How State Policies Influence the Efficacy of the Supplemental Nutrition Assistance Program in Reducing Poverty

Laura Tiehen, Dean Jolliffe, and Craig Gundersen

Laura Tiehen
Research Economist
Economic Research Service,
USDA
355 E St. SW, 5s-51
Washington, DC 20009
ltiehen@ers.usda.gov

Dean Jolliffe
Senior Economist
Economic Policy and Poverty
Team
The World Bank Group
1818 H Street NW
Washington, DC 20433
DJolliffe@worldbank.org

Craig Gundersen, Professor
Department of Agricultural and
Consumer Economics.
University of Illinois
324 Mumford Hall, 1301 West
Gregory Dr.
Urbana, IL 61801-3605
cggunder@illinois.edu

1. Introduction

The U.S. social safety net has undergone dramatic changes in the past two decades, with a shift away from direct cash assistance since the 1996 welfare reform legislation removed the entitlement to cash payments for low-income families with children; and more reliance on tax credits and in-kind assistance. During the past decade, the Supplemental Nutrition Assistance Program (SNAP, formerly called the Food Stamp Program) has experienced significant growth. The average monthly SNAP caseload increased from 17.2 million individuals in 2000 to 44.7 million individuals in 2011.

With the increase in the SNAP caseload, program expenditures have increased dramatically over the past decade, providing total benefits of almost $72 billion in 2011. Meanwhile, the policy environment has shifted to greater emphasis on fiscal austerity. In an era of tightening budgets, it is essential to examine the program's effectiveness as part of the social safety net. One important indicator of effectiveness is the extent to which the program alleviates poverty. We measure the effect of SNAP on poverty by including SNAP benefits in family income and calculating the percent reduction in poverty measures that portray the rate and the severity of poverty.

We find significant state-level differences in SNAP's efficacy in reducing the rate and severity of poverty. We examine how the reduction in poverty due to SNAP is affected by a number of factors, including macroeconomic conditions and differences in program administration. Over the past decade, states have been granted increased flexibility in how they administer SNAP. We use newly collected information on state policies regarding SNAP program eligibility and access to estimate how policy choices and economic conditions influence the antipoverty effect of SNAP.

2. Literature Review

Numerous studies have evaluated the effect of the SNAP on outcomes such as food expenditures (Breunig and Dasgupta, 2005), food insecurity (DePolt et al., 2009; Gundersen et al., 2009; Gundersen and Oliveira, 2001; Nord and Prell, 2011; Ratcliffe and McKernan, 2011 (forthcoming); Wilde and Nord ,2005), diet quality and nutrition (e.g., Fox, et al. 2004; Wilde et al. 1999) and obesity (Baum, 2011; Meyerhoefer and Pylypchuk, 2008; Ver Ploeg and Ralston, 2008).

Previous research has also examined the effect of SNAP benefits, as well as other near-cash government benefits, on the poverty rate. Much of this research has been conducted as part of efforts to develop and assess alternatives to the official measure of U.S. poverty (Citro and Michael, 1995; Garner and Short, 2010; Iceland et al., 2001; Blank, 2008). This broad research effort has culminated in the development of the Research Supplemental Poverty Measure (SPM) by the U.S. Census Bureau, which complements the official poverty measure (Short, 2011).[1] The SPM is designed to account for government expenditures that improve the well-being of low-income families, and has been used to calculate the number of individuals lifted above the poverty line by SNAP benefits (DeNavas-Walt et al., 2010; Short, 2011).

Research in the United States tends to focus on the poverty rate, though recent studies have paid greater attention to how government transfers have decreased the aggregate poverty gap, or the sum of the differences between the poverty threshold and the incomes of the poor (Scholz et al., 2009; Ziliak, 2005, 2008), and others have examined trends in the distribution of government transfers to different income classes and demographic groups among the poor

---

[1] For more details on the Supplemental Poverty Measure, see http://www.census.gov/hhes/povmeas/methodology/supplemental/overview.html/.

(Moffitt and Scholz, 2010; Newman et al., 2011; Todd et al., 2010; Ziliak, 2008). While there

has been relatively less attention to how SNAP benefits affect the depth and severity of U.S.

poverty, recent studies (Jolliffe et al., 2005; Tiehen et al., 2012) have shown that SNAP has a

relatively stronger effect on the depth and severity than on the prevalence of poverty. Tiehen et

al. (2012) also show that the antipoverty effect of SNAP increased from 2000 to 2009.

Most research has been at the national level; there has been very little research on how

state-level differences in economic conditions and the policy environment influence poverty.

An important exception is Gundersen and Ziliak (2008), who examine the effects of state-level

macroeconomic performance and social policy on the rate and severity of U.S. poverty from

1980 to 2000. We draw heavily on the methodological approach of Gundersen and Ziliak (2008)

to examine the effect of state-level differences in SNAP policies on the programs efficacy in

reducing the rate and severity of state-level poverty.

