to all eligible individuals. In 2012, the income guarantees were $698 ($1,011) per month for a single individual (couple) living in his own home. The SSI benefit is the difference between the income guarantee and their countable income used to determine the level of benefits.[5]

A resource test is also required for participation in SSI. Generally, countable assets cannot exceed $2,000 for an individual and $3,000 for a couple, but owner-occupied housing, regardless of value, and one car that used for transportation of the beneficiary or member of the beneficiary's household are excluded. There is a complex set of rules regarding how assets other than cash are considered.

Individuals between 18 and 64 must meet the income and resource tests and must be determined to be unable to work for at least 1 year due to a medical impairment.[6] Individuals

[3] For more details about SNAP and SSI eligibility, refer to Coe and Wu (2013).
[4] In 2012, federal payments under SSI totaled $52.0 billion, compared to just $16.75 billion in federal assistance payments made under TANF.
[5] "Countable income" is an individual's income from employment and other sources, disregarding the first $20 of income from all sources, the first $65 of earned income, and one-half of additional earnings per month. Other disregards are home energy assistance payments, tuition benefits, disaster relief, and the value of SNAP benefits.
[6] The disability definition and determination process is identical to that of the Social Security Disability Insurance (SSDI) program.

age 65 and over are eligible if they meet the income and resource tests, without any health requirement. In addition to the federal program, states have the option of offering supplemental SSI benefits. In 2012, 30 states offered supplements to disabled individuals or couples living independently, and a total of 45 states offered at least some form of supplemental benefits, which can be substantial. For example, the income guarantee for a couple living in California in 2011 is $1,407 ($396 above the federal level), while in New York the income guarantee is $1,115. A state that is willing to administer its own program is free to alter the eligibility requirements as it wishes, including imposing more or less stringent income and resource tests. While federal benefits are indexed for inflation, state benefits are not.

Literature Review. The fact that participation in SNAP and SSI behaved contrary to expectations during recent economic expansions has prompted studies to seek alternative explanations for the surprising increase. Mabli et al. (2009) find that the unemployment rate remained a strong predictor of SNAP caseload changes from 2000 to 2008, but its ability to explain the percentage change in SNAP caseloads was small relative to prior studies. The paper also finds that an increase in the participation rate explains the increase in the SNAP caseload during the early 2000s recovery period. They attribute the increase in the participation rate to changes in the unemployment rate and changes in SNAP policies. Further, Mabli and Ferrerosa (2010) report that economic factors, including the unemployment rate, labor force participation rate, minimum wage, and characteristics of the low-wage labor market, explain 55 percent of the increase in SNAP caseloads from 2000 to 2008, and changes in policy factors, including offering broad-based categorical eligibility, program outreach expenditures, and the length of recertification periods, explain 20 percent of the changes over this period. Johnson (2011) explores the cause of SNAP caseload changes during the recovery of 2003 to 2007 and finds that a fall in exit rate is likely to be the primary cause of the increase SNAP rolls. But Johnson's work does not provide conclusive evidence on what is responsible for the decline in the exit rate. Bitler and Hoynes (2010) find that the cyclicality of SNAP has increased since welfare reform, as low-income families aim to offset reductions in TANF benefits. A recent work by Ganong and Liebman (2013) also find that the take-up rate for SNAP has increased since 2001, and relaxed income and asset thresholds and temporary changes in program rules for childless adults explain 18 percent of the increase.

While the literature has found that SSDI caseloads increase with the unemployment rate (Autor and Duggan 2003, Black et al. 2002), these same studies find that SSI is comparatively less cyclical. Schmidt (2012) points out that SSI caseloads should be expected to have a weaker correlation with macroeconomic conditions; SSDI has a requirement related to both total and recent work experience, so SSDI applicants are much more likely to have been recently employed than applicants to SSI, which has no work requirements. As a result, the correlation between unemployment rates and SSI activity are subject to ongoing debate, with some studies finding that applications and awards increase with the unemployment rate (Rupp and Stapleton 1995, Stapleton et al. 1998, Stapleton et al. 1999, Coe et al. 2011), and others finding a negative correlation with labor market conditions (Beatty and Fothergill 1996 and 2002, Garrett and Glied 2000, Schmidt and Sevak 2004).

Most relevant to our SSI state-level analysis is Schmidt (2012), who examines the determinants of growth in SSI caseloads across states and over time. The study finds that economic conditions and welfare reform significantly affect SSI participation, and the responsiveness of the SSI program to business cycles has grown stronger since welfare reform. But Schmidt (2012) focuses on the impact of welfare reform on the SSI caseload, rather than on the unexpected caseload growth in the mid-2000s, and does not distinguish stocks from flows.

Data and Sample

We use both aggregate and individual level data from 1996 through 2011, with a special focus on the period between the peak unemployment rate in June 2003 and the beginning of the recession in December 2007.

The state-level analysis exploits the panel-data structure of state data to determine what factors affect SSI and SNAP caseloads. We use the official monthly estimates of state SSI caseloads, applications, and first-time award levels reported by the U.S. Social Security Administration and SNAP caseloads reported by the U.S. Department of Agriculture. Given that a number of studies have documented significant under-reporting of program receipts in large national surveys (Marquis and Moore 1990, Bollinger and David 1997, Bilter et al. 2003, Meyer and Sullivan 2008, Meyer et al. 2009), making use of administrative data improves our estimation.

There are a number of reasons that we expect to see state-level variation in SSI and SNAP participation. First, while economic conditions and the underlying health of the population vary dramatically by state, the eligible populations for SSI and SNAP also vary geographically. Second, states differ in program generosity and in the stringency of their disability determinations (Maestas et al. 2010 for an example).

One potential concern is that SSI caseloads may not differ between states or across regions. Schmidt (2012) shows sufficient variation across a small number of states, even within the same region. Figure 3 shows that this variation extends to all states. Similar patterns are observed for SSI applications (Figure 4), first-time awards (Figure 5), and the SNAP program as well (Figure 6).

The individual-level analysis makes use of the 1996, 2001, 2004, and 2008 Survey of Income and Program Participation (SIPP) panels, excluding children under 18. The SIPP is a nationally representative longitudinal survey of households conducted by the U.S. Census Bureau. SIPP's main objective is to provide comprehensive information about income and program participation of individuals and households in the United States. Every four months over a two- to four-year period, respondents are asked a battery of questions about their labor market participation, sources of income, demographics and family structure, wealth, and public program participation during each month between interviews.

Empirical Strategy

State-level Analysis. Adapting the models estimated by Blank (2001) for Aid to Families with Dependent Children (now TANF) and Schmidt (2012) for SSI, we estimate the correlation between state-level SNAP and SSI activity and key variables:

$$C_{st} = \beta E_{st} + \alpha P_{st} + \gamma D_{st} + S_s + \delta_t + \varepsilon_{st} \quad (1)$$

where *C* is the outcome of interest: the proportion of adults in the relevant age group who are receiving benefits from (separately) SNAP or SSI (i.e., the caseload) in state *s* in year *t*, or the number of SSI applications or first-time awards divided by the age-appropriate population in state *s* in year *t*. *E* is a vector of economic variables; *P* is a set of policy variables, and *D* is a vector of demographic and health characteristics. *S* is a set of state controls and δ is a set of

indicator variables for years 1996-2011 to control for nationwide economic changes in any given year. We estimate separate regressions for the elderly and non-elderly.

The set of economic variables includes the three-year moving average of the year-to-year change in hourly wages at the 10th percentile of the state's wage distribution; this variable attempts to capture the influence of slow earnings growth, or even decline, for those near the lower end of the income distribution (Leonesio and Del Bene 2011). This set also includes the concentration of manufacturing and the share of the service industry, to capture the nature of employment. To determine the correlation with the poverty rate, we include the proportion of the entire population under the federal poverty line. These economic variables are calculated from the Annual Social and Economic Supplement of the *Current Population Survey* (the March CPS). We also include the average out-of- pocket medical expenditure by state from the Centers for Medicare and Medicaid Services. Medical expenditures have grown considerably faster than inflation (Smith, Newhouse, and Freeland 2009) and at differential rates across states (Collins 2011), increasing the incentive to apply for SSI for its associated Medicaid coverage.

To measure the cyclicality of each public program, we include the annual unemployment rates by state from the Bureau of Labor Statistics' *Local Area Unemployment Statistics*. The degree to which the unemployment rate sufficiently characterizes the labor market environment of individuals deciding whether to participate in the program has been largely ignored in the literature. Given the fact that over 79 percent of SNAP participants were out of the labor force in 2008 (Wolkwitz and Trippe 2009), we use the non-employment rate in sensitivity tests to pick up any discouraged worker-effect.

Demographic variables analyzed include the proportion of a state's population age 60 or older, the fraction who are male, black, and have less than a high school degree, the share of newly arrived immigrants, and the share of households headed by a single mother. These demographic variables derive from the March CPS.

The primary data for state-level health characteristics are the Center for Disease Control's *Behavioral Risk Surveillance Survey* (BRFSS).[7] Two health variables from the BRFSS are included in our analysis: the proportion of the state population judging themselves to be in fair or

[7] The BRFSS has been administered since 1984 and is the largest ongoing telephone survey in the United States, interviewing 350,000 adults per year about health and health-related behaviors. These series are updates of the variables used by Coe et al. (2011), and we thank the authors for sharing the data.

poor health, and the share with a self-reported body mass index (BMI) of at least 25, which previous literature has shown to be associated with a higher disability rate (Coe et al. 2011).

Program policies that have changed since the early 2000s may also impact the caseload. The 2002 Farm Bill granted much more flexibility to states over the eligibility requirements for their SNAP program. Increasing the certification period length is one such change. States have the option of determining how long a household is certified to receive SNAP. A household must recertify its eligibility to continue receiving benefits at the end of its certified period. Certification periods lengthened starting in 2003, and by the beginning of the Great Recession, most states were assigning certification periods of 12 months or longer. Increasing the certification period length may increase caseloads, because it lowers the participation cost as well as allowing no-longer-eligible households to keep receiving their benefits longer. We use SNAP Quality Control Data (SNAP QC) to produce a variable measuring the share of SNAP recipients having a certification period of less than three months by state-year.[8] Further, we also control for each state's payment error rate, which proxies for the program administration and may affect program participation; this data also comes from SNAP QC database.

Another SNAP policy variable that may impact caseloads is the expanded categorical eligibility. States can choose to offer optional expanded categorical eligibility, which makes eligible any household that receives benefits or services through programs that are at least 50 percent funded by TANF or maintenance of effort sources. For many of these services the only requirement for eligibility is to have income less than 200 percent of the poverty line, which is higher than the 130 percent requirement for SNAP gross income eligibility. Expanded categorical eligibility may affect SNAP caseloads by increasing the share that is eligible.[9] Finally, the SSI analysis includes the maximum SSI state supplement for a disabled individual.

Other policy variables analyzed include variables that approximate the relative benefit generosity of other programs. Since previous research suggests that there is some degree of substitutability between SSI/SNAP and TANF (Schmidt and Sevak 2004, Pavetti and Kauff 2006), we control for the maximum TANF benefit for a family of three. We also include the

[8] The SNAP QC database is an edited version of the raw data file generated by the SNAP Quality Control System and contains demographic, economic, and SNAP eligibility information for a nationally representative sample of approximately 50,000 SNAP households. The main purpose of the QC review is to assess the accuracy of eligibility determinations and benefit calculations and to determine each state's payment error rate. These data also serve as an important source of detailed demographic and financial information on a large sample of active SNAP participants.
[9] We use Katie Fitzpatrick's measure of expanded categorical eligibility, which comes from a database constructed by Mathematica for Food and Nutrition Service.

maximum monthly benefit under state Unemployment Insurance to capture potential substitution between UI and SSI/SNAP (Linder, 2011; Coe et al. 2013). As Coe et al. (2011) suggest, state policies regarding access to, and the price of, alternative sources of health insurance impact the decision to apply to SSDI and SSI for the Medicare and Medicaid benefits, respectively, we also control for health insurance regulations, defining a state as strictly regulated if it had both guaranteed issue and some form of community rating. Since states with Medicaid buy-in programs provide less strict earnings qualifications for Medicaid eligibility to disabled individuals who work, we also include an indicator variable for each state having a Medicaid buy-in program. We also include an indicator for whether a state has a Republican governor; Coe et al. (2011) finds that SSDI application rates (in particular, concurrent SSDI and SSI applications) are significantly lower with Republican governors, and Schmidt (2013) shows that SSI caseloads are more cyclical in states with a Democratic governor.

Finally, we interact dummies for each time period (2000-2003, 2004-2007, and 2008-2011, with 1996-1999 as the omitted condition) with the main variables of interest to examine how the associations between these variables and SSI/SNAP caseloads have changed over time.

Table 1 presents the descriptive statistics of the state-level data. We have 816 state-level observations, which represent data from 1996-2011 for 50 states plus Washington D.C. On average, 10 percent of the population receives SNAP per year, and 3 percent receives SSI. About 0.8 percent applies for SSI each year, of which 47 percent are awarded benefits. These rates vary widely among the states: as many as 28 percent of Oregon's residents in 2011 and as few as 4 percent of Wisconsin's in 1999, receive SNAP benefits.

Measures of demographics, health, and economic conditions also vary considerably. For example, unemployment is 5.7 percent on average, but the rate varies between 1.4 percent and 15 percent. The poverty rate varies between 4.5 percent and 25.5 percent, with a mean of 12.4 percent. Between 1.2 percent and 27.8 percent of the state is employed in manufacturing. Self-reported poor or fair health ranges from 8.2 percent to 25.4 percent of state populations.

State policies that potentially influence public program caseloads also vary by state. About 12 percent of state-years were under a strict health insurance regulating regime, and states moved both into and out of this category during 1996 through 2011. About half of states have the Medicaid buy-in policy. Slightly more than half of the governors were Republican during

this period. Maximum UI benefits vary from $151 to $629 per week, and maximum TANF benefits for a household of three range from $120 to $923 per month.

In terms of public program policies, about 22 percent of state-years have expanded categorical eligibility for the SNAP program, and 8 percent of the population has a certification period of less than three months. The average payment error rate is 6.9 percent. Further, there is a wide variation in SSI maximum state supplement, ranging from $0 to $520.

Individual-level Analysis. We further explore the dynamics of program participation by investigating flow into and out of the programs at the individual level. There are several mechanisms by which SSI and SNAP participation can change: a change in the rate at which individuals enter the program, both among the newly eligible and those who remain eligible but did not take up the benefit in the previous period; a change in the rate at which participants exit the program, both exiting due to loss of eligibility and exiting while still eligible. Even if entry and exit rates conditional on eligibility do not change, caseloads will change if there is an increase or decrease in the number of individuals eligible for the program.

The project decomposes each program's caseload into these specific mechanical components. The approach is similar to Cody et al. (2005), Mabli et al (2009) and Johnson (2011). The expected changes are clear in each parameter as expansions begin: fewer people should become eligible since overall incomes tend to increase with economic growth, more people exit from both eligibility and enrollment, and fewer already-eligible and newly-eligible individuals are awarded new benefits. But increasing caseloads during 2003-2007 indicate that at least one of these rates must have changed in a counter-intuitive direction.

