



LONG-TERM BENEFITS OF THE SUPPLEMENTAL NUTRITION ASSISTANCE PROGRAM

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Executive Summary

The Supplemental Nutrition Assistance Program (SNAP) is the cornerstone of U.S. efforts to alleviate hunger by supplementing the food budgets of low-income households. The large majority of SNAP recipients are children, working parents, elderly Americans, and people with disabilities. SNAP has also played an important role in lifting millions of people—especially children—out of poverty for the past five decades. This report provides an overview of the problem of food insecurity in the United States and the important role that SNAP plays in addressing it.

A growing body of high-quality research shows that SNAP is highly effective at reducing food insecurity, and in turn has important short-run and long-run benefits for low-income families. SNAP's benefits are especially evident and wide-ranging for those who receive food assistance as children; they extend beyond the immediate goal of alleviating hunger and include improvements in short-run health and academic performance as well as in long-run health, educational attainment, and economic self-sufficiency.

Despite SNAP's positive impact, food insecurity remains a serious problem for millions of American households—including nearly one in five households with children. In fact, a growing body of evidence suggests that the benefits are, if anything, too low to allow a family to purchase an adequate, healthy diet. One manifestation of this is the fact that the current level of benefits often cannot sustain families through the end of the month—causing children to go hungry and endangering their health, educational performance, and life chances. Recent research suggests that modestly higher benefit levels would lead to further reductions in food insecurity, and to a wide range of additional short-run and long-run health, educational, and economic benefits.

Nearly one in seven American households experienced food insecurity in 2014.

- These households—which included 15 million children—lacked the resources necessary for consistent and dependable access to food (the U.S. Department of Agriculture's definition of food insecurity).
- In 2014, 40 percent of all food-insecure households—and nearly 6 percent of US households overall—were considered to have *very low* food security. This means that, in nearly seven million households, at least one person in the household missed meals and experienced disruptions in food intake due to insufficient resources for food.

SNAP benefits support vulnerable populations including children, individuals with disabilities, and the elderly, as well as an increasing number of working families.

- Nearly one in two households receiving SNAP benefits have children, and three-quarters of recipient households have a child, an elderly member, or a member with a disability. Fully 67 percent of the total value of SNAP benefits go to households with children as these households on average receive larger benefits than households without children.

- Over the past 20 years, the overall share of SNAP recipient households with earned income rose by 50 percent. Among recipient households with children, the share with a working adult has doubled since 1990 and stood at 52 percent in 2014.

SNAP plays an important role in reducing both poverty and food insecurity in the United States—especially among children.

- SNAP benefits lifted at least 4.7 million people out of poverty in 2014—including 2.1 million children. SNAP also lifted more than 1.3 million children out of deep poverty, or above half of the poverty line.
- Further, a recent study based on administrative data suggests that these numbers may significantly undercount the number of people who benefit from SNAP. The study estimates that SNAP lifted as many as 10 million people, including 4.9 million children, out of poverty in 2012.
- Research shows that among households who receive SNAP, food insecurity rates are up to 30 percent lower than they otherwise would be.
- The temporary expansion of SNAP benefits under the American Recovery and Reinvestment Act of 2009 (ARRA) lifted roughly 530,000 households out of food insecurity.

SNAP’s positive impact on children begins even before birth and lasts well beyond their childhood years. Research shows that:

- Maternal receipt of Food Stamps during pregnancy reduces the incidence of low birth-weight by between 5 and 23 percent.
- Among adults who grew up in disadvantaged households, access to Food Stamps (as SNAP was then called) in utero and early childhood led to:
 - A 16 percentage point decline in the likelihood of being obese as an adult and significant reductions in metabolic syndrome (a cluster of conditions associated with heart disease and diabetes).
 - An 18 percentage point increase in the likelihood of completing high school.
 - Significant improvements in overall health and economic self-sufficiency among women.

SNAP benefits allow families to put more food on the table, but that current benefit levels are often not sufficient to sustain them through the end of the month.

- Over half of SNAP households currently report experiencing food insecurity, and the fraction reporting very low food security has risen since the end of the temporary benefits expansion under ARRA.
- Diminished food budgets at the end of the month are associated with a drop-off in caloric intake of about 10 to 25 percent over the course of the month.
- Research has shown that this deficiency at the end of the month can cause serious health problems related to diabetes and can lead to costly and avoidable hospitalization.
- Research also finds that the exhaustion of SNAP benefits at the end of the month can decrease test scores and increase disciplinary events among school-aged children. The evidence suggests that helping families maintain their food consumption through the end of the month would reverse these effects.

Research has shown that the nutritional basis for determining SNAP benefit amounts, the Thrifty Food Plan, has outdated assumptions that may underestimate need among families.

- The basket of foods used to determine SNAP benefits departs sharply from average food consumption among Americans, both in variety and palatability. For example, it assumes consumption of some foods like beans, whole wheat pasta, and potatoes in quantities as much as 20 times higher than the average American consumes.
- SNAP households are expected to spend much more time on food preparation than the average among U.S. households. For low-income women working full-time, the expectation can be 1.7 to 3 times larger than the actual time spent. The assumptions are increasingly unrealistic as the share of SNAP families that are working continues to rise.
- Cost determinations do not account for geographic variation in food prices, and the inflation adjustment can lag by as much as 16 months.

I. Introduction

In 2014, nearly one in seven American households experienced food insecurity, meaning that one or more household members did not have adequate food due to insufficient money or other resources. This picture was even worse among households with children, where roughly one in five households—which included 15 million children—were food insecure. The problem of food insecurity has significant negative consequences for health and nutritional well-being. For children especially, the costs extend beyond the immediate concerns of hunger; insufficient access to food jeopardizes children’s long-run health, educational performance and life chances.