3. The Supplemental Nutrition Assistance Program

3.1 Eligibility and Benefits

SNAP is the largest U.S. food assistance program, providing 44.7 million individuals with an

average monthly benefit of $134 in 2011. In contrast with many other programs serving low-

income households, SNAP eligibility does not depend on family structure, age, or disability

status, so benefits reach a broad range of disadvantaged households.[2]

To receive SNAP, households must meet three financial criteria: the gross income, net

income, and asset tests.[3] A household's gross income before taxes in the previous month must be

at or below 130 percent of the poverty line ($1,984 per month in fiscal year 2010 for a three-

---

[2] There are certain restrictions on the receipt of SNAP by legal immigrants and able-bodied adults without dependents.

[3] SNAP eligibility guidelines are available at: http://www.fns.usda.gov/snap/applicant_recipients/eligibility.htm

person household).[4] In addition to the gross income test, a household must have net monthly income at or below the poverty line.[5] Finally, income-eligible households must have assets less than $2,000 ($3000 for households with someone over age 60 or disabled).

The SNAP benefit formula is a function of the maximum SNAP benefit amount (also known as the benefit guarantee) and the household's net income. Households with no net income receive the maximum SNAP benefit, based on the estimated cost of a nutritionally adequate diet for a given household size.[6] The SNAP benefit reduction rate is 30 percent--benefits are reduced by 30 cents for each additional dollar in household net income--and therefore, the poorest SNAP households receive the largest benefits.

3.2 SNAP Trends Over Time

The number of people participating in SNAP has grown steadily from 2000 to 2009, as shown in Figure 1. Figure 1 also shows that, historically, SNAP has been a counter-cyclical program; the caseload increases during recessionary times and declines during economic expansions. One notable exception is during the period of economic growth after the 2001 recession, when the unemployment rate dropped, but the SNAP caseload continued to increase. The poverty rate also continued to increase during this time period, which helps to explain the caseload increase.

As the caseload increased from 2000 to 2009, total SNAP benefits also increased. Real average benefits per person increased from $94 in 2000 to $105 in 2008, and then jumped by 20

---

[4] Households with someone over the age of 60 are exempt from the gross income test.
[5] Net income is equal to gross income minus a number of deductions. These deductions are a standard deduction, as well as deductions for labor market earnings (up to 20% of earnings), child care expenses, expenses for medical care of disabled dependents, and shelter costs in excess of 50 percent of a household's net income.
[6] For more details on the SNAP benefit formula, see:
http://www.fns.usda.gov/snap/applicant_recipients/eligibility.htm.

percent to $125 in 2009, when the 2009 American Recovery and Reinvestment Act (ARRA, also

known as the stimulus legislation) increased SNAP benefit levels (Tiehen et al, 2012). USDA

administrative data provides evidence of the targeting of SNAP benefits, with over 90 percent of

SNAP benefits received by poor households and over half of benefits received by households

with income less than 50 percent of the federal poverty guidelines. While real total SNAP

benefits more than quadrupled from 2000 to 2009, the share of total benefits received by the poor

and the severely poor remained fairly steady over the time period (Tiehen et al, 2009).

3.3 Changes in state-level SNAP policies

There are a number of changes in SNAP policy that have occurred over the past decade that

may have contributed to state-level differences in the antipoverty effect of SNAP. States have

been granted increased flexibility in how they administer SNAP, in an effort to increase program

access and reduce administrative burden (GAO, 2002). Table 1 summarizes many of these policy

changes, which are grouped according to whether they are expected to affect primarily SNAP

eligibility, the transaction costs of SNAP participation, or the stigma associated with SNAP

participation. The extent to which these policies influence the antipoverty efficacy of SNAP will

depend on how much they influence both the overall SNAP benefit levels and the targeting of

SNAP benefits.

We consider two policies that influence SNAP eligibility. The first is a policy referred to as

broad-based categorical eligibility, which was adopted by 40 states by 2010. Historically,

households that received cash assistance from the Aid to Families with Dependent Children

(AFDC) program were considered "categorically eligible" to receive SNAP, and therefore did

not have to meet the federal asset test to receive benefits. States can now use the broad-based

categorical eligibility policy to extend SNAP categorical eligibility to households that receive a wide range of noncash benefits that are funded with the State's Temporary Assistance for Needy Families (TANF; the cash welfare block grant program that replaced AFDC in 1996) dollars. The noncash benefit can be as simple as a brochure given to a SNAP applicant that provides information on the government assistance programs available to low-income households in the State. Once a SNAP applicant receives the brochure, they are considered categorically eligible for SNAP, and do not have the face the federal asset test for SNAP (Trippe and Gillooly, 2010).

The second policy that influences SNAP eligibility focuses on the eligibility of noncitizens. The 1996 welfare reform legislation eliminated the eligibility of legal noncitizens for SNAP. In response, a handful of states created and maintained state-funded food assistance programs for legal noncitizens that were otherwise ineligible for federal SNAP benefits, and subsequent federal legislation reinstated eligibility for specific groups of legal immigrants—legal noncitizen children and legal immigrants in the country for at least five years. Still, changes to the citizenship rules had long lasting effects. By 2010, although all legal immigrant children were eligible for SNAP in all 51 states, all elderly legal immigrants were eligible for SNAP in only 7 states.