We first conduct a descriptive analysis of the dynamics of SSI/SNAP participation to investigate the persistent growth in SSI and SNAP since 2000. We determine SNAP eligibility accounting for the gross and net income tests; the dependent, shelter, and medical expenditure deductions; and categorical eligibility. But we ignore the asset eligibility test for three reasons. First, while the SIPP has information on assets, it comes from the special topical module of the SIPP, which is only asked infrequently (the maximum is once each year per panel and varies substantially by SIPP panel). While the monthly asset information can be estimated using linear extrapolation, the method does not reflect potential fluctuations of assets, a potentially large bias given the vulnerable population we are studying. Second, the existing literature suggests that

asset variables in the SIPP suffer from measurement error (Strand, Rupp, and Davies 2009). Finally, Coe and Wu (2013) find that income limits are more important when determining eligibility for SSI than resource limits: of the sample they studied, 15 percent have countable resources below the SSI limits, while only 8 percent have income that is sufficiently low. For the same reasons, we ignore the resource test in determining SSI eligibility as well. We also ignore the health requirement, as the SIPP's limited set of self-reported health measures do not correspond with the criteria used by Social Security disability examiners to decide who is medically eligible for SSI.[10] As a result, the fraction of the sample that appears to be eligible for SSI using our eligibility definition is larger than the share of that sample that would consider applying for SSI benefits.

Figure 7 shows the changes in the share of the SIPP sample eligible for each program over time. The fractions of the population eligible for SSI and SNAP remain roughly constant during the mid-2000s economic expansion at around 28 and 17 percent, respectively. It appears unlikely, therefore, that the increase in the number of SSI/SNAP eligible individuals was the cause for the unexpected increase in participation during this recovery. As the Great Recession begins, the share who are eligible increases dramatically, contributing to the substantial rise in the caseload during the crisis. The aggregate pattern masks more complex trends by age group. While the pattern of eligibility among the non-elderly largely mimics the overall trend, the elderly eligibility rate decreases from 1996 to the mid-2000s, and remains constant thereafter for both SSI and SNAP.

A change in the entry rate could lead to a change in the SSI/SNAP caseload. We examine this factor by separately analyzing the change in the entry rate among the newly eligible and among those who remain eligible but did not take up the benefit in the previous interview wave. As seen in Figure 8A, the entry rate among the newly eligible has increased over time for both SSI and SNAP. Rather than declining during the mid-2000s economic expansion, the entry rate for SNAP increases from about 5 percent to over 7 percent from 2003 to 2005. The entry rate also significantly increases over the Great Recession. Overall the entry rate among eligibles

[10] Moreover, SIPP collects these health measures infrequently, so it may miss health shocks that increase the odds of acceptance. In practice, a substantial number of SSI applicants do not report a work-limiting condition or limitation in the Activities of Daily Living in the most recent health module before they apply, even in studies that rely on administrative SSI application data (Rutledge 2012).

who did not participate in the previous period stays largely constant until the Great Recession and rises dramatically when the recession begins (Figure 8B).

Another mechanism that could cause a change in SSI/SNAP participation is the change in the exit rate, both exiting due to loss of eligibility and exiting while still eligible. Figure 9A shows that the exit rate for those who remain eligible decreased dramatically from 1996 to the beginning of the Great Recession, then remained relatively constant through the Great Recession. A similar pattern is observed for both the elderly and the non-elderly (not shown). The exit rate due to loss of eligibility also declines during the mid-2000 expansion (Figure 9B).[11]

The descriptive analysis suggests that declines in the exit rate among those who remain eligible and those who lose eligibility, and increases in the entry rate among newly eligible, are the main reasons behind the increase in SSI and SNAP participation during the mid-2000s economic expansion. The increased share of the eligible and the rising entry rate also explain the substantial increase in program caseloads during the Great Recession.

To determine the underlying cause for the declining exit rate and increasing entry rate, we estimate probit regressions of the following form:

$$P_{it} = \propto Policy_{it} + X_{it}\beta + \delta_t + \varepsilon_{it} \quad (2)$$

where *P* is a binary variable for entry or exit, depending on the specification. In the estimation, *P* is modeled as a function of individuals' characteristics (*X*), including age, gender, race, marital status, education, household size, whether the individual (SSI) or household (SNAP) has children, labor force participation status, health status, income, home/car ownership, whether *i* receives other welfare, whether *i* is living in an MSA, and state of residence. *P* is also a function of policy variables, include the state unemployment rate, minimum wage, TANF generosity, and other program specific policies, such as expanded categorical eligibility, share of SNAP recipients having short certification period, and SSI maximum benefit levels. δ_t captures time trends. To test whether the responsiveness has changed over time, we interact several key variables with time period dummies.

A major focus of this project is investigating the differences in entry and exit rates between the elderly and non-elderly and exploring different explanations for these transition

[11] This part of finding is similar to Johnson (2011).

rates for each group. Therefore, the analysis of entry and exit is estimated separately for the elderly and the non-elderly.

Tables 2A (SNAP) and 2B (SSI) summarizes the descriptive statistics for variables used in the individual-level regression. Our sample includes nearly 300,000 individuals (and close to 10 million person-months) age 18 and over. Not surprisingly, those eligible for SNAP and SSI are more likely to be female, minorities, low-educated, have kids, and receive other welfare benefits and are less likely to be married and in the labor force than those who are not eligible. On average, eligibles have lower incomes and are less likely to own a home or a car. Additionally, eligibles are in worse health. Consistent with the literature, we find the same pattern comparing eligible non-participants to eligible participants: in short, eligible non-participants are of higher socioeconomic status.

Results

State-Level Results. Table 3 presents the ordinary least squares regression results with state-fixed effects for SNAP caseload. Column 1 is the baseline regression, Columns 2-5 allow for the effect of certain factors that vary over time.

Because the main focus of the study is the counter-cyclical growth of public program caseloads over economic expansion, we interact the unemployment rate with period dummies to investigate whether the responsiveness of each public program to the business cycle has changed over time. The recovery of 2003-2007 is unique in that the poverty rate did not fall with the unemployment rate. For this reason, we also interact the poverty rate with period dummies. More interestingly, the share of the population with self-reported poor or fair health has increased over time, but the trends are different between the elderly and the non-elderly: the share of non-elderly in poor or fair health has trended upward, while the share of elderly with self-assessed poor health condition has declined modestly over time. Figure 10 summarizes trends for three variables used in the interaction models.

Not surprisingly, Column 1 indicates that the SNAP caseload has statistically significant correlations with several measures of economic conditions, a household's demographics and health situation, and policy variables. We find that SNAP participation is associated with higher unemployment rates and poverty rates, an increased share of the state's population in poor or fair health, and higher out-of-pocket medical expenditures. While the literature suggests a negative

age gradient in SNAP participation, the coefficient of the share of elderly population is positive, but is only significant at the margin. One puzzling result is the negative correlation between the fraction of a state's population that is low educated and SNAP caseload, but this correlation becomes insignificant in the interaction model. Expanded categorical eligibility and the increased length of the certification period also contribute to the higher caseloads, while the generosity of TANF and UI reduce SNAP caseloads.

Results from specifications that allow effects to vary over time offer several reasons that SNAP caseloads increased during the mid-2000s expansion and skyrocket during the Great Recession. First, participation becomes more cyclical: a statistically significant positive correlation between the correlation between SNAP caseload and unemployment is positive and statistically significant, and this correlation grows even stronger during the Great Recession (Column 2). Second, the positive correlation between a state's poverty rate and its SNAP enrollment first declined during 2000 to 2003 but grew stronger thereafter (Column 3). Since the poverty rate did not fall with the unemployment rate during the economic recovery, the increased responsiveness to the poverty rate contributes to the rising caseload. Finally, as the share of the state's population reporting fair or poor health has trended upward, the positive correlation between the proportion in fair or poor health and the caseload has also grown stronger (Column 4). When all three sets of interactions are included, SNAP caseloads are less cyclical (with respect to the unemployment rate) in the 2000-2003 and 2004-2007 periods; have a positive but statistically insignificant relationship with the poverty rate (likely limited by collinearity with the unemployment rate); and a positive and statistically significant relationship with the proportion in fair or poor health (Column 5). Taken together, the greater responsiveness of the caseload to poverty levels and health, when coupled with changes in the mean values of these variables, offer an explanation for the continuing growth of the SNAP since 2000, including during expansionary periods.

The aggregate pattern masks a more complex relationship by age group (Table 4). The findings for the non-elderly largely mimic those for the overall population. SNAP non-elderly caseloads were less cyclical during the 2000-2003 and 2004-2007 periods, before growing more cyclical during the Great Recession. Overall, there is no significant relationship between elderly caseloads and the unemployment rate, with the exception of the Great Recession. While the non-elderly SNAP caseload is increasingly responsive to the poverty rate in the 2004-2007 period,

the responsiveness of the elderly declines between 2000 and 2003, then remains constant thereafter. The correlation between elderly SNAP enrollment and the share reporting poor or fair health has become weaker over time, while the proportion of the elderly reporting fair or poor health has declined. In contrast, the correlation between ill health and the non-elderly SNAP caseload is strongly positive overall, and it grows even stronger starting in 2004.

For the SSI program, the rich data allow us to explore both stocks (caseload) and flows (applications and first-time awards) at the state level. Table 5 summarizes the results for SSI caseload.[12] While the unemployment rate is positively associated with SNAP's caseload, it is insensitive to SSI caseload in the specification without interactions (Column 1). A higher share of blacks in the state is positively associated with SSI caseload and a higher fraction of the elderly reduces SSI rolls. While a greater proportion in fair or poor health and a higher out-of-pocket medical expenditure are positively associated with SSI participation, we find a negative correlation between obesity rates and SSI caseloads, which is puzzling. We also find that the generosity of the TANF is negatively associated with SSI caseload and strict state regulation in the non-group health insurance market is negatively correlated with the caseload.

The interaction model shows that SSI caseloads have grown slightly more cyclical: while SSI enrollment is negatively correlated with the unemployment rate overall, this relationship has grown less negative over time and even turned positive during the Great Recession, just as unemployment rates spiked upward. Unlike SNAP, however, the relationship between the overall SSI caseload and the share of a state's population in poor health remains stable over time.

Table 6 examines the non-elderly and elderly separately. As with SNAP, we find opposing relationships between SSI caseloads and self-reported health condition between the elderly and the non-elderly: the positive correlation between non-elderly SSI caseloads and poor health grew stronger, and the correlation between elderly SSI caseloads and poor health became weaker and even turned negative. This finding helps to explain the unexpected caseload rise in the mid-2000s and the continuing upward trend over time.

While the unemployment rate is negatively associated with the SSI caseload, it is positively correlated to application levels (Table 7) and first-time awards (Table 8).[13] Further,

[12] Since the poverty rate is not statistically significant in the SSI regression, we did not include it in the interaction model.

[13] The SSA monthly workload data do not allow us to restrict the sample by age, so we are using the total for all ages as the dependent variable.

having a Republican governor is correlated with lower first-time awards, while higher SSI state generosity is associated with increasing first-time awards. For SSI applications – but not awards – we find that increasing responsiveness to poor health help explain the unexpected growth in SSI applications during the expansion and continuing upward trend since 2000.

In sensitivity checks, we also control for the lagged dependent variable – caseload applications, or first-time awards – and the results are largely similar. To pick up any discouraged worker effect, we also estimate the state regressions using the non-employment rate (100 minus the labor force participation rate) in place of the unemployment rate, and the results are broadly consistent.

Individual-Level Results. Our individual-level analysis of unconditional trends indicates that the main drivers of the continuing growth in SSI and SNAP since 2000 are a fall in the rate at which participants who remain eligible leave the program and the rise in the rate at which the newly eligible enter the program, explaining the unexpected increase in SSI and SNAP caseloads during the mid-2000s economic expansion. The regression analysis further investigates reasons behind these changes.

Table 9 summarizes the probit regression results for transitions into and out of SNAP. We report marginal effects – that is, the mean derivative of the outcome variable with respect to each variable – with standard errors calculated by the Delta method. Column 1 describes factors associated with exiting the program while still eligible, Column 2 summarizes results for exit rates due to loss of eligibility, and Column 3 presents results for entry rates among the newly eligible.[14]

Most of the factors that the literature suggests should impact public program participation have the expected correlation with SNAP exit among those who remain eligible (Column 1). Females, older individuals, blacks, those with children, and recipients of other welfare benefits, are less likely to exit while remaining eligible, while those who are married, college-educated, higher income, currently working, living in a larger household, homeowners, and car owners are more likely to voluntarily drop out of the program. Interestingly, most of our policy variables are insignificant except for the share of the population with a certification period under three

[14] Most estimates are in the expected direction for two other outcomes with more stable trends in recent years: entry among those already eligible and the probability of becoming eligible.

months, which is positively associated with the likelihood of exiting the program, suggesting administrative burdens deter SNAP participation.[15] We also find that a higher state minimum wage is negatively correlated with the exiting probability, which is bit puzzling. Further, we find that there is no correlation between self-reported health status and exiting from the program while remaining eligible.

The results for exiting the SNAP program due to losing eligibility (Column 2) are similar to the estimates for exiting SNAP while still eligible, except that the correlation between exiting for lost eligibility and fair or poor health status is negative and statistically significant. Further, the correlation between working and exiting is also stronger. These findings suggest that SNAP recipients lose eligibility primarily by moving back into the labor force or experiencing improved health.

Most variables associated with exiting are also significantly associated with entry, but in the opposite direction. While there is no correlation between health status and dropping out of the program while still eligible, the correlation is strong and positive between poor health status and entry among the newly eligible. Further, we find that a higher unemployment rate is positively associated with the entry rate among the newly eligible and the likelihood of entry is lower in a state that has a large share of recipients with shorter certification period. Expanded categorical eligibility is also positively correlated with the entry decision.

The results for SNAP by age group are summarized in Table 10. The patterns between the elderly and the non-elderly are largely consistent, with a few notable exceptions. Gender, race, education, and asset ownership do not impact the exit decision among the eligible elderly, while these characteristics are significantly associated with the propensity of exiting for the non-elderly. Further, the probability that non-elderly recipients exit the program after becoming ineligible is negatively correlated with health status, while health variable is uncorrelated with exit among the elderly who remain eligible.

Table 11 summarizes the results for the SSI program. The findings are largely consistent with the SNAP analysis, except that the exiting decision among those remaining eligible is more responsive to self-assessed health status; this result is to be expected, as SSI is a disability

[15] Our inclusion of state fixed effects reduces our chances of finding a statistically significant relationship between SNAP or SSI transitions and the policy variables that change very rarely, like the minimum wage and maximum TANF and SSI benefits. In the next draft of this paper, we will include results with region dummies instead of state dummies.

program for the non-elderly population. While having kids is negatively associated with the likelihood of dropping out of SNAP, it is positively correlated with exiting SSI, which is puzzling. The analysis by age group is largely consistent with that of the overall population (Table 12). Similar to SNAP, we find that the decision to exit among the elderly who remain eligible for SSI is unresponsive to health status.

