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## **Do State SNAP Policies Influence Program Participation among Seniors?**

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***Selected Paper prepared for presentation at the 2021 Agricultural & Applied Economics Association  
Annual Meeting, Austin, TX, August 1 – August 3***

*PRELIMINARY DRAFT. PLEASE DO NOT CITE.*

*This project was supported with a grant from the University of Kentucky Center for Poverty Research through funding by the U.S. Department of Agriculture, Food and Nutrition Service, Contract Number 12319818C0010. The opinions and conclusions expressed in this conference paper are solely those of the author(s) and should not be construed to represent the opinions of the UKCPR. We would like to thank Craig Gundersen, Jim Ziliak, and conference participants at the “Understanding Food-Related Hardships Among Older Americans” conference for their valuable comments.*

*The findings and conclusions in this paper are those of the authors and should not be construed to represent any official USDA or U.S. Government determination or policy.*

## **Introduction**

Among those eligible to receive benefits, participation in the Supplemental Nutrition Assistance Program (SNAP) has traditionally been well below 100 percent, especially among seniors (Haider et al. 2003; Currie 2006). In 2014, 83 percent of eligible individuals of all ages participated in SNAP, but only 42 percent of eligible seniors (60 years and older) (Gray and Cunnyngham 2016). Despite this low participation rate, there is a persistent need for nutrition assistance among millions of seniors. In 2016, 13.6 percent of seniors in the United States were marginally food insecure, 7.7 percent were food insecure, and 2.9 percent had very low food security (Ziliak and Gundersen 2018). Existing research suggests that seniors are particularly vulnerable to food insecurity and may experience severe health consequences (Leroux et al. 2020). Relative to food secure seniors, food insecure seniors have lower nutrient intakes and are at a higher risk of a wide variety of adverse health conditions, including diabetes, depression, activities of daily living (ADL) limitations, high blood pressure, congestive heart failure, heart attack, and asthma (Gundersen and Ziliak 2017).

Although SNAP is thought of primarily as a federal program, states have been given the latitude to implement a number of policies beginning with welfare reform in 1996. These policies can increase SNAP eligibility by loosening the income and asset restrictions on households – and often do so more generously for households with seniors than without. Alternately, they can introduce or remove aspects of program administration that influence transaction costs or stigma, or they can increase program awareness through outreach. Ultimately, these state policies may substantially impact SNAP participation.

The purpose of this paper is to examine the impact of these policy changes on the SNAP participation of low-income senior households as compared to low-income non-senior households. To our knowledge, ours is the first paper to investigate the roles of several state

SNAP policies in senior household participation decisions. Our primary dataset is the December Current Population Survey Food Security Supplement between 2001 and 2014. We collect detailed information on eleven state policies and estimate their impacts on the probability of household SNAP participation using a model with state and year fixed effects as well as controls for household characteristics. Then, in an effort to obtain more precise estimates, we re-estimate the models with a single “simulated eligibility” measure representing overall generosity of eligibility criteria in place of individual eligibility variables, the six policies related to transaction costs combined into a single count variable, and single stigma and outreach policies.

### **Literature Review**

There is a large literature on the determinants of the take up of transfer programs, including multiple comprehensive reviews (Currie 2006; Nicoll 2015). Categories of determinants typically include transaction cost levels, information availability, and perceptions of stigma (Daponte et al. 1999; Currie 2006). These participation determinants may be influenced by programmatic features, as well as household characteristics such as age or immigration status. Evaluating the relative impact of these different determinants requires accurate information about eligibility and take up, both of which are often subject to measurement error (Meyer et al. 2015). In this section, we review the literature on the determinants of SNAP participation with a special focus on seniors, whose participation has traditionally been lower than that of non-seniors (Haider et al. 2003; Currie 2006; Nicoll 2015).

Programmatic features of SNAP have been shown to generally influence SNAP participation through increases in generosity (Nicoll 2015), expansions in eligibility (Jones 2020), reductions in transaction costs (Currie 2006), and increases in outreach (Ratcliffe et al. 2008). As an example of the relationship between program generosity and participation, Nord

and Prell (2011) find that SNAP participation increased as a result of increases in benefits due to the American Recovery and Reinvestment Act of 2009. In terms of the relationship between eligibility expansions and enrollment, Capps et al. (2004) find that expanding eligibility to immigrants led to an increase in SNAP enrollment. Ganong and Liebman (2018) find that SNAP policy changes meant to reduce transaction costs, such as longer time intervals between recertification periods and simplified income change reporting, increased SNAP enrollment between 2001 and 2007. Dickert-Conlin et al. (2020) find that SNAP policies affecting eligibility and the costs of participation increased the SNAP caseload over the last two decades. Finally, Bartlett et al. (2004) find that outreach spending increases awareness of eligibility, which could lead to subsequent enrollment increases.

Several studies have investigated the role of stigma in welfare participation, as some eligible individuals may view participating in a means-tested transfer program such as SNAP as an outward sign of personal failure (Nicoll 2015). These studies find different results that depend partly on the definition of stigma being used. Ranney and Kushman (1987) find potentially large impact of stigma on SNAP participation. On the other hand, Bartlett et al. (2004) reported feelings of stigma among SNAP non-participants, but neither those feelings nor prior perceptions about eligibility was found to be associated with whether households would apply for benefits if they were told they were eligible.