The Supplemental Nutrition Assistance Program (SNAP) is the cornerstone of U.S. efforts to address food insecurity—it is the largest of a set of federal food and nutrition programs¹ and is designed to alleviate hunger by supplementing the food budgets of low-income households. Originally known as the Food Stamp Program, the modern-day program was established by the Food Stamp Act of 1964 and rolled out gradually at the county level. It became a national program in 1974, and since then has improved food security and reduced poverty for millions of Americans. Over 45 million Americans currently receive SNAP benefits each month, including about 20 million children. While benefits are concentrated among households in deep poverty, they include working families whose incomes fall short of what is needed to ensure consistent and dependable access to food.

SNAP plays an important role in reducing poverty in the United States and has been shown to be highly effective at reducing food insecurity. Census data show that in 2014, SNAP benefits lifted 4.7 million people out of poverty, including 2.1 million children. SNAP also lifted 1.3 million children (and 2.8 million people overall) out of deep poverty, defined as below half of the poverty line.² Research has also shown that among households who receive SNAP, food insecurity rates are up to 30 percent lower than they otherwise would be, with impacts for children that are at least this large. Moreover, policies that increase SNAP benefit levels—including a temporary expansion of benefits under the American Recovery and Reinvestment Act of 2009 (ARRA)—have been shown to further improve food security among low-income households. A recent study suggests that ARRA led to roughly a 12 percent increase in benefits for the typical SNAP recipient and lifted roughly 8 percent, or 530,000 households, out of food insecurity.

In addition, a growing body of high-quality research shows that SNAP has led to significant improvements in the health and wellbeing of low-income families. The benefits are especially evident and wide-ranging for those who receive food assistance as children; these benefits include improvements in short-run health and academic performance as well as in several measures of long-run health, educational attainment, and economic self-sufficiency. Recent research focusing on the rollout of the Food Stamp Program in the 1960s and 1970s shows the benefits begin even before a child is born: mothers who receive Food Stamps during pregnancy

¹ For an overview of other federal food and nutrition programs and their impacts, see Hoynes and Schanzenbach (2015).

² CEA calculations using the Short (2015) and the 2015 CPS ASEC.

have a reduced incidence of low-birth weight babies by between 5 and 12 percent. Further, a similar study found that adults who grew up in disadvantaged households were 16 percentage points less likely to be obese and 18 percentage points more likely to have graduated from high-school if their families had access to Food Stamps when they were young. Early access to Food Stamps also contributed to reductions in metabolic syndrome (obesity, high blood pressure, heart disease and diabetes) among individuals who grew up in high-risk households and to significant improvements in overall health and economic self-sufficiency among disadvantaged women.

A growing body of evidence suggests that the current benefit levels are, if anything, too low to allow a family to purchase an adequate, healthy diet. In part, this is because the nutritional basis for the program deviates sharply in variety and palatability from average food consumption among Americans, assumes much longer food preparation times, and does not properly account for inflation and geographic variability in prices. Over half of SNAP households currently report experiencing food insecurity, and the fraction reporting *very low* food security—defined by reduced food intake and disruption of normal eating patterns—has risen since the end of the temporary benefits expansion under ARRA. Further, recent studies have shown that the current level of benefits often cannot sustain families through the end of the month and have linked the gap in food access to serious consequences, including higher hospitalization rates and poorer performance in school. The research suggests that modestly higher benefit levels would lead to improvements in food security and, in turn, to a wide range of short-run and long-run health, educational, and economic benefits.

II. Food Insecurity Overview

Defining and Measuring Food Insecurity

The food security status in the U.S. population is measured in the Current Population Survey (CPS) through a series of 18 questions that are asked each December.³ Households are classified as food insecure when they lack the money or other resources necessary to have consistent and dependable access to enough food for all their members. By this measure, 14 percent of U.S. households experienced food insecurity in 2014.

The Department of Agriculture further classifies food-insecure households into those with “very low food security” and those with “low food security.” In 2014, 40 percent of all food-insecure households— and nearly six percent US households overall—were considered to have very low food security. In these 6.9 million households, one or more members had experienced disruption of their normal eating patterns and had reduced their food intake because of insufficient money or other resources for food. The remaining 60 percent of food insecure households avoided substantial reductions in food intake through a variety of coping strategies—including eating less varied diets, visiting community food pantries, and participating in Federal food assistance programs.

Relationship between Income and Food Insecurity

Food insecurity is closely tied to income, and while 14 percent of American households overall experienced food insecurity in 2014 (the latest year for which the data are available), the rate was much higher among particular populations. For example, 40 percent of households with annual incomes below the official poverty line were food insecure, compared to 6 percent of those with incomes above 185 percent of the poverty line. African American and Hispanic household heads reported food insecurity rates of 26 and 22 percent, respectively. Among households with children, nearly one in five were food insecure, and those headed by a single woman saw even higher rates, with one in three such households experiencing food insecurity. Overall, 15 million children lived in households that experienced food insecurity in 2014.

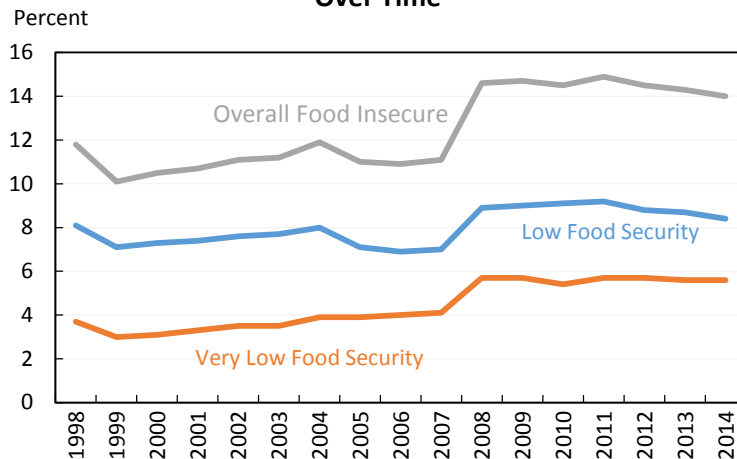
The overall rate of food insecurity in the population rose sharply during the Great Recession in 2008 and its aftermath due to the rise in unemployment. In 2011, the fraction of food insecure households reached a peak of nearly 15 percent—roughly 34 percent higher than the rate just prior to the recession. While food insecurity has declined gradually in recent years as the economy has recovered, the fraction of food insecure households remains significantly higher in 2014 compared to the decade before the recession. Moreover, the rate of *very low* food security has remained close to its recessionary peak at just below 6 percent of households (Figure 1) (Coleman-Jensen et al. 2015).