To investigate how the correlations with each factor have changed over time, we interact several key variables with time period dummies. Tables 13A and 13B highlight coefficients for the main findings. Consistent with our findings in the state-level analysis, the changing responsiveness to health status, unemployment rate, and income levels are the major drivers for the changing participation in public programs over time. Further, we find that the change over time in the relationships between these factors and the two public programs differ.

For SNAP, we find individuals in poor or fair health are increasingly unlikely to exit from the program even though they remain eligible. We also find a correlation between work status and the likelihood of exiting (both those who remain eligible and those who lose eligibility) that switches signs over our sample period: while those who are working have a higher probability of exiting the program during 1996 to 1999, the likelihood of exiting among the employed declines, and then turns negative, so that the employed are less likely to exit (through either eligibility channel) over time.

With SSI, the three variables interacted with time period are less revelatory. Still, several patterns emerge. Lower-income individuals are less likely to exit SSI despite remaining eligible in all periods, and vice versa, and that relationship grows stronger in later periods. On the other hand, higher income individuals are more likely to enter SSI after becoming eligible in the 2004-2007 expansion, compared to the other three periods. Newly-eligible individuals reporting fair or poor health are more likely to enter SSI in 2004-2007 than in the other periods.

Conclusion

In tough times, SNAP and SSI help low-income households and individuals make ends meet. Recessions increase the number of people in need, so it is no surprise that SNAP and SSI rolls increase when the unemployment rate climbs. The natural expectation is that the rising tide of recovery will raise even the lowest-lying boats, causing the public program caseloads to fall during the ensuing expansion. But in the two most recent expansions – 2004-2007 and the

nascent recovery from the Great Recession – SNAP and SSI participation have been stable or even increased.

The results of this study indicate that the cyclicality of SNAP and SSI have changed over time and that each program is responding to different factors. States with higher unemployment rates generally see higher SNAP enrollment, but during the 2004-2007 expansion, the correlation becomes less positive. Instead, non-elderly SNAP enrollment increasingly followed the share in poverty, which did not fall during the expansion, and followed the share in fair or poor health, which rose throughout the period. Moreover, elderly health improved, but the relationship between health and elderly SNAP enrollment grew weaker. The individual-level results suggest that fewer SNAP beneficiaries in fair or poor health chose to leave the program during this period; more surprisingly, fewer employed people left as well.

SSI caseloads, on the other hand, historically do not increase with the unemployment rate, though applications are quite cyclical. But our state-level results suggest that SSI participation (among the non-elderly in particular) has become more responsive to the unemployment rate, even while SSI application rates have become less responsive. The individual-level analysis suggests that lower-income individuals have become less likely to leave SSI over time. Meanwhile, the state- and individual-level results indicate that people in fair or poor health have become more likely to apply to SSI and eventually enter the SSI rolls, respectively.

Though these results are informative about changes over time in the cyclicality of SNAP and SSI participation, the reader should exercise caution in interpreting any results as causal. The concern is that the program entry and exit decisions are endogenous to labor market prospects, the income available to the individual, and the individual's decision to live in a particular state. Moreover, our eligibility measure ignores the asset test for SNAP and the resource test for SSI, as well as the medical impairment test for non-elderly SSI recipients, and thus could be subject to measurement error; in future research, we plan to test the robustness of our results to different eligibility criteria, including using only gross income cutoffs for SNAP (to capture measurement error in deductions) and restrictions by self-reported health measures for SSI.

We also plan to include several other robustness checks in future research. First, previous studies suggest that the duration of benefits influences exit probabilities (Wu 2009); to

account for this, we plan to include an indicator of ongoing spell length, with separate estimates for censored and non-censored observations. In addition, we plan to re-estimate our regressions at the person-wave level to account for seam bias. Other researchers using SIPP have found that a disproportionate number of program transitions occur in the interview months, i.e. the fourth reference month of each wave (Ham, Li, and Shore-Sheppard 2009). In our person-wave analysis, an individual enters the program if he participates in any month in the current wave after not participating in any month in the previous wave. Similarly, an individual exits the program if he participates in no months in the current wave after participating in at least one month in the previous wave.

The federal government spent $626 billion on SNAP and SSI in fiscal years 2008 through 2012, compared to $385 billion in the previous five years.[16] The hope after a long, deep recession and a slow start to the recovery is that more SNAP and SSI beneficiaries will move off of the rolls, with fewer new beneficiaries replacing them. The results of this study emphasize that the SNAP and SSI caseload is increasingly dependent on poverty rates and the underlying health status of the at-risk population. Therefore, a tightening labor market is hardly sufficient for caseloads to fall.

The expansion of 2004-2007 showed that poverty rates need not decline along with unemployment rates; if growth does not help the low end of the income distribution, then poverty rates will remain elevated. Furthermore, even if a broad-based economic expansion improves both unemployment and poverty rates, health will improve much more slowly. These limitations suggest that SNAP and SSI may remain a burden on the federal budget when the Great Recession is but a distant memory.

[16] Office of Management and Budget (OMB), Historical Table 8.5, http://www.whitehouse.gov/omb/budget/Historicals, last accessed July 22, 2013. Note that these figures use "food and nutrition assistance" as a proxy for SNAP spending.

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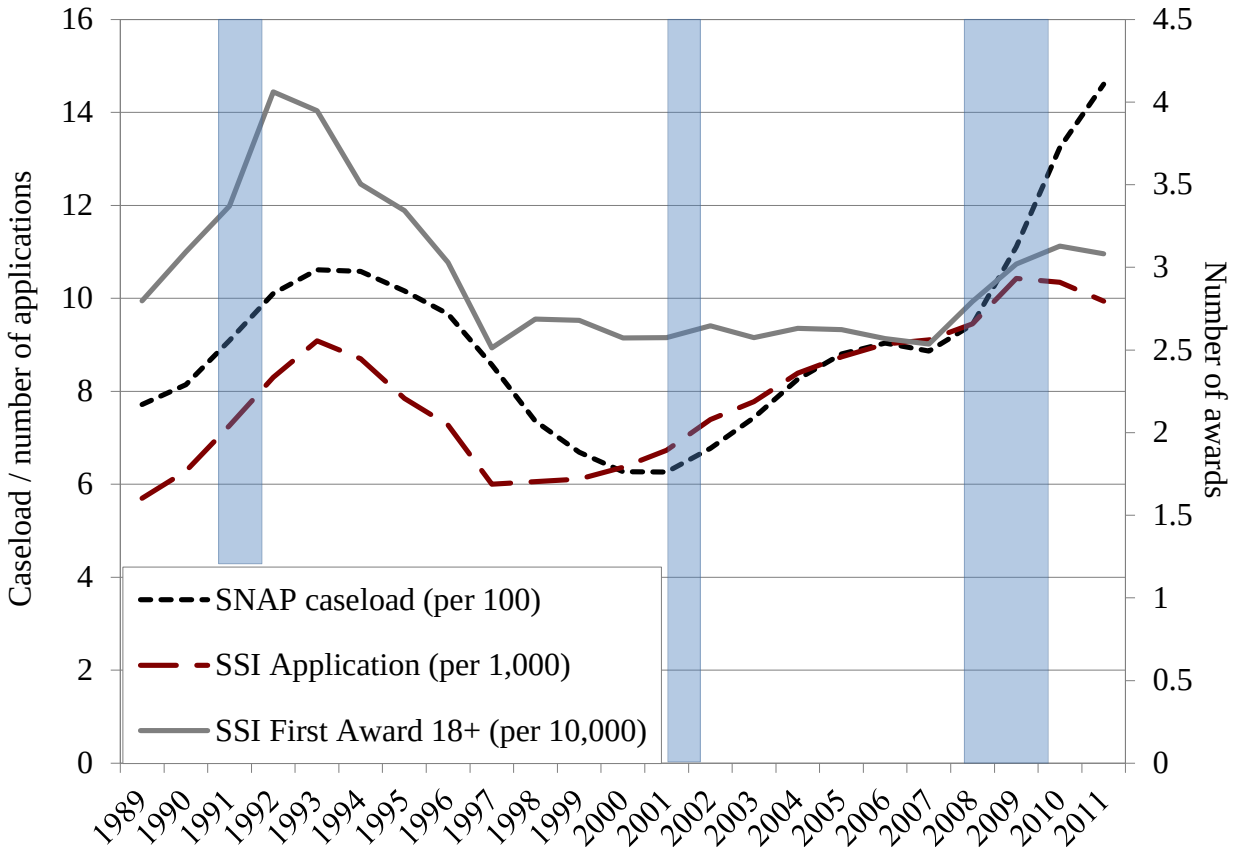
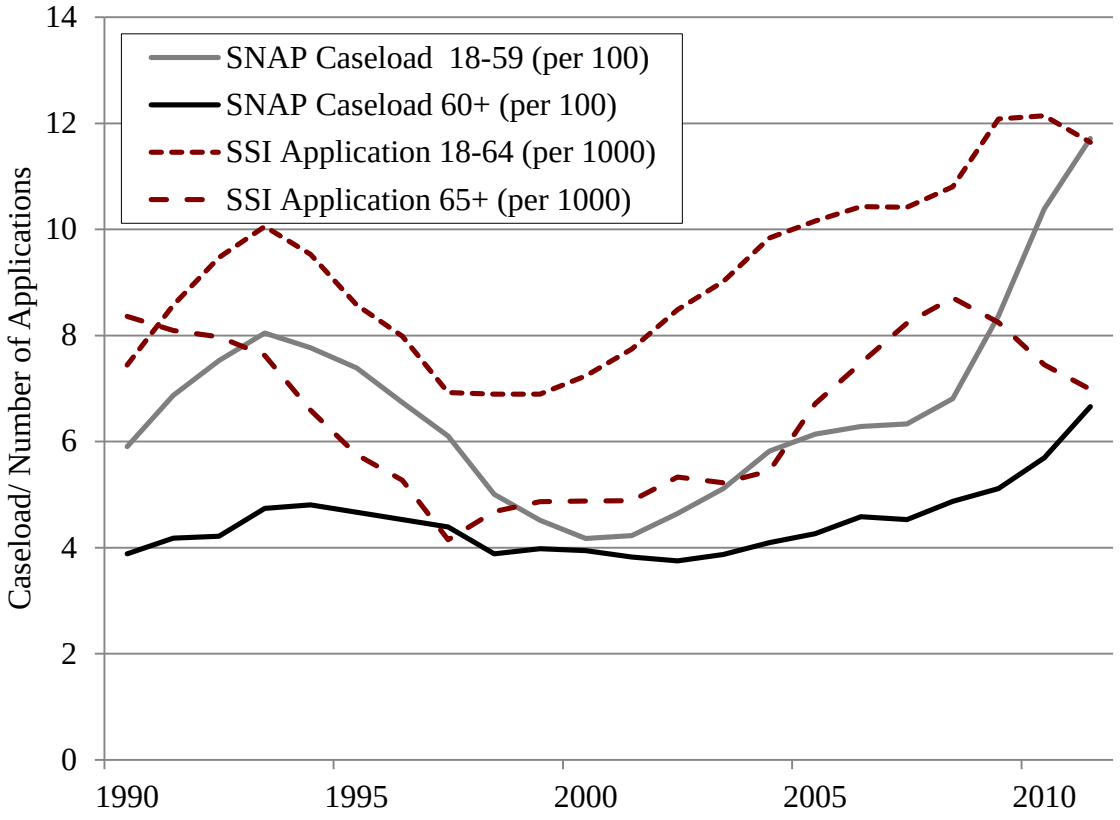
Figure 1: *SNAP Caseload and SSI Applications and Awards*



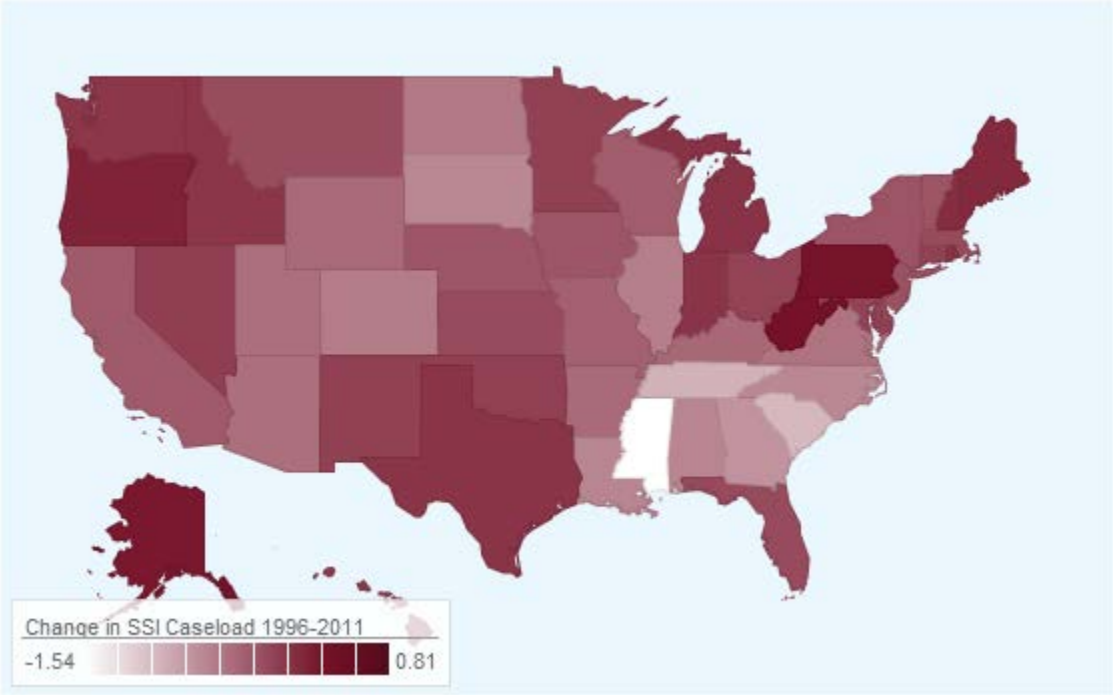
Source: U.S. Social Security Administration and U.S. Department of Agriculture. 1982-2011. Washington, DC.