Turning our attention to seniors, Haider et al. (2003) uses data from the 1998 wave of the Health and Retirement Survey to do a comprehensive examination of the determinants of SNAP participation of individuals aged 50 and older. They consider whether the differences in SNAP participation by age can be explained by the factors described above, including mismeasurement of eligibility and a host of behavioral factors that might influence how responsive seniors are to

SNAP policy changes. These behavioral factors include imperfect information about eligibility (Issar 2010), beliefs that the expected benefit of SNAP participation is low (Daponte et al. 1999), the cost of applying and renewing coverage is high, or that participation is associated with some sort of stigma (Nicoll 2015). It could also be the case that seniors do not perceive a personal need for SNAP benefits. Haider et al. (2003) find that measurement error in eligibility does not explain the differentially low take up of SNAP among seniors. Their results also suggest that behavioral factors only account for a modest fraction of the relatively lower take up rate among seniors. They find suggestive evidence that eligible seniors who do not enroll appear to be less needy relative to those who do.

Other papers have also examined different aspects of the age gradient in SNAP participation. Cunnyngham (2010) presents descriptive evidence suggesting that the characteristics of the elderly SNAP eligible population often appear to vary from those of the elderly SNAP-participating population. Further, the characteristics of both populations frequently varied by state, and also occasionally over time. This variation appeared to be related to state SNAP eligibility policies as well as state demographics and economic climates. Lim (2011) finds that low participation rates among seniors are more likely associated with age effects than cohort effects. Wu (2009) found that lower average benefit levels, lack of information about SNAP eligibility, and a preference for other types of nutrition assistance contribute to low elderly SNAP participation. This lower participation rate did not negatively affect elderly nutritional well-being on average. According to focus group results described in Gabor et al. (2002), elderly SNAP nonparticipation was associated with stigma, the belief that the benefits would not be worth the effort, and perceptions of an overly complicated and

intrusive application process. Finally, Wilde and Dagata (2002) found that seniors also reported difficulties with transportation and the use of electronic benefit transfer cards.

Unlike the previous literature, we focus specifically on differential responses to SNAP policies on SNAP participation by age. The closest paper in the previous literature is Haider et al. (2003). In contrast to their focus on individual beliefs and behaviors, we analyze the comprehensive set of state SNAP policies that have been implemented over the past two decades in a quasi-experimental econometric framework. We also construct distinct versions of the policy variables for seniors and non-seniors and consider composite measures that combine related policies together to improve precision. We also study a broader range of ages, comparing policy responses of non-seniors (those aged under 60) to seniors (those aged 60 and older).

## **Data**

This section starts by describing the Current Population Survey Food Security Supplement (CPS-FSS) from which we construct our household sample. We then describe recent SNAP policy changes. Finally, we describe how we use these policy changes to construct composite measures of policies related to eligibility and transaction costs.

### *CPS-FSS data*

Our primary dataset is the CPS-FSS between 2001 and 2014 (Flood et al. 2020). The CPS-FSS is a December supplement to the CPS monthly labor force survey of roughly 50,000 households, administered since 1995. The CPS-FSS serves as the main instrument for measuring national and state-level food insecurity in the United States based on its 18-item food security module that asks questions regarding various degrees of food-related hardships. The CPS-FSS also contains an indicator of household SNAP receipt over the past year that we use as the

outcome of interest, as well as publicly available information on state of residence, allowing us to study the effects of changing state policies.

We restrict the sample in several ways. We exclude households living in Alaska and Hawaii due to differences in state benefit formulas complicating analyses employing the simulated eligibility variable (SEV). We exclude households living in California due to the likely impact on senior SNAP participation from the state's Supplemental Security Income (SSI) "cashout" policy during the sample period in which SSI recipients were excluded from SNAP. We restrict the sample to low-income households with income at or below 185 percent of the federal poverty level (FPL). The CPS-FSS screens out higher-income households indicating no food hardship from questions about SNAP, so this restriction limits our sample to households asked about SNAP participation who are also more likely to be affected by income eligibility expansions. Finally, we exclude households with any missing characteristics used as controls.

The full analysis sample includes 170,929 households. We define two additional subsamples: a "senior" sample of households with respondents aged 60 or older and a "non-senior" sample of households with respondents aged 59 or younger. The senior sample makes up about 34 percent of the full sample, and the non-senior sample makes up about 66 percent. Alternatively, we could have defined the senior sample as households with *any* senior, but this distinction is of minimal consequence, as it would only re-classify 3 percent of the sample. Control variables for our analysis include the household respondent's age in years, gender (indicator for female), race/ethnicity (indicators for non-Hispanic black, non-Hispanic American Indian or Alaskan, non-Hispanic other, and Hispanic), nativity (indicator for foreign born), marital status (indicators for married, divorced, widowed, and separated), educational attainment (indicators for high school, associate, bachelor's, and advanced degrees), and employment status



(indicators for employed and unemployed) as well as the household's size (number of people and indicators for single-person household and presence of children) and family income (indicators for under \$5,000, \$2,500 increments up to \$15,000, \$5,000 increments up to \$40,000, \$10,000 increments up to \$60,000, and \$15,000 increments up to \$100,000).

### *State SNAP policy changes*

Although SNAP is a federal program, states have been given the latitude to implement a number of policies in recent decades targeting SNAP participation. Following Stacy et al. (2018), we classify these policies as primarily impacting one of four factors affecting the participation decision: eligibility to receive benefits; transaction costs involved in applying, enrolling, or maintaining benefits; stigma associated with participation; and outreach efforts in spreading information related to eligibility criteria and how to receive benefits. We gather information on policies affecting eligibility, transaction costs, and stigma from the USDA, Economic Research Service's (ERS) SNAP Policy Database (2021a) and additional information on a policy affecting outreach from ERS's SNAP Policy Index (2021b). We gather additional details on state policies related to SNAP eligibility and benefit determination from 2001 to 2014 from the USDA SNAP Policy Database (2021a), various Mathematica Policy Research and other reports (Aussenberg and Falk 2019; Horng and Dean 2002; Laird and Trippe 2014; Cronquist et al. 2019; Trippe and Gillooly 2010), state SNAP policy manuals/reports, and direct contact with state SNAP administrators. Unless otherwise specified, we construct annual policy measures for each policy described below representing the percentage of the year that policy was in place in each state.