States have also implemented a number of program changes to simplify the process to apply for and remain on SNAP (GAO, 2002), thereby reducing the transaction costs of SNAP participation. Two of the changes in particular are designed to increase SNAP participation among working poor households. States increased recertification periods—the number of months that could elapse before a SNAP household had to recertify eligibility. Increasing certification periods reduces the transaction costs of participation, particularly for working

households who may need to take off from work to complete the recertification process.[7] The

increase in certification periods began in the early 2000s, after a decade in which many States

decreased certification periods to avoid federally-administered penalties for benefit calculation

errors (Rosenbaum, 2000). In between certifications, households who receive food stamps must

report changes in circumstances that may affect their eligibility or benefits. A second policy

designed to reduce the transaction costs of SNAP participation is simplified reporting, which

allows SNAP recipients with earned income to report income changes on a semi-annual basis,

rather than each month or each time a change in circumstances occurs (GAO, 2002)[8]. Since

2000, all states have the option to allow

States have also increased the availability of online SNAP applications, where an applicant is

allowed to submit the application via a state website. By 2010, 22 states allowed online

submission of SNAP applications. In 18 of those states, the applicant is allowed to submit the

application with an electronic, or "e-Signature". In the other 4 states, although the applicant is

allowed to apply on-line, the applicant still needs to submit a hardcopy form with an actual signature

before benefits are authorized. Another state policy choice designed to reduce the transaction costs

of SNAP participation is targeted to recipient of Supplemental Security Income (SSI), a federal

program that provides income support to low- income people who are either 65 years or older, blind,

or disabled. The SSI combined application projects (CAPs) designed to either automatically enroll

SSI recipients into SNAP, or identify SSI recipients who are not receiving SNAP and provide them

with a simplified SNAP application form.

Finally, the roll-out of EBT cards, which can be used like a bank debit card to purchase

eligible food, may reduce the stigma of program participation. The EBT expansion occurred

---

[7] The federal government requires that states recertify the eligibility status of participants at least once a year, except for households in which all members are elderly or disabled, which can be certified for more than one year.
[8] Under simplified reporting, households are required to report changes to their financial circumstances only if total income rises above 130% of the poverty line (or hours worked fall below 20 hours per week for ABAWDs).

between 1989, when Maryland adopted EBT payments, and 2004, when California became the last state to fully implement EBT.

4. Data

4.1. Measures of Poverty and Poverty Reduction Due to SNAP

To create measures of the effect of SNAP on poverty, we use data from the Annual Social and Economic (ASEC) Supplement to the Current Population Survey (CPS). We use 10 years of CPS-ASEC data to construct an annual state-level panel of our two outcomes of interest from 2000 to 2009: (1) the percent reduction in the headcount index, and (2) the percent reduction in the squared-poverty gap index, due to SNAP benefits.

We use the CPS because it is the data source for official U.S. poverty estimation, and our analysis focuses on how SNAP affects poverty. We consider the effect of adding the value of SNAP benefits to family income and compare two measures of poverty with and without SNAP benefits. We are particularly concerned about matching the official poverty estimates, and the CPS allows us to do this.

A shortcoming of the CPS is that, as recently documented by Meyer et al. (2009), it underestimates the number of SNAP recipients and the value of SNAP benefits. We find that, from 2000 to 2009, the reported average monthly individual participation in the CPS is 70.6 percent of the average monthly individual participation in SNAP administrative data and the reported total benefits in the CPS are 59.3 percent of administrative totals. One common approach to correct for underreporting of program participation is to predict receipt, based on the observable characteristics of participants (See, for example, Scholz et al. (2009)). However, recent research using SNAP administrative data in two States matched with CPS data suggests

that there are systematic differences in the characteristics of SNAP participants who correctly report participation and those who do not (Meyer and George, 2011). Although we do not correct for the underreporting of SNAP receipt in this analysis, our future research will incorporate the information on SNAP receipt gained from efforts to match survey and administrative data across a larger share of the U.S. population.

We focus on the extent to which SNAP reduces two poverty measures that are from the frequently used Foster-Greer-Thorbecke (1984) family of poverty indices. The headcount index is the proportion of persons living in poverty, and provides a measure of the prevalence of poverty. The squared-poverty-gap index is defined as the mean of squared poverty gaps, where the poverty gaps are the distance below the poverty threshold for each poor family, and the mean is formed over the entire population. The squared poverty gap index provides a measure of the severity of poverty, and gives a higher weight to those who are further below the poverty threshold.

The FGT class of poverty indices, also referred to as P_α, can be represented as:

(1) $$P_\alpha = 1/n \sum_i I(y_i < z)[(z - y_i)/z]^\alpha$$

where n is the sample size, i subscripts the individual or family, y is income, z is the poverty threshold, and I is an indicator function which takes the value of one if the statement is true and zero otherwise. When $\alpha=0$, the resulting measure is the headcount index, or P_0. When $\alpha=2$, the FGT index results in the squared poverty gap index (P_2).

We then calculate the percentage decline in the two poverty measures from adding SNAP benefits to family income, as:

(2)
$$P'_\alpha = 1/n \sum_i I(\{y_i + fsb_i\} < z)[(z - \{y_i + fsb_i\})/z]^\alpha$$

where fsb_i is the value of SNAP benefits for family i, and all other terms are defined as in

equation (1). Thus, our outcomes of interest are the percentage decline in poverty from including

SNAP benefits, $[(P_\alpha - P'_\alpha)/P_\alpha]*100$ for $\alpha=0$ and $\alpha=2$. In other words, the percentage difference

between the results from equation (2) and equation (1).