Figure 2: *SNAP Caseload and SSI Applications, by Age Group*



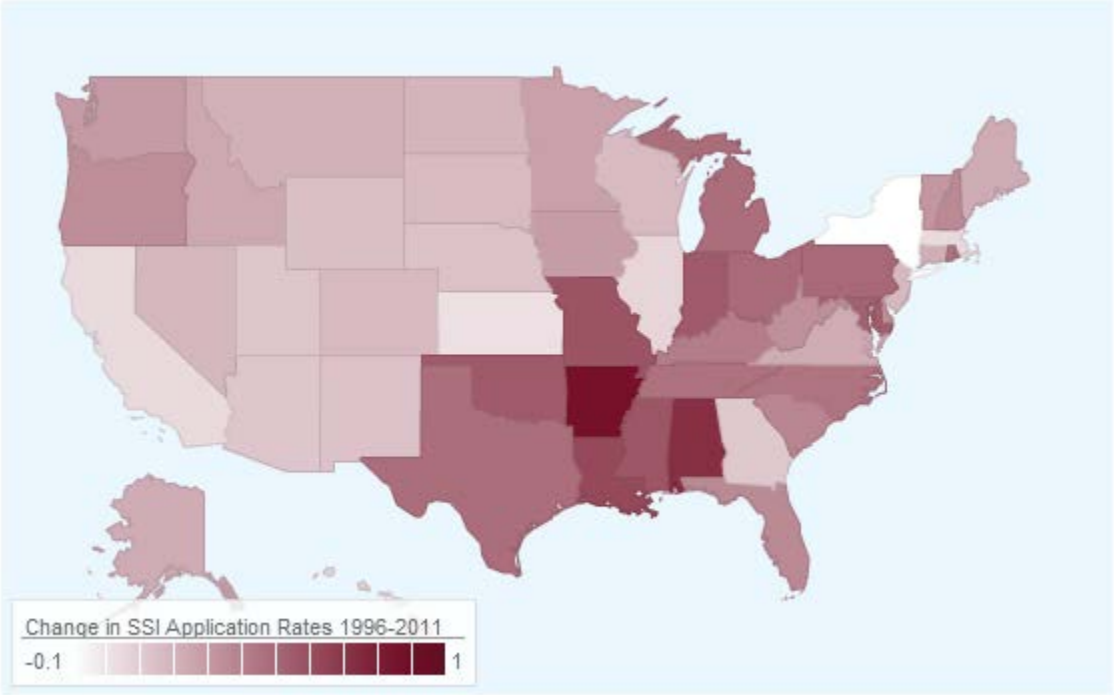
Source: U.S. Social Security Administration and U.S. Department of Agriculture. 1982-2011. Washington, DC.

Figure 3: *Percentage Point Change in SSI Caseload/State Population; 1996-2011*



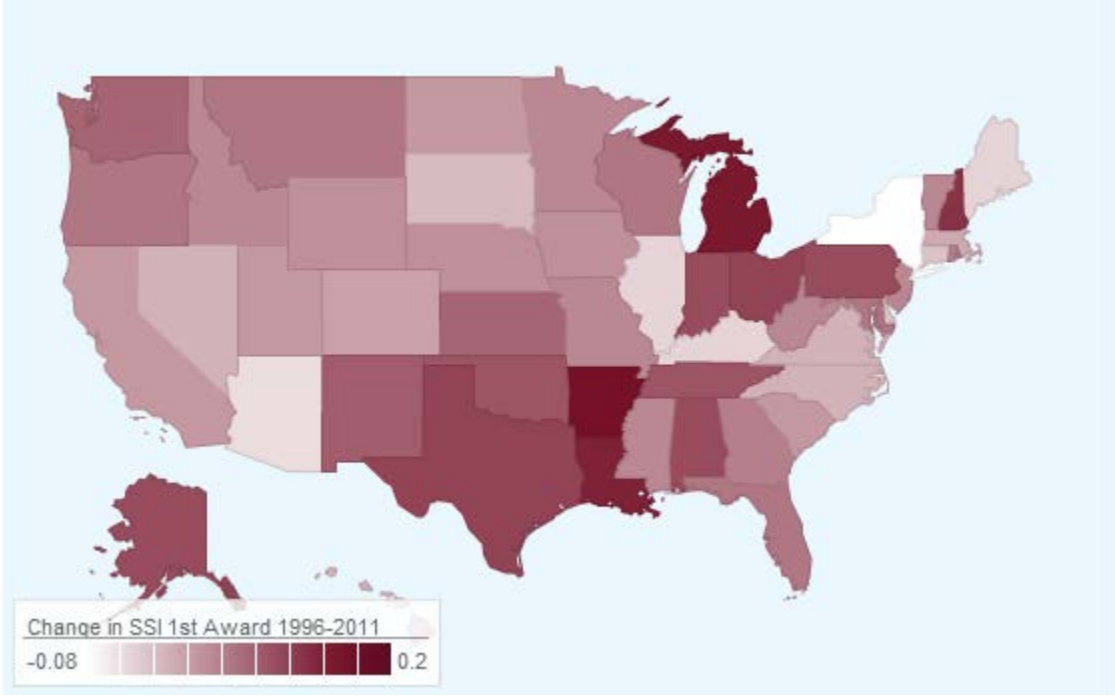
Source: Authors' calculations.

Figure 4: *Percentage Point Change in SSI Application Rates; 1996-2011*



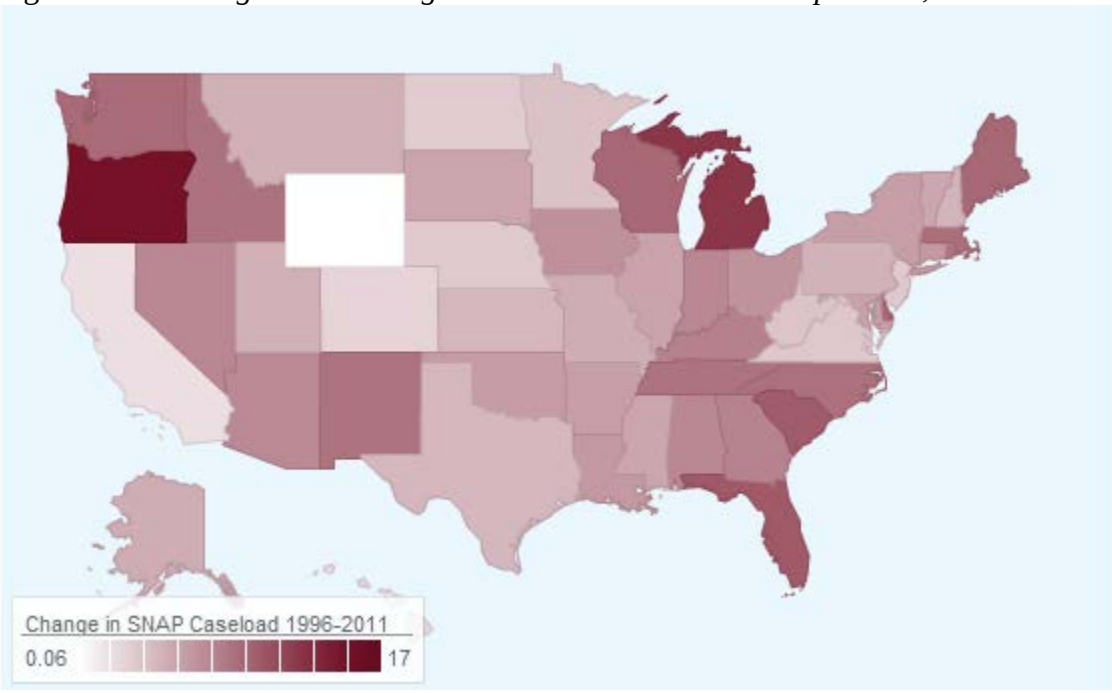
Source: Authors' calculations.

Figure 5: *Percentage Point Change in SSI 1st Time Awards/State Population; 1996-2011*



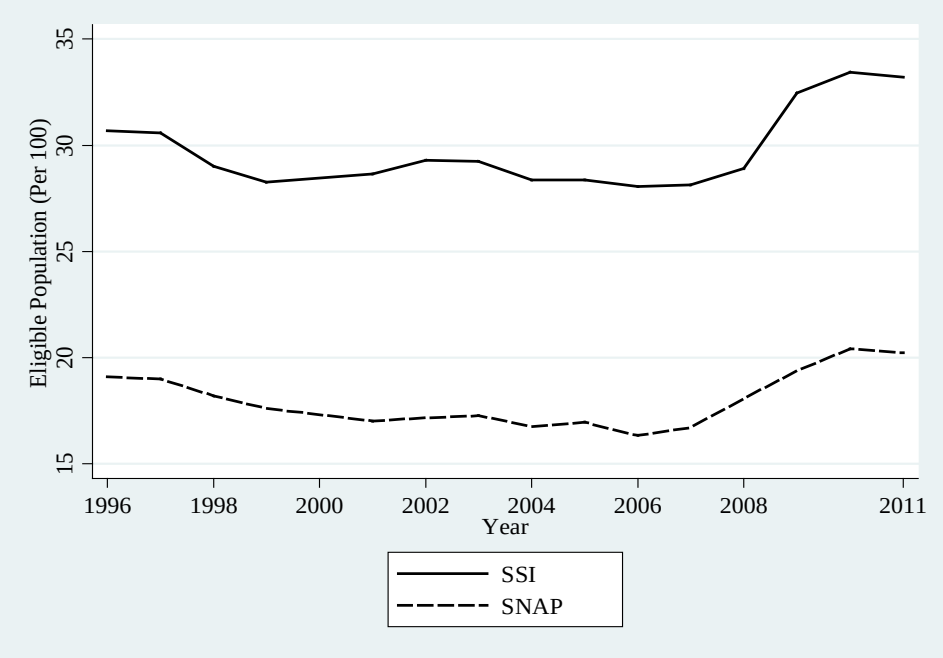
Source: Authors' calculations.

Figure 6: *Percentage Point Change in SNAP Caseload/State Population; 1996-2011*



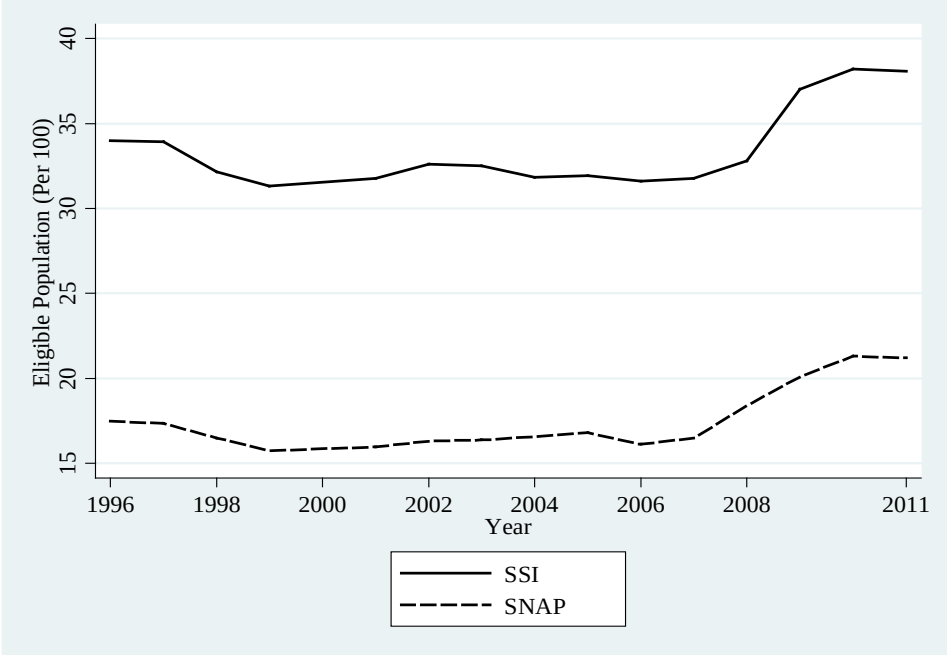
Source: Authors' calculations.

Figure 7A. *Proportion Eligible for SNAP and SSI, Age 18+*



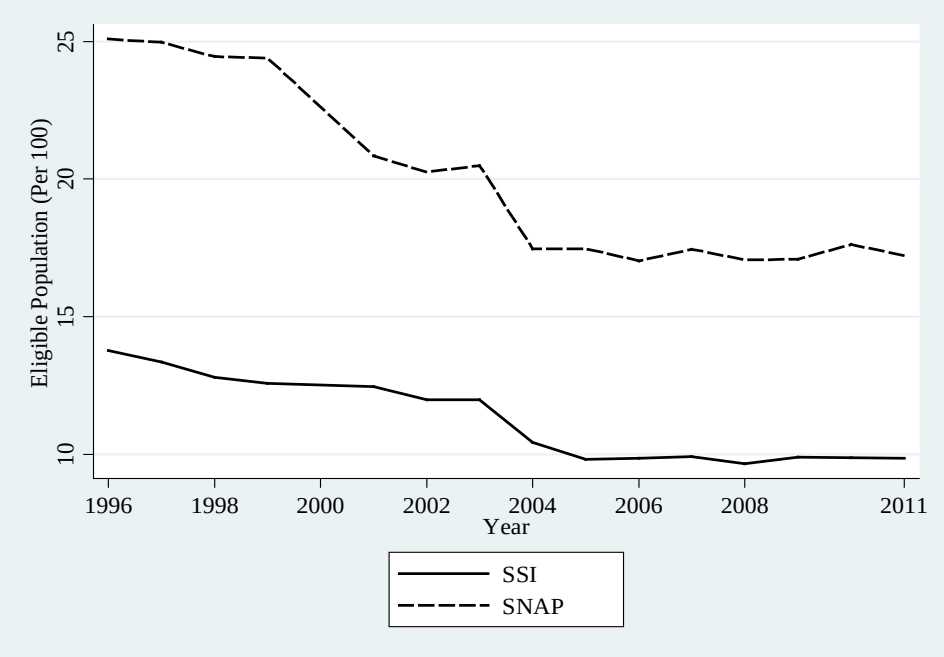
Source: *Survey of Income and Program Participation,* 1996-2008 Panels.

Figure 7B. *Proportion Eligible for SNAP and SSI, Non-Elderly*



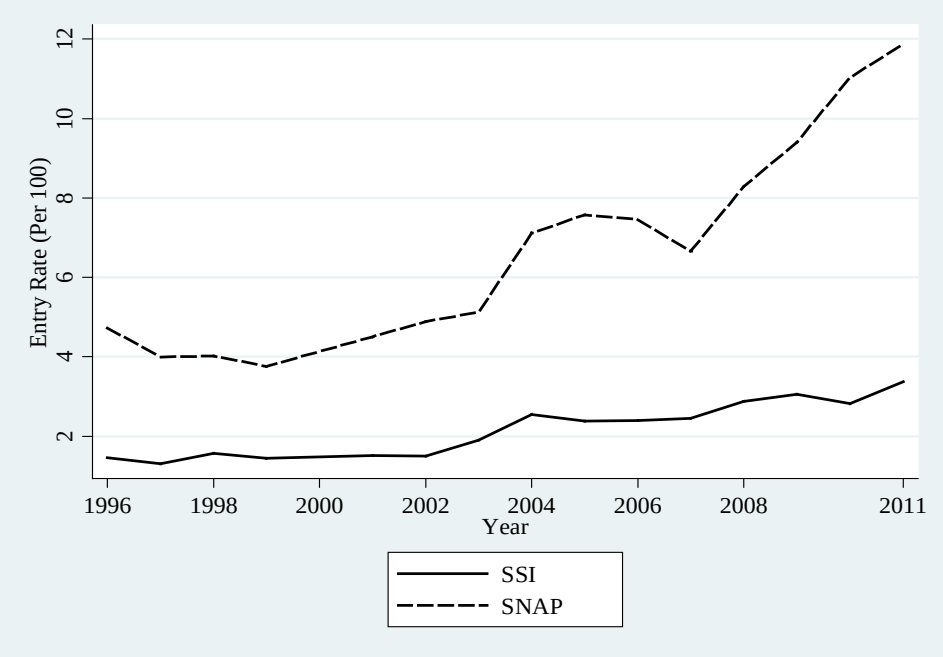
Notes: Sample includes all individuals under 60 for SNAP and under 65 for SSI.
Source: *Survey of Income and Program Participation,* 1996-2008 Panels.

