Why Are So Many Americans on Food Stamps?
The Role of the Economy, Policy, and Demographics

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September, 2013

Abstract: 1 in 7 Americans received assistance from SNAP in FY2012, which is a rate 141 percent higher than in FY2000, but only 59 percent higher than in FY1980. In this chapter I describe the socioeconomic and policy climate in recent decades that had bearing on SNAP participation, along with a formal empirical analysis of those determinants and detailed simulations of the relative contributions of the economy, policy, and demographics to changes in SNAP participation over time. The results suggest that SNAP is operating effectively as an automatic fiscal stabilizer—nearly 50 percent of the increase in participation from 2007-2011 is due to the weak economy—but policy reforms expanding access and benefit generosity also affected participation, accounting for nearly 30 percent of the increase after the Great Recession. The changing demographics of the American household are helping restrain growth in SNAP.

Since its inception fifty years ago, the Supplemental Nutrition Assistance Program (SNAP) has become a central component of the social safety net in the United States. The program is unique in its status as something akin to a universal entitlement; that is, subject to meeting low-income and asset tests, the program does not impose restrictions on eligibility based on age (Social Security), family structure (Temporary Assistance to Needy Families, TANF), or work history (Disability Insurance and Unemployment Insurance). Today, 1 in 7 Americans receive assistance from SNAP at a cost approaching $80 billion in FY2012, making it the second largest means-tested transfer in terms of cost after Medicaid. For much of its first three decades SNAP operated in the shadows of the safety net, both in terms of a policy or research interest, especially in comparison to politically contentious programs like TANF and more expensive programs like Medicaid. What has caught the attention of policymakers and researchers alike in recent years is the rapid growth of the program. Since FY2000, the number participating has increased 171 percent and inflation-adjusted spending by 286 percent.[1] This has led to calls for programmatic reforms, ranging from the 2013 House Bill H.R. 3102 that would cut $39 billion over the next decade to wholesale decentralization in the form of a block grant to states with additional work requirements similar to TANF (Secretaries Innovation Group 2013).

The aim of this chapter is to document the factors underlying the evolution of program participation since 1980.[2] I emphasize three major points in my analysis: changes in the macroeconomy, both cyclical forces from the labor market and secular trends in income

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[1] Author's calculations based on administrative SNAP data at http://www.fns.usda.gov/pd/SNAPsummary.htm and the personal consumption expenditure deflator (Table B-7 of the 2013 Economic Report of the President http://www.whitehouse.gov/sites/default/files/docs/erp2013/ERP2013_Appendix_B.pdf).

[2] Prior to the Food Stamp Act of 1977, which was implemented in 1979, recipients of assistance faced a so-called purchase requirement, meaning that they were required to spend up to their normal expenditure on food to buy stamps, and then to receive a "bonus" amount of stamps based on income level to bring their food spending up to the level of the USDA low-cost diet. Because many low-income families face binding liquidity constraints and were unable to purchase stamps up front, the purchase requirement was believed to have artificially depressed participation (Caswell and Yaktine 2013). Thus I focus on the period after the 1977 Act.

inequality; changes in public policies, both food and nonfood related; and shifting demographics of the American household. I begin by describing the socioeconomic and policy climate in recent decades that had bearing on SNAP participation, followed by a formal empirical analysis of those determinants and detailed simulations of the relative contributions of the economy, policy, and demographics to changes in SNAP participation over time.[3]

THE ECONOMY

The rush to cut or reform SNAP may be misplaced if growth in the program is primarily due to the weak labor market and economy over the past decade. There is extensive research evidence that SNAP functions effectively as an automatic fiscal stabilizer, meaning that as the economy and market incomes fall during recessions participation in SNAP "automatically" rises to smooth consumption and as market incomes rise during economic expansions participation falls (Wallace and Blank 1999; Blundell and Pistaferri 2003; Gundersen and Ziliak 2003; Ziliak, et al. 2003; Bitler and Hoynes 2010; Klerman and Danielson 2011; Ganong and Liebman 2013). This suggests that as the macroeconomy improves in coming years, participation and cost of SNAP will decline. Indeed, assuming no changes in law, the Congressional Budget Office (2012) projected that by 2022 spending on SNAP would fall 23 percent because of improving labor market conditions.

That such a countercyclical link exists seems transparent in Figure 1, which depicts trends in aggregate SNAP participation and seasonally-adjusted unemployment rates.[4]

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[3] I do not cover issues related to process implementation of SNAP reforms, which may have also affected the caseload over the past decade. See, for example, Rowe, et al. (2010) and Hurley, et al. (2013).

[4] Unless noted otherwise, all data come from the Annual Social and Economic Supplement of the Current Population Survey for calendar years 1980-2011. In the CPS all persons in a household are assigned as a SNAP recipient even if only a subset receives benefits. The assumption is that members of households pool resources, so even though not all members are direct beneficiaries, indirectly they do benefit from extra resources. This will overstate actual participation, but this is weighed against evidence of under-reporting of SNAP receipt in household surveys (Bollinger and David 1997; Wheaton 2007; Meyer and Goerge 2011). It also misses the fact that a household may consist of multiple SNAP units. The appendix describes the data and elaborates on these issues.

Highlighted in the figure are years that include a macroeconomic recession as defined by the

National Bureau of Economic Research. It is clear that peaks in SNAP usage coincide (perhaps

with a lag) with peaks in unemployment rates over the past three decades. A simple time-series

regression of SNAP participation on the unemployment rate and a linear trend yields:

$$\widehat{SNAP}_t = \underset{(1.03)}{3.47} + \underset{(0.13)}{0.86} * UR_t + \underset{(0.02)}{0.01} * trend, R^2 = 0.57, \tag{1}$$

where standard errors are reported in parentheses. The r-squared of 0.57 says that

unemployment rates explain nearly 60 percent of the variation in aggregate SNAP participation

(the trend adds nothing to the model). The coefficient on the unemployment rates implies that

for each percentage point increase in the unemployment rate, SNAP increases by 0.86 points, or

almost 10 percent on the average SNAP participation rate of 9.2 percent over the 1980 to 2011

period. While this time-series model is simply illustrative, a robust link between the business

cycle and SNAP participation remains even in a more fully specified model as estimated below.

[Figures 1 and 2 here]

Concomitant with large swings in unemployment rates, there has also been a sizable

secular shift in the distribution of earnings and income that may bear on SNAP participation in

recent decades (Piketty and Saez 2003; Autor, et al. 2008; Burkhauser, et al. 2012). Figure 2

depicts trends in real median household income as well as the ratio of the 90th percentile of real

income to the 10th percentile of real income. The median is a robust measure of the center of a

skewed distribution such as income that is used to signify how the "typical" household is faring,

and the 90-10 ratio is a standard measure of inequality. Since 1980 real median income has

increased 22 percent to $52,000, while 90-10 inequality increased 30 percent. However, unlike

the expansions of the 1980s and 1990s, which each had peaks in income in excess of the prior

cycle, median income at the peak of the 2000s cycle was no greater than the 1990s, and in fact

by 2011 any gains in median income since 1999 were lost. The flattening out of median income from 2000 to 2007, followed by a sharp decline in the Great Recession, coincides with a sharp increase in income inequality. The latter was driven both by continued increases in income at the top, coupled with significant declines in income at the bottom of the distribution.

POLICY REFORMS

Basic eligibility for SNAP benefits is determined by having monthly gross income below 130 percent of the poverty guideline for a given household size and monthly net income (gross income less deductions) may not exceed 100 percent of that guideline (households with an elderly or disabled person are exempt from the gross income test). The guideline is the same for the 48 lower contiguous states and the District of Columbia, and slightly higher for residents of Alaska and Hawaii. If net income is zero then the recipient qualifies for the maximum benefit, which likewise varies by the size of the SNAP household but is the same nationally except for Alaska and Hawaii. If net income is positive then the monthly benefit is reduced by 30 percent for every dollar of net income because the household is expected to contribute up to 30 percent of their other income to food. Generally benefits were set at 100 percent of the Thrifty Food Plan (TFP) and increased annually based on changes in the price of food used in constructing the TFP, though there were deviations from this from 1988-1996 when they were set at 103 percent of the TFP, and again since 2009 when they were set at 113.6 percent of the TFP and not adjusted for inflation afterwards. Currently the minimum monthly benefit is $16, though for much of the past few decades it was $10. In addition to the two income tests there is both a liquid asset test of $2,000 ($3,250 for households with a disabled person or someone age 60 or older) and a vehicle value test of $4,650, although as noted below several states have raised or waived asset and vehicle tests. Historically federal law required recipients to recertify for benefits at least

annually (sooner if there was a change in household or income status) and every two years if the household contained a disabled person or a senior, although there was the option for states to assign shorter recertification periods (Kabbani and Wilde 2003). The other path to participation is through "categorical eligibility," which typically applies to TANF and SSI recipients who automatically qualify for SNAP.

There was little change in basic eligibility rules in the nearly two decades leading up to the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (PRWORA, aka welfare reform). Welfare reform, however, had both a direct and indirect policy effect on SNAP. Directly, it eliminated eligibility for most legal permanent aliens unless they had at least 10 years of work experience or were veterans; it eliminated benefits for convicted drug felons; it limited benefits to three months out of any 36-month period for able-bodied adults without dependents (ABAWDS) between the ages of 18 and 50 working less than 20 hours per week or not meeting other work requirements; it reduced the maximum benefit and froze many deductions used in calculating net income; it allowed states to sanction individuals and households for noncompliance with TANF requirements or child support payments; and it mandated that states adopt the Electronic Benefit Transfer (EBT) replacing paper coupons with debit cards (Gabor and Botsko 1998; Gleason, et a. 2001). Indirectly participation was affected by virtue of the fact that half of the food stamp caseload was categorically eligible for stamps via their receipt of TANF benefits, and as welfare reform pulled people off of TANF they also dropped receipt of food stamps, at least temporarily (Ziliak, et al. 2003). The other policy change that indirectly affected SNAP, even prior to welfare reform (note that in Figure 1 participation started to fall three years before PRWORA), was the expansion of the Earned Income Tax Credit (EITC)

starting in 1993 that pulled scores of single mothers into the labor force, and off welfare and food stamps (Meyer and Rosenbaum 2001).

As participation in SNAP plummeted over 40 percent from 1993 to 2000, so too did the take-up rate of benefits; that is, the fraction of *eligible* persons participating fell over 25 percent to just over 50 percent (Leftin, et al. 2011). A decline in participation does not have to be associated with a decline in take-up because the decline in participation could occur only among those no longer eligible. Take-up rates among eligible seniors has always been low (30-35 percent depending on year), and the decline in take-up after 1993 was driven mainly by children and nonelderly adults (Cunnyngham 2002). The fall in take-up, which is likely a spillover effect of former TANF recipients also leaving food stamps even though they remained eligible, was met with alarm (and controversy) in policy circles.