Policies increasing SNAP eligibility may increase SNAP participation through extending eligibility to previously ineligible households or by inducing a "woodwork effect" among already-eligible households. Households are typically eligible for SNAP if they meet a gross

income test of 130 percent of the FPL (households with senior or disabled members need not meet the gross income test), a net income test of 100 percent of the FPL, and a countable resource test of \$2,250 (households with senior or disabled members may have up to \$3,500 in countable resources) or if they are determined to be categorically eligible through their participation in another qualifying welfare program. Since 1996, states have been permitted to extend SNAP eligibility beyond the federal criteria in various ways. First, states can implement a policy termed broad-based categorical eligibility (BBCE) to directly expand categorical eligibility to households with income or assets above the federal limits. Second, states can align their vehicle valuation rules to exclude one or more vehicles from the resource test. Last, states can make legal noncitizens eligible for SNAP or similar state-funded food assistance. The SNAP Policy Database (2021a) provides separate information on whether states extended eligibility to legal noncitizen adults and seniors (age 65+), which we incorporate separately in analyses of the full/non-senior or senior samples, respectively.

Policies reducing transaction costs may increase SNAP participation by making it easier for households to apply for SNAP, enroll in SNAP, and/or maintain SNAP benefits. States can alter their policies affecting how SNAP is administered in several ways affecting transaction costs. First, states can use simplified reporting, which reduces requirements for households with earnings to report changes in their circumstances. Second, states can allow households to submit SNAP applications online instead of requiring in-person application. Third, states can operate SNAP call centers. Fourth, states can conduct recertification interviews over the phone instead of requiring in-person certification. Fifth, states can operate a Combined Application Project, streamlining the SNAP application process for SSI recipients. Sixth, states can change how frequently households must recertify to continue receiving SNAP. The SNAP Policy Database

(2021a) provides monthly information on the proportions of SNAP units of various type with recertification periods of 1-3 or 4-6 months. We separately construct the monthly proportion of SNAP units with “short” recertification periods of 6 months or less for SNAP units with earnings and for senior SNAP units and use the annual average of these monthly proportions in analyses of the full/non-senior or senior samples, respectively.

Policies increasing the stigma of SNAP participation may disincentivize and decrease participation. We consider only one such policy: whether states require fingerprinting of SNAP applicants. Policies raising awareness of SNAP may increase participation among eligible nonparticipants who previously were unaware of the program or thought themselves ineligible. We consider only one such policy: whether states had federally funded TV or radio ad campaigns intended to raise awareness of SNAP among eligible nonparticipants.

Two policies are more applicable to non-senior than senior households: the proportion of SNAP units with earnings with short recertification periods and/or the state making legal noncitizen adults (18-64) eligible for SNAP or similar state-funded food assistance. We therefore create senior-specific versions of these variables for use in the senior sample: the proportion of senior SNAP units with short recertification periods and/or the state making legal noncitizen seniors (65+) eligible for SNAP or similar state-funded food assistance. The left panel of Figure 1 illustrates state variation in the sum of the eleven measures described above (using the non-senior versions where applicable and adding two minus the fingerprinting and short recertification period measures due to their negative expected effect on participation). States tend to adopt more SNAP policies over time expected to increase participation, though there is substantial variation in when these policies are adopted. Appendix Figure 1 similarly illustrates variation in the sum of the policies described above using the senior versions where applicable.

### *SNAP policy summary measures*

Several studies construct index measures of state SNAP policies to summarize overall policy generosity (e.g., Ganong and Liebman 2018; Stacy et al. 2018; Dickert-Conlin et al. 2020). Such an approach is likely to improve the precision of econometric estimates, at the cost of being unable to disentangle the distinct roles of different types of policies. We aim to balance these considerations by consolidating the eleven policy variables into four measures reflecting the categories of eligibility, transaction costs, stigma, and outreach. Since there is only one stigma variable and one outreach variable, the overall measure for those categories is simply equal to the lone variable. Composite measures are only needed for eligibility, which has three corresponding policies, and transaction costs, which have six.

We combine information on two of the policies related to eligibility (BBCE and vehicle exemptions as well as additional information on standard medical expense deductions) into a “simulated eligibility” variable (SEV) that computes the proportion of a fixed national sample eligible for SNAP under a given state’s SNAP policy environment in a given year. Using a fixed national sample circumvents potential endogeneity issues from the composition of states’ populations changing over time. Instead, the identifying variation comes only from plausibly exogenous changes in state policies related to the generosity of the SNAP program. Simulated eligibility strategies were first introduced by Cutler and Gruber (1996) and Currie and Gruber (1996) in studies on the effects of Medicaid. Han (2016, 2020) and Jones (2020) developed SEVs for SNAP. Our novel contribution is to construct separate SEVs for seniors and non-seniors.

We use an SEV rather than a simple count of eligibility-related policies since the policies each expand SNAP eligibility in differing and potentially interacting ways. States can alter how

vehicles are applied to the countable resource test by aligning to the rule they use under a Temporary Assistance for Needy Families (TANF) or state maintenance of effort (MOE) funded assistance program if the rule they transition to is less restrictive than the federal minimum. States can also use BBCE to directly expand categorical eligibility to households if they qualify for a non-cash TANF/MOE-funded benefit. BBCE expansions effectively extend SNAP eligibility to households that would not be eligible under the federal rules through eliminating or loosening some combination of the gross income, net income, or asset tests. Some states' BBCE expansions also target different subcategories of households – like those with senior or disabled members – in different ways. In particular, many states' BBCE policies expanded eligibility for households with seniors more than for households without. Some states have additionally implemented standard medical expense deductions for senior households, which increases the deduction for households with low out-of-pocket medical expenses and reduces their net income. Variation in the extent to which eligibility is altered along these various dimensions, the combination of ways in which it is altered, and the groups targeted means that the nature of SNAP eligibility expansion in any given state and year can differ greatly from others that have similar policies in place.