Figure 7C. *Proportion Eligible for SNAP and SSI, Elderly*



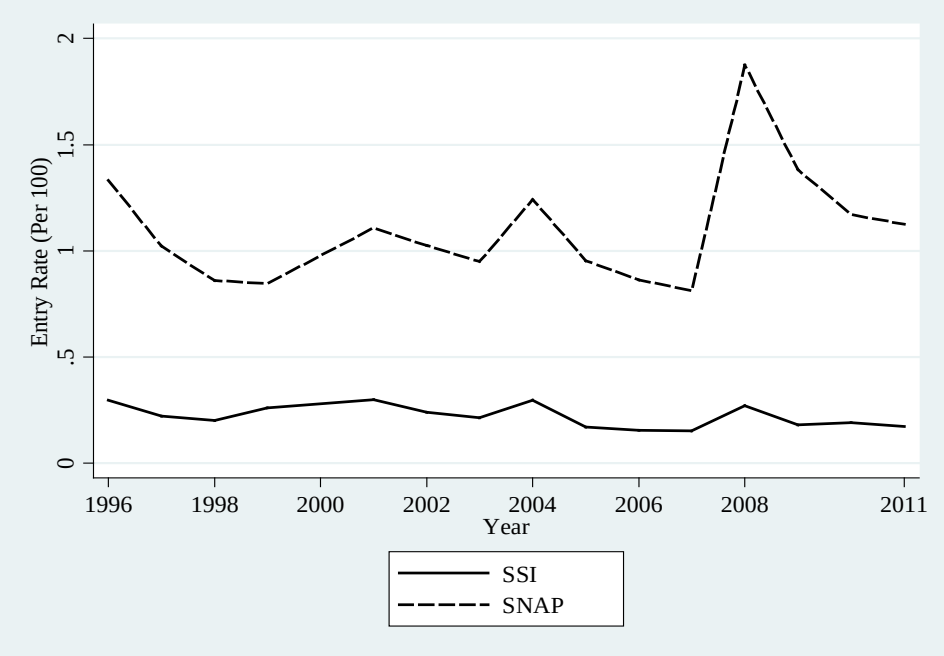
Notes: Sample includes all individuals 60 and over for SNAP and 65 and over for SSI.
Source: *Survey of Income and Program Participation*, 1996-2008 Panels.

Figure 8A. *Entry Rate for Newly Eligibles*



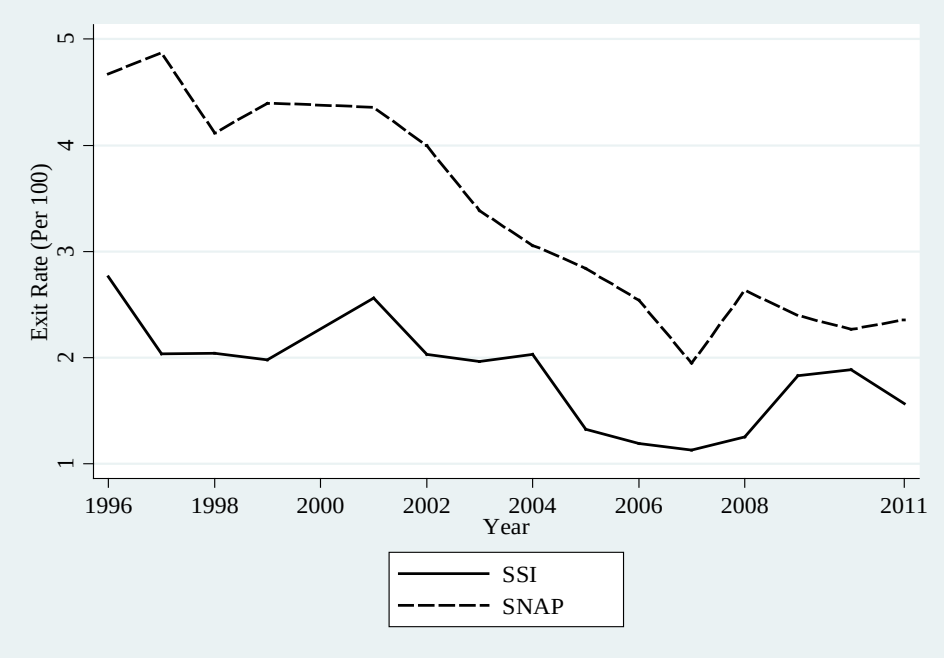
Notes: Sample includes individuals who are ineligible in (t-1), and are eligible in (t). The numerator is individuals observed participating in (t).
Source: *Survey of Income and Program Participation*, 1996-2008 Panels.

Figure 8B. *Entry Rate for Already-Eligible Non-Participants*



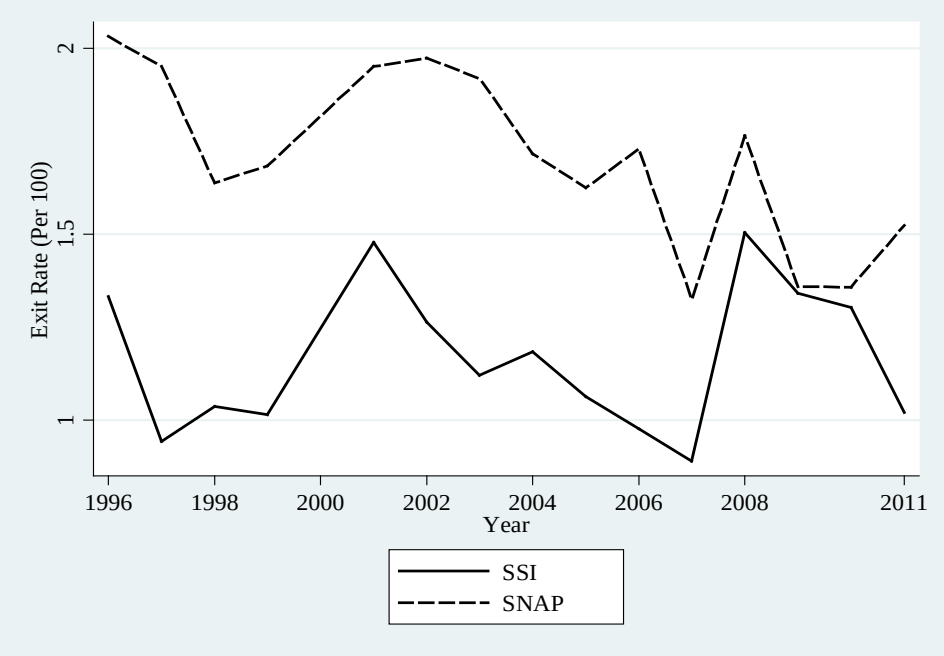
Notes: Sample includes individuals who are eligible for both (t-1) and (t), and don't participate in (t-1). The numerator is individuals observed participating in (t).
Source: *Survey of Income and Program Participation*, 1996-2008 Panels.

Figure 9A. *Exit Rate for Beneficiaries Who Remain Eligible*



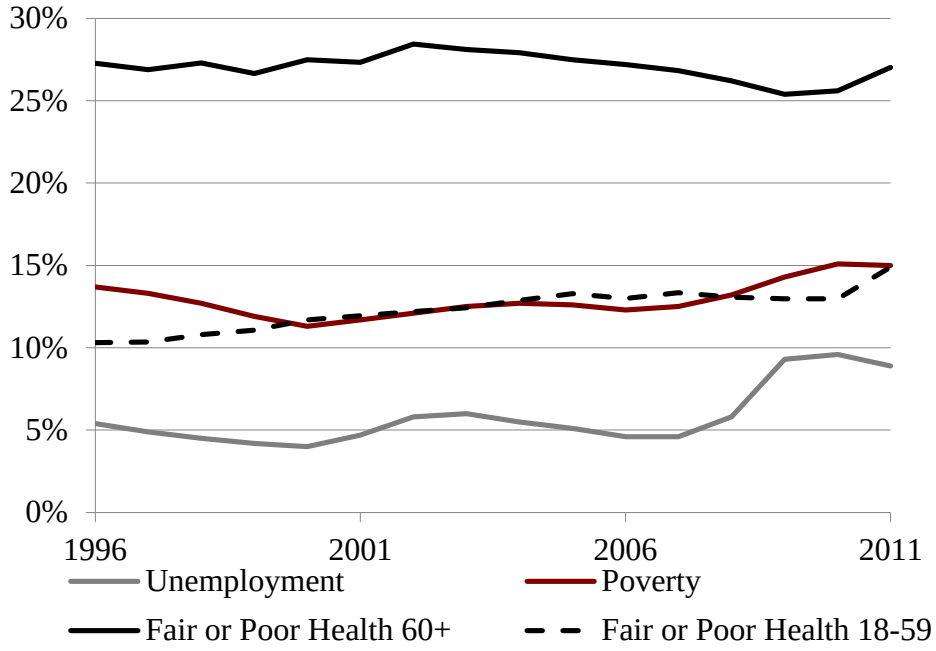
Notes: Sample includes individuals who are eligible for both (t-1) and (t), and participate in (t-1). The numerator is individuals observed not participating in (t).
Source: *Survey of Income and Program Participation*, 1996-2008 Panels.

Figure 9B. *Exit Rate for Beneficiaries Who Lose Eligibility*



Notes: Sample includes individuals who are eligible and participate in (t-1). The numerator is individuals observed becoming ineligible in (t).
Source: *Survey of Income and Program Participation*, 1996-2008 Panels.

Figure 10: *Unemployment, Poverty, and Self-Reported General Health; 1996-2011*



Sources: Behavioral Risk Factor Surveillance System; U.S. Bureau of Labor Statistics; and U.S. Census Bureau.

Table 1: *State-Level Summary Statistics*

	Between States Over Time				Within-State Over Time
	Mean	Standard Deviation	Minimum	Maximum	Standard Deviation
Dependent Variables					
Total SNAP Caseload	0.101	0.044	0.035	0.279	0.032
Elderly SNAP Caseload (60+)	0.057	0.025	0.005	0.182	0.013
Non-Elderly SNAP Caseload	0.122	0.058	0.038	0.375	0.045
Total SSI Caseload	0.030	0.012	0.013	0.074	0.002
Elderly SSI Caseload (65+)	0.045	0.026	0.010	0.165	0.008
Non-Elderly SSI Caseload	0.021	0.009	0.009	0.053	0.001
Total New SSI Awards	0.004	0.001	0.002	0.008	0.000
Total New Elderly SSI Awards	0.002	0.002	0.000	0.017	0.001
Total New Non-Elderly SSI Awards	0.003	0.001	0.001	0.007	0.000
SSI Application Rate	0.008	0.003	0.001	0.021	0.001
Economic Variables					
Unemployment Rate	0.057	0.022	0.014	0.150	0.019
Change in 10th Percentile of 3 Year Moving Average of Real Wage Distribution	0.007	0.021	-0.054	0.095	0.021
Poverty Rate	0.124	0.034	0.045	0.255	0.017
Minimum Wage	5.793	1.031	4.250	8.670	0.934
Service Occupation	0.480	0.088	0.307	0.771	0.076
Manufacturing Job	0.126	0.054	0.012	0.278	0.025
Health Care Expenditure (2011 Dollars)	6307.449	1291.552	3593.395	11169.972	954.420
Demographics and Health Variables					
Fraction Black	0.114	0.120	0.000	0.711	0.012
Fraction Newly Arrived Immigrants	0.013	0.009	0.000	0.047	0.005
Fraction elderly (60+)	0.168	0.025	0.057	0.236	0.014
Fraction Male	0.483	0.012	0.448	0.520	0.007
Fraction Single Mother Household	0.332	0.061	0.184	0.671	0.026
Fraction Less than High School	0.139	0.040	0.060	0.257	0.021
Fraction Obese 18+	0.227	0.047	0.103	0.356	0.039
Fraction Obese 18-59	0.229	0.050	0.097	0.374	0.041
Fraction Obese 60+	0.222	0.045	0.050	0.327	0.038
Fraction Reporting Fair or Poor Health 18+	0.150	0.034	0.082	0.254	0.014
Fraction Reporting Fair or Poor Health 18-59	0.114	0.030	0.053	0.212	0.016
Fraction Reporting Fair or Poor Health 60+	0.266	0.055	0.028	0.464	0.023
Policy Variables					
Categorical SNAP eligibility	0.221	0.415	0.000	1.000	0.341
Fraction Short SNAP Recertification Period	0.084	0.130	0.000	0.675	0.105
SNAP Error Rate	6.877	3.143	0.700	17.670	2.829
Maximum State Supplement to SSI	38.025	79.757	0.000	520.279	14.814
Strict Regulation	0.124	0.330	0.000	1.000	0.125
Republican Governor	0.545	0.498	0.000	1.000	0.415
Max TANF benefits	416.153	157.343	120.000	923.000	30.372
Medicaid Buy-In	0.499	0.500	0.000	1.000	0.421
Maximum Weekly UI Benefit	333.602	89.925	151.000	629.000	56.925

Source: Authors' calculations.

Table 2A. *Summary Statistics for SNAP*

	SNAP Ineligible	SNAP Eligible	SNAP Eligible Nonparticipants	SNAP Eligible Participants
Age	45.6	45.4	46.0	43.3
Female	0.505	0.586	0.538	0.767
Marital Status	0.602	0.386	0.430	0.218
Race				
White	0.846	0.723	0.754	0.604
Black	0.098	0.204	0.172	0.327
Other	0.056	0.073	0.074	0.069
Education				
Less than HS	0.095	0.292	0.275	0.358
HS	0.293	0.346	0.343	0.354
College	0.612	0.362	0.382	0.288
Household Size	3.0	3.1	3.0	3.1
Kids	0.369	0.439	0.408	0.559
Live in an MSA	0.799	0.755	0.758	0.742
Employment	0.712	0.367	0.396	0.254
Poor or Fair Health	0.122	0.306	0.277	0.416
Income (monthly)				
Mean	$3400	$700	$700	$500
Median	$2500	$400	$500	$300
Own Home	0.765	0.471	0.528	0.257
Own a Vehicle	0.905	0.683	0.730	0.504
Receive Other Welfare	0.115	0.527	0.428	0.902
N	8,020,423	1,873,880	1,455,902	417,978

Source: Authors' calculations.