In response several new initiatives aimed at program outreach and eligibility expansion were introduced, and in some cases codified in the Farm Bills of 2002 and 2008, giving much more discretion to the states to improve take-up and program administration.[5] These included liberalizing vehicle asset tests, such as exempting one or more vehicles from the test; expanding (broad-based) categorical eligibility, which allowed states to utilize more generous TANF asset and gross-income tests to determine eligibility; restoring eligibility for legal aliens previously excluded by PRWORA; expanding the option for simplified reporting, which allowed states to relax the frequency and form (i.e. phone or online) of benefit recertification; and outreach via advertising campaigns.[6] Not all of the reforms were intended to make access easier. Specifically in the 1990s states responded to financial incentives offered by USDA to reduce

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[5] The American Recovery and Reinvestment Act of 2009 (ARRA) also affected SNAP by raising the maximum benefit guarantee by an average of 13.6 percent, raising the minimum benefit from $14 to $16, and suspending the time limit of receipt among ABAWDs (http://www.ers.usda.gov/topics/food-nutrition-assistance/supplemental-nutrition-assistance-program-(snap)/arra.aspx#.Uh3u6Rtebmc).
[6] See http://www.fns.usda.gov/snap/applicant_recipients/eligibility.htm

benefit error rates by requiring more frequent certification, especially in households with workers, such that by 2000 36 percent of working households faced 3 month or less recertification intervals, up from 4.7 percent in 1992 (Kabbani and Wilde 2003). Some of the simplified reporting requirements adopted in recent years were intended to offset the hardship associated with more frequent certification. Another policy that restricted access is fingerprint imaging and facial recognition software.

[Table 1 here]

Table 1 summarizes changes in the number of states (and DC) adopting various SNAP policy options between 2000 and 2011 based on information in the Economic Research Service's SNAP Policy Database.[7] By 2011 41 states implemented broad-based categorical eligibility as a mechanism to join SNAP, compared to only 2 states in 2000, and of those 41 states 38 elected to eliminate the SNAP liquid asset test as part of broad-based eligibility. The number of states offering call centers, phone applications, and combined application processes with other transfer programs has exploded, along with the number offering simplified reporting and exempting vehicle assets. As of 2011 49 states utilized simplified reporting, and 45 states exempt all vehicle assets from resources in determining eligibility for SNAP. At the same time, states pulled back from imposing short recertification windows of 1-3 months, and restored SNAP eligibility to more noncitizens, especially children.

In the aftermath of the 1996 welfare reform there was a flurry of research focused on understanding the relative roles of the macroeconomy and policy on declining food stamp caseloads. Wallace and Blank (1999) attributed about 44 percent of the decline to the strengthening economy, and about 6 percent to welfare reform. Figlio, Gundersen, and Ziliak

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[7] SNAP Policy Database, Economic Research Service, USDA http://www.ers.usda.gov/data-products/snap-policy-database.aspx#.Uh3oARtebmc .

(2000) reached similar conclusions in terms of the role of the economy, but ascribed a negligible role to welfare reform. Gleason, et al. (2001) found that 47 percent of the decline was due to the economy, and about 26 percent to welfare reform. And in a recent re-evaluation of that period Klerman and Danielson (2011) found that 31 percent of the 1994-2000 decline resulted from lower unemployment rates and about 13 percent from welfare reform. In short, the consensus was that the economy mattered by a factor of 2 to 3 more than policy for the latter 1990s decline in food stamps.

Additionally several studies have examined various aspects of specific food policy reforms on SNAP caseloads, both for the 1990s and 2000s (Figlio, et al. 2000; Gleason, et al. 2001; Ziliak, et al. 2003; Kabbani and Wilde 2003; Bartlett, et al. 2004; Ratcliffe, et al. 2007; Burstein, et al. 2009; Mabli and Ferrerosa 2010; Klerman and Danielson 2011; Dickert-Conlin, et al. 2011; Ganong and Liebman 2013). There seems to be some consensus that short recertification periods reduced SNAP participation in the 1990s, and that broad-based categorical eligibility and simplified reporting led to higher caseloads. There is limited evidence that expanded outreach leads to higher caseloads (Dickert-Conlin et al. 2011), while fingerprinting results in lower caseloads (Burstein, et al. 2004; Ratcliffe, et al. 2007). The evidence is decidedly mixed whether the introduction of the EBT, allowing ABAWD waivers, or vehicle asset expansions have affected caseloads.

A few recent studies have updated the 1990s economy versus policy debate to identify the relative contributions of each to understanding the post-2000 increase in SNAP participation. Mabli and Ferrerosa (2010), focusing on 2000 to 2008, ascribe 55 percent of the increase in SNAP to economic factors and 20 percent to the food policy reforms. Klerman and Danielson (2011) find a much lower effect of the economy of 27 percent of the caseload increase from 2000

to 2009, and 16 percent to food policy and 6 percent to welfare reform. Ganong and Leibman (2013), zeroing in on the post Great Recession increase in SNAP from 2007-2011, attribute about two-thirds of the growth to the weak economy and about 7.6 percent to food policy changes. Mulligan (2012), on the other hand, argues that just over 20 percent of the increase was due to expanded policy, and Mulligan (2013) finds that two-thirds of the $122 increase in spending per capita from 2007-2011 was due to the increased generosity of SNAP benefits and related policies like broad-based categorical eligibility. Thus, unlike the 1990s decline, there is less consensus on whether the economy or policy drove the increase in participation in the 2000s.

CHANGING DEMOGRAPHICS

There have been important demographic shifts in the U.S. population over the past several decades that could differentially affect the size of the SNAP caseload, participation rates among subpopulations, and the attendant composition of the caseload. On the one hand, the aging of the population suggests that the composition of the caseload should be aging as well. However, because take-up rates among seniors are so much lower than adults and children, this should put downward pressure on the growth of the caseload and thus it is not clear a priori whether the age distribution of the caseload is likely to change due to population aging. Indeed, because of the decline in marriage the fraction of births to unwed mothers accelerated from 15 percent of live births in 1980 to 40 percent by the mid 2000s (Cancian and Reed 2009; Carlson and England 2011), and as single mother families are more likely to be poor, then it is entirely possible that the caseload could be getting larger and younger at the same time. A similar trend toward a younger, larger caseload could emerge from the growth of the Hispanic population, who all else equal tend to be younger, lower income, and with larger family sizes (Landale, et al. 2006). Another secular trend placing upward pressure on the size of the SNAP caseload is the

significant growth of disability, both in the Supplemental Security Income (SSI) and Social Security Disability Income (SSDI) programs (Muller, et al. 2006; Autor 2011). Households in which all residents receive SSI automatically qualify for SNAP, but SSDI households and those SSI units where some receive disability and others do not still must meet income and asset restrictions.

[Figures 3 and 4 here]

Figure 3 presents trends in the age composition of households receiving SNAP for children under age 18, for adults age 18 to 59, and for seniors age 60 and older. The age 60 threshold for seniors is consistent with SNAP policy for eligibility determination. The figure shows that in any given year the participation rate among children is double the rate of adults, and triple that of seniors. However, the decline in participation among children and adults during the welfare era (1993-2000) was substantially higher than among the elderly (46 and 48 percent, respectively, compared to 30 percent), but the subsequent growth from 2000-2011 was also higher for those two groups compared to the elderly (95, 138, and 75 percent, respectively). Combined, in Figure 4 these changes over the past decade have resulted in a shift in the age composition of households receiving SNAP away from children and elderly and toward adults. In all years prior to the Great Recession about 55 percent of SNAP households consisted of children and the elderly, but by 2009, a slim majority were nonelderly adults.[8]

Coincident with the shift in the age composition of households with SNAP is the shift in the composition towards smaller households and those with multi-generations. Figure 5 shows that beginning in the welfare reform era there has been a secular decline in the fraction of SNAP

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[8] It is important to recall that the definition of a SNAP household in the CPS differs from the SNAP unit in SNAP Quality Control Data. In the former a household includes recipients and nonrecipients, but in the latter it is only recipients. As a consequence, in QC data a majority of recipients are still children and the elderly (54 percent in 2011 (Strayer, et al. 2012).

households containing 3 or more persons, and a rise in the fraction of 1-person and 2-person SNAP households. At the same time, households receiving SNAP, like the general population, are increasingly likely to contain multiple generations as seen in Figure 6.[9] A multi-generation household is one that contains two or more adult generations, with or without a grandchild, or a grandparent and grandchild household ("skipped generations"). The upward pressure in multi-generation households stems more from the addition of adults to the household than children, which is consistent with the trend toward more 2-person SNAP households.

[Figures 5 and 6 here]

A possible concern with the shift toward smaller, prime-age adult households is that it may coincide with an increasing fraction of the SNAP caseload headed by individuals out of the labor force. A more welfare-only reliant population could affect public support for SNAP in light of the centrality of work requirements and time limits that fundamentally altered the TANF program during welfare reform (Ziliak 2009). In fact, Figure 7 shows that the share of SNAP households headed by a person out of the labor force has been very stable for the past two decades, averaging about 53 percent. The growth has been most rapid among full-time, full-year workers, as well as part-time, full-years workers. In other words, the heads of an increasing share of SNAP households have a very strong attachment to the labor force. Furthermore, Figure 8 shows that the fraction SNAP households headed by a high school dropout has plummeted by more than half to under 30 percent since 1980, and by 2011 more than a third of SNAP households were headed by someone with some college or more.[10] Figure 9, which depicts the distribution of SNAP households by household income in relation to the federal poverty

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[9] Beginning in 1988 the CPS adopted an improved method of identifying grandchildren and grandparents in households, and thus the jump after 1987 reflects the change in survey design.

[10] The CPS changed the measurement of education attainment after calendar year 1990 and thus the jump in some college in the two years after owes in part to the change in the questionnaire.

guideline given the household size, shows that since the mid 1980s the composition of SNAP

households has trended toward those with annual incomes above the poverty line. This suggests

that SNAP has evolved into a work supplement for educated, near-poor households.

[Figures 7-9 here]

PUTTING IT ALL TOGETHER: ACCOUNTING FOR THE RISE IN SNAP

I now re-examine in a more formal setting the relative roles of the economy and policy

(food and non-food) in accounting for SNAP participation over time, and in a new twist I also

isolate the contribution of changing demographics. The empirical framework is the standard

reduced-form setup as

$$SNAP_{ijt} = \alpha + X_{it}\gamma + Z_{jt}\delta + \pi_j + \varphi_t + u_{ijt}, \tag{2}$$

where $SNAP_{ijt}$ is an indicator equal to 1 if anyone in household i residing in state j in time t

receives SNAP, X_{it} is a vector of household demographics, Z_{jt} is a vector of state by year

economic and policy variables, π_j is a set of indicators for each state, φ_t is a set of indicators for

each year, and u_{ijt} is a random error term. For the model I restrict attention to the household

head, and thus do not include multiple observations from the same family. I estimate equation

(2) via least squares, which means the linear probability standard errors must be corrected for

heteroskedasticity. In addition, since much of the focus is on the economic and policy variables

at the state level, I also cluster the standard errors by state to account for the within-state

autocorrelation arising from the fact that multiple households are present in each state.[11]

The demographic controls include indicators for the head's age (over age 75 is the

omitted group), education attainment (relative to high school dropout), race (relative to white),

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[11] In results not tabulated I also estimated the standard errors that clustered both by state and year as suggested by Cameron, et al. (2011). The standard errors were little changed, but there were violations of full column rank in the variance matrix so I only report results that cluster at the state level.