³ Several other surveys that measure food security, such as the Survey of Income and Program Participation and the Early Childhood Longitudinal Survey, use the same or similar questions.

Links between Food Insecurity, Health and Child Development

Food insecurity has been associated with a wide range of negative short-term and long-term health outcomes, including anemia, diabetes, heart disease and depression, as well as increased need for medical care. These associations are often more pronounced among certain vulnerable populations such as children, new mothers, the elderly, and those with certain health conditions. Among children in particular, food insecurity is associated not only with health but also with social, emotional, and cognitive development. Alleviating food insecurity through food assistance programs like SNAP thus has the potential not only to immediately reduce hunger, but also to promote good health and improve children’s life chances.⁴ Sections IV and V describe evidence showing that SNAP benefits lead both to significant improvements in food security and to a variety of positive short-run and long-run outcomes.

Figure 1: Percent of Households Experiencing Food Insecurity Over Time



Source: Coleman-Jensen, Rabbit, Gregory, and Singh (2015)

⁴ Hoynes and Schanzenbach (2015) provide an overview of the impacts of SNAP, along with the effects of other food and nutrition programs like the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and the National School Lunch Program.

III. SNAP Overview

History and Scope

SNAP was originally known as the Food Stamp Program; it was introduced in its modern form by the Food Stamp Act of 1964 and rolled out gradually at the county level. It became a national program in 1974, and since then has improved food security and reduced poverty for millions of Americans. Renamed the Supplemental Nutrition Assistance Program in 2008, SNAP is estimated to have served an average of 45.8 million individuals per month in fiscal year 2015 (U.S. Department of Agriculture 2015).

SNAP benefits are federally funded, and eligibility rules and benefit levels are determined largely at the federal level, though the program is administered by state and local entities.⁵ SNAP is the largest and most universal nutrition program and is broadly available to most low-income households, with eligibility based primarily on income and assets.⁶ Eligible households generally must have a gross monthly income below 130 percent of the official poverty guideline for their family size and income less some deductions for key expenses that fall below the poverty line.⁷ SNAP therefore helps to ensure a minimum level of food consumption for millions of American households and plays an important role in reducing poverty in addition to alleviating hunger and providing adequate nutritional intake (U.S. Department of Agriculture 2015).

Benefits Determination

SNAP benefits are distributed to eligible households on a monthly basis. Since 2004, all benefits have been received in the form of an electronic benefit transfer (EBT) card, which can be used to purchase eligible foods at authorized retail stores. The level of SNAP benefits is intended to fill the gap between a household's cash resources that are available to spend on food and the amount needed to purchase a nutritious diet at minimal cost. The latter amount is calculated using a model-based market basket of foods known as the Thrifty Food Plan (TFP), which is adjusted for household size but not for other factors such as local prices. The benefit formula assumes that households can contribute 30 percent of their net income to purchase food. A household's SNAP allotment is thus equal to the TFP-based measure of need, which gives the maximum allotment for that household's size, less 30 percent of the household's net income.

⁵ States share in the cost of administering the program.

⁶ One major exception, introduced by the 1996 Personal Responsibility and Work Opportunity Reconciliation Act (welfare reform law), is that SNAP benefits are also limited to only three months out of every three years for able-bodied, working-age adults who are not employed at least half-time or caring for a young child or disabled adult. States can request to suspend this limit during times of high unemployment, which contributed to the increase in SNAP participation during the Great Recession.

⁷ In 2015, for a family of four, the poverty line is \$24,250, and 130 percent of the poverty line amounts to \$31,525. Households with elderly or disabled members and households that are "categorically eligible" for SNAP because they receive public assistance — such as Temporary Assistance for Needy Families (TANF) or Supplemental Security Income (SSI) — are not subject to the gross income test.

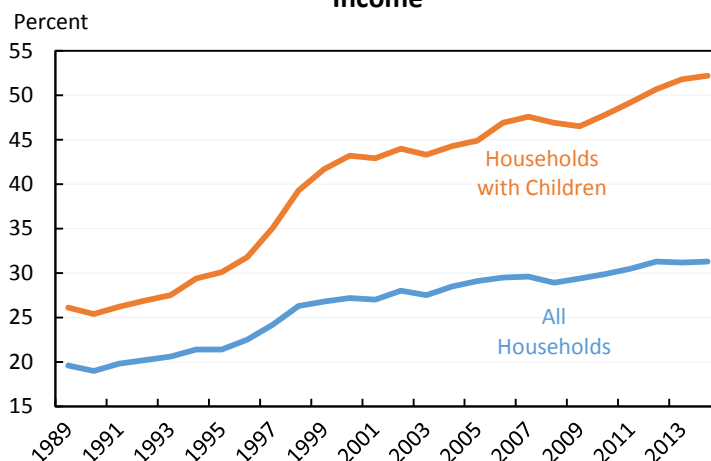
In response to high rates of unemployment and rising poverty and hardship during the Great Recession, the American Recovery and Reinvestment Act of 2009 (ARRA) temporarily raised the maximum benefits by 13.6 percent above the TFP in 2009. This temporary increase lasted from April 2009 through October 2013, though the real value declined over time as the amount was not adjusted for inflation.