Formally, the SEV for state  $s$  in year  $t$  is computed as

$$SEV_{st} = \frac{\# \text{ individuals simulated as eligible for a positive benefit}}{\text{Total \# individuals}} \quad (1)$$

where the individuals are from the national sample but the policy variation is by state. A higher proportion simulated as eligible in a state and year indicates a more generous policy set and should predict a subsequently higher likelihood of SNAP participation.

For the constant national sample, we pool all available waves of the Survey of Income and Program Participation (SIPP) from 1996 to 2013, which together contain around 340,000

household-year observations. The SIPP provides information on household size, income, assets, expenses, and other characteristics like member age and disabilities necessary to determine SNAP eligibility. Household financial variables are adjusted for inflation to each year before application of the combined eligibility criteria in each state and year resulting from the policies described above. In analyses of the full sample, we use an SEV calculated using the full sample of individuals in SIPP households following Jones (2020). Additionally, we are the first to use the simulated eligibility method to study the SNAP participation of senior households as opposed to non-senior households, so we also construct new versions of the SEV specific to each group. Specifically, the *non-senior SEV* is the fraction of individuals simulated eligible in the 230,000 SIPP households with respondents under age 60, and the *senior SEV* is the fraction of individuals simulated eligible in the 110,000 SIPP households with respondents age 60 or older.

The right panel of Figure 1 illustrates state variation in the full-sample version of the SEV across three years spanning the sample period. The SEV tends to increase or stay constant over time as most states only expand SNAP eligibility during the sample period, although a few states reverse expansions or change their policies such that the SEV falls. There is also a slight decline in the SEV in later years in many states due to the 2013 expiration of the ARRA temporary benefit increase, which made some higher-income SIPP households lose eligibility. Appendix Figure 2 similarly illustrates variation in the non-senior and senior versions of the SEV.

Since it is less obvious how to parameterize the composite measure of transaction costs, for that category we simply use the total number of policies in place out of the six possibilities:

$$Transaction\ Cost\ Policy\ Index_{st} = \sum_{i=1}^6 Policy_{ist} \quad (2)$$

where  $s$  indicates state,  $t$  indicates year, and  $i$  indicates a policy contributing to the index. Each policy variable  $Policy_{ist}$  is an annual average of a monthly indicator equal to 1 if a policy is in place in a given month and therefore represents the percentage of the year that a policy was in place (except for the policy variable indicating the proportion of SNAP units with a recertification period of 6 months or less, though that variable also ranges from 0 to 1).

Proportion of SNAP units with short recertification periods enters the index as  $(1 - Policy_{ist})$  so that a value of 1 indicates the more generous possibility. A higher value of the index therefore unambiguously means lower transaction costs.

### *Summary statistics and descriptive figures*

Table 1 provides summary statistics for the outcome and policy variables for our full sample of households, as well as stratified by senior vs. non-senior households, while Appendix Table 1A does the same for the control variables. About 23 percent of the full sample reported receiving SNAP benefits in the past year. Only 14 percent of senior households received benefits, about half the percentage of non-senior households that did (28 percent). The senior and non-senior samples differ in other noticeable ways. Predictably, the average age of senior respondents is higher. Senior respondents are more frequently female, white, native-born, widowed, less educated, and not in the labor force. Senior households are also on average smaller, more likely to contain just one member, and much less likely to include children. Table 1 also shows the average value of the policy variables and summary measures described above.

### **Methods**

We estimate how state SNAP policy changes related to eligibility, transaction costs, stigma, and outreach affect SNAP participation using linear probability models of the form

$$SNAP_{jst} = \beta_0 + \beta_1 Policy_{st} + \beta_2 X_{jt} + \beta_3 SFE_s + \beta_4 YFE_t + \epsilon_{jst} \quad (3)$$

where  $SNAP_{jst}$  is an indicator for self-reported receipt of SNAP benefits in the past year for household  $j$  in state  $s$  and year  $t$ ,  $Policy_{st}$  is a vector of either the eleven policy variables or the four summary measures,  $X_{jt}$  is a vector of the control variables,  $SFE_s$  is a vector of state fixed effects,  $YFE_t$  is a vector of year fixed effects, and  $\epsilon_{jst}$  is the error term. We cluster robust standard errors by state in all regressions.<sup>1</sup>

We are interested in estimating  $\beta_1$ , which represents the average treatment effects of various state policies on low-income household SNAP participation under the assumption that policy adoption is uncorrelated with unobserved time-varying state-level characteristics. Because we are interested in how  $\beta_1$  differs between senior and non-senior households, we estimate equation (3) for each of three samples: the full sample including all households, the non-senior sample including the two-thirds of the full sample with respondents aged under 60, and the senior sample including the third of the sample with respondents aged 60 or older. We then present and compare the estimates of  $\beta_1$  side by side to determine whether senior households respond differently to state SNAP policies. For each policy variable, we also conduct t-tests of the equality of its coefficient for seniors and non-seniors.

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<sup>1</sup> We elect not to utilize the sampling weights in our main analysis since our focus is on age-based subsamples rather than obtaining population-level estimates. Moreover, we are able to control for all the characteristics (age, race, and gender) that the CPS uses to construct the sampling weights. In such cases, Solon et al. (2015) argue against the use of weights, showing that they do not improve the reliability of coefficient estimates but likely inflate their standard errors.