Table 2B. *Summary Statistics for SSI*

	SSI Ineligible	SSI Eligible	SSI Eligible Nonparticipants	SSI Eligible Participants
Age	49.4	36.7	35.4	51.8
Female	0.488	0.592	0.591	0.603
Marital Status	0.639	0.385	0.400	0.208
Race				
White	0.852	0.759	0.771	0.625
Black	0.098	0.161	0.151	0.276
Other	0.050	0.079	0.078	0.099
Education				
Less than HS	0.094	0.217	0.196	0.458
HS	0.284	0.347	0.349	0.330
College	0.622	0.435	0.455	0.212
Household Size	2.8	3.5	3.6	2.7
Kids	0.337	0.485	0.506	0.241
Live in an MSA	0.795	0.781	0.784	0.750
Employment	0.728	0.467	0.502	0.067
Poor or Fair Health	0.144	0.182	0.143	0.620
Income (monthly)				
Mean	$3900	$500	$600	$200
Median	$2900	$200	$300	$0
Own Home	0.773	0.569	0.585	0.389
Own a Vehicle	0.898	0.787	0.812	0.505
Receive Other Welfare	0.111	0.393	0.342	0.981
N	6,937,911	2,956,392	2,692,831	263,561

Source: Authors' calculations.

Table 3. *State-Level Regressions: SNAP Caseload 18+*

SNAP Caseload	18+				
	(1)	(2)	(3)	(4)	(5)
Economic Variables					
Unemployment Rate	0.5486***	0.3764***	0.5131***	0.5365***	0.4585***
	(0.0418)	(0.0920)	(0.0408)	(0.0403)	(0.0973)
Change in 10th Percentile of 3 Year Moving Average of Real Wage Distribution	0.0085	-0.0220	-0.0052	-0.0019	-0.0240
	(0.0222)	(0.0245)	(0.0221)	(0.0214)	(0.0234)
Poverty Rate	0.1482***	0.1327***	0.0908*	0.1333***	0.1005**
	(0.0452)	(0.0399)	(0.0462)	(0.0429)	(0.0428)
Health Care Expenditure ($1000 of 2011)	0.0090***	0.0103***	0.0109***	0.0118***	0.0123***
	(0.0027)	(0.0034)	(0.0024)	(0.0028)	(0.0031)
Service Occupation	-0.0039	0.0193	-0.0015	0.0006	0.0202
	(0.0167)	(0.0156)	(0.0164)	(0.0169)	(0.0155)
Manufacturing Job	-0.0620	-0.0694*	-0.0763**	-0.0489	-0.0632*
	(0.0414)	(0.0348)	(0.0361)	(0.0383)	(0.0341)
Demographics and Health Variables					
Fraction Black	-0.0000	0.0100	0.0612	0.0128	0.0377
	(0.0514)	(0.0446)	(0.0429)	(0.0605)	(0.0488)
Fraction Newly Arrived Immigrants	-0.1055	-0.0513	-0.1258	-0.1365	-0.0715
	(0.1441)	(0.1357)	(0.1359)	(0.1353)	(0.1342)
Fraction 60+	0.1319*	0.0761	0.1259*	0.1156	0.0818
	(0.0746)	(0.0673)	(0.0728)	(0.0696)	(0.0661)
Fraction Male	0.0075	-0.0185	-0.0137	-0.0800	-0.0788
	(0.0877)	(0.0827)	(0.0843)	(0.0889)	(0.0856)
Fraction Single Mother Household	-0.0170	-0.0105	-0.0263	-0.0385	-0.0287
	(0.0367)	(0.0349)	(0.0359)	(0.0372)	(0.0354)
Fraction Less Than High School	-0.1108**	-0.0477	-0.0650	-0.0651	-0.0184
	(0.0504)	(0.0473)	(0.0509)	(0.0462)	(0.0475)
Fraction Obese by Age Group	-0.0499	-0.0350	-0.0743**	-0.0783**	-0.0728**
	(0.0366)	(0.0367)	(0.0361)	(0.0369)	(0.0359)
Fraction Reporting Fair or Poor Health by Age Group	0.2138***	0.2143***	0.2066***	0.1232**	0.1408**
	(0.0480)	(0.0500)	(0.0446)	(0.0553)	(0.0586)
Policy Variables					
Categorical SNAP eligibility	0.0122***	0.0110***	0.0115***	0.0121***	0.0111***
	(0.0031)	(0.0030)	(0.0031)	(0.0031)	(0.0030)
Fraction with Short SNAP Recertification Period	-0.0378***	-0.0423***	-0.0350***	-0.0329***	-0.0360***
	(0.0077)	(0.0071)	(0.0065)	(0.0066)	(0.0061)
SNAP Combined Error Rate	0.0001	0.0000	-0.0002	-0.0001	-0.0001
	(0.0003)	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Strict Regulation	-0.0105	-0.0103	-0.0124*	-0.0098	-0.0102
	(0.0080)	(0.0072)	(0.0063)	(0.0069)	(0.0062)
Republican Governor	-0.0008	-0.0010	-0.0011	-0.0010	-0.0011
	(0.0019)	(0.0018)	(0.0017)	(0.0018)	(0.0017)

Table 3. *State-Level Regressions: SNAP Caseload 18+* (cont'd)

SNAP Caseload	18+				
	(1)	(2)	(3)	(4)	(5)
Max TANF benefits (Hundreds of Dollars)	-0.0042*	-0.0030	-0.0034	-0.0043*	-0.0033
	(0.0025)	(0.0024)	(0.0021)	(0.0024)	(0.0022)
Medicaid Buy-In	0.0002	0.0010	-0.0009	-0.0005	0.0003
	(0.0023)	(0.0022)	(0.0023)	(0.0023)	(0.0023)
Maximum Weekly UI Benefit ($100)	-0.0150***	-0.0136***	-0.0125***	-0.0137***	-0.0125***
	(0.0030)	(0.0027)	(0.0028)	(0.0030)	(0.0026)
Minimum Wage	0.0018	-0.0004	0.0009	0.0014	0.0000
	(0.0012)	(0.0013)	(0.0012)	(0.0013)	(0.0015)
2000-2003	-0.0119***	0.0031	-0.0032	-0.0074	0.0020
	(0.0024)	(0.0045)	(0.0056)	(0.0075)	(0.0074)
2004-2007	-0.0019	-0.0026	-0.0163**	-0.0262**	-0.0219*
	(0.0039)	(0.0078)	(0.0078)	(0.0100)	(0.0114)
2008-2011	0.0159***	-0.0094	-0.0155	-0.0182	-0.0335**
	(0.0047)	(0.0076)	(0.0094)	(0.0113)	(0.0127)
2000-2003*Unemployment		-0.3378***			-0.3213***
		(0.1024)			(0.1198)
2004-2007*Unemployment		-0.1024			-0.2343*
		(0.1204)			(0.1197)
2008-2011*Unemployment		0.3480***			0.2042
		(0.1192)			(0.1250)
2000-2003*Poverty			-0.0872**		-0.0422
			(0.0412)		(0.0614)
2004-2007*Poverty			0.0986*		0.0291
			(0.0566)		(0.0605)
2008-2011*Poverty			0.2287***		0.1087
			(0.0633)		(0.0719)
2000-2003*% Reporting Fair or Poor Health				-0.0273	0.0370
				(0.0494)	(0.0565)
2004-2007*% Reporting Fair or Poor Health				0.1574**	0.1512**
				(0.0649)	(0.0681)
2004-2007*% Reporting Fair or Poor Health				0.2261***	0.1246
				(0.0674)	(0.0769)
Constant	0.0249	0.0283	0.0230	0.0691	0.0543
	(0.0502)	(0.0479)	(0.0440)	(0.0506)	(0.0483)
State Dummies	Yes	Yes	Yes	Yes	Yes
Observations	816	816	816	816	816
R-squared	0.9142	0.9221	0.9199	0.9192	0.9256
Number of Clusters	51	51	51	51	51

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 4. *State-Level Regressions: SNAP Caseload by Age Group*

SNAP Caseload	18-60		60+	
	(1)	(2)	(3)	(4)
Unemployment Rate	0.8190***	0.6835***	0.0816*	-0.0363
	(0.0589)	(0.1247)	(0.0412)	(0.0703)
Poverty Rate	0.1699**	0.0816	0.0547	0.0983***
	(0.0788)	(0.0681)	(0.0383)	(0.0327)
Fraction Reporting Fair or Poor Health by Age Group	0.3315***	0.1062	0.0537**	0.0989***
	(0.0754)	(0.0878)	(0.0227)	(0.0345)
2000-2003	-0.0168***	-0.0048	-0.0069***	0.0240**
	(0.0035)	(0.0081)	(0.0019)	(0.0097)
2004-2007	-0.0050	-0.0422***	-0.0052*	0.0229
	(0.0056)	(0.0136)	(0.0030)	(0.0147)
2008-2011	0.0221***	-0.0646***	-0.0004	0.0234
	(0.0067)	(0.0194)	(0.0037)	(0.0147)
2000-2003*Unemployment		-0.4810***		-0.0620
		(0.1599)		(0.0931)
2004-2007*Unemployment		-0.3154*		0.0291
		(0.1599)		(0.0830)
2008-2011*Unemployment		0.2957*		0.1806**
		(0.1675)		(0.0876)
2000-2003*Poverty		-0.0248		-0.0835*
		(0.0796)		(0.0471)
2004-2007*Poverty		0.1207*		-0.0481
		(0.0703)		(0.0612)
2008-2011*Poverty		0.1499		-0.0076
		(0.1110)		(0.0731)
2000-2003*% Reporting Fair or Poor Health		0.1201		-0.0667*
		(0.0832)		(0.0340)
2004-2007*% Reporting Fair or Poor Health		0.2718***		-0.0932*
		(0.0929)		(0.0469)
2004-2007*% Reporting Fair or Poor Health		0.3688**		-0.1323***
		(0.1473)		(0.0487)
Observations	816	816	816	816
R-squared	0.9038	0.9204	0.8404	0.8533

Note: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 5. *State-Level Regressions: SSI Caseload 18+*

SSI Caseload	Full			
	(1)	(2)	(3)	(4)
Economic Variables				
Unemployment Rate	-0.0049	-0.0347*	-0.0054	-0.0416***
	(0.0057)	(0.0178)	(0.0058)	(0.0150)
Change in 10th Percentile of 3 Year Moving Average of Real Wage Distribution	-0.0019	-0.0040*	-0.0024	-0.0045**
	(0.0020)	(0.0022)	(0.0019)	(0.0021)
Poverty Rate	-0.0079	-0.0081	-0.0072	-0.0066
	(0.0066)	(0.0067)	(0.0059)	(0.0057)
Health Care Expenditure ($1000 of 2011)	0.0014***	0.0014***	0.0014***	0.0013***
	(0.0004)	(0.0004)	(0.0005)	(0.0004)
Service Occupation	-0.0012	-0.0001	-0.0013	-0.0003
	(0.0022)	(0.0022)	(0.0021)	(0.0022)
Manufacturing Job	0.0078	0.0069	0.0079	0.0065
	(0.0077)	(0.0075)	(0.0075)	(0.0069)
Demographics and Health Variables				
Fraction Black	0.0145*	0.0173**	0.0143*	0.0176**
	(0.0074)	(0.0070)	(0.0072)	(0.0069)
Fraction Newly Arrived Immigrants	-0.0181	-0.0135	-0.0196	-0.0139
	(0.0165)	(0.0159)	(0.0167)	(0.0162)
Fraction 65+	-0.0217**	-0.0255**	-0.0222**	-0.0261**
	(0.0102)	(0.0099)	(0.0101)	(0.0100)
Fraction Male	-0.0227	-0.0247	-0.0218	-0.0212
	(0.0170)	(0.0164)	(0.0133)	(0.0133)
Fraction Single Mother Household	-0.0003	-0.0005	-0.0000	0.0003
	(0.0033)	(0.0030)	(0.0033)	(0.0031)
Fraction Less than High School	0.0106	0.0143*	0.0101	0.0123
	(0.0081)	(0.0072)	(0.0090)	(0.0085)
Fraction Obese	-0.0294***	-0.0273***	-0.0290***	-0.0255***
	(0.0082)	(0.0088)	(0.0070)	(0.0071)
Fraction Reporting Fair or Poor Health	0.0161**	0.0154*	0.0209	0.0242
	(0.0074)	(0.0077)	(0.0162)	(0.0155)

Table 5. *State-Level Regressions: SSI Caseload 18+* (cont'd)

SSI Caseload	Full			
	(1)	(2)	(3)	(4)
Policy Variables				
Maximum State Supplement to SSI (Hundreds)	0.0004	0.0001	0.0005	0.0004
	(0.0010)	(0.0010)	(0.0011)	(0.0011)
Strict Regulation	-0.0010**	-0.0010*	-0.0011**	-0.0011**
	(0.0005)	(0.0005)	(0.0005)	(0.0005)
Republican Governor	-0.0002	-0.0002	-0.0002	-0.0002
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Max TANF benefits (Hundreds)	-0.0007*	-0.0006*	-0.0006	-0.0006
	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Medicaid Buy-In	0.0003	0.0004	0.0003	0.0003
	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Maximum Weekly UI Benefits (Hundreds)	0.0001	0.0003	0.0001	0.0002
	(0.0005)	(0.0005)	(0.0005)	(0.0004)
Minimum Wage	0.0004**	0.0002	0.0004*	0.0002
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
2000-2003	-0.0012***	-0.0016**	0.0002	-0.0002
	(0.0002)	(0.0008)	(0.0016)	(0.0017)
2004-2007	-0.0012***	-0.0027**	0.0000	-0.0011
	(0.0004)	(0.0012)	(0.0025)	(0.0027)
2008-2011	0.0000	-0.0024**	0.0005	-0.0011
	(0.0005)	(0.0011)	(0.0027)	(0.0028)
2000-2003*Unemployment		0.0078		0.0160
		(0.0168)		(0.0151)
2004-2007*Unemployment		0.0282		0.0380**
		(0.0238)		(0.0185)
2008-2011*Unemployment		0.0429**		0.0506***
		(0.0192)		(0.0168)
2000-2003*% in Fair or Poor Health			-0.0094	-0.0123
			(0.0118)	(0.0103)
2004-2007*% in Fair or Poor Health			-0.0083	-0.0146
			(0.0165)	(0.0147)
2008-2011*% in Fair or Poor Health			-0.0034	-0.0115
			(0.0180)	(0.0172)
Constant	0.0535***	0.0549***	0.0524***	0.0528***
	(0.0084)	(0.0080)	(0.0066)	(0.0066)
State Dummies	Yes	Yes	Yes	Yes
Observations	816	816	816	816
R-squared	0.9870	0.9875	0.9871	0.9877
Number of Clusters	51	51	51	51

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6. *State-Level Regressions: SSI Caseload by Age Group*