Hispanic ethnicity, household size, number of related children under age 18, and indicators whether the household is multigenerational, headed by a woman, headed by a married person, or residing in a metro area. Because participation is means-tested I do not include household earnings or non-SNAP income in the demographics to avoid potential endogeneity.

The measures of the macroeconomy that vary by state and year include the unemployment rate, real median household income, and the ratio of 90/10 real income. Given the apparent lag in SNAP participation to changes in unemployment in Figure 1, in some of the specifications I allow a two-year lag in state unemployment rates (Figlio, et al 2000; Klerman and Danielson 2011; Ganong and Liebman 2013).[12]

The non-food policy variables include the real value of the maximum of the Federal or state minimum wage in a given year, the phase-in subsidy rate for the EITC, an indicator variable if the state has a separate EITC program, an indicator if the state ever implemented a federally-approved waiver from its AFDC program between 1992 and 1996, and an indicator for when the state implemented its TANF program. Because some state's set their minimum wage above the Federal wage and others below, I use the maximum of the two as a proxy for wage incentives to work. Thus, a higher minimum wage is expected to lower participation. The EITC subsidy rate, since it makes work relatively more attractive, is expected also to lower participation. The same is true of a state's EITC supplement. Even though it is set nationally, the EITC subsidy rate is identified by the fact that it varies over time and by the number of qualifying children (Hotz and Scholz 2003).[13] While some of the waiver and TANF policies were designed to make it more attractive to combine welfare and work, e.g. higher earnings disregards and asset limits, on net

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[12] In an earlier version I also examined whether the effect of the economy on SNAP participation differed across decades. There was some evidence that unemployment had a larger effect in the 1990s than the 1980s, but there was no difference from the 2000s. These estimates are available upon request.

[13] The CPS does not document whether a child in the household qualifies for the EITC, and thus I proxy this by the number of related children under age 18.

most of the policies made AFDC/TANF participation less attractive and thus both the AFDC waiver and TANF indicators are expected to lower participation in SNAP.

For the SNAP policy variables I assign the real maximum benefit guarantee for a 1, 2, 3, or 4 person household based on family size (the 4-person guarantee is assigned to households with 4 or more persons) to measure the financial generosity of the program. Thus, the higher the guarantee the higher is the expected participation in SNAP. Like the EITC subsidy rate, the SNAP benefit is identified in the model because it varies over time and by household size.[14] For the remaining SNAP variables I utilize the SNAP Policy Database assembled by the Economic Research Service in the U.S. Department of Agriculture. These variables, which vary across states and time, include the fraction of SNAP dollars redeemed via the EBT, indicators for whether the state allows broad-based categorical eligibility, whether the state operates call centers (either statewide or partial state), whether the state allows combined SSI/SNAP applications, whether it imposes short recertification periods of 3 months or less for households with a working member, whether noncitizens are eligible for benefits, whether the household must be fingerprinted (either statewide or partial state), whether the household is disqualified for being sanctioned by another program such as TANF, whether the state allows online applications (either statewide or partial state), whether the state adopted simplified reporting, whether it excludes the full value of a vehicle for eligibility, and the real spending on outreach. The expected signs on these variables are all intuitive, and reflect the series of carrots and sticks that states have adopted in administering their SNAP programs. Finally, to proxy for state variation in politics, I include an indicator variable whether the governor of the state is a Democrat, and

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[14] As discussed earlier the maximum benefit is generally tied to inflation of the food prices in the TFP, but the benefit also deviated from the TFP between 1988 and 1996, and from 2009-2011, providing non-inflation policy variation for identification.

expect the sign on the coefficient to be positive suggesting that Democratic governors create

policy environment more support of SNAP participation.[15]

[Table 2 here]

Table 2 presents linear probability estimates of the effect of the economy, policy, and

demographics on SNAP household participation weighted by the CPS ASEC household weight.

In column (1) the only measure of the economy is the state unemployment rate, where the

estimate of 0.41 says that a one percentage point increase in the unemployment rate leads to a

0.41 point increase in SNAP participation, or about 5.3 percent on the average SNAP household

participation rate of 7.6 percent from 1980-2011. This effect of unemployment is about one-half

the size from the time-series regression reported in equation (1), indicating that the time-series

model attributed too much to the economy once one controls for policy and demographics in the

pooled cross-sectional models of equation (2).[16] In column (2) when we add controls for state

median income and income inequality the effect of the business cycle is attenuated by about 27

percent, although once we admit a two-year lagged effect of the unemployment rate in column

(3) the total effect of the business cycle of 0.38 points nearly returns to the baseline estimate.

Columns (2) and (3) show that increases in the real median income lead to modest reductions in

SNAP participation, while increases in inequality lead to more economically substantive

increases. A unit increase in inequality leads to a 0.26 point increase in SNAP participation.

The next panel of Table 2 contains the estimates of the nonfood policy variables.

Expansions of the EITC subsidy rate over the past 30 years had an economically and statistically

important disincentive effect on SNAP participation—each percentage point increase in the

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[15] Although the District of Columbia is not a state and has no governor, I set the governor is a Democrat variable to 1 for all years for DC residents based on past voting of residents for local government.
[16] The average SNAP participation rates differ between equations (1) and (2) because in the former the outcome is persons participating and in the latter it is households.

subsidy rate reduces SNAP participation by 0.1 points, or about 1.3 percent at the mean level of

SNAP usage. Given the 20 percentage point increase in the subsidy rate for 2 qualifying children

in the mid 1990s suggests that increased EITC generosity had a substantive effect on reductions

in SNAP during that period. SNAP participation, holding other factors constant, is at least a

percentage point lower after implementation of TANF, suggesting an important spillover effect

of welfare reform onto the SNAP caseload.

The third panel of Table 2 presents estimates of the food policy variables. Each $100

increase in the real maximum benefit guarantee leads to a 1.9 point increase. Evaluated at the

means of the data the elasticity of SNAP participation with respect to the benefit guarantee is

0.88, which means that the 13.6 percent increase in benefits as part of ARRA is expected to

increase participation 12.2 percent.[17] On the converse, with the expiration of the ARRA benefit

increase in October 2013, participation is expected to fall by the same magnitude. Across the

various other policy variables only a few have a consistent economic and statistical effect on

participation. Broad-based categorical eligibility and simplified reporting are each associated

with increases in SNAP participation. States that have adopted these policies have SNAP

participation rates that are 0.6 and 0.8 points higher, respectively. At the same time, if the state

requires fingerprinting of its recipients then participation is about 0.7 points lower (columns 2

and 3). Outreach spending has the unexpected sign of reducing participation, though the

magnitude is very small.[18]

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[17] As a comparison, Nord and Prell (2011) estimate that the expanded ARRA benefit lowered food insecurity by 2.2 percentage points among low-income households, or about 8.8 percent on the baseline rate of 25 percent.
[18] A detailed examination of the food policy variables was carried out to explore whether the "kitchen sink" approach here was eliminating economic and statistical significance due to collinearity of the policy variables. The short answer is no. Sequentially adding food policy variables or combinations of food policy variables to the baseline set of the maximum benefit, broad-based categorical eligibility, simplified reporting, and fingerprinting did not alter the conclusion that most of the variables are not significant, but they do add to the model in the sense that some of them sharpen the effect of the four consistently significant variables. I also examined whether stopping the analysis in 2006 similar to Ganong and Liebman (2013) made a difference. The argument is that the Great

The next panel of Table 2 contains the estimated effects of demographic variables. There is evidence that SNAP participation significantly declines with age and with education attainment. White households are less likely to participate relative to African Americans and members of other races, as are non-Hispanics. Conditional on the number of related children in the household, participation declines in household size. Participation is also about 4 points lower in households that do not contain multiple generations. Finally, participation is higher among female-headed households by about 4 points, and lower among married households by almost 9 points and among those in metro areas compared to nonmetro areas.[19]

[Table 3 here]

In Table 3 I attempt to summarize the relative influence of the economy, policy and demographics through a series of counterfactual simulations. Specifically I use the model estimates presented in column (3) of Table 2 to examine how much of the increase in SNAP from 2007-2011, 2000-2011, and 1980-2011 can be attributed to economic forces, changes in non-food policies, changes in food policies, and changes in household demographics if each of the four groupings was held fixed group-by-group at the values at the start of the simulation period. For example, to assess the role of the economy in accounting for the increase in SNAP after the Great Recession from 2007-2011, I fix the unemployment rate and its lags, real median income, and real 90-10 income inequality at their 2007 levels and let the remaining variables

Recession may have changed the relationship between the regressors and SNAP participation. Doing so had no impact on the effect of demographics or the economy on SNAP. The before-TANF welfare variable was slightly stronger, and the effects of broad-based categorical eligibility and simplified reporting were weaker by stopping the analysis in 2006. The only variable that changed direction is outreach spending, which becomes positive and significant. None of these changes had an effect on the counterfactual simulations reported in Table 3.

[19] I also estimated unweighted versions of equation (2). The qualitative results are unchanged, but there are some differences in the magnitudes a few of the coefficients. For example, the effects of median income and inequality are stronger in the unweighted models, as are the effects of broad-based categorical eligibility, fingerprinting, and simplified reporting. This has limited effect on the simulation results. Likewise I estimated models restricting attention to those heads with a high school diploma or less in a bid to focus on a population at ex ante greater risk of SNAP use. Again, none of the qualitative results change.

change over time, including the year effects. I then examine the 2000-2011 change by fixing the economic variables at their 2000 level, and finally the 1980-2011 change in SNAP by fixing the economy at the 1980 values. This same exercise is conducted for each of the four variable groupings.

From 2007-2011, the participation of households in SNAP increased 68.7 percent. If we fixed the economic variables at their 2007 values, we would have predicted that SNAP participation would have increased only 35.8 percent. This implies that changes in the business cycle and income distribution accounted for 47.8 percent (=100*(1-35.8/68.7)) of the change over the four-year period after the Great Recession began. While only 1.6 percent of the increase was due to non-food policies, a substantive 28.5 percent was due to changes in Federal and state food policies. Changing demographics explain none of the increase in SNAP participation, and in fact, the negative number suggests that changes in demographics after 2007 actually helped dampen SNAP growth because caseloads were predicted to be even higher than actual.