Participation Rates and Characteristics of SNAP Recipients

SNAP benefits have always been targeted to the neediest households and the most vulnerable populations. In 2014, more than half of all SNAP benefits went to households with gross incomes at or below half of the poverty line and 93 percent went to households with incomes below the poverty line (Gray 2015).⁸ Three-quarters of SNAP recipient households had a child, an elderly member, or a member with a disability (Gray 2015); and children, seniors and adults with disabilities made up 64 percent of all SNAP recipients in 2014 (Figure 3).

At the same time, SNAP participants increasingly consist of working families whose incomes fall short of what is needed to ensure consistent and dependable access to food. The share of SNAP households with earned income rose by roughly 50 percent over the past 20 years (Figure 2), while the rate of cash assistance receipt among SNAP households fell from 38 percent to 6 percent over the same period (Gray 2015). The trend in increased employment rates likely reflects a number of trends, including federal and state efforts to simplify enrollment procedures for working families, increased employment among single mothers, and time limits on able-bodied working age recipients who are not working at least half-time. In addition, after 1996, state cash assistance programs for families with children began to serve a significantly smaller share of poor families eligible for assistance than was previously the case.

Figure 2: Share of SNAP Recipient Households with Earned Income

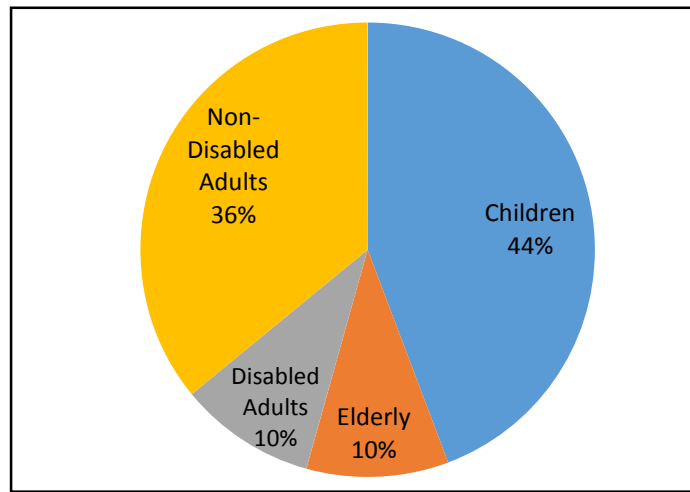


Source: Gray (2015) and CEA tabulations of USDA Household Characteristics Data

⁸ Only about 5 percent of SNAP households in 2014 had gross income over 130 percent of poverty in the months while receiving SNAP, and these included households with elderly or disabled members, who are not subject to SNAP's income limit of 130 percent of the poverty line (Gray 2015).

SNAP plays a particularly important role in supporting working parents and children. Among SNAP households with children, a majority had earned income—more than twice the share in 1990—demonstrating the program’s increasing importance for the working poor (Gray 2015, Figure 2). The program also has a particularly large impact for children. In 2014, children made up 44 percent of all SNAP participants (Figure 3), and households with children received 67 percent of the total value of SNAP benefits (Gray 2015). Rank and Hirschel (2009) estimate that one in two American children will receive SNAP assistance at some point during their childhood. Finally, SNAP is a key resource for groups more vulnerable to food insecurity, like single parents. Over half of SNAP households with children were headed by single mothers—who face food insecurity at much higher rates than typical households (35 percent vs. 14 percent) (Coleman-Jensen et al. 2015).

Figure 3: Demographic of SNAP Recipients in 2014



Source: Gray (2015)

THE RELATIONSHIP BETWEEN SNAP AND WORK

Some have argued that SNAP reduces work incentives and supports individuals who are not working but are capable of doing so, but the data and research suggest that such concerns are misguided. In fact, receipt of SNAP benefits as a child may increase self-sufficiency in the long run.

First, while the direct effect of SNAP eligibility on an individual's work behavior is difficult to measure, the existing research suggests that the effects are either modest or negligible. Indeed one of the few studies to find measurable effects focused on the initial roll-out of Food Stamp Program (as it was then called) in the 1960s and early 70s and found only modest effects on work (Hoynes and Schanzenbach 2012). Further, these early effects were limited to single mothers—a group whose participation in the labor market has grown tremendously over time.

Second, the most recent data available (from 2014) show that the vast majority of SNAP recipients are individuals who either are working, are looking for work, are unable to work (due to disability or dependent care responsibilities) or are not expected to work (because they are children or seniors). A majority (64 percent) fall into one of these categories because of their age (they are children or seniors over 60) or because of a disability. Among working-age adults, some are not working because they are the primary caregivers of young children or a disabled family member and 22 percent are exempt from work due to disability, but a full 57 percent are either working or are unemployed and looking for work.¹ Moreover, other Census-based estimates show that among SNAP households with at least one working-age, non-disabled adult, more than 80 percent work in the year before or after receiving SNAP benefits (Rosenbaum 2013). This evidence suggests that SNAP provides needed help to working families who temporarily fall on hard times and are between jobs and to those who are working but whose earnings are insufficient to make ends meet.

Third, certain SNAP policies and procedures explicitly encourage work and many working-age SNAP households already participate in the labor market. In the past two decades, the share of SNAP households with earned income rose steadily, especially among households with children, with 52 percent including a working adult in 2014. One contributor to this rise was a set of federal and state efforts to simplify enrollment procedures and reporting requirements for working households, which contributed to higher participation rates among individuals in SNAP-eligible working households (from 46 percent in 2000 to 74 percent in 2013) (Eslami 2015). SNAP also supports work through the Employment and Training program, which directly helps SNAP beneficiaries succeed in the labor market and find work. During fiscal year 2013, this program served about 600,000 SNAP recipients. Moreover, when SNAP recipients do increase their earnings, their benefits are reduced only gradually (by 24-36 cents for each additional dollar earned), and this limits the potential for SNAP to create work disincentives (Ben-Shalom, Moffitt, and Scholz 2010).