We are aware of the well-known problem of SNAP misreporting and the growing literature on how such measurement error biases the estimated causal effects of the program (Meyer et al. 2015; Nguimkeu et al. 2019). However, we do not address SNAP's misreporting in this paper because the consequences of measurement error in the dependent variable of binary choice models may be less severe and methods to address them are an active area of research (e.g., Meyer and Mittag 2017).<sup>2</sup>

## **Results**

*To be presented and discussed at AAEA 2021 annual meeting.*

## **Conclusion**

*To be discussed at AAEA 2021 annual meeting.*

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<sup>2</sup> Recently, a literature has emerged identifying potential problems with two-way fixed-effects models with staggered treatment time. See Cunningham (2021, pp. 461-510) for a detailed discussion. While some solutions have been proposed for settings with single, binary treatments, we are unaware of any that are applicable with multiple, non-binary treatments like ours.

## References

- Almada, L., I. McCarthy, and R. Tchernis. 2016. What Can we Learn About the Effects of Food Stamps on Obesity in the Presence of Misreporting? *American Journal of Agricultural Economics* 98 (4): 997-1017.
- Aussenberg, R.A., and G. Falk. 2019. The Supplemental Nutrition Assistance Program (SNAP): Categorical Eligibility. Report R42054, Congressional Research Service.
- Bartlett, S., N. Burstein, and W. Hamilton. 2004. Food Stamp Program Access Study: Final Report. Abt Associates, Cambridge, MA.
- Capps, R., R. Koralek, K. Lotspeich, M. Fix, P. Holcomb, and J.R. Anderson. 2004. Assessing Implementation of the 2002 Farm Bill's Legal Immigrant Food Stamp Restorations: Final Report. Urban Institute, Washington, DC.
- Cronquist, K., S. Lauffer, C. Tadler, and S. Hong. 2019. Technical Documentation for the Supplemental Nutrition Assistance Program Quality Control Database and the QC Minimodel: Final Report. Mathematica Policy Research, Princeton, New Jersey.
- Cunningham, S. 2021. *Causal Inference: The Mixtape*. New Haven, CT: Yale University Press.
- Cunyngham, K. 2010. State Trends in Supplemental Nutrition Assistance Program Eligibility and Participation Among Elderly Individuals: Final Report. Mathematica Policy Research, Princeton, New Jersey.
- Currie, J. 2006. The Take-up of Social Benefits. In *Poverty, The Distribution of Income, and Public Policy*, ed. Alan Auerbach, David Card, and John Quigley, 80-148. New York: Russell Sage Foundation.
- Currie, J., and J. Gruber. 1996. Health Insurance Eligibility, Utilization of Medical Care, and Child Health. *Quarterly Journal of Economics* 111 (2): 431-466.

- Cutler, D.M., and J. Gruber. 1996. Does Public Insurance Crowd Out Private Insurance? *Quarterly Journal of Economics* 111 (2): 391–430.
- Daponte, B.O., S.G. Sanders, and L. Taylor. 1999. Why Do Low-Income Households Not Use Food Stamps? Evidence from an Experiment. *Journal of Human Resources* 34 (3): 612-28.
- Denteh, Augustine. 2017. The Effect of SNAP on Obesity in the Presence of Endogenous Misreporting. Working paper, Georgia State University.
- Dickert-Conlin, S., K. Fitzpatrick, B. Stacy, and L. Tiehen. 2020. The Downs and Ups of the SNAP Caseload: What Matters? *Applied Economic Perspectives and Policy*, forthcoming.
- Flood, S., M. King, R. Rodgers, S. Ruggles, and J.R. Warren. 2020. *Integrated Public Use Microdata Series, Current Population Survey: Version 8.0*. Minneapolis, MN: IPUMS.
- Ganong, P., and J.B. Liebman. 2018. The Decline, Rebound, and Further Rise in SNAP Enrollment: Disentangling Business Cycle Fluctuations and Policy Changes. *American Economic Journal: Economic Policy* 10 (4): 153-76.
- Gabor, V., S.S. Williams, H. Bellamy, and B.L. Hardison. 2002. Seniors' Views of the Food Stamp Program and Ways to Improve Participation—Focus Group Findings in Washington State: Final Report. Health Systems Research, Inc., Sacramento, CA.
- Gray, K.F., and K. Cunyningham. 2016. Trends in Supplemental Nutrition Assistance Program Participation Rates: Fiscal Year 2010 to Fiscal Year 2014. United States Department of Agriculture, Office of Policy Support. Mathematica Policy Research, Princeton, New Jersey.

- Gundersen, C., and J.P. Ziliak. 2017. The Health Consequences of Senior Hunger in the United States: Evidence from the 1999-2014 NHANES. Feeding America and the National Foundation to End Senior Hunger.
- Haider, S.J., A. Jacknowitz, and R.F. Schoeni. 2003. Food Stamps and the Elderly: Why Is Participation So Low? *Journal of Human Resources* 38: 1080–1111.
- Han, J. 2016. The Impact of SNAP on Material Hardships: Evidence From Broad-Based Categorical Eligibility Expansions. *Southern Economic Journal* 83 (2): 464-486.
- Han, J. 2020. SNAP Expansions and Participation in Government Safety Net Programs. *Economic Inquiry* 58 (4): 1929-1948.
- Horng, R., and S. Dean. 2002. States' Vehicle Asset Policies in the Food Stamp Program. Center on Budget and Policy Priorities.
- Issar, S. 2010. Multiple Program Participation and Exits from Food Stamps among Elders. *Social Service Review* 84 (3): 437–459.
- Jones, J.W. 2020. Essays on the Impacts of the Supplemental Nutrition Assistance Program. Dissertation, Georgia State University.
- Laird, E., and C. Trippe. 2014. Programs Conferring Categorical Eligibility for SNAP: State Policies and Number and Characteristics of Households Affected: Final Report. Mathematica Policy Research, Princeton, New Jersey.
- Leroux, J., J. Cox, and M. Rosenberg. 2020. Food Insecurity and Aging: A Scoping Study of the Literature. *Canadian Journal on Aging* 39 (4): 662-696.
- Lim, S. Y. 2011. Participation in the Supplemental Nutrition Assistance Program: The Role of Age and Macroeconomic Conditions. Dissertation, Purdue University.