It is important to note that we do not capture the potential behavioral response to SNAP

benefits. If SNAP benefits reduce an individual's labor supply, then earned income will be

lower than it would have been in the absence of SNAP and we will overstate the effect of SNAP

on total family income. Research suggests, however, that the labor supply response to SNAP

benefits is modest (Fraker and Moffitt 1988; Hagstrom 1996; Hoynes and Schanzenbach 2010;

Keane and Moffitt, 1998).

As noted previously, prior research (Tiehen et al., 2012) found that SNAP benefits have a

relatively stronger effect on the depth and severity of poverty than on the prevalence of poverty,

and that the antipoverty effect of SNAP increased from 2000 to 2009. We find substantial state-

level variation in the antipoverty effect of SNAP. As shown in Table 2, adding SNAP benefits to

family income reduced the headcount index by an annual average of 4.4 percent from 2000 to

2009, and reduced the squared poverty gap index by 13.2 percent. In that time period, the

reductions in the squared poverty gap index due to SNAP varied at the state-level from an annual

average of 7.1 percent in Nevada to 19.5 percent in Kentucky.

4.2 State-Level SNAP Policies and Macroeconomic Conditions

The information on state-level SNAP policies is compiled by the Economic Research Service, USDA, based primarily on information supplied by the Food and Nutrition Service, USDA. The state-level unemployment rate data is from the Local Area Unemployment Statistics, produced by the Bureau of Labor Statistics (BLS). Data on state populations, used to weight the regressions, are from the Census Bureau.

5. Methods

To estimate how state SNAP policies and macroeconomic conditions influence the antipoverty effect of SNAP, we employ the following equation for each of the three poverty measures:

$$PD_{\alpha st} = \sum_{l=0}^{L} \beta_l F_{s(t-l)} + \sum_{m=0}^{M} \delta_l P_{s(t-m)} \sum_{k=0}^{K} \alpha_l U_{s(t-k)} + \eta_s + \phi_t + \lambda_s t + \varepsilon_{st}$$

where $PD_{\alpha st}$ is the percent decline in the poverty measure α (i.e. headcount or squared poverty gap index) in state s in year t, F_{st} is a vector of state-level SNAP policies, P_{st} is a vector of other state policies that are expected to affect low-income populations, U_{st} is the state unemployment rate. We include lags of the policy variables and the unemployment rate to account for sluggish adjustment to policy implementation and changes in economic conditions. We include fixed effects for state, η_s, and year, ϕ_t. To control for trends within each state, we include a state-specific linear time trend, $\lambda_s t$. We also estimate a specification that does not include state-specific linear time trends.

Our identification strategy relies on the variation across states and over time in state SNAP policies and economic conditions. There is a great deal of variation in the policies adopted

by states, as well as the timing of their adoption. There is also a great deal of variation across states and over time in macroeconomic conditions during the time period of our study, which includes the 2001 and the 2007-2009 recessions.

6. Results and Conclusion

Table 3 presents fixed-effects regression results for equations explaining the percent decline due to SNAP benefits in the headcount index due to SNAP benefits (in Columns 1 and 2), and the percent decline in the squared poverty gap index (in Columns 3 and 4). All specification include state and year fixed effects. For each outcome variable, we estimate a specification that excludes linear time trends (Columns 1 and 3) and a specification that include linear time trends (Columns 2 and 4). The estimation results in Table 3 focus on poverty in the overall population. Future analysis will also examine the percent declines in these poverty measures for specific population subgroups, particularly children.

We first focus on the results of the equation explaining the percent decline in the state headcount index due to SNAP benefits. The estimation results indicate that two of the policy changes that reflect an expansion in SNAP eligibility are associated with an increase in SNAP's efficacy in reducing the prevalence of poverty. Providing SNAP eligibility to all eligible legal noncitizen children and adopting broad-based categorical eligibility are both associated with increases in SNAP's antipoverty effect on the headcount index.

SNAP recertification policies do not have a statistically significant effect on the antipoverty effect of SNAP. The adoption of simplified reporting in a state does have a statistically significant relationship with the antipoverty effect of SNAP. However, the sign of

the coefficient estimate is negative, which implies that allowing simplified reporting in a state is associated with a decline in the antipoverty effect of SNAP, a counterintuitive result.

Columns 3 and 4 display the estimation results for the equation explaining the percent decline in the state-level squared poverty gap index due to SNAP benefits These results provide an indication of which policy changes were most likely to affect SNAP participation and benefits among families whose income is farthest from the poverty threshold. The estimation results show that extending SNAP eligibility to all legal noncitizen elderly individuals in the states is associated with a strong antipoverty effect of SNAP on the severity of poverty. Likewise, the EBT expansion is associated with an increase in SNAP's effect in reducing the severity of poverty. Providing SSI recipients with a simplified process for applying for SNAP is associated with an increase in SNAP's efficacy in reducing the severity of poverty, but the association does not hold in the specification that includes state linear time trends.