SSI Caseload	18-64		65+	
	(1)	(2)	(1)	(2)
Unemployment Rate	0.0002	-0.0236**	-0.0233	-0.0366
	(0.0043)	(0.0109)	(0.0240)	(0.0593)
Poverty Rate	-0.0061	-0.0078**	-0.0263	0.0082
	(0.0037)	(0.0036)	(0.0373)	(0.0248)
Fraction Reporting Fair or Poor Health	0.0112**	-0.0048	0.0313*	0.0792***
	(0.0046)	(0.0075)	(0.0178)	(0.0258)
2000-2003	-0.0005***	-0.0024***	-0.0041***	0.0155**
	(0.0002)	(0.0008)	(0.0014)	(0.0067)
2004-2007	-0.0009***	-0.0041***	-0.0057***	0.0279**
	(0.0003)	(0.0012)	(0.0021)	(0.0114)
2008-2011	-0.0001	-0.0047***	-0.0073***	0.0425***
	(0.0004)	(0.0014)	(0.0026)	(0.0140)
2000-2003*Unemployment		0.0064		-0.0081
		(0.0128)		(0.0542)
2004-2007*Unemployment		0.0266**		0.0441
		(0.0126)		(0.0715)
2008-2011*Unemployment		0.0323**		0.0110
		(0.0126)		(0.0593)
2000-2003*% in Fair or Poor Health		0.0142**		-0.0660***
		(0.0061)		(0.0228)
2004-2007*% in Fair or Poor Health		0.0158**		-0.1231***
		(0.0077)		(0.0314)
2008-2011*% in Fair or Poor Health		0.0236**		-0.1824***
		(0.0096)		(0.0452)
Observations	816	816	816	816
R-squared	0.9875	0.9892	0.9426	0.9557

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 7. *State-Level Regressions: SSI Applications*

SSI Applications	(1)	(2)	(3)	(4)
Economic Variables				
Unemployment Rate	0.0237***	0.0215***	0.0231***	0.0284***
	(0.0028)	(0.0067)	(0.0029)	(0.0065)
Change in 10th Percentile of 3 Year Moving Average of Real Wage Distribution	-0.0023	-0.0025*	-0.0021	-0.0019
	(0.0014)	(0.0015)	(0.0013)	(0.0014)
Poverty Rate	0.0023	0.0022	0.0009	0.0006
	(0.0033)	(0.0035)	(0.0034)	(0.0035)
Health Care Expenditure ($1000 of 2011)	0.0003*	0.0003*	0.0005***	0.0005***
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Service Occupation	-0.0001	-0.0000	-0.0001	-0.0001
	(0.0012)	(0.0012)	(0.0011)	(0.0011)
Manufacturing Job	-0.0056*	-0.0057*	-0.0052*	-0.0051*
	(0.0029)	(0.0030)	(0.0028)	(0.0029)
Demographics and Health Variables				
Fraction Black	-0.0003	-0.0001	0.0001	-0.0005
	(0.0029)	(0.0030)	(0.0026)	(0.0028)
Fraction Newly Arrived Immigrants	0.0075	0.0078	0.0062	0.0057
	(0.0085)	(0.0085)	(0.0086)	(0.0084)
Fraction 65+	-0.0026	-0.0029	-0.0028	-0.0025
	(0.0035)	(0.0036)	(0.0036)	(0.0038)
Fraction Male	0.0003	0.0001	-0.0043	-0.0043
	(0.0053)	(0.0053)	(0.0054)	(0.0055)
Fraction Single Mother Household	0.0014	0.0014	0.0004	0.0005
	(0.0015)	(0.0015)	(0.0015)	(0.0015)
Fraction Less than High School	-0.0006	-0.0003	0.0028	0.0029
	(0.0031)	(0.0031)	(0.0032)	(0.0032)
Fraction Obese	-0.0038	-0.0037	-0.0058*	-0.0061**
	(0.0030)	(0.0031)	(0.0029)	(0.0030)
Fraction Reporting Fair or Poor Health	0.0054	0.0053	-0.0035	-0.0040
	(0.0044)	(0.0044)	(0.0046)	(0.0046)

Table 7. *State-Level Regressions: SSI Applications* (cont'd)

SSI Applications	(1)	(2)	(3)	(4)
Policy Variables				
Maximum State Supplement to SSI (Hundreds)	-0.0000	-0.0000	-0.0004	-0.0004
	(0.0003)	(0.0004)	(0.0004)	(0.0004)
Strict Regulation	-0.0003	-0.0003	-0.0002	-0.0002
	(0.0002)	(0.0002)	(0.0003)	(0.0003)
Republican Governor	-0.0001	-0.0001	-0.0001	-0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Max TANF benefits (Hundreds)	-0.0002	-0.0002	-0.0002	-0.0002
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Medicaid Buy-In	0.0002	0.0002	0.0002*	0.0002*
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Maximum Weekly UI Benefits (Hundreds)	-0.0003	-0.0003	-0.0002	-0.0002
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
Minimum Wage	-0.0004***	-0.0004***	-0.0004***	-0.0004***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)
2000-2003	-0.0000	-0.0001	-0.0012***	-0.0011***
	(0.0001)	(0.0003)	(0.0003)	(0.0003)
2004-2007	0.0002	0.0001	-0.0014**	-0.0012*
	(0.0002)	(0.0006)	(0.0005)	(0.0007)
2008-2011	0.0010***	0.0008*	-0.0014**	-0.0013*
	(0.0002)	(0.0004)	(0.0007)	(0.0007)
2000-2003*Unemployment		0.0004		-0.0064
		(0.0061)		(0.0069)
2004-2007*Unemployment		0.0018		-0.0065
		(0.0097)		(0.0099)
2008-2011*Unemployment		0.0033		-0.0066
		(0.0072)		(0.0069)
2000-2003*% in Fair or Poor Health			0.0085***	0.0094***
			(0.0022)	(0.0027)
2004-2007*% in Fair or Poor Health			0.0111***	0.0121***
			(0.0034)	(0.0037)
2008-2011*% in Fair or Poor Health			0.0164***	0.0174***
			(0.0043)	(0.0044)
Constant	0.0132***	0.0134***	0.0159***	0.0157***
	(0.0029)	(0.0029)	(0.0029)	(0.0030)
State Dummies	Yes	Yes	Yes	Yes
Observations	816	816	816	816
R-squared	0.9323	0.9324	0.9356	0.9357
Number of Clusters	51	51	51	51

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 8. *State-Level Regressions: SSI 1st Awards by Age Group*

SSI 1st Awards	18+		18-64		65+	
	(1)	(2)	(1)	(2)	(1)	(2)
Economic Variables						
Unemployment Rate	0.0064***	0.0010	0.0067***	0.0032	0.0009	0.0018
	(0.0011)	(0.0030)	(0.0012)	(0.0028)	(0.0015)	(0.0039)
Change in 10th Percentile of 3 Year Moving Average of Real Wage Distribution	-0.0009*	-0.0011**	-0.0005	-0.0008*	-0.0009	-0.0004
	(0.0004)	(0.0005)	(0.0004)	(0.0004)	(0.0009)	(0.0011)
Poverty Rate	-0.0015	-0.0013	-0.0010	-0.0009	-0.0033*	-0.0029
	(0.0013)	(0.0012)	(0.0012)	(0.0011)	(0.0019)	(0.0018)
Health Care Expenditure ($1000 of 2011)	0.0000	0.0000	0.0001	0.0001	-0.0002	-0.0003
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0002)
Service Occupation	-0.0005	-0.0005	-0.0008*	-0.0006	0.0009	0.0004
	(0.0005)	(0.0005)	(0.0005)	(0.0004)	(0.0018)	(0.0013)
Manufacturing Job	-0.0007	-0.0008	-0.0016	-0.0016	0.0045*	0.0047**
	(0.0018)	(0.0018)	(0.0015)	(0.0015)	(0.0023)	(0.0023)
Demographics and Health Variables						
Fraction Black	-0.0038*	-0.0032	-0.0046**	-0.0043**	0.0028	0.0029
	(0.0020)	(0.0019)	(0.0020)	(0.0020)	(0.0029)	(0.0028)
Fraction Newly Arrived Immigrants	0.0037	0.0046	0.0041	0.0052	-0.0045	-0.0050
	(0.0033)	(0.0035)	(0.0036)	(0.0037)	(0.0047)	(0.0050)
Fraction 65+	-0.0003	-0.0008				
	(0.0018)	(0.0018)				
Fraction Male	-0.0035*	-0.0040*	-0.0033	-0.0039*	-0.0021	-0.0024
	(0.0020)	(0.0020)	(0.0020)	(0.0020)	(0.0032)	(0.0032)
Fraction Single Mother Household	0.0009	0.0008	0.0012*	0.0012**	-0.0011	-0.0012
	(0.0007)	(0.0007)	(0.0006)	(0.0006)	(0.0015)	(0.0013)
Fraction Less Than High School	-0.0016	-0.0013	-0.0017	-0.0013	0.0014	0.0006
	(0.0017)	(0.0017)	(0.0014)	(0.0014)	(0.0025)	(0.0022)
Fraction Obese	-0.0001	-0.0001	0.0003	0.0003	-0.0012	-0.0017
	(0.0018)	(0.0018)	(0.0014)	(0.0014)	(0.0012)	(0.0013)
Fraction Reporting Fair or Poor Health	0.0020	0.0018	0.0024	0.0023	0.0020**	0.0020**
	(0.0020)	(0.0020)	(0.0015)	(0.0015)	(0.0009)	(0.0009)

Table 8. *State-Level Regressions; SSI 1st Awards by Age Group* (cont'd)

SSI 1st Awards	18+		18-64		65+	
	(1)	(2)	(1)	(2)	(1)	(2)
Policy Variables						
Maximum State Supplement to SSI (100)	0.0005***	0.0005***	0.0006***	0.0006***	0.0001	0.0002
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0004)	(0.0004)
Strict Regulation	0.0001	0.0001	0.0000	0.0000	-0.0000	-0.0001
	(0.0002)	(0.0002)	(0.0002)	(0.0002)	(0.0003)	(0.0003)
Republican Governor	-0.0001**	-0.0001**	-0.0001**	-0.0001***	0.0000	0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0001)	(0.0001)
Max TANF Benefits (Hundreds)	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Medicaid Buy-In	0.0000	0.0000	-0.0000	0.0000	0.0001	0.0000
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)
Maximum Weekly UI Benefits (Hundreds)	-0.0000	-0.0000	-0.0001	-0.0001	-0.0001	-0.0001
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0002)	(0.0002)
Minimum Wage	0.0000	-0.0000	0.0000	-0.0000	0.0002	0.0002
	(0.0001)	(0.0001)	(0.0000)	(0.0000)	(0.0001)	(0.0002)
2000-2003	0.0000	-0.0003*	-0.0001	-0.0001	-0.0000	-0.0004
	(0.0001)	(0.0002)	(0.0001)	(0.0002)	(0.0001)	(0.0004)
2004-2007	0.0001	0.0001	0.0000	0.0002	-0.0001	0.0002
	(0.0001)	(0.0003)	(0.0001)	(0.0002)	(0.0002)	(0.0004)
2008-2011	0.0004***	0.0001	0.0004***	0.0001	-0.0003	0.0000
	(0.0001)	(0.0002)	(0.0001)	(0.0002)	(0.0003)	(0.0003)
2000-2003*Unemployment		0.0062		0.0015		0.0103
		(0.0039)		(0.0039)		(0.0112)
2004-2007*Unemployment		0.0016		-0.0027		-0.0042
		(0.0044)		(0.0041)		(0.0056)
2008-2011*Unemployment		0.0074**		0.0056		-0.0028
		(0.0036)		(0.0035)		(0.0046)
Constant	0.0083***	0.0088***	0.0075***	0.0078***	0.0020	0.0025
	(0.0015)	(0.0014)	(0.0013)	(0.0012)	(0.0024)	(0.0022)
State Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	816	816	816	816	816	816
R-squared	0.9212	0.9226	0.9168	0.9185	0.8389	0.8412
Number of Clusters	51	51	51	51	51	51

Notes: Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 9. *Individual-level Probit Regression Results for SNAP Participation.*

	Exit for Still Eligible		Exit for Ineligible		Entry for Previously Ineligible	
Mean Hazard Rate	0.031		0.016		0.065	
Age	-0.001	***	-0.002	***	-0.0001	
	(0.000)		(0.000)		(0.000)	
Female	-0.029	***	-0.001		0.026	***
	(0.002)		(0.003)		(0.001)	
Marital Status	0.036	***	0.033	***	-0.024	***
	(0.002)		(0.003)		(0.001)	
Race						
Black	-0.004	*	-0.008	***	0.018	***
	(0.002)		(0.003)		(0.002)	
Other	0.003		-0.007	*	0.003	
	(0.004)		(0.004)		(0.002)	
Education						
Less than HS	-0.001		-0.016	***	-0.0003	
	(0.002)		(0.002)		(0.001)	
College	0.010	***	0.010	***	-0.009	***
	(0.002)		(0.002)		(0.001)	
Household Size	0.003	***	0.007	***	-0.0003	
	(0.001)		(0.001)		(0.000)	
Kids	-0.011	***	-0.023	***	0.008	***
	(0.003)		(0.003)		(0.002)	
Live in an MSA	0.003		0.005	*	-0.009	***
	(0.002)		(0.003)		(0.001)	
Employment	0.026	***	0.036	***	-0.010	***
	(0.002)		(0.003)		(0.001)	
Poor Health	-0.002		-0.013	***	0.022	***
	(0.002)		(0.002)		(0.002)	
Income	0.004	***	0.021	***	-0.001	***
	(0.001)		(0.001)		(0.000)	
Own Home	0.007	***	0.026	***	-0.026	***
	(0.002)		(0.002)		(0.001)	
Own a Vehicle	0.012	***	0.036	***	-0.015	***
	(0.002)		(0.003)		(0.001)	
Receive Other Welfare	-0.059	***	-0.074	***	0.086	***
	(0.002)		(0.001)		(0.003)	
State Level Characteristics						
Unemployment rate	0.001		-0.001		0.002	***
	(0.001)		(0.001)		(0.000)	
Minimum wage	-0.002	*	-0.0002		-0.001	
	(0.001)		(0.001)		(0.001)	
Maximum TANF benefit	0.005		0.005		-0.001	
	(0.003)		(0.004)		(0.002)	
SNAP short certification	0.029	***	0.010		-0.021	***
	(0.011)		(0.013)		(0.007)	
Expanded Categorical eligibility	-0.002		-0.004		0.003	*
	(0.003)		(0.004)		(0.002)	
Pseudo R^2	0.054		0.149		0.246	
N	400,618		493,228		167,128	

*** p<0.01, ** p<0.05, * p<0.1. Regressions include state and year controls.

Table 10. *Individual-level Probit Regression Results for SNAP Participation by Age Group.*