The middle panel of Table 3 shows that after 2000 household participation in SNAP more than doubled. If the economic variables were fixed at their 2000 values then participation was predicted to only increase by 58.4 percent, or that the economy accounts for a sizable 45.4 percent of the actual change in participation. We also see that food policies have a more prominent role in the post-2000 period, accounting for 35 percent of the growth. Finally, in the bottom panel we look back over the prior 32 years and see that changing unemployment rates along with the income distribution account for 37 percent of the one-third increase in SNAP participation. However, food policies take center stage with a substantial 76.2 percent of the growth; whereas, nonfood policies such as EITC expansions and welfare reform have kept SNAP participation in check, as have changing demographics of the American household.

CONCLUSION

The Supplemental Nutrition Assistance Program is under the policy microscope as the current Congress debates whether and how to trim funding of the program in the coming decade. The case made to cut the program is based on concerns over the rapid growth in the past decade, both in terms of number of persons served and total cost. However, the evidence presented here suggests that the greatest factor underlying the increase in participation after the Great Recession, and indeed since 2000, is the weak macroeconomy characterized by higher unemployment, lower incomes, and widening inequality. The estimate that the economy accounts for nearly one-half of the increase from 2007-2011 is smaller than the two-thirds estimate reported in Ganong and Liebman (2013), most likely due to my inclusion of detailed controls for demographics and the income distribution which depress the effect of unemployment on SNAP. Even though each study uses different samples and methodologies, however, the common result is that the economy is the most important factor driving short-run changes in participation. That is, the program is operating as intended as an automatic fiscal stabilizer during this extended period of economic distress facing households in the U.S. Indeed, descriptive evidence points to growth in participation over the past dozen years among full-time, year-round workers, those with some college education, and those with household incomes between one and two times the federal poverty guideline. In other words, the program is increasingly operating as a work support for higher educated, but low-income households, not unlike the EITC, while still maintaining its universal entitlement to disadvantaged children and seniors, and the disabled.

The results also show that policy matters, as do demographics, especially in the long run. To be sure there have been some recent changes in program eligibility such as broad-based

categorical eligibility and simplified reporting that have led to significant increases in SNAP

participation over the past decade. These programmatic changes were implemented in a bid to

stem the tide of declining take-up rates in the late 1990s and to improve program efficiency, and

the prime facie evidence suggests they have largely worked. Take-up rates have rebounded to

levels at or above those in the early 1990s (Leftin, et al. 2011), while administrative error rates

from over-issuance and under-issuance of benefits have declined by over half since 2000.[20] The

CBO (2012) estimates that eliminating broad-based categorical eligibility as proposed in HR Bill

1947 so that all recipients face SNAP income and asset limits will reduce SNAP participation by

4.3 percent from 2013 to 2022. Presumably this will lead to a deterioration of program integrity,

and to a reduction in the fraction of SNAP recipients who combine work with SNAP as those

persons admitted by these rules tend to be the working near- poor. In addition, the estimates

presented suggest that the expiration of the temporary ARRA boost in benefits of 13.6 percent in

October 2013 is predicted to reduce participation by just over 12 percent. So with continued

improvements in the economy and return of benefits to pre-ARRA levels, SNAP participation

should begin to fall as projected by the CBO.

Over the long run, SNAP policies have loomed larger as a determinant of participation

than the economy, and this is not surprising since basic program parameters and eligibility rules

can shape the size and composition of the caseload more than in the short run. The estimates

here clearly point in the direction of lower participation and program cost because of the aging of

the population, fewer children and smaller households, the ongoing shift to cities from rural

areas, among other demographic forces. This suggests that if policy reforms are on the horizon

they should be framed within the context of the changing demographics of the U.S. household

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[20] Author's calculations using total errors rates produced by the Food and Nutrition Service from SNAP Quality
Control Data at http://www.fns.usda.gov/snap/qc/pdfs/2011-rates.pdf and
http://www.fns.usda.gov/snap/qc/pdfs/2000-rates.pdf.

and be targeted to long-run dimensions of the program and not in response to short-run changes in participation. Terminating eligibility until the recovery has had a chance to fully gain traction will likely be premature and expose vulnerable families to even greater economic risk.

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DATA APPENDIX

The primary data source used in the analysis comes from the Annual Social and Economic Supplement of the Current Population Survey for calendar years 1980-2011. I do not delete any observations for any reason, including those individuals with imputed responses by the Census Bureau. This results in 5,552,486 individuals residing in 2,053,018 households pooled across all years, or about 173,515 persons in a typical year across the sample period. Figures 1, 3, and 4 of the text rely on individual-level data, while Figures 2, and 5-9, along with Tables 2 and 3 utilize household-level information.

Figure 1 in the text is the weighted fraction of the noninstitutionalized population that participates in SNAP, where the weight is the individual weight assigned by the Census Bureau that adjusts for the stratified sample design. The Census question for SNAP receipt (HFOODSP) is

"Did anyone in this household get food stamps at any time during [19XX/20XX] (last year)?

where the yes/no response is assigned to all members of the household whether or not they receive direct assistance from the program. The unemployment rate in Figure 1 is the seasonally adjusted average monthly unemployment rate for individuals age 16 and older constructed by the Bureau of Labor Statistics, Series ID 14000000.

The assumption implicit in this paper is that if any member of the household receives SNAP then the entire household unit benefits because of resource pooling, which is consistent with the Bergson-Samuelson formulation of household utility maximization. The Census also asks the following question (HNUMFS for 1980-1986; HFOODNO for 1987-2011) conditional on an affirmative response to SNAP receipt:

"How many of the people now living here were covered by food stamps during [19XX/20XX] (last year)?"

As a check on the trends in SNAP reported in Figure 1, in Appendix Figure 1 I show trends in individual-level SNAP participation rates using the ASEC alongside an adjusted ASEC series were I multiply each weight by the ratio of the number of SNAP Recipients to the number of Household Members to adjust for the fact that not all members directly receive assistance. I also depict a series constructed using average monthly participation in the fiscal year from FNS administrative data obtained from http://www.fns.usda.gov/pd/SNAPsummary.htm (the ratio of average monthly participation to the population estimate from the ASEC). Appendix Figure 1 shows that from 1980 to the mid 1990s SNAP participation using the definition here results in higher rates relative to both administrative data and the adjusted ASEC series. From 1996-2003, and again in 2008-2010, the definition here coincides with administrative rates, but there is a greater separation in levels of participation in the adjusted ASEC, which seems consistent with increased rates of under-reporting (Wheaton 2007; Meyer and Goerge 2011). However, there are no substantive differences in the trends whether assigning all members to SNAP, or using the adjusted series, compared to trends in participation from administrative data.

Figure 2 in the text depicts trends in real household median income and inequality. For this series I use total household income (which includes family income plus income, both earned and unearned, of nonfamily members, defined by variables HHINCTOT for 1980-1986 and HTOTVAL for 1987-2011) and deflate it by the personal consumption expenditure deflator

using 2011 as the base year obtained from
http://www.whitehouse.gov/sites/default/files/docs/erp2013/ERP2013_Appendix_B.pdf.
Because all members of the household are assigned the same total income, I restrict attention to
the 2,053,018 household heads across the sample period. For each year I construct median real
household income, real income at the 10th percentile, and real income at the 90th percentile, and
construct the measure of real inequality using the ratio of the 90th to the 10th percentiles.

Figure 3 shows trends in SNAP participation by age category (A-AGE). As in Figure 1,
SNAP is determined at the household level, and thus Figure 3 reflects the participation rates of
members of those households by age. *Figure 4* then conditions on household participation in
SNAP and using person-level data computes the age composition of the SNAP caseload.

Figure 5 focuses on SNAP households and decomposes the caseload based on household
size (NUM-PERS for 1980-1986; H-NUMPER for 1987-2011).

Figure 6 depicts trends in the fraction of households containing multiple generations,
both across the entire population and conditional on SNAP status. For each year I identify each
unique household using the household sequence number (PPSEQNUM for 1980-1987; PH-SEQ
for 1988-2011). Within that household I identify that a grandchild is present if RHHDFMS = 13
for years 1980-1987, and if HHDFMX > 22 and < 35 for years 1988-2011. After 1986 I identify
that a parent of the head is present if A-EXPRRP = 8 and that HHDFMX > 34 and < 46. Prior to
1987 there is no direct classification of a parent of head and thus I proxy this if there is an "other
relative of head in the family" (REL-HEAD = 5 and RHHDFMS > 20 and RHHDFMS < 25)
who is at least 15 years older than the head. A household is multigenerational if it contains the
parent of the adult head or a grandchild of the head.

Figure 7 presents trends in the distribution of SNAP households by employment status of
the household head during the year prior to the survey and coinciding with the period of SNAP
receipt (A-WEWKRS for 1980-1986, WEWKRS for 1987-2011).

Figure 8 is trends in the distribution of SNAP households by education attainment of the
head. For the years 1980-1990 education attainment is derived by the two variables GRADE-
COM and HIGH-GRD, while for 1991-2011 it is based on A-HGA.

Figure 9 depicts trends in SNAP participation by poverty status of households. A
household is poor if total household income (HHINCTOT for 1980-1986; HTOTVAL for 1987-
2011) is less than or equal to the poverty guideline for a given household size obtained from
http://www.ssa.gov/policy/docs/statcomps/supplement/2012/3e.html#table3.e8.

Table 2 data on SNAP participation and household demographics are obtained from the
CPS ASEC. The state-by-year data on the unemployment rate, minimum wage, EITC
parameters, AFDC waivers, TANF implementation, household-size specific SNAP benefits, and
political party of the governor are obtained from the University of Kentucky Center for Poverty
Research (UKCPR) State Welfare Database at
http://www.ukcpr.org/EconomicData/Copy%20of%20UKCPR_National_Data_Set_07_01_13.xl
sx. Finally the SNAP policy variables are obtained from the SNAP Policy Database assembled

by the Economic Research Service in the U.S. Department of Agriculture http://www.ers.usda.gov/data-products/snap-policy-database.aspx#.UhQQ-ZLVC3I . There are missing values in 2010-2011 in the main ERS database for the variables call, cap, compdq, reportsimple, vehexclall, vehexclamt, and vehhexclone. For these I just assumed that the most recent value (0, 1, or 2 depending on variable) continued to the end of the 2011 fiscal year. The variables bbce_asset and oapp_esig each record a -9 as a "no" so I replaced these with 0. As described in the text, for policies that differ based on partial-state or full-state coverage, I combine the two categories into a single indicator of whether the policy is in operation in the state and do not distinguish coverage. Appendix Table 1 contains the sample means of the variables used in the Table 2 regression models.