It is worth noting the mixed estimation results on the availability of online applications and the use of e-signatures in the online application process. The availability of an online SNAP application is not associated with a change in the antipoverty effect of SNAP with respect to headcount index, although it is associated with an increase in SNAP efficacy in reducing the squared poverty gap in the specification without state linear time trends. The results also indicate that allowing SNAP recipients to submit an electronic signature is associated with a reduction in SNAP's antipoverty effect, which is counterintuitive. It is possible that the availability of an online application is prompted by, and serves as a proxy for, decreases in the number of SNAP caseworkers in the state.

Finally, the estimation results indicate that as the unemployment increases, the antipoverty effect of SNAP increases with respect to the headcount index. However, increases in

the unemployment rate are not associated with increases in the antipoverty effect of SNAP with respect to the squared poverty gap index. This suggests that increases in the SNAP caseload that arise from increases in the unemployment rate are concentrated among poor families whose incomes are closer to the poverty threshold. This is consistent with the idea that members of those families are more closely attached to the labor market.

Our results, though preliminary, provide evidence that state policy choices have influenced the efficacy of SNAP in improving the well-being of low-income households. In addition, by considering separate equations for the two poverty measures, our analysis shows whether specific SNAP policies generate greater SNAP-induced reductions in the rate or severity of poverty. For example, extending SNAP eligibility to all legal noncitizen elderly increases SNAP's effect on the severity of poverty, but not on the prevalence of poverty. This suggests that this policy affects those who are at the lower end of the income distribution among eligible households. Finally, historical evidence shows that the SNAP caseload increases during economic downturns. Our preliminary results show that economic downturns, as evidenced by increases in the unemployment rate, are associated with an increase in SNAP's effect on the prevalence of poverty, but does not influence SNAP's effect on the severity of poverty.

References:

Foster, J., J. Greer, and E. Thorbecke. 1984. "A Class of Decomposable Poverty Measures." *Econometrica* 52:761-65.

Tiehen, L., D. Jolliffe, and C. Gundersen. 2012. *Alleviating Poverty in the United States: The Role of SNAP Benefits*. USDA Economic Research Service Economic Report, forthcoming.

Baum, Charles L. 2011. "The Effects of Food Stamps on Obesity," *Southern Economic Journal*, 77(3):623-51.

Bitler, Marianne, and Hilary W. Hoynes. 2010. *The State of the Safety Net in the Post-Welfare Reform Era*, Working Paper No. 16504, National Bureau of Economic Research, Cambridge, MA. October.

Blank, Rebecca M. 2008. "How to Improve Poverty Measurement in the United States," *Journal of Policy Analysis and Management* 27(2):233-54.

Breunig, Robert, and Indraneel Dasgupta. 2005. "Do Intra-Household Effects Generate the Food Stamp Cash-Out Puzzle?" *American Journal of Agricultural Economics* 87(3), August, pp. 552-68.

Citro, Constance F., and Robert T. Michael (eds). 1995. *Measuring Poverty: A New Approach*, National Academy Press, Washington, DC.

DeNavas-Walt, Carmen, Bernadette D. Proctor, and Jessica C. Smith. 2010. *Income, Poverty, and Health Insurance Coverage in the United States: 2009*, Current Population Report No. P60-238, U.S. Census Bureau.

DePolt, R., R. Moffitt, and D. Ribar. 2009. "Food Stamps, Temporary Assistance for Needy Families and Food Hardships in Three American Cities," *Pacific Economic Review* 14(2009):445-73.

Foster, J., and A. Shorrocks. 1991. "Subgroup Consistent Poverty Indices," *Econometrica* 59(1991):687-709.

Foster, J., J. Greer, and E. Thorbecke. 1984. "A Class of Decomposable Poverty Measures," *Econometrica* 52(1984):761-65.

Fox, Mary Kay, William Hamilton, and Biing-Hwan Lin. 2004. *Effects of Food Assistance Programs on Nutrition and Health: Volume 3, Literature Review*, USDA, Economic Research Service,, December. Available at: http://www.ers.usda.gov/publications/fanrr19-3/.

Fraker, Thomas, and Robert Moffitt. 1988. "The Effect of Food Stamps on Labor Supply: A Bivariate Selection Model," *Journal of Public Economics* 35(l):25-56.

Garner, Thesia I., and Kathleen S. Short. 2010. "Identifying the Poor: Poverty Measurement for the U.S. from 1996 to 2005," *Review of Income and Wealth* 56:2(June).

Gundersen, C., and V. Oliveira. 2001. "The Food Stamp Program and Food Insufficiency," *American Journal of Agricultural Economics* 83(November 2001):875-87.

Gundersen, C., D. Jolliffe, and L. Tiehen. 2009. "The Challenge of Program Evaluation: When Increasing Program Participation Decreases the Relative Well-Being of Participants," *Food Policy* 34(2009):367-76.

Gundersen, Craig, and James P. Ziliak. 2004. "Poverty and Macroeconomic Performance Across Space, Race, and Family Structure," *Demography* 41(1):61-86.

Hagstrom, Paul. 1996. "The Food Stamp Participation and Labor Supply of Married Couples: An Empirical Analysis of Joint Decisions," *Journal of Human Resources* 31(2):383-403.

Howes, S., and J.O. Lanjouw. 1998. "Does Sample Design Matter for Poverty Comparisons," *Review of Income and Wealth* 44(1998):99-109.