- Meyer, B.D. and N. Mittag. 2017. Misclassification in Binary Choice Models. *Journal of Econometrics*, 200 (2): 295-311.
- Meyer, B.D., K. Wallace, C. Mok, and J.X. Sullivan. 2015. Household Surveys in Crisis. *Journal of Economic Perspectives* 29 (4): 199-226.
- Meyerhoefer, C.D., and Y. Pylypchuk. 2008. Does Participation in the Food Stamp Program Increase the Prevalence of Obesity and Health Care Spending? *American Journal of Agricultural Economics* 90 (2): 287–305.
- Nguimkeu, P., A. Denteh, and R. Tchernis. 2019. On the Estimation of Treatment Effects with Endogenous Misreporting. *Journal of Econometrics*, 208 (2): 487-506.
- Nicoll, K.L. 2015. Why Do Eligible Households Not Participate in Public Antipoverty Programs?: A Review. *Journal of Poverty* 19 (4): 445-465.
- Nord, M., and Prell, M. 2011. Food security improved following the 2009 ARRA increase in SNAP benefits. Report ERR-116, Economic Research Service.
- Ranney, C.K., and J.E. Kushman. 1987. Cash Equivalence, Welfare Stigma, and Food Stamps. *Southern Economic Journal* 53 (4): 1011–1027.
- Ratcliffe, C., S. McKernan, and K. Finegold. 2008. Effects of Food Stamp and TANF Policies on Food Stamp Receipt. *Social Service Review* 82 (2): 291-334.
- Ratcliffe, C., S. McKernan, and S. Zhang. 2011. How Much Does the Supplemental Nutrition Assistance Program Reduce Food Insecurity? *American Journal of Agricultural Economics* 93 (4): 1082–1098.
- Solon, G., S.J. Haider, and J. M. Wooldridge. 2015. What Are We Weighting For? *Journal of Human Resources* 50 (2): 301-316

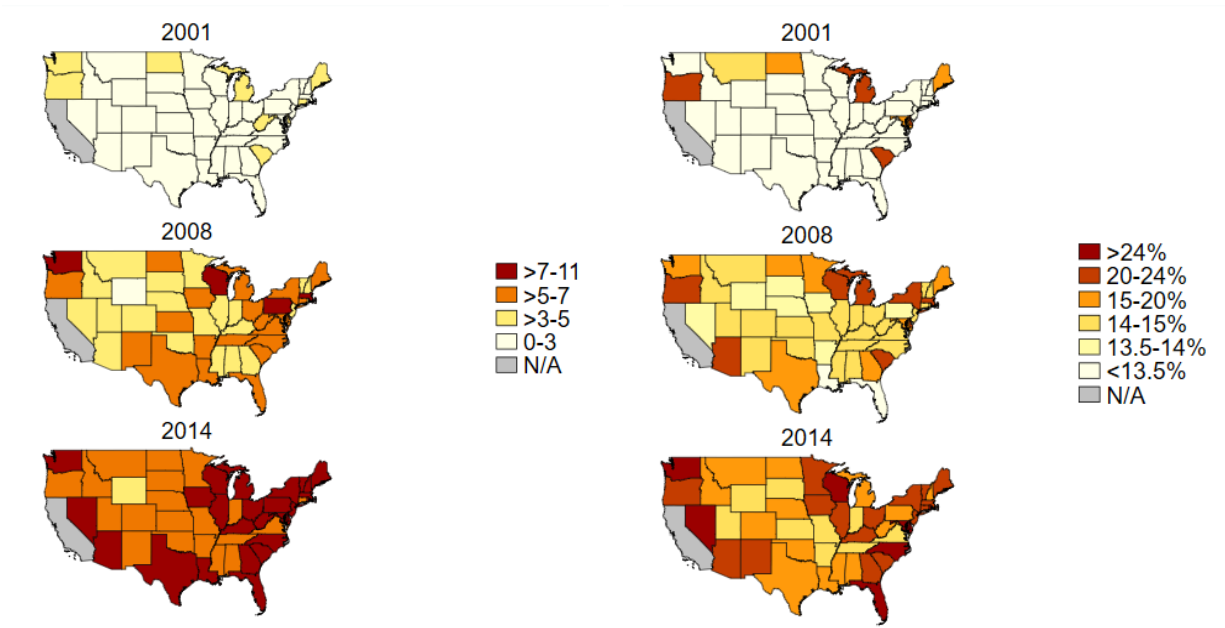
- Stacy, B., L. Tiehen, and D. Marquardt. 2018. Using a Policy Index to Capture Trends and Differences in State Administration of USDA's Supplemental Nutrition Assistance Program. Report ERR-244, Economic Research Service.
- Trippe, C. and J. Gillooly. 2010. Non-Cash Categorical Eligibility For SNAP: State Policies and the Number and Characteristics of SNAP Households Categorically Eligible Through Those Policies: Final Memo. Mathematica Policy Research, Princeton, New Jersey.
- United States Department of Agriculture Economic Research Service. 2021a. SNAP Policy Database. Washington, D.C.: United States Department of Agriculture.
- United States Department of Agriculture Economic Research Service. 2021b. SNAP Policy Index: Interactive Tool. Washington, D.C.: United States Department of Agriculture.
- Wilde, P., and E. Dagata. 2002. Food Stamp Participation by Eligible Older Americans Remains Low. *Food Review* 25 (2): 25-29.
- Wu, .Y. 2009. Why Do So Few Elderly Use Food Stamps? Working Paper, University of Chicago.
- Yen, S.T., M. Andrews, Z. Chen, and D.B. Eastwood. 2008. Food Stamp Program Participation and Food Insecurity: An Instrumental Variables Approach. *American Journal of Agricultural Economics* 90 (1): 117–132.
- Ziliak, J.P., and C. Gundersen. 2018. The State of Senior Hunger in America 2016: An Annual Report. Feeding America and the National Foundation to End Senior Hunger.