But perhaps the most important but least appreciated way that SNAP supports work is through its positive long-run impact on self-sufficiency—especially when it reaches needy children. Research discussed in this report shows that among children, receipt of SNAP benefits can lead to improvements in short-term health and educational outcomes—both of which can impact long-run earnings and labor market participation. And one study demonstrates a direct link from receipt of food stamps as a young child to increased self-sufficiency as an adult (Hoynes, Schanzenbach and Almond forthcoming).

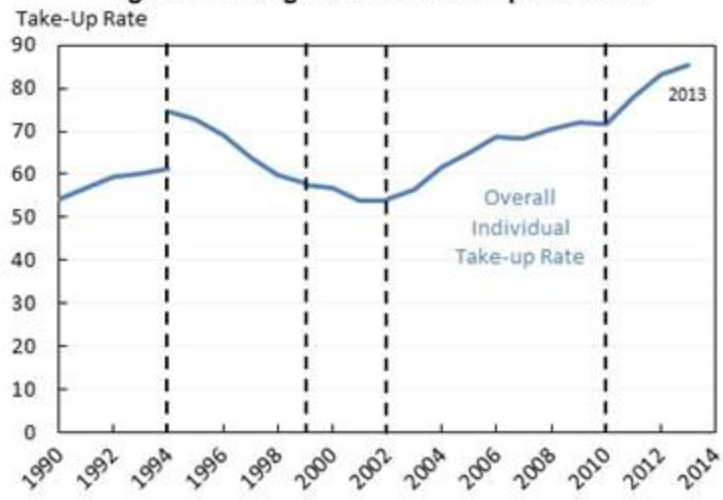
It should be noted that SNAP imposes strict time limits on the duration of benefits for non-working able-bodied adults, introduced in the 1996 welfare reform law, potentially limiting its effectiveness as a safety net for these individuals. Benefits to such individuals are limited to 3 months out of every 3-year period when they are not working at least half time, participating in a work training program, or caring for a dependent. Because states can request waivers to the time limits during periods of high unemployment, and most states qualified during and after the Great Recession, these waivers contributed modestly to the rise in SNAP participation since 2008. However, research shows that the primary reason for rising SNAP participation was the sharply rising unemployment rates and poverty caused by the Great Recession which caused many more families to become eligible and participate in SNAP (Ganong and Liebman 2014). With the continued economic recovery, these temporary waivers are set to expire in 2016 in many states and an estimated 1 million individuals will lose SNAP eligibility over the course of 2016 (Bolen 2015). Because individuals lose their eligibility under the time limit policy even if they are working but for less than half-time, are searching for a job, or are not in a training program because no slot is available for them, some have argued that the policy is too stringent (Bolen 2015, Rosenbaum 2015). With the continued economic recovery, these temporary waivers are set to expire in 2016 in many states and an estimated 1 million individuals will lose SNAP eligibility over the course of 2016 (Bolen 2015). Because individuals lose their eligibility under the time limit policy even if they are working but for less than half-time, are searching for a job, or are not in a training program because no slot is available for them, some have argued that the policy is too stringent (Bolen 2015, Rosenbaum 2015).

¹ CEA estimates based on Gray (2015), Tables A23 and A25. Disability exemption refers to exemption from work registration status.

Take-up rates—or the share of eligible households that participate in SNAP—have risen steadily since 2002, and have more than recovered from a steep decline in the late 1990s following the 1996 welfare law reforms (Figure 4). In the past ten years, take-up rates among children, the elderly, and households with earned income have increased by 40, 50, and 80 percent, respectively. The initial rebound from 2002 to 2007 followed several federal and state efforts to simplify SNAP administrative policies and procedures for enrollment, while more recent increases are due largely to rising unemployment and hardship during the Great Recession (Ganong and Liebman 2013).

In 2013 (the latest year for which estimates are available), SNAP reached 85 percent of all eligible individuals in the United States. Current take-up rates are especially high among children, with nearly all eligible children participating in 2013, but participation remains relatively low among eligible elderly adults at only 41 percent (Eslami 2015). Factors contributing to the low rate of participation among the elderly include the complexity of enrollment and recertification procedures, misperceptions about SNAP benefit amounts, and cultural beliefs about receiving government assistance (Gabor et al. 2002; Cunyngnam 2010).

Figure 4: Change in SNAP Take-Up Over Time



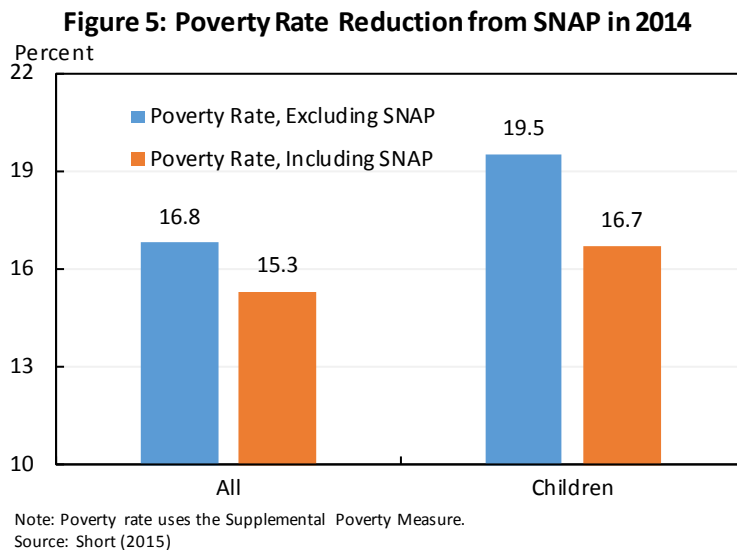
Note: Changes in eligibility and participation estimate methodology are marked by dotted lines.
Source: Eslami (2015)

IV. SNAP Impacts on Poverty, Food Security, and Nutrition

Impact on Poverty

SNAP plays an important role in reducing poverty in the United States, especially among children. Recent Census data indicate that 4.7 million people, including 2.1 million children, were lifted out of poverty due to SNAP benefits in 2014.⁹ The impact was especially large for children, for whom SNAP benefits reduced the overall poverty rate by 2.8 percentage points (vs. 1.5 percentage points for the overall population) (Figure 5), and SNAP benefits contributed more to poverty reduction among children than any program except refundable tax credits (Short 2015). Moreover, while Census data provide important information about income and benefit receipt, there is wide recognition that SNAP benefits are undercounted by Census surveys—that is, more people receive SNAP than indicate participating in the program on the Census surveys. Taking this into account, recent research shows that Census-based figures may significantly understate the impact of SNAP on poverty (Meyer and Mittag 2015); estimates that account for the underreporting suggest SNAP kept as many as 10 million people, including 4.9 children, above the poverty line in 2012 (Sherman and Trisi 2015).