Appendix Figure 1: Comparison of SNAP Participation Rates in CPS ASEC to Administrative Data
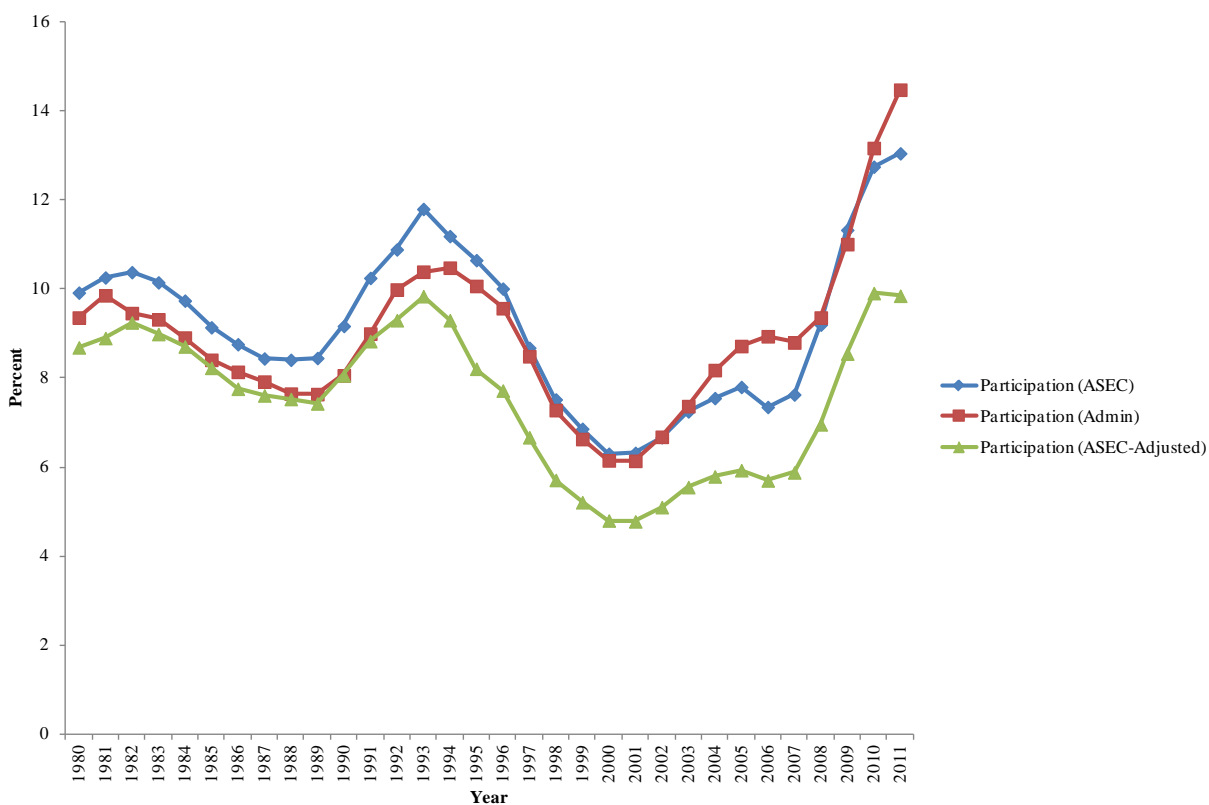
Appendix Table 1: Weighted Summary Statistics of Households
in the CPS ASEC, 1980-2011

	Mean	Standard Deviation
SNAP Participation	0.076	0.265
Economy		
Unemployment Rate	0.064	0.021
Unemployment Rate (t-1)	0.062	0.021
Unemployment Rate (t-2)	0.061	0.019
Median Income ($1000)	49.612	8.135
HH Income 90-10 Ratio	8.855	1.498
Nonfood Policy		
Min. Wage (Max Fed/State)	6.700	0.709
EITC Subsidy Rate	0.123	0.129
State has EITC	0.149	0.356
AFDC Waiver	0.048	0.201
TANF	0.506	0.496
Food Policy		
Food Stamp/SNAP ($100)	3.493	1.465
EBT Issuance	0.446	0.486
Broad-based SNAP Eligibility	0.143	0.342
Call Centers (part./full)	0.181	0.385
Combined Applications	0.121	0.323
Initiate by Phone (part./full)	0.079	0.269
Short Certification	0.547	0.498
Noncitizens SNAP-eligible	0.117	0.319
Req. Fingerprint (part./full)	0.138	0.345
Compulsory Disqualification	0.16	0.359
Online App. (part./full)	0.13	0.336
Simplified Reporting	0.284	0.444
Vehicle Assets Excludable	0.222	0.41
Outreach ($100,000)	0.363	1.084
Demographics		
Age 15-29	0.147	0.354
Age 30-44	0.312	0.463
Age 45-59	0.261	0.439
Age 60-74	0.185	0.388
High School Diploma	0.321	0.467
Some College	0.237	0.425
College	0.251	0.434
Black	0.118	0.323

Other	0.042	0.201
Hispanic	0.085	0.279
Household Size	2.582	1.459
Number children < 18	0.623	1.039
Multigenerational HH	0.047	0.211
Female	0.405	0.491
Married	0.536	0.499
Metro	0.784	0.412
Politics		
Governor is Democrat	0.485	0.500
Observations	2053018	

Figure 1: Trends in SNAP Participation and Unemployment Rate

Source: Author's calculations using CPS ASEC and BLS data
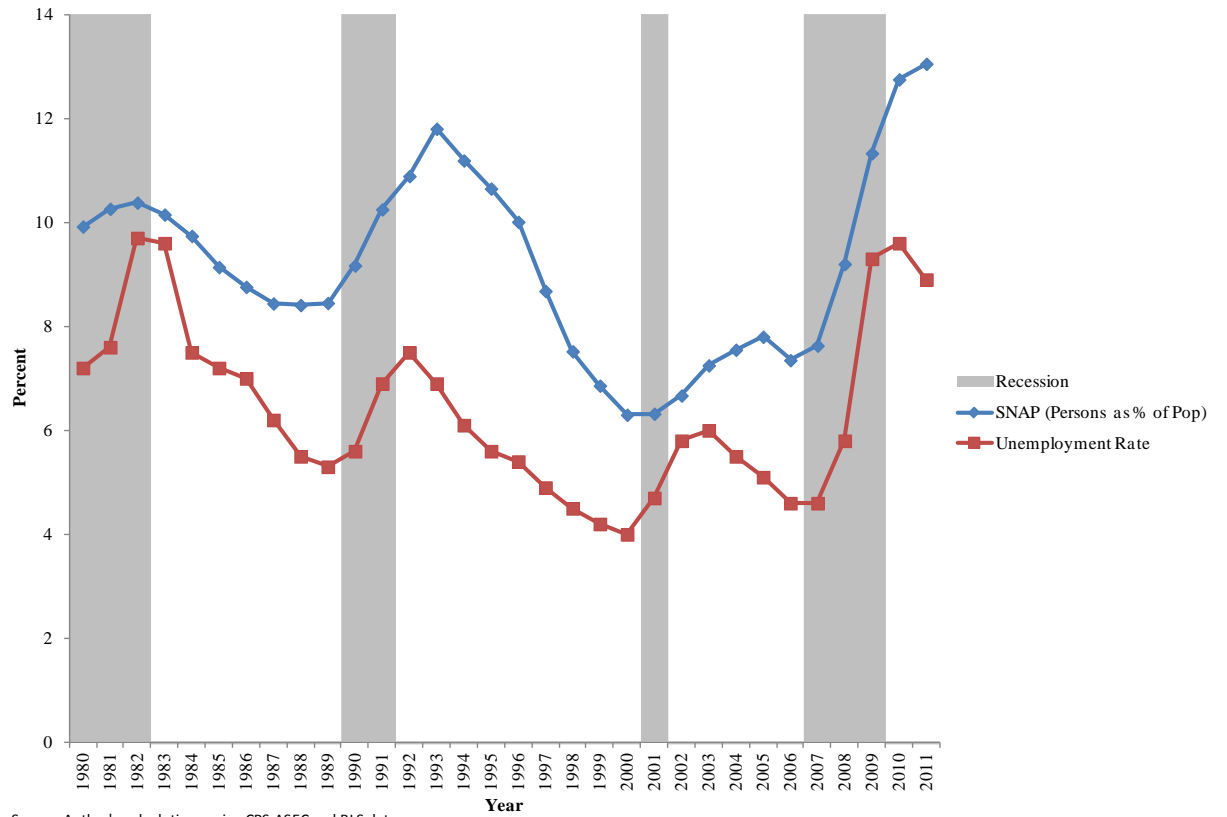
Figure 2: Trends in the Level and Inequality of Household Income

Source: Author's calculations using CPS ASEC data
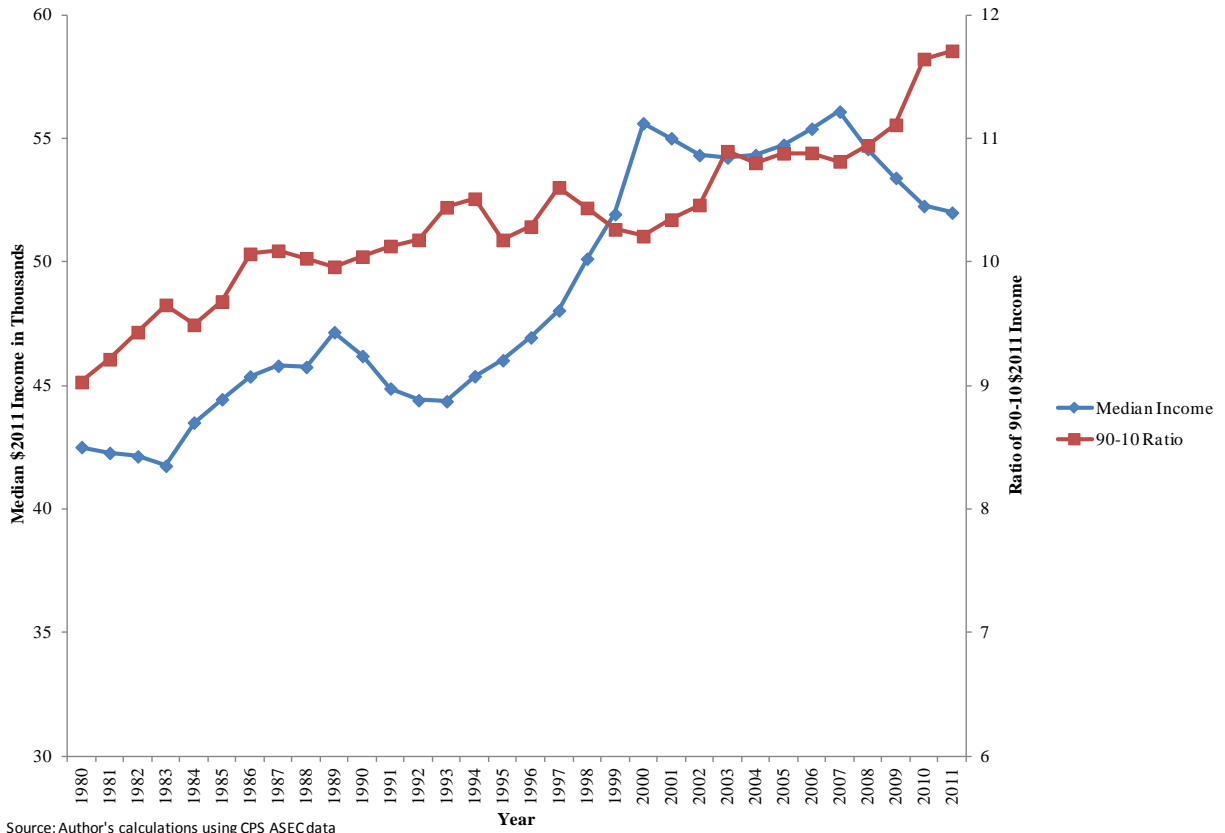
Figure 3: SNAP Participation Rates by Age of Household Member