Hoynes, Hilary W., and Diane Whitmore Schanzenbach. 2009. "Consumption Responses to In-Kind Transfers: Evidence from the Introduction of the Food Stamp Program," *American Economic Journal: Applied Economics* 1(4):109-39.

Hoynes, Hilary Williamson, and Diane Whitmore Schanzenbach. 2010. "Work Incentives and the Food Stamp Program," Working Paper No. 16198, National Bureau of Economic Research, Cambridge, MA.

Iceland, John, Kathleen Short, Thesia Garner, and David Johnson. 2001. "Are Children Worse Off? Evaluating Well-Being Using the New (and Improved) Measure of Poverty," *Journal of Human Resources* 36(2):398-412.

Jolliffe, Dean. 2006. "The Cost of the Living and the Geographic Distribution of Poverty," ERR-16, USDA, Economic Research Service. September. Available at: http://www.ers.usda.gov/publications/err16/.

Jolliffe, D., C. Gundersen, L. Tiehen, and J. Winicki. 2005. "Food Stamp Benefits and Child Poverty," *American Journal of Agricultural Economics*, August, 87(3):569-81.

Jolliffe, D. 2003. "Comparisons of Metropolitan-Nonmetropolitan Poverty During the 1990s," RDRR-96, USDA, Economic Research Service. Available at: http://www.ers.usda.gov/publications/rdrr96/.

Jolliffe, D. 2002/2003. "Estimating Sampling Variance from the Current Population Survey: A Synthetic Design Approach to Correcting Standard Errors," *Journal of Economic and Social Measurement* 28(2002/2003):239-61.

Jolliffe, D., and A. Semykina. 1999. "Robust Standard Errors for the Foster-Greer-Thorbecke Class of Poverty Indices: SEPOV," *Stata Technical Bulletin* 51(1999):34-6.

Kakwani, N. 1980. "On a Class of Poverty Measures," *Econometrica* 48(1980):437-46.

Keane, M., and R. Moffitt. 1998. "A Structural Model of Multiple Welfare Program Participation and Labor Supply," *International Economic Review* 39(3):553-89.

Kish, L. 1965. *Survey Sampling*, New York: John Wiley & Sons.

Leftin, Joshua. 2010. *Trends in Supplemental Nutrition Assistance Program Participation Rates: 2001 to 2008*, USDA, Food and Nutrition Service.

Leftin, Joshua, Andrew Gothro, and Esa Eslami. 2010. Characteristics of Supplemental Nutrition Assistance Program Households: Fiscal Year 2009, USDA, Food and Nutrition Service.

Mabli, James, Emily Sama Martin, and Laura Castner. 2009. *Effects of Economic Conditions and Program Policy on State Food Stamp Program Caseloads: 2000 to 2006*, CCR-56, USDA, Economic Research Service.

Meyer, Bruce D., and Robert M. Goerge. 2011. Errors in Survey Reporting and Imputation and Their Effects on Estimates of Food Stamp Program Participation, Discussion Paper No. 11-14, U.S. Census Bureau, Center for Economic Studies.

Meyer, Bruce D., Wallace K. C. Mok, and James X. Sullivan. 2009. "The Under-Reporting of Transfers in Household Surveys: Its Nature and Consequences," National Bureau of Economic Research Working Paper #15181, July.

Meyerhoefer, C., 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(2008):287-305.

Moffitt, Robert, and John Karl Scholz. 2010. "Trends in the Level and Distribution of Income Support," in *Tax Policy and the Economy,* Volume 24, edited by Jeffrey R. Brown. Chicago: University of Chicago Press, pp. 111-52.

Newman, Constance, Jessica E. Todd, and Michele Ver Ploeg. 2011. "Children's Participation in Multiple Food Assistance Programs: Changes from 1990 to 2009," *Social Service Review*, 85(4): 535-564.

Nord, Mark, and Mark Prell. 2011. *Food Security Improved Following the 2009 ARRA Increase in SNAP Benefits*, ERR-116, USDA, Economic Research Service. Available at: http://www.ers.usda.gov/publications/err116/.

Ratcliffe, Caroline, and Signe-Mary McKernan. 2011. "How Much Does SNAP Reduce Food Insecurity?" *American Journal of Agricultural Economics*. 93(4): 1082-1098.

Scholz, John Karl, Robert Moffitt, and Benjamin Cowan. 2009. "Trends in Income Support," in *Changing Poverty, Changing Policies*, edited by M. Cancian and S. Danziger. New York: Russell Sage Foundation, pp. 203-41.

Sen, A. 1976. "Poverty: An Ordinal Approach to Measurement," *Econometrica* 44(1976):219-31.

Sherman, Arloc. 2011. *Despite Deep Recession and High Unemployment, Government Efforts—Including the Recovery Act—Prevented Poverty from Rising in 2009, New Census Data Show*, Center on Budget and Policy Priorities, Washington, DC, January.

Short, Kathleen. 2011. *The Research Supplemental Poverty Measure*: *2010,* Current Population Report No. P60-241, U.S. Census Bureau.

Todd, Jessica E., Constance Newman, and Michele Ver Ploeg. 2010. *Changing Participation in Food Assistance Programs Among Low-Income Children After Welfare Reform*, ERR-92, USDA, Economic Research Service, February. Available at: http://www.ers.usda.gov/publications/err92/.