SNAP plays an especially crucial role in mitigating deep poverty, with estimates showing that roughly 1.3 million children were lifted above half of the poverty line (before adjusting for undercounting).¹⁰ Further, Edin and Shaefer (2013) find that SNAP cut in half (from about 1.7 million to 860,000) the number of American households living on less than \$2.00 per person per day.



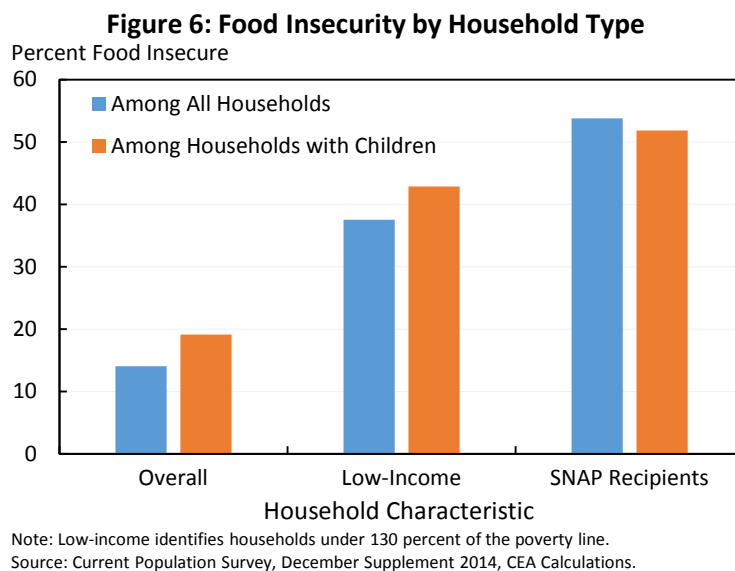
⁹ CEA calculations are based on Short (2015) and refer to the Supplemental Poverty Measure.

¹⁰ CEA calculations are based on Short (2015) and refer to the Supplemental Poverty Measure.

Impact on Food Security

SNAP is designed to close the estimated gap between a family's resources and its need for food. Economic theory predicts that the provision of greater resources for food should lead unambiguously to an increase in food expenditures. This prediction is widely confirmed by the research.¹¹

An important question that is more difficult to answer is the extent to which SNAP benefits reduce food insecurity. Measuring the effect of SNAP on food security can be challenging because households that participate in SNAP are generally more disadvantaged than non-participant households, and they may differ in ways that are hard to observe (Bitler 2015). For example, they may have less in savings or have fewer family or community supports available to help them afford food. Not surprisingly, despite receiving benefits, SNAP households are much more food insecure than the overall population, and they have higher rates of food insecurity even when compared to the subpopulation of households with incomes below 130 percent of poverty line (Figure 6). But because these raw differences in food insecurity largely reflect differences in household characteristics, comparisons between participants and non-participants may lead to misleading conclusions about the impact of SNAP participation.¹²



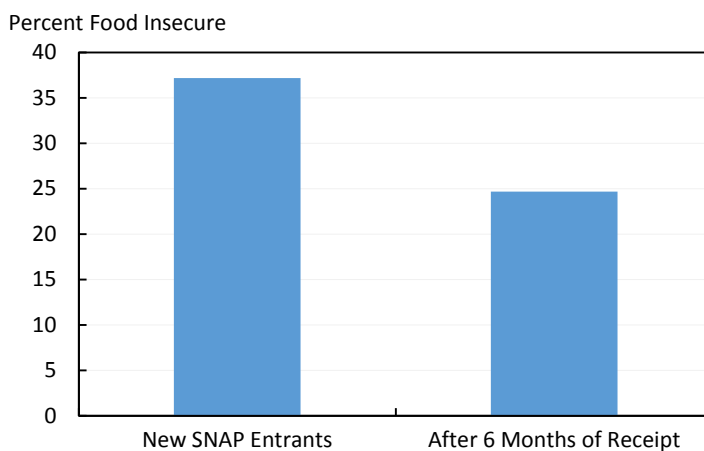
To understand the impact of SNAP on food insecurity and other outcomes, researchers must ask how food security of households and individuals changes with access to SNAP benefits, compared to the food insecurity they would experience if they did not receive those benefits. Recent research has used several techniques to answer the question, and on the whole, provides strong evidence that SNAP is effective at reducing food insecurity below what it otherwise would be.

¹¹ Hoynes and Schanzenbach (2009); Beatty and Tuttle (2012); Bruich (2014); Schmidt, Shore-Sheppard, and Watson (2013).

¹² Gregory, Rabbitt and Ribar (2015) review the recent literature the food security impact of SNAP and show that the estimates can vary widely depending on the research method. Currie (2003) reviews the older literature.