**Figure 1. Policy Variation Illustrations**

*Total Number of Policies, Non-Senior*

*Simulated Eligibility Variable, Full Sample*

*Version*



Notes: The left panel shows state variation in the sum of the eleven policy measures included in Table 2 using the non-senior versions where applicable and adding two minus the fingerprinting and short recertification period measures due to their negative expected effect on participation. The right panel shows state variation in the simulated eligibility variable calculated using the full SIPP sample including both senior and non-senior households. Related figures are presented in the appendix.

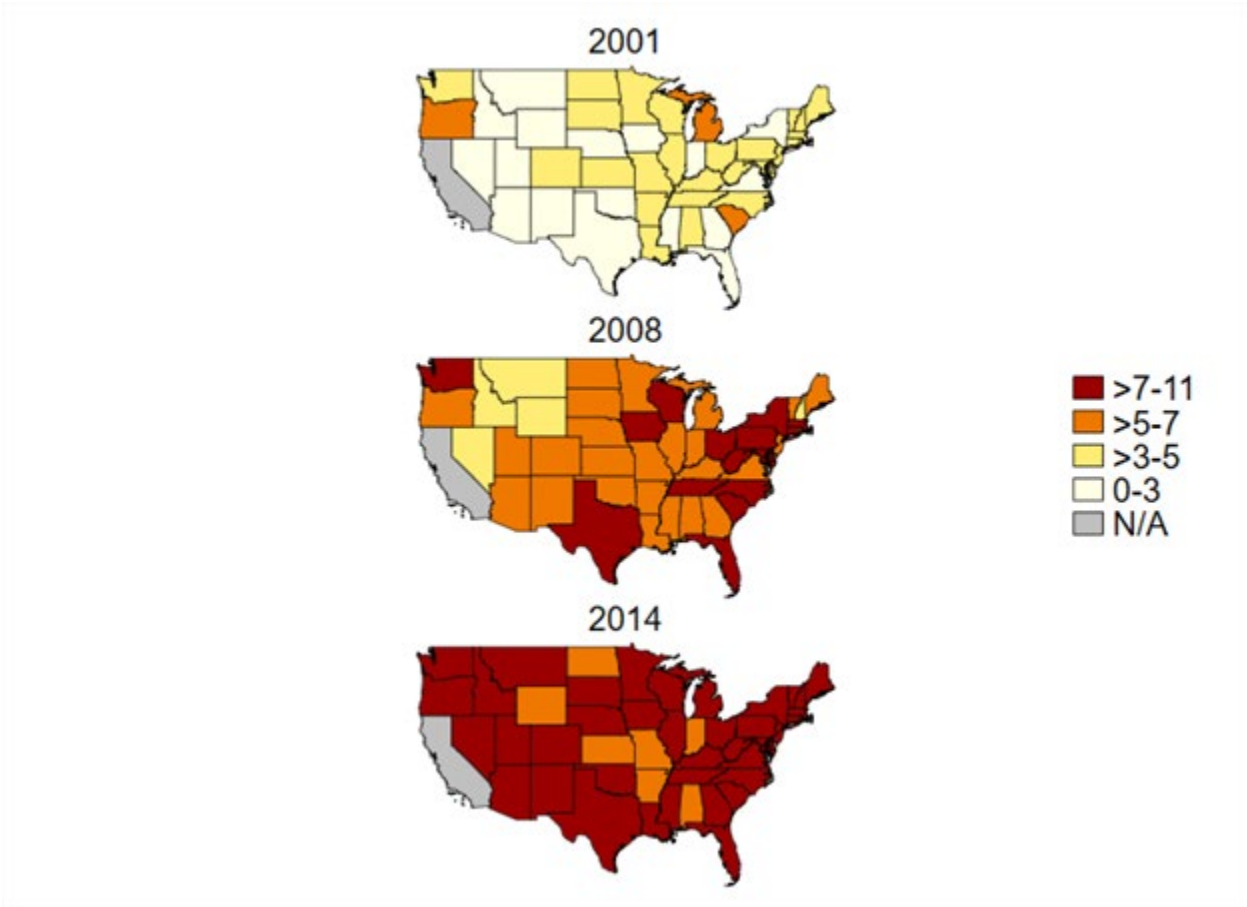
**Table 1. Sample means for SNAP receipt and state policies**

Sample:	Full	Non-senior	Senior
Outcome: Received SNAP in the past year	0.233	0.282	0.140
State uses BBCE	0.462	0.463	0.461
State excludes one or more vehicles from asset test	0.786	0.780	0.795
State has eligibility for all legal noncitizens aged 18-64/65+^	0.0906	0.0874	0.125
State has simplified reporting for households with earnings	0.811	0.813	0.806
Online applications accepted statewide	0.377	0.373	0.383
Call centers operated statewide	0.297	0.297	0.298
Telephone recertification in at least part of state	0.476	0.478	0.472
State operates a combined application project for SSI recipients	0.288	0.289	0.287
% with earnings/seniors with 1-6 month recertifications^	0.530	0.537	0.0743
Fingerprinting of applicants required statewide	0.0828	0.0902	0.0689
State has federally funded TV or radio ad outreach campaign	0.107	0.108	0.105
Simulated eligibility variable^	0.175	0.172	0.186
Transaction costs policy count (0 to 6)^	2.719	2.714	3.172
Total policy count (0 to 11)^	5.082	5.062	6.561
Number of households	170,929	112,184	58,745

Notes: Analysis samples include households with income less than 185 percent of the federal poverty level. Full sample includes all such households, non-senior sample includes households with respondents aged under 60, and senior sample includes households with respondents aged 60 or older. ^ indicates that a variable is defined differently for different samples as described in the data section.