Source: Author's calculations using CPS ASEC data
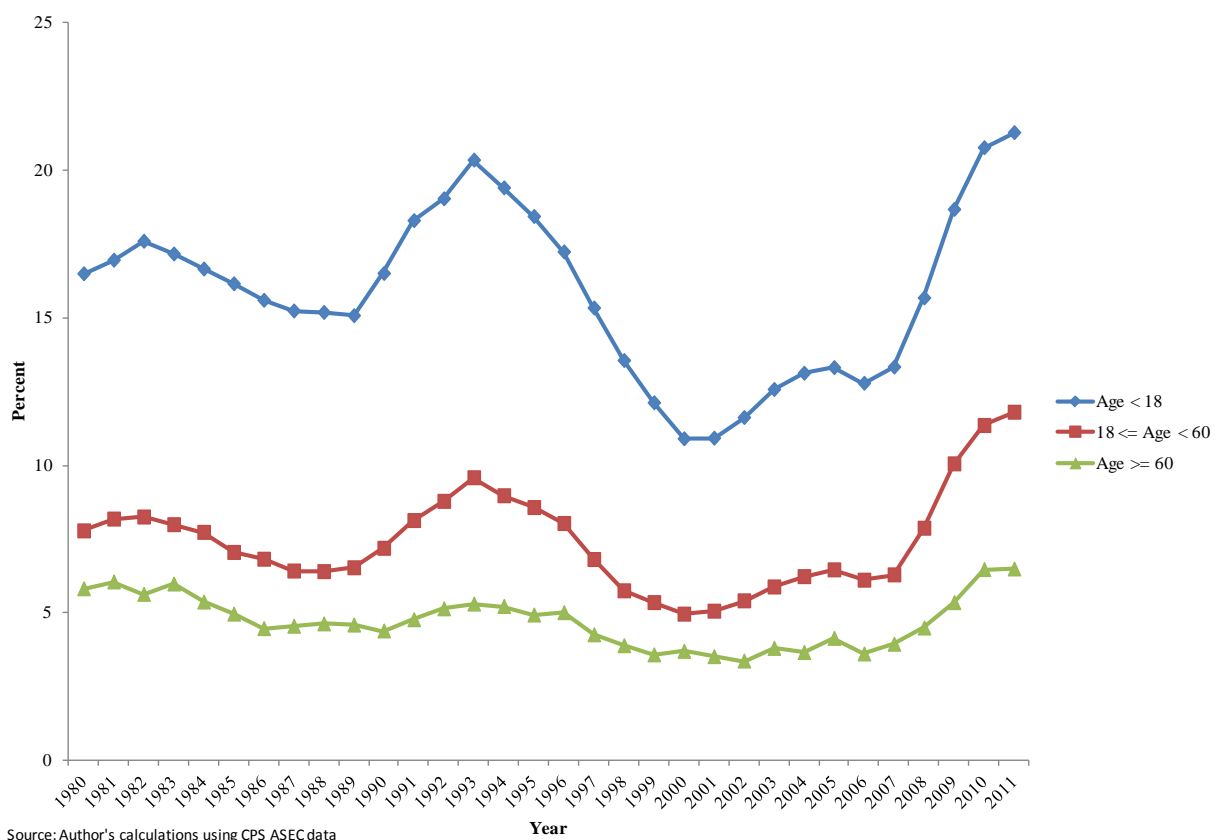
Figure 4: Trends in the Age Composition of SNAP Households

Source: Author's calculations using CPS ASEC data
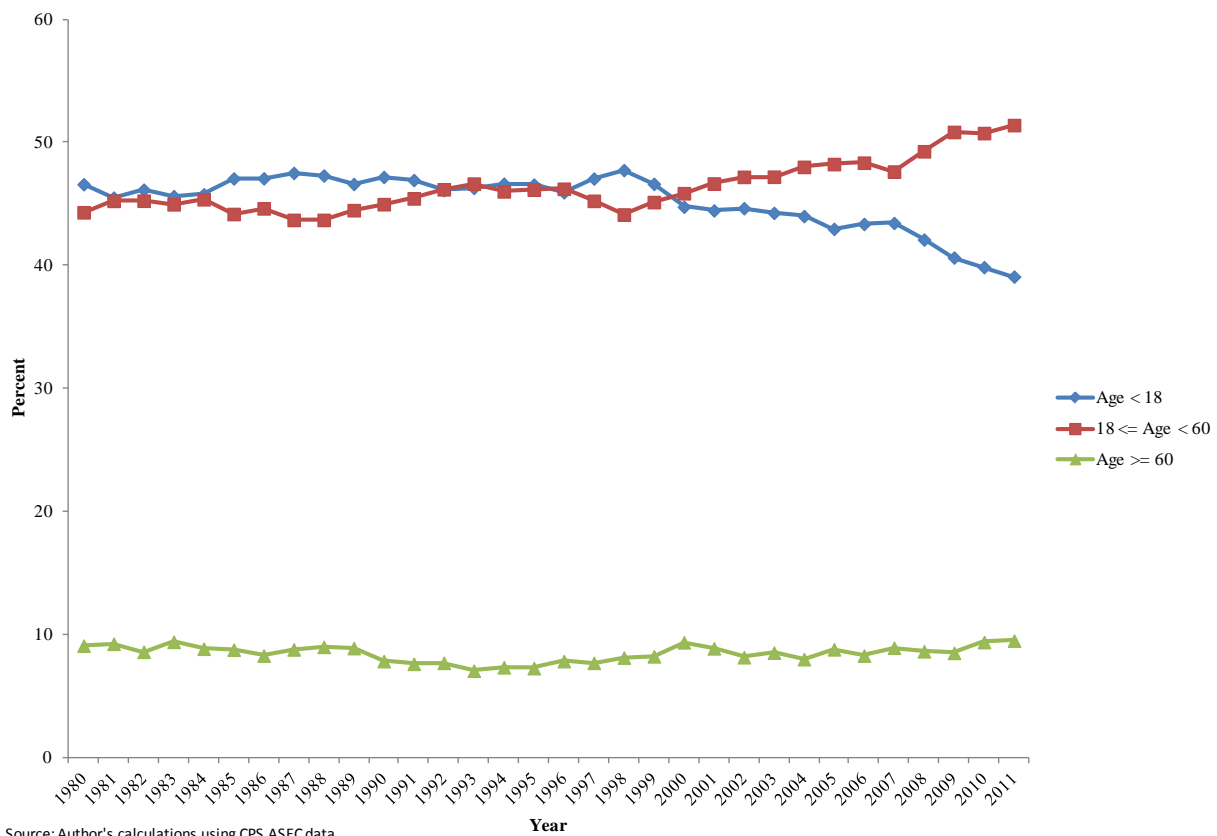
Figure 5: Trends in Distribution of SNAP Households by Size

Source: Author's calculations using CPS ASEC data
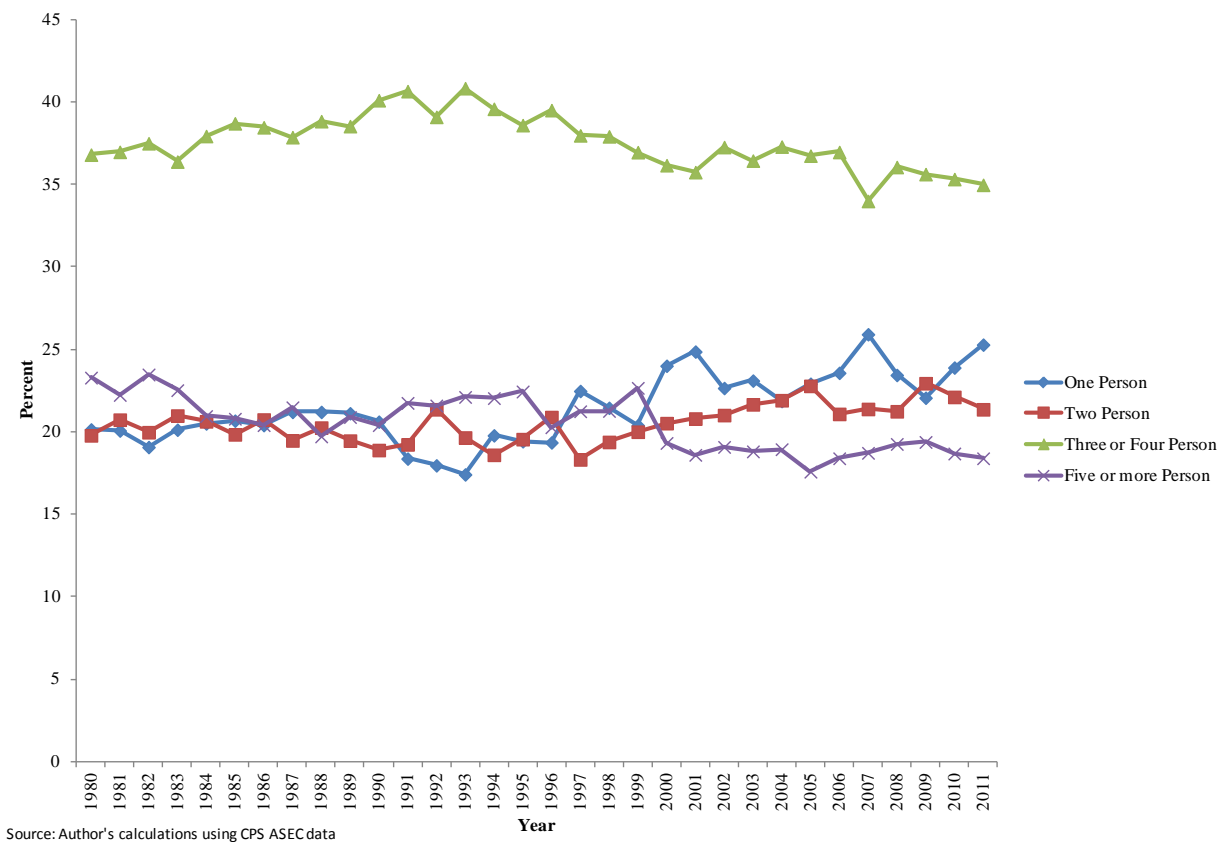
Figure 6: Trends in Multigenerational Households
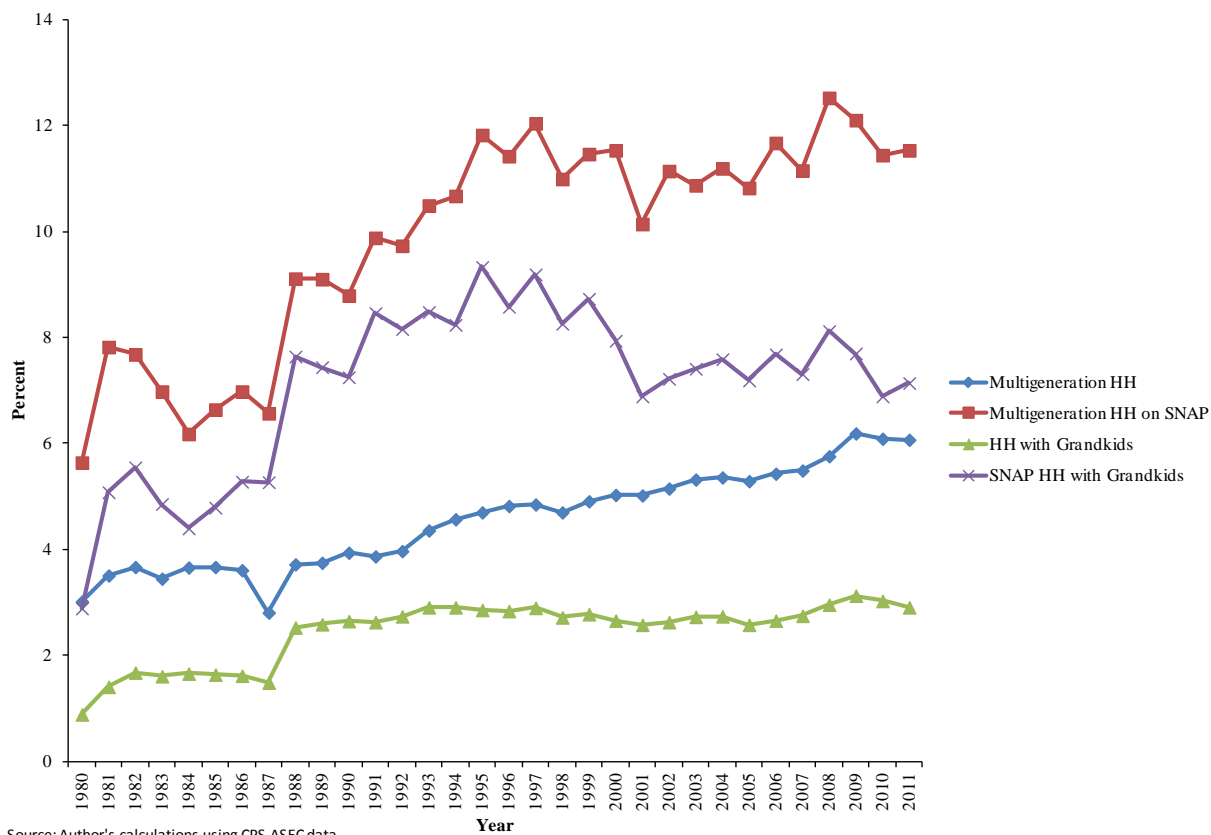
Source: Author's calculations using CPS ASEC data