One approach is to examine households who have recently become eligible and applied for SNAP benefits, and to compare their food security just before and after they began receiving benefits. A pair of recently published papers uses this approach and data from a nationally representative study that surveyed SNAP participants within days of entering the program and often before benefits were received (new entrants) and again after about 6 months of participation (Mabli et al 2013). Mabli and Ohls (2015) find that SNAP participation reduced the overall fraction of households that were food insecure and the fraction that were very low food secure by around 17 percent and 19 percent, respectively. Mabli and Worthington (2014) find even larger impacts on children’s food security in low-income households with children, showing that food insecurity among children fell by roughly 33 percent after their families had been receiving benefits for about six months (Figure 7). The decline was closer to 40 percent after controlling for characteristics of the household that changed over time.¹³

Figure 7: Percent of SNAP Households in Which Children are Food Insecure



Source: Mabli and Worthington (2014)

Other researchers have analyzed state variation in rules and policies that affect SNAP payments or enrollment to identify the impact of benefit receipt on food security, and these studies have reached similarly positive conclusions.¹⁴ Mykerezi and Mills (2010) use data from the late 1990s in the Panel Survey of Income Dynamics along with variation in state-level payments due to processing errors or benefits disruptions to determine that program participation lowers food insecurity by at least 18 percent. Using nationally representative data from the Survey of Income and Program Participation during the late 1990s and early 2000s, Ratcliffe, McKernan and Zhang

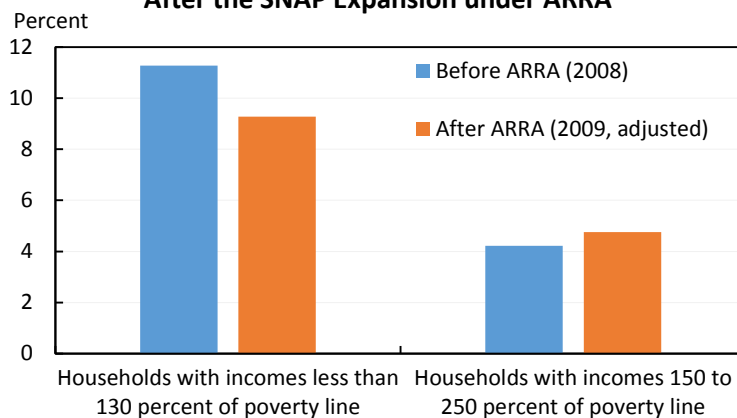
¹³ These two studies find qualitatively similar results comparing SNAP households within days of program entry to a contemporaneous sample of SNAP households that had participated for 6 months. Li et al (2014) also examine children’s food security using before and after comparisons of households in the Panel Study of Income Dynamics, and they find similarly large effects of Food Stamp participation on food insecurity among households that received Food Stamps in 1998-2002.

¹⁴ The study makes use of variation in certain state eligibility and enrollment policies during the study period, such as state outreach spending per capita; the use of biometric information (such as a fingerprint) as a requirement for enrollment, and the phase in of simplified reporting rules.

(2011) find that receipt of SNAP benefits reduced the likelihood of being food insecure by roughly 30 percent and reduced the likelihood of being very food insecure by 20 percent.

A particularly fruitful approach for understanding SNAP’s impact is to analyze policy changes that have increased the level of benefits participants receive. One such policy was the 13.6 percent increase in the maximum SNAP benefit implemented under the ARRA stimulus in fiscal year 2009. This policy led to a median increase in recipient benefits of approximately 12 percent between December 2008 and December 2009. In a USDA study of this policy change, Nord and Prell (2011) found that over the same period, food spending increased, and food insecurity declined, in households that were income-eligible for SNAP. At the same time, food security did not improve among households with incomes somewhat above the SNAP eligibility cutoff (Figure 8)—which suggests that the SNAP benefit increase was responsible for the improvements among SNAP participants.¹⁵ The researchers estimated that the overall effect of the ARRA expansion of SNAP benefits was about an 8 percent reduction in food insecurity for SNAP-eligible low-income households—equivalent to pulling about 530,000 households out of food insecurity. The study found an especially large impact on the rate of very low food security, which was reduced by about 17 percent. This finding implies that 480,000 fewer households experienced disrupted eating patterns and reduced food intake as a result of the ARRA increase in SNAP benefits.

Figure 8: Prevalence of Very Low Food Security Fell After the SNAP Expansion under ARRA



Note: 2009 values are regression-adjusted for differences between the years in household characteristics such as household composition, income, and employment.
Source: Nord and Prell (2011)

Another recent policy innovation, designed to address food gaps for children during the summer when they lack access to school-based food assistance programs, is the Summer Electronic Benefit Transfer to Children (SEBTC). The USDA initiated this pilot program in 2011 in five states, in three of which benefits were distributed via the SNAP model.¹⁶ In 2013 the demonstration used an experimental design to test the impact of two levels of incentives by randomly assigning

¹⁵ In a related study, Anderson, Butcher and Schanzenbach (2015) find that while food insecurity rose overall from 2007-2011, it increased less among households where income was below 130 percent of the poverty line—suggesting that SNAP helped prevent even worse outcomes for these households.

¹⁶ In other states, the benefit design was similar to WIC.

households to receive an additional \$60 or \$30 of benefits per month during the summer months. Initial findings from the evaluation showed that providing low-income households with an additional \$60 reduced very low food security for children by about 26 percent and also helped ease food insecurity for the entire family. Providing households with an additional \$30 a month had similar impacts on very low food security among children, but was less effective at reducing food insecurity for the household (Collins et al. 2014), suggesting that families who received only \$30 used the money to meet children's most severe needs, but not the needs of the rest of the household.

Impact on Caloric Intake and Nutrition

In addition to improving food security of households and individuals, SNAP benefits have also been shown to affect more direct measures of food intake and nutrition. Earlier research on this topic typically compares nutrient availability and intake in households that receive Food Stamps to other low-income households that do not. While such comparisons cannot provide conclusive evidence on the causal effects of the program, a number of studies generally find that SNAP (called Food Stamps during the time of these studies) is associated with higher household nutrient availability (Devaney and Moffitt 1991) and better nutrient intake among preschoolers (Rose, Habicht, and Devaney 1998), and healthier diets overall (Basiotis, Kramer-LeBlanc, and Kennedy 1998). Since SNAP participants are generally more disadvantaged than other low-income households, these positive associations suggest that the program did indeed help to improve nutrition. However, a more recent study that compares the diets of SNAP participants and income-eligible nonparticipants finds little evidence that SNAP improves diet quality (Condon et al. 2015).