Trippe, Carole, and Jessica 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*, USDA, Food and Nutrition Service, July.

U.S. Department of Agriculture, Food and Nutrition Service. 2009. *Supplemental Nutrition Assistance Program State Options Report, 8th edition*, USDA, Food and Nutrition Service.

U.S. General Accounting Office. 2002. *States' Use of Options and Waivers to Improve Program Administration and Promote Access*, GAO-02-409.

Ver Ploeg, Michele, and Katherine Ralston. 2008. *Food Stamps and Obesity: What Do We Know?*, EIB-34, USDA, Economic Research Service, March.

Whitmore, Diane. 2002. *What Are Food Stamps Worth?* Working Paper No. 468, Princeton University Industrial Relations Section, July.

Wilde, P., P. McNamara, and C. Ranney. 1999. "The Effect of Income and Food Programs on Dietary Quality: A Seemingly Unrelated Regression Analysis with Error Components," *American Journal of Agricultural Economics* 81(November 1999):959-71.

Wilde, Parke, and Mark Nord. 2005. "The Effect of Food Stamps on Food Security: A Panel Data Approach," *Review of Agricultural Economics* 27(3):425-32.

Wolter, K. 1985. *Introduction to Variance Estimation*, New York: Springer Verlag.

Ziliak, James P., 2008. "Filling the Poverty Gap, Then and Now," *Frontiers in Family Economics*, 1(39).

Ziliak, James P. 2005. "Understanding Poverty Rates and Gaps: Concepts, Trends, and Challenges," in *Foundations and Trends in Microeconomics*, 1(3):127-99.

Ziliak, James P., Craig Gunderson, and David N. Figlio. 2003. "Food Stamp Caseloads over the Business Cycle," *Southern Economic Journal* 69(4): 903-19.

Figure 1. SNAP participants, persons in poverty, and the unemployment rate, 1980-2010
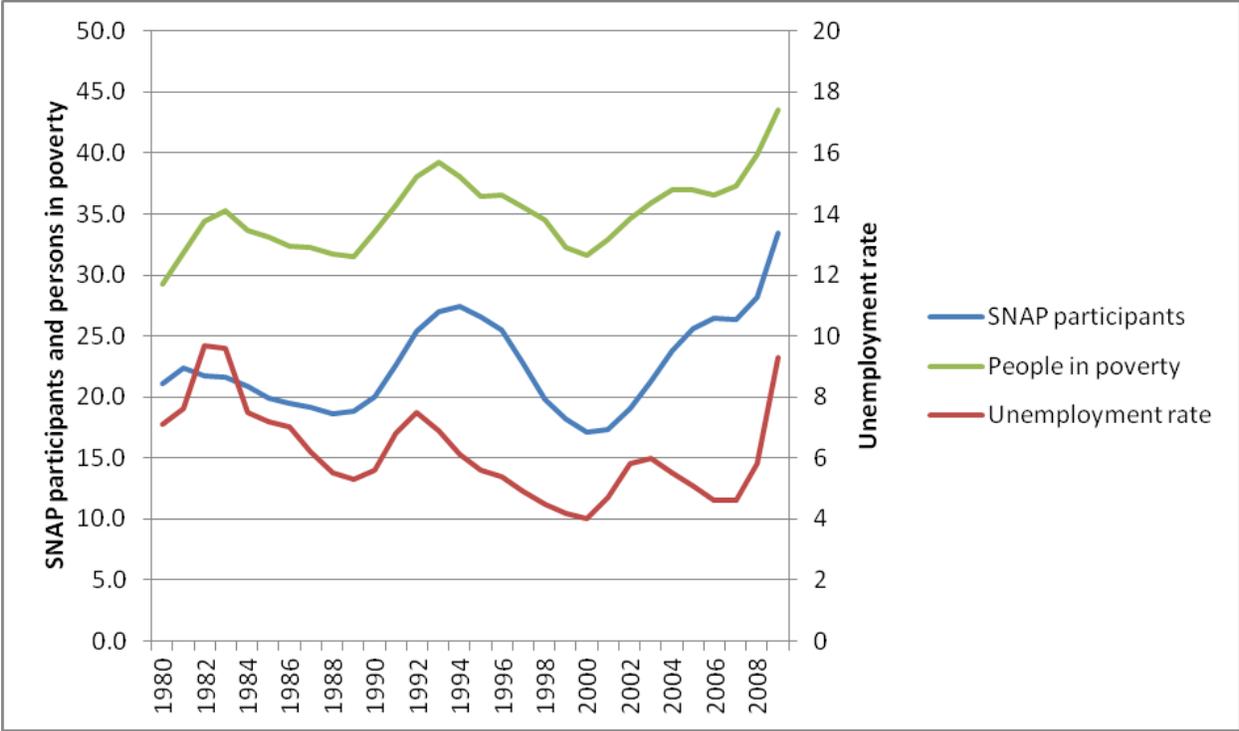
Table 1. State SNAP policies, 1990 – 2010 (selected years)