Figure 7: Trends in Distribution of SNAP Households by Employment Status of Head
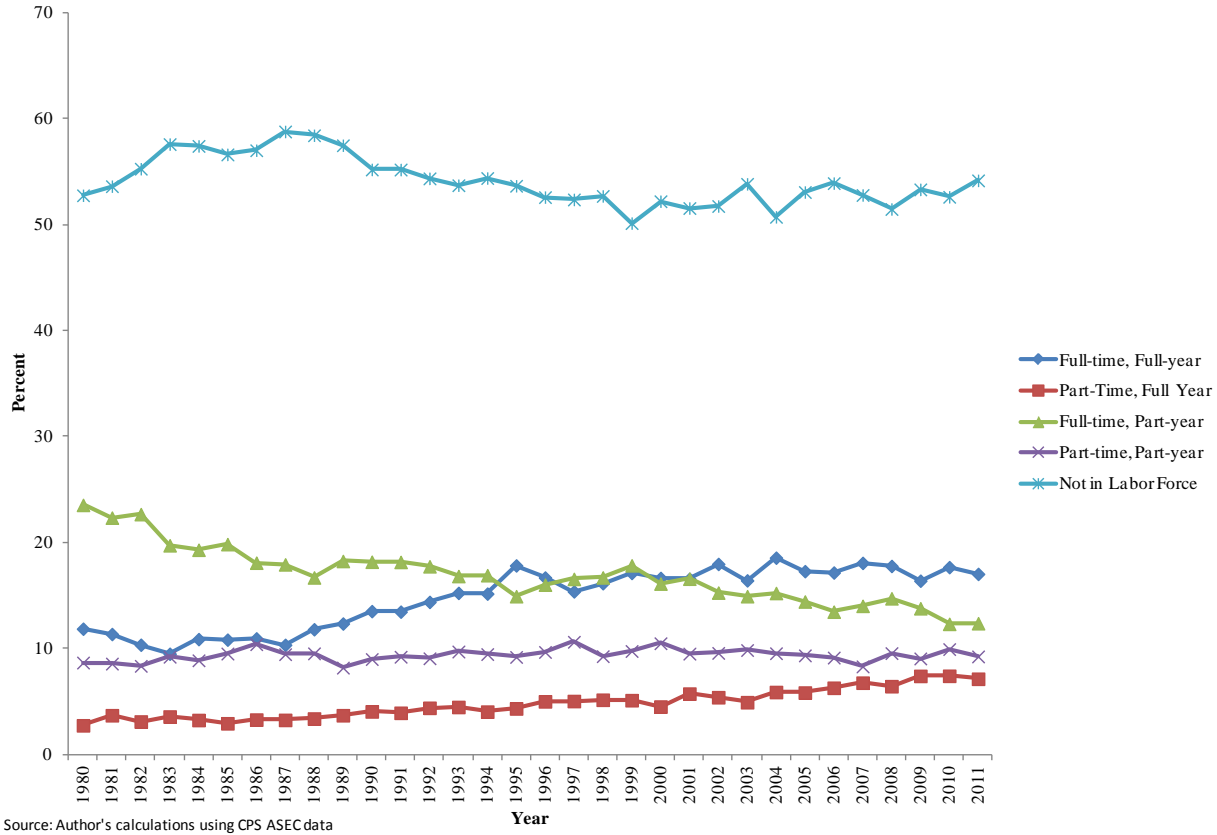
Source: Author's calculations using CPS ASEC data

Figure 8: Trends in Distribution of SNAP Households by Education Attainment of Head

Source: Author's calculations using CPS ASEC data

Figure 9: Trends in the Distribution of SNAP Households by Income Status

Source: Author's calculations using CPS ASEC data

Table 1: Number of States Implementing SNAP Policy Reforms
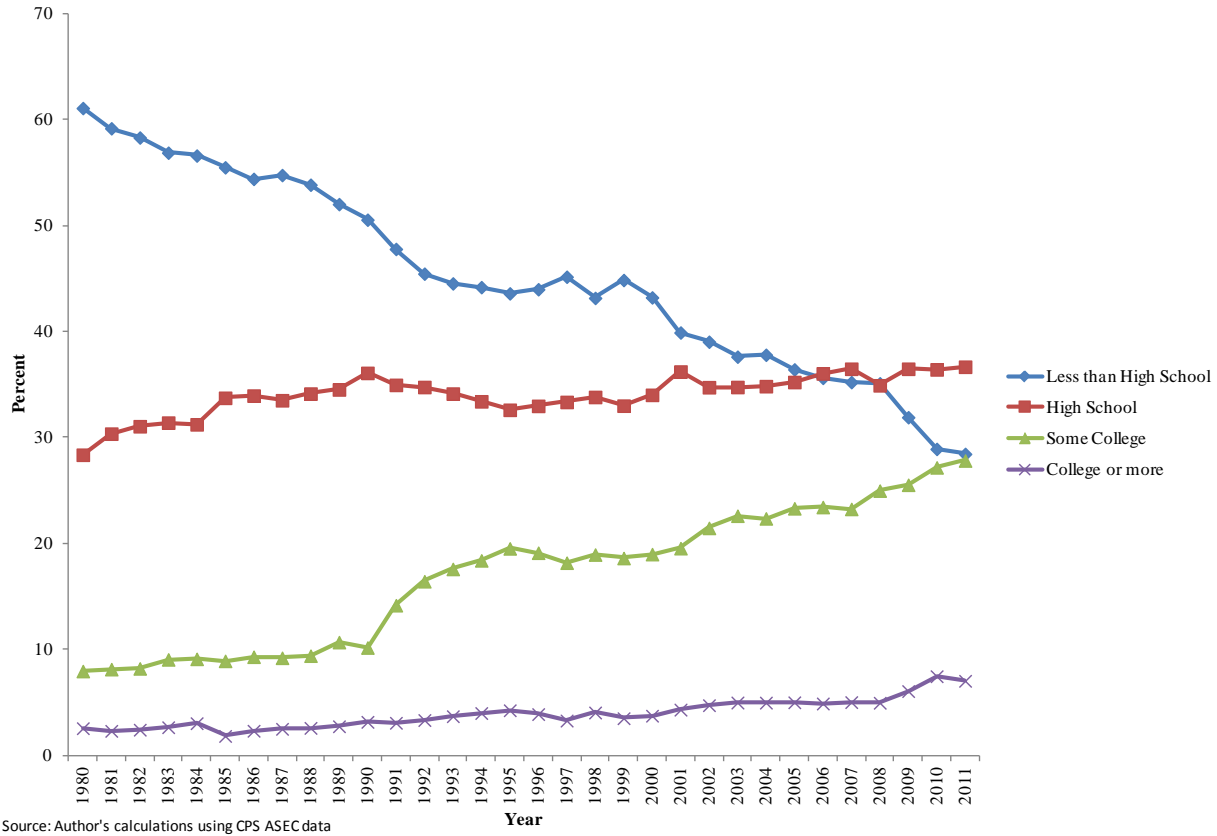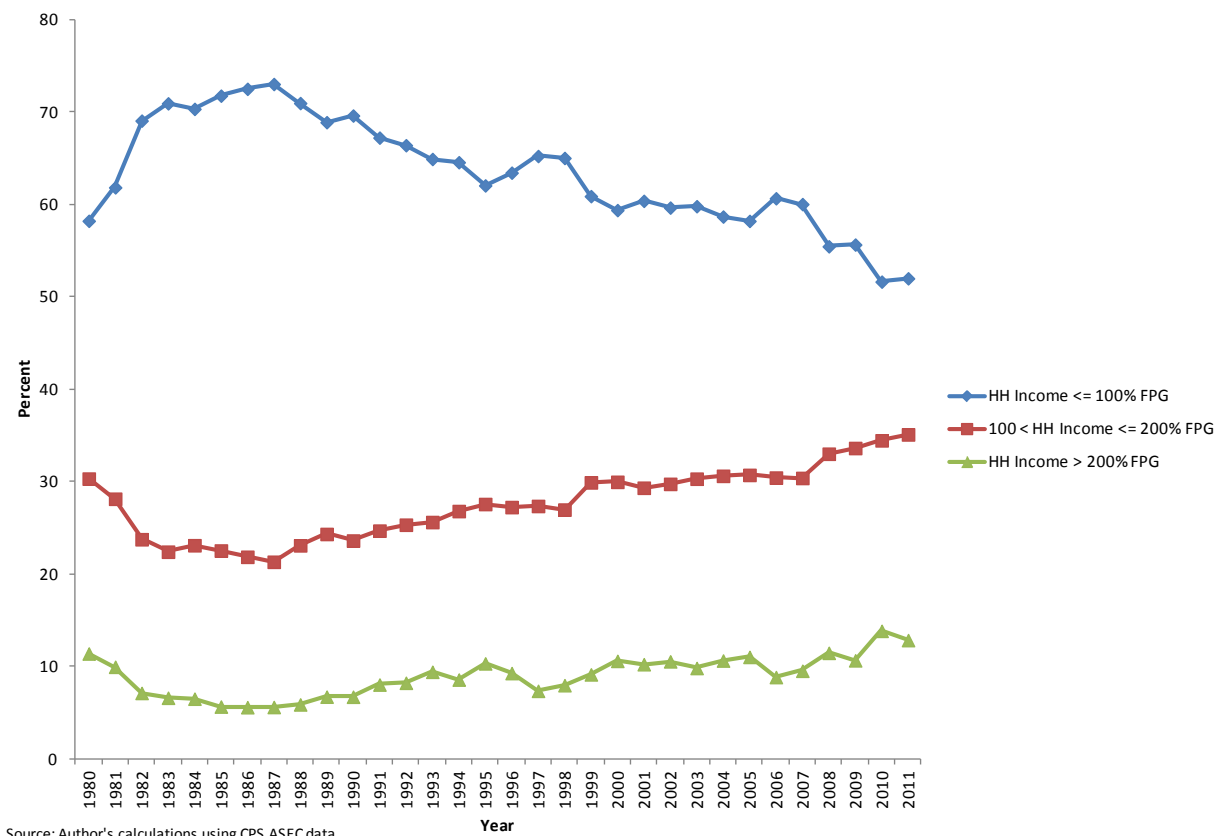
	Sept. 2000	Sept. 2011
Broad-Based Categorical Eligibility	2	41
Broad-Based Eligibility Eliminates Asset Test	2	38
Call Centers (partial state/full state)	4/2	19/14
Combined Applications	1	17
Working Cases with 1-3 month Recertification	41	17
Elderly Cases with 1-3 month Recertification	27	4
Nonearning Cases with 1-3 month Recertification	50	26
Compulsory Disqualification	15	18
All SNAP Dollars Redeemed as EBT	32	51
Initial Application by Phone (partial state/full state)	0/0	41/2
Recertify by Phone (partial state/full state)	0/0	44/3
Required Fingerprint (partial state/full state)	4/1	2/1
All Noncitizen Adult SNAP-eligible	9	3
Some Noncitizen Adult SNAP-eligible	42	48
All Noncitizen Child SNAP-eligible	10	51
Some Noncitizen Child SNAP-eligible	41	0
All Noncitizen Elderly SNAP-eligible	10	5
Some Noncitizen Elderly SNAP-eligible	41	46
Online Application (partial state/full state)	0/0	29/1
Online Application Digital Sig. (partial state/full state)	0	24
Spending on Outreach Efforts	10	35
Simplified Reporting	0	49
All Vehicle Assets Excludable	2	45
Vehicle Assets Limit Higher than Federal	0	2
Vehicle Assets Excludes At Least One, Not All	2	4