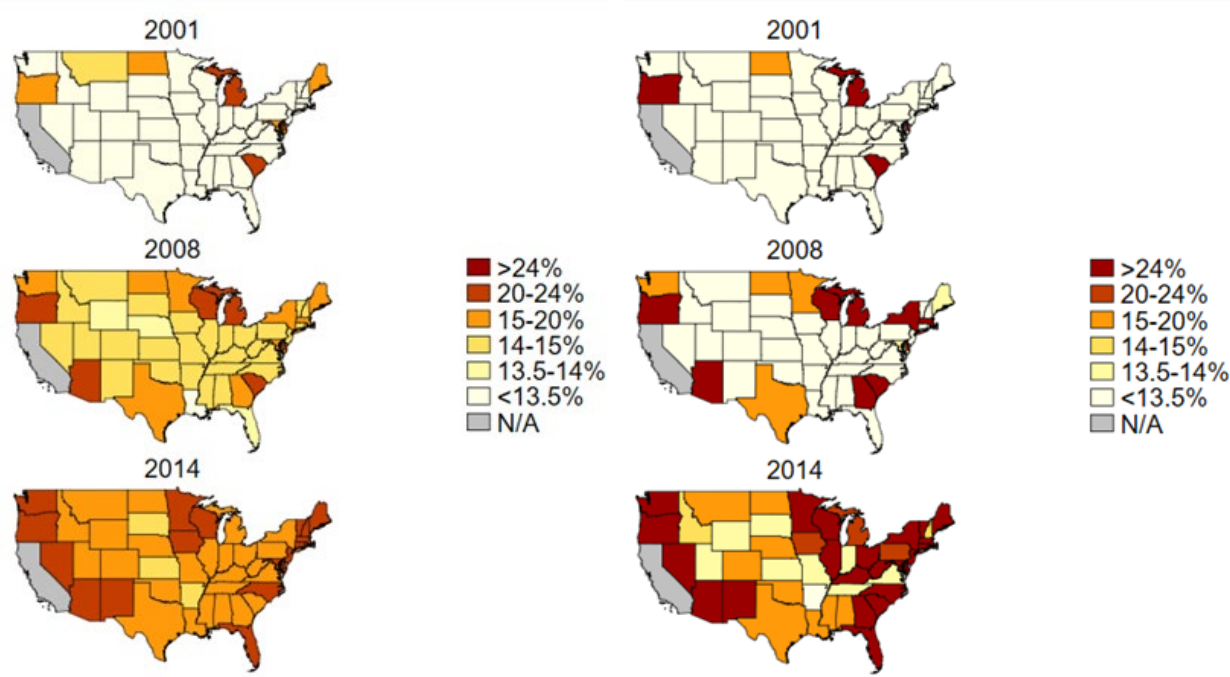
Appendix Figure 1. Variation in total number of policies, senior version



Appendix Figure 2. Simulated eligibility variable, non-senior and senior samples

*Non-senior sample*

*Senior sample*



**Appendix Table 1A. Sample means for household control variables**

Sample:	Full	Non-senior	Senior
<b>Respondent characteristics</b>			
Age (Years)	50.17	38.41	72.63
Female	0.579	0.561	0.612
Black, non-Hispanic	0.150	0.165	0.122
American Indian or Alaska Native, non-Hispanic	0.0152	0.0174	0.0110
Asian or Pacific Islander, non-Hispanic	0.0195	0.0248	0.00955
Other race, non-white, non-Hispanic	0.0129	0.0145	0.00981
Hispanic	0.129	0.166	0.0605
Foreign-born	0.137	0.165	0.0839
Married	0.364	0.385	0.323
Divorced	0.185	0.188	0.180
Widowed	0.160	0.0297	0.408
Separated	0.0443	0.0562	0.0215
High school degree	0.569	0.590	0.527
Associate degree	0.0774	0.0900	0.0533
Bachelor's degree	0.0797	0.0921	0.0560
Advanced degree	0.0259	0.0259	0.0259
Employed	0.455	0.621	0.137
Unemployed	0.0627	0.0871	0.0163
<b>Household characteristics</b>			
Number of people	2.552	3.032	1.636

Single person household	0.341	0.226	0.560
Any children in household	0.386	0.558	0.0573
<b>Family income</b>			
Under \$5,000	0.0857	0.106	0.0462
\$5,000-7,499	0.0715	0.0710	0.0724
\$7,500-9,999	0.0860	0.0728	0.111
\$10,000-12,499	0.111	0.0905	0.151
\$12,500-14,999	0.101	0.0801	0.142
\$15,000-19,999	0.155	0.133	0.196
\$20,000-24,999	0.153	0.144	0.171
\$25,000-29,999	0.0942	0.105	0.0743
\$30,000-34,999	0.0537	0.0717	0.0194
\$35,000-39,999	0.0323	0.0458	0.00637
\$40,000-49,999	0.0383	0.0551	0.00645
\$50,000-59,999	0.0132	0.0190	0.00235
\$60,000-74,999	0.00383	0.00543	0.000783
\$75,000-99,999	0.000725	0.000998	0.000204
<b>Number of households</b>	170,929	112,184	58,745

Note: Analysis samples include households with income less than 185 percent of the federal poverty level. Full sample includes all such households, non-senior sample includes households with respondents aged under 60, and senior sample includes households with respondents aged 60 or older. Variables represent binary indicators unless otherwise specified.