	1990	2000	2005	2010
Policies Affecting Eligibility				
Number of states with broad-based categorical eligibility	0	0	11	40
Number of states where all legal noncitizen children are eligible	51	10	51	51
Number of states where all legal noncitizen elderly are eligible	51	10	7	7
Policies Affecting Transaction Costs				
Number of states with at least 25% of working households with short recertification period	5	25	2	1
Mean state percent of working households with short recertification period	10.5	33.9	4.5	1.8
Number of states with simplified reporting	0	0	44	49
Number of states with online application for benefits	0	1	5	22
Number of states where online applicants can use e-signature	0	1	2	18
Policies Affecting Stigma				
Mean state percent of benefits issued via Electronic Benefits Transfer (EBT)	0.1	74.2	100	100
Number of states requiring fingerprinting at application	0	5	4	4

Table 2. State-level percent declines in poverty measures due to SNAP benefits, annual average 2000-2009

	Headcount		Squared poverty gap			Headcount		Squared poverty gap	
State	Percent decline	Rank	Percent decline	Rank	State	Percent decline	Rank	Percent decline	Rank
Alabama	4.0	35	17.7	8	Montana	7.1	4	13.9	23
Alaska	7.4	3	9.6	41	Nebraska	3.0	48	12.8	29
Arizona	4.4	29	12.6	31	Nevada	2.6	50	7.1	51
Arkansas	4.3	30	19.4	2	New Hampshire	3.7	39	7.2	50
California	2.9	49	7.8	48	New Jersey	3.2	45	8.8	45
Colorado	3.8	38	8.2	46	New Mexico	3.8	37	13.2	26
Connecticut	5.5	12	10.6	38	New York	5.3	16	14.6	20
Delaware	4.1	33	11.5	35	North Carolina	3.8	36	13.7	24
District of Columbia	3.7	40	16.4	13	North Dakota	5.3	15	18.0	7
Florida	2.5	51	9.5	43	Ohio	5.3	17	17.4	9
Georgia	4.1	34	14.6	21	Oklahoma	4.4	28	15.7	17
Hawaii	9.3	1	12.0	33	Oregon	5.8	8	13.4	25
Idaho	4.6	25	13.2	27	Pennsylvania	5.8	9	12.9	28
Illinois	4.9	22	14.9	19	Rhode Island	5.1	20	15.4	18
Indiana	4.5	27	16.9	11	South Carolina	5.2	18	17.2	10
Iowa	4.7	24	12.7	30	South Dakota	4.8	23	15.9	15
Kansas	3.5	41	12.0	34	Tennessee	5.9	7	16.6	12
Kentucky	5.6	10	19.5	1	Texas	4.2	31	14.4	22
Louisiana	5.6	11	18.8	3	Utah	3.2	43	11.4	36
Maine	7.6	2	15.9	14	Vermont	5.9	5	9.6	42
Maryland	4.1	32	7.7	49	Virginia	3.3	42	10.6	39
Massachusetts	5.5	13	10.4	40	Washington	5.0	21	10.9	37
Michigan	5.2	19	15.7	16	West Virginia	4.6	26	18.2	5
Minnesota	3.1	47	9.5	44	Wisconsin	5.5	14	12.3	32
Mississippi	3.1	46	18.5	4	Wyoming	3.2	44	8.1	47
Missouri	5.9	6	18.1	6	United States	4.4		13.2	

Table 3. Estimated effects of state policies and economic conditions on SNAP's antipoverty efficacy

	(1)	(2)	(3)	(4)
	Percent decline: Headcount		Percent decline: Squared poverty gap	
State unemployment rate	0.209***	0.151*	0.117	-0.026
	(0.004)	(0.062)	(0.336)	(0.833)
Proportion of earners with short recertification period	-0.640	1.198	0.726	1.200
	(0.303)	(0.116)	(0.486)	(0.310)
Simplified reporting for earners	-0.252	-0.497***	0.327	-0.262
	(0.209)	(0.004)	(0.331)	(0.328)
All legal noncitizen children eligible	0.861***	0.716**	0.902**	0.414
	(0.001)	(0.030)	(0.030)	(0.417)
All legal noncitizen elderly eligible	0.074	0.724	1.218*	3.849***
	(0.861)	(0.208)	(0.086)	(0.000)
Broad-based categorical eligibility	0.650***	0.665***	0.603*	-0.618**
	(0.002)	(0.001)	(0.082)	(0.043)
Proportion of benefits redeemed via EBT	0.135	0.654**	0.768*	0.847*
	(0.610)	(0.041)	(0.084)	(0.086)
Online application	-0.004	0.012	1.068**	-0.170
	(0.989)	(0.967)	(0.039)	(0.709)
Online applicants allowed to submit e-signature	-0.763**	-0.545*	-1.554***	0.508
	(0.022)	(0.086)	(0.005)	(0.301)
SSI recipients have simplified/combined application	0.081	-0.006	0.599**	0.042
	(0.657)	(0.974)	(0.049)	(0.887)
Constant	1.910***	1.701**	14.407***	15.943***
	(0.000)	(0.019)	(0.000)	(0.000)
State linear time trend?	NO	YES	NO	YES
Observations	510	510	510	510
R-squared	0.754	0.868	0.870	0.941

Notes: P values are in parentheses. *, **, *** denotes significance at the 10%, 5%, and 1% levels respectively. All specifications are weighted by state population and include state and year fixed effects. Dependent variables are based on 3 year moving averages from Current Population Survey data.