Source: SNAP Policy Database, Economic Research Service, USDA http://www.ers.usda.gov/data-products/snap-policy-database.aspx#.Uh3oARtebmc

Table 2: The Effects of the Economy, Policy, and Demographics on SNAP Participation

	(1)	(2)	(3)
Economy			
Unemployment Rate	0.4108***	0.2976***	0.1858***
	(0.0458)	(0.0537)	(0.0679)
Unemployment Rate (t-1)			0.0225
			(0.0744)
Unemployment Rate (t-2)			0.1710**
			(0.0664)
Median Income ($1000)		-0.0008***	-0.0007***
		(0.0002)	(0.0002)
HH Income 90-10 Ratio		0.0026***	0.0026***
		(0.0004)	(0.0004)
Nonfood Policy			
Min. Wage (Max Fed/State)	-0.0007	-0.0004	-0.0002
	(0.0012)	(0.0012)	(0.0012)
EITC Subsidy Rate	-0.1027***	-0.1026***	-0.1026***
	(0.0092)	(0.0092)	(0.0091)
State has EITC	0.0031	0.0032	0.0028
	(0.0026)	(0.0024)	(0.0024)
AFDC Waiver	-0.0033	-0.0029	-0.0036
	(0.0028)	(0.0025)	(0.0023)
TANF	-0.0138***	-0.0111***	-0.0108***
	(0.0032)	(0.0037)	(0.0032)
Food Policy			
Food Stamp/SNAP ($100)	0.0191***	0.0191***	0.0191***
	(0.0017)	(0.0017)	(0.0017)
EBT Issuance	-0.0002	0.0010	0.0008
	(0.0023)	(0.0020)	(0.0020)
Broad-based SNAP Eligibility	0.0059**	0.0059**	0.0058**
	(0.0026)	(0.0023)	(0.0023)
Call Centers (part./full)	-0.0011	-0.0020	-0.0018
	(0.0021)	(0.0019)	(0.0018)
Combined Applications	0.0010	0.0007	0.0008
	(0.0026)	(0.0026)	(0.0025)
Initiate by Phone (part./full)	-0.0034	-0.0021	-0.0017
	(0.0025)	(0.0022)	(0.0022)
Short Certification	0.0012	0.0008	0.0005
	(0.0015)	(0.0016)	(0.0016)
Noncitizens SNAP-eligible	0.0009	0.0021	0.0016
	(0.0029)	(0.0030)	(0.0030)
Req. Fingerprint (part./full)	-0.0042*	-0.0065***	-0.0071***
	(0.0021)	(0.0022)	(0.0022)
Compulsory Disqualification	0.0021	0.0011	0.0012
	(0.0020)	(0.0020)	(0.0020)

Online App. (part./full)	0.0011	0.0013	0.0011
	(0.0021)	(0.0018)	(0.0018)
Simplified Reporting	0.0083**	0.0074**	0.0075**
	(0.0031)	(0.0030)	(0.0028)
Vehicle Assets Excludable	-0.0007	-0.0013	-0.0009
	(0.0020)	(0.0021)	(0.0021)
Outreach ($100,000)	-0.0017*	-0.0017*	-0.0016*
	(0.0009)	(0.0009)	(0.0009)
Demographics			
Age 15-29	0.0712***	0.0712***	0.0712***
	(0.0075)	(0.0074)	(0.0074)
Age 30-44	0.0223***	0.0223***	0.0223***
	(0.0050)	(0.0050)	(0.0050)
Age 45-59	0.0365***	0.0366***	0.0366***
	(0.0045)	(0.0045)	(0.0045)
Age 60-74	0.0337***	0.0337***	0.0337***
	(0.0029)	(0.0029)	(0.0029)
High School Diploma	-0.0873***	-0.0873***	-0.0873***
	(0.0041)	(0.0041)	(0.0041)
Some College	-0.1138***	-0.1138***	-0.1138***
	(0.0048)	(0.0048)	(0.0048)
College	-0.1361***	-0.1361***	-0.1360***
	(0.0061)	(0.0061)	(0.0061)
Black	0.0969***	0.0969***	0.0969***
	(0.0056)	(0.0056)	(0.0056)
Other Race	0.0238***	0.0238***	0.0238***
	(0.0027)	(0.0027)	(0.0027)
Hispanic	0.0322**	0.0322**	0.0322**
	(0.0150)	(0.0150)	(0.0150)
Household Size	-0.0085***	-0.0085***	-0.0085***
	(0.0024)	(0.0024)	(0.0024)
Number children < 18	0.0540***	0.0539***	0.0539***
	(0.0021)	(0.0021)	(0.0021)
Multigenerational HH	0.0379***	0.0379***	0.0379***
	(0.0033)	(0.0033)	(0.0033)
Female	0.0422***	0.0421***	0.0421***
	(0.0019)	(0.0019)	(0.0019)
Married	-0.0886***	-0.0886***	-0.0886***
	(0.0034)	(0.0034)	(0.0034)
Metro	-0.0185***	-0.0184***	-0.0184***
	(0.0024)	(0.0024)	(0.0024)
Politics			
Governor is Democrat	0.0032***	0.0034***	0.0032***
	(0.0010)	(0.0009)	(0.0009)
Observations	2053018	2053018	2053018

Table 3. Simulations of the Effects of the Economy, Policy, and Demographics on Changes in Household Participation in SNAP

	Calendar Years 2007-2011							
	Economy Fixed at 2007 Levels		Non-Food Policies Fixed at 2007 Levels		Food Policies Fixed at 2007 Levels		Demographics Fixed at 2007 Levels	
Actual Change (%)	Predicted Change	Share due to Economy	Predicted Change	Share due to Non-Food	Predicted Change	Share due to Food	Predicted Change	Share due to Demographics
68.7	35.8	47.8	67.6	1.6	49.1	28.5	71.2	-3.7
	Calendar Years 2000-2011							
	Economy Fixed at 2000 Levels		Non-Food Policies Fixed at 2000 Levels		Food Policies Fixed at 2000 Levels		Demographics Fixed at 2000 Levels	
Actual Change (%)	Predicted Change	Share due to Economy	Predicted Change	Share due to Non-Food	Predicted Change	Share due to Food	Predicted Change	Share due to Demographics
106.6	58.2	45.4	103.3	3.1	68.8	35.4	111.9	-5.0
	Calendar Years 1980-2011							
	Economy Fixed at 1980 Levels		Non-Food Policies Fixed at 1980 Levels		Food Policies Fixed at 1980 Levels		Demographics Fixed at 1980 Levels	
Actual Change (%)	Predicted Change	Share due to Economy	Predicted Change	Share due to Non-Food	Predicted Change	Share due to Food	Predicted Change	Share due to Demographics
33.9	21.4	37.0	61.6	-81.5	8.1	76.2	52.9	-55.8

Source: Author's calculations based on parameter estimates in Table 2, column (3). Simulations hold identified variables fixed and allow others to vary over time. In each case, the year effects are allowed to vary over time. Shares do not sum to 100% since some factors are omitted.