	Under 60						60 and Over					
	Exit for Still Eligible		Exit for Ineligible		Entry for Newly Eligible		Exit for Still Eligible		Exit for Ineligible		Entry for Newly Eligible	
Mean Hazard Rate	0.034		0.018		0.070		0.018		0.006		0.034	
Age	-0.001	***	-0.001	***	0.0002		-0.001		-0.001		-0.001	**
	(0.000)		(0.000)		(0.000)		(0.000)		(0.001)		(0.000)	
Female	-0.036	***	0.000		0.031	***	-0.005		-0.002		0.005	*
	(0.002)		(0.003)		(0.002)		(0.003)		(0.004)		(0.003)	
Marital Status	0.041	***	0.038	***	-0.027	***	0.026	***	0.017	***	-0.020	***
	(0.003)		(0.003)		(0.001)		(0.004)		(0.005)		(0.002)	
Race												
Black	-0.007	**	-0.009	***	0.020	***	0.005		-0.003		0.010	***
	(0.003)		(0.003)		(0.002)		(0.004)		(0.004)		(0.004)	
Other	0.003		-0.007		0.002		-0.001		-0.017	***	0.013	**
	(0.004)		(0.005)		(0.003)		(0.005)		(0.006)		(0.006)	
Education												
Less than HS	-0.003		-0.019	***	-0.0024		0.002		-0.008	**	0.013	***
	(0.003)		(0.003)		(0.002)		(0.004)		(0.004)		(0.004)	
College	0.011	***	0.012	***	-0.012	***	0.006		-0.002		-0.001	
	(0.003)		(0.003)		(0.001)		(0.005)		(0.005)		(0.003)	
Household Size	0.003	***	0.007	***	-0.0003		0.005	***	0.012	***	-0.001	
	(0.001)		(0.001)		(0.000)		(0.001)		(0.002)		(0.001)	
Kids	-0.012	***	-0.027	***	0.008	***	-0.001		-0.014	**	-0.006	*
	(0.003)		(0.003)		(0.002)		(0.006)		(0.006)		(0.004)	
Live in an MSA	0.003		0.006	*	-0.011	***	0.006		0.002		-0.0003	
	(0.003)		(0.003)		(0.002)		(0.004)		(0.004)		(0.003)	
Employment	0.027	***	0.040	***	-0.011	***	0.021	***	0.024	***	-0.010	***
	(0.003)		(0.003)		(0.001)		(0.008)		(0.007)		(0.003)	
Poor Health	-0.005	**	-0.018	***	0.026	***	0.002		-0.002		0.013	***
	(0.003)		(0.003)		(0.002)		(0.003)		(0.004)		(0.003)	
Income	0.005	***	0.024	***	-0.002	***	0.004	***	0.024	***	-0.002	***
	(0.001)		(0.001)		(0.000)		(0.001)		(0.004)		(0.001)	
Own Home	0.007	***	0.032	***	-0.026	***	0.003		0.001		-0.025	***
	(0.003)		(0.003)		(0.001)		(0.003)		(0.004)		(0.002)	
Own a Vehicle	0.015	***	0.041	***	-0.016	***	0.001		0.018	***	-0.010	***
	(0.002)		(0.003)		(0.001)		(0.003)		(0.004)		(0.002)	

Table 10. *Individual-level Probit Regression Results for SNAP Participation by Age Group.*

	Under 60			60 and Over		
	Exit for Still Eligible	Exit for Ineligible	Entry for Previously Ineligible	Exit for Still Eligible	Exit for Ineligible	Entry for Previously Ineligible
Receive Other Welfare	-0.071 ***	-0.086 ***	0.087 ***	-0.023 ***	-0.037 ***	0.083 ***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.001)	(0.007)
State Level Characteristics						
Unemployment rate	-0.0001	-0.002 **	0.003 ***	0.002	0.003 *	-0.002 *
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Minimum wage	-0.002 *	-0.0003	-0.001	-0.001	-0.001	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)
Maximum TANF benefit	0.008 **	0.006	-0.002	-0.005	-0.001	0.003
	(0.004)	(0.004)	(0.002)	(0.005)	(0.006)	(0.004)
SNAP short certification	0.032 **	0.007	-0.021 ***	0.034 **	0.042 *	-0.027 *
	(0.013)	(0.015)	(0.008)	(0.016)	(0.024)	(0.014)
Categorical eligibility	0.000	-0.005	0.003	-0.009 **	0.001	0.005
	(0.004)	(0.004)	(0.002)	(0.004)	(0.006)	(0.004)
Pseudo R^2	0.053	0.141	0.241	0.045	0.161	0.305
N	315,299	393,499	141,262	84,983	99,061	25,810

Note: *** p<0.01, ** p<0.05, * p<0.1. Regressions include state and year controls.

Table 11. *Individual-level Probit Regression Results for SSI Participation.*

	Exit for Still Eligible	Exit for Ineligible	Entry for Previously Ineligible
Mean Hazard Rate	0.017	0.011	0.020
Age	-0.002 ***	-0.0003	0.0003 ***
	(0.000)	(0.000)	(0.000)
Female	0.037 ***	0.015 **	-0.001
	(0.006)	(0.006)	(0.001)
Marital Status	0.037 ***	0.024 ***	-0.009 ***
	(0.006)	(0.007)	(0.001)
Race			
Black	0.025 ***	0.006	0.004 ***
	(0.006)	(0.008)	(0.001)
Other	0.002	-0.014	0.005 ***
	(0.009)	(0.012)	(0.002)
Education			
Less than HS	0.008	-0.006	0.002 *
	(0.006)	(0.007)	(0.001)
College	0.010	0.008	-0.004 ***
	(0.007)	(0.008)	(0.001)
Household Size	0.007 ***	0.003	-0.001 **
	(0.002)	(0.002)	(0.000)
Kids	0.073 ***	0.042 ***	-0.023 ***
	(0.007)	(0.008)	(0.001)
Live in an MSA	0.009	0.007	-0.001
	(0.007)	(0.008)	(0.001)
Employment	0.017 *	-0.001	-0.026 ***
	(0.009)	(0.009)	(0.001)
Poor Health	-0.018 ***	0.016 **	0.021 ***
	(0.005)	(0.006)	(0.001)
Own Home	-0.009	-0.009	-0.001
	(0.005)	(0.007)	(0.001)
Own a Vehicle	-0.003	0.012 *	-0.007 ***
	(0.005)	(0.007)	(0.001)
Receive Other Welfare	-0.286 ***	-0.304 ***	0.114 ***
	(0.003)	(0.002)	(0.006)
State Level Characteristics			
Unemployment rate	0.007 ***	0.004	0.0000
	(0.002)	(0.003)	(0.000)
Minimum wage	-0.004 *	-0.005 **	-0.0001
	(0.003)	(0.003)	(0.001)
Maximum TANF benefit	0.009	0.015	0.002
	(0.009)	(0.010)	(0.002)
Maximum SSI benefit	-0.029	0.005	0.005
	(0.025)	(0.031)	(0.005)
Pseudo R^2	0.127	0.328	0.461
N	253,123	305,470	192,182

Note: *** p<0.01, ** p<0.05, * p<0.1. Regressions include state and year controls.

Table 12. *Individual-level Probit Regression Results for SSI Participation by Age Group.*

	Under 65						65 and Over					
	Exit for Still Eligible		Exit for Ineligible		Entry for Newly Eligible		Exit for Still Eligible		Exit for Ineligible		Entry for Newly Eligible	
Mean Hazard Rate	0.020		0.012		0.016		0.012		0.009		0.104	
Age	-0.002	***	0.0005		0.0004	***	-0.0003		-0.002		0.0000	
	(0.000)		(0.001)		(0.000)		(0.002)		(0.002)		(0.001)	
Female	0.046	***	0.011		-0.001		-0.006		0.044	***	0.002	
	(0.006)		(0.007)		(0.001)		(0.012)		(0.016)		(0.004)	
Marital Status	0.035	***	0.026	***	-0.007	***	0.026	*	0.039	**	-0.016	***
	(0.007)		(0.008)		(0.001)		(0.013)		(0.017)		(0.004)	
Race												
Black	0.031	***	0.006		0.003	**	-0.003		0.014		0.006	
	(0.007)		(0.008)		(0.001)		(0.013)		(0.016)		(0.005)	
Other	0.005		-0.017		0.001		0.002		0.008		0.019	***
	(0.012)		(0.014)		(0.002)		(0.017)		(0.025)		(0.007)	
Education												
Less than HS	0.006		-0.0005		0.001		0.020		-0.010		0.016	***
	(0.007)		(0.008)		(0.001)		(0.014)		(0.016)		(0.005)	
College	0.017	**	0.014	*	-0.004	***	-0.012		-0.016		0.005	
	(0.008)		(0.008)		(0.001)		(0.018)		(0.020)		(0.005)	
Household Size	0.006	***	0.003		-0.001	***	0.012	***	-0.007		0.004	**
	(0.002)		(0.002)		(0.000)		(0.004)		(0.006)		(0.001)	
Kids	0.074	***	0.036	***	-0.020	***	0.039	*	0.080	***	-0.020	***
	(0.008)		(0.009)		(0.001)		(0.020)		(0.025)		(0.005)	
Live in an MSA	-0.0004		0.002		-0.001		0.043	***	0.015		-0.004	
	(0.008)		(0.009)		(0.001)		(0.015)		(0.020)		(0.005)	
Employment	0.024	***	0.010		-0.024	***	-0.076	**	-0.060	**	-0.017	***
	(0.009)		(0.009)		(0.001)		(0.036)		(0.029)		(0.006)	
Poor Health	-0.021	***	0.019	***	0.021	***	-0.009		0.001		0.007	*
	(0.006)		(0.007)		(0.001)		(0.011)		(0.014)		(0.004)	
Income	0.028	***	0.148	***	-0.0003		0.046	***	0.298	***	-0.007	***
	(0.002)		(0.010)		(0.000)		(0.004)		(0.025)		(0.001)	
Own Home	-0.009		-0.009		0.0004		0.003		-0.013		-0.022	***
	(0.006)		(0.007)		(0.001)		(0.012)		(0.015)		(0.004)	
Own a Vehicle	-0.005		0.005		-0.006	***	0.010		0.040	**	-0.008	**
	(0.006)		(0.008)		(0.001)		(0.012)		(0.016)		(0.004)	

Table 12. *Individual-level Probit Regression Results for SSI Participation by Age Group.*

	Under 65			65 and Over		
	Exit for Still Eligible	Exit for Ineligible	Entry for Previously Ineligible	Exit for Still Eligible	Exit for Ineligible	Entry for Previously Ineligible
Receive Other Welfare	-0.288 ***	-0.281 ***	0.079 ***	-0.292 ***	-0.395 ***	0.234 ***
	(0.004)	(0.003)	(0.005)	(0.004)	(0.004)	(0.025)
State Level Characteristics						
Unemployment rate	0.005 *	0.003	0.0001	0.015 ***	0.007	-0.001
	(0.003)	(0.003)	(0.000)	(0.005)	(0.006)	(0.002)
Minimum wage	-0.002	-0.007 **	-0.0002	-0.014 ***	0.002	0.003
	(0.003)	(0.003)	(0.000)	(0.005)	(0.006)	(0.002)
Maximum TANF benefit	0.003	0.015	0.002	0.030	0.010	-0.008
	(0.010)	(0.011)	(0.002)	(0.020)	(0.026)	(0.006)
Maximum SSI benefit	-0.033	-0.011	0.008 *	-0.036	0.066	-0.012
	(0.030)	(0.035)	(0.005)	(0.048)	(0.067)	(0.017)
Pseudo R^2	0.124	0.316	0.443	0.142	0.392	0.485
N	177,044	213,645	183,613	75,642	91,665	8,424

Note: *** p<0.01, ** p<0.05, * p<0.1. Regressions include state and year controls.

Table 13A. *Individual-level Probit Regression Results for SNAP Participation with Interactions.*

	Exit for Still Eligible		Exit for Ineligible		Entry for Previously Ineligible	
Employment	0.028	***	0.039	***	-0.010	***
	(0.005)		(0.005)		(0.002)	
Employment and Period 2	-0.026	***	-0.030	***	0.002	
	(0.009)		(0.010)		(0.003)	
Employment and Period 3	-0.040	***	-0.033	***	-0.003	
	(0.008)		(0.009)		(0.003)	
Employment and Period 4	-0.053	***	-0.052	***	-0.008	***
	(0.007)		(0.008)		(0.003)	
Poor Health	-0.002		-0.012	***	0.023	***
	(0.004)		(0.004)		(0.003)	
Poor Health and Period 2	-0.017	**	0.004		0.004	
	(0.007)		(0.010)		(0.003)	
Poor Health and Period 3	-0.012	*	-0.010		0.002	
	(0.006)		(0.009)		(0.003)	
Poor Health and Period 4	-0.020	***	-0.015	*	0.004	
	(0.006)		(0.008)		(0.004)	
Income	0.004	***	0.021	***	-0.001	**
	(0.001)		(0.002)		(0.001)	
Income and Period 2	0.003	*	0.005	**	0.0001	
	(0.002)		(0.002)		(0.001)	
Income and Period 3	0.003		0.004	**	-0.0003	
	(0.002)		(0.002)		(0.001)	
Income and Period 4	0.004	***	0.002		0.0001	
	(0.001)		(0.002)		(0.001)	
Pseudo R^2	0.055		0.150		0.246	
N	400,618		493,228		167,128	

Note: *** p<0.01, ** p<0.05, * p<0.1. Regressions include state and period controls.

Table 13B. *Individual-level Probit Regression Results for SSI Participation with Interactions.*

	Exit for Still Eligible		Exit for Ineligible		Entry for Previously Ineligible	
Employment	0.016		-0.001		-0.026	***
	(0.017)		(0.016)		(0.001)	
Employment and Period 2	-0.002		-0.055	**	-0.002	
	(0.028)		(0.025)		(0.002)	
Employment and Period 3	0.007		-0.031		-0.002	
	(0.024)		(0.023)		(0.002)	
Employment and Period 4	0.017		-0.025		-0.004	
	(0.023)		(0.021)		(0.003)	
Poor Health	-0.018	*	0.014		0.021	***
	(0.009)		(0.012)		(0.003)	
Poor Health and Period 2	0.015		-0.021		0.003	
	(0.014)		(0.018)		(0.002)	
Poor Health and Period 3	0.004		0.027		0.004	*
	(0.014)		(0.021)		(0.002)	
Poor Health and Period 4	0.008		0.022		0.0003	
	(0.012)		(0.019)		(0.002)	
Income	0.031	***	0.167	***	-0.001	*
	(0.003)		(0.019)		(0.001)	
Income and Period 2	0.008	**	0.012		-0.0001	
	(0.004)		(0.022)		(0.001)	
Income and Period 3	0.009	**	0.005		0.002	***
	(0.004)		(0.017)		(0.001)	
Income and Period 4	0.007	*	0.001		0.001	
	(0.004)		(0.016)		(0.001)	
Pseudo R^2	0.127		0.329		0.462	
N	253,123		305,470		192,182	

Note: *** p<0.01, ** p<0.05, * p<0.1. Regressions include state and period controls.

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