Other recent evidence comes from examining how caloric intake is related to the timing of benefit receipt. A growing line of research shows that SNAP households have cyclical purchasing patterns: A disproportionate share of benefits are redeemed within the first week or two of receipt, and expenditures continue to decline through the end of the month (Castner and Henke 2011; Hastings and Washington 2010; Smith et al. 2015). These declines appear to be systematic across all food categories; they are not driven by stockpiling of non-perishables or by larger purchases of premium or non-essential items at the beginning of the benefit cycle (Hastings and Washington 2010). There is also little evidence of a change in diet quality over the benefit cycle (Hastings and Washington 2010, Todd 2014). However, the exhaustion of benefits is strongly associated with a drop-off in caloric intake, with estimates of this decline ranging from 10 to 25 percent over the course of the month (Shapiro 2005; Todd 2014).

This evidence on the "SNAP benefit cycle" in caloric intake suggests that SNAP benefits help households put more food on the table, but that current benefit levels do not allow families to maintain caloric intake through the end of the month. Importantly, one recent study shows a direct link between the end-of-month drop off in consumption and the overall level of benefits received by the household. A comparison of SNAP household consumption patterns in the months just before and after the ARRA benefit increase shows that consumption over the benefit cycle was much smoother in the months after the increase (Todd 2014).

In sum, the most recent research indicates that SNAP is highly effective at reducing food insecurity, but falls well short of eliminating it. A sizeable fraction of low-income households remain food insecure (Figure 6), and benefits are often insufficient to sustain families through the end of the month. The benefits of increasing food security through SNAP are discussed in section V, and the inadequacies of current SNAP benefits are discussed further in Section VI.

V. SNAP Impacts on Health, Academic Performance, and Long-Term Outcomes

A growing body of high-quality research shows that reducing food insecurity through SNAP leads to significant improvements in health and other outcomes for both adults and children. Among adults who receive SNAP, the impact on health is particularly evident for certain vulnerable populations such as individuals with diabetes. For those who receive SNAP as children, the benefits are wide-ranging; they include improvements in short-run academic performance as well as in several measures of long-run health, educational attainment and economic self-sufficiency.

As is true of the research on SNAP's impact on food security, it can be difficult for researchers to distinguish the impact of the program from other differences between SNAP recipients and non-recipients. Evidence based on comparisons across individuals or households can be difficult to interpret because SNAP and non-SNAP households differ across many characteristics that can affect health other than program participation. In particular, since SNAP households are more disadvantaged on many dimensions than those who don't receive SNAP and would likely be less healthy than non-recipients in the absence of SNAP (Bitler 2015; Coleman-Jensen et al. 2011; Currie 2003), studies that do not account for these differences tend to understate the importance of SNAP for its recipients' health outcomes (Kreider et al. 2012).

The difficulty of controlling for household differences, and the varied success across studies in doing so, had led to mixed conclusions in the research on some health outcomes. However, a number of recent studies confirm the positive benefits of SNAP using high-quality research designs that can distinguish causal effects from correlations. These approaches broadly mirror those used to assess the impact of SNAP on food security; they include comparisons of individuals whose access to SNAP differs due to policy variation across states or over time as well as studies that examine how health and other outcomes among SNAP recipients vary over the benefit cycle. The evidence reviewed in this section emphasizes the findings from this latter set of studies.

UNDERSTANDING THE RELATIONSHIP BETWEEN FOOD ASSISTANCE AND OBESITY

Studies have shown a strong relationship between SNAP and reductions in food insecurity and improvements in health outcomes. However, researchers continue to grapple with how SNAP affects obesity rates. In part, this is because the theoretical relationship between SNAP and obesity is ambiguous, and statistical techniques often fall short of properly identifying causal effects. The strongest studies that address these challenges suggest that SNAP has no impact in the short-term, and may reduce obesity in the long-term.

While households are likely to increase food expenditures when they receive SNAP benefits, it is unclear whether they substitute away from relatively unhealthy foods. If households substituted towards healthier foods, obesity prevalence could decline. If households continued to purchase their current basket of foods but in greater quantity, the increase in calories could increase obesity. The extra income could also impact households outside of their food choices to the extent that households use their increased income for sedentary or active activities (Gundersen et al. 2015).

Another way that SNAP could affect weight gain is through disruptions to the food intake cycle. Because SNAP is disbursed monthly, food expenditures and caloric intake for recipient households often ebb and flow over the benefit cycle (Shapiro 2005; Kuhn 2015). Some studies show that human bodies adapt to a lower metabolism when food intake is low, and they reserve calories as fat when eating is resumed (Manore et al. 1991). These chronic ups and downs in food energy intake could gradually lead to weight gain and obesity.

On the whole, empirical tests of these theories have produced mixed results with a number of studies pointing to a positive association and others finding the relationship to be negative or close to zero.¹ However recent research emphasizes that the approaches used in this literature are often prone to two types of bias. One type of bias is due to reporting error. The other is due to the difficulty of distinguishing causal effects of food assistance from other differences across SNAP and non-SNAP households that may contribute to obesity. Studies by Almada, McCarthy, and Tchernis (2015) and by Kreider et al. (2012) both find that once these sources of bias have been accounted for there is no evidence of either a positive or negative impact of SNAP on obesity.

One of the most compelling studies on this topic, by Almond, Hoynes, and Schanzenbach (2011), examines the long-run impact of exposure to Food Stamps as a young child. The authors use the gradual rollout of the program across counties to identify the causal effects of exposure in early childhood on adult health outcomes. They find that young children from disadvantaged families who were exposed to Food Stamps were 16 percentage points less likely to be obese as adults. Their results suggest that the positive impacts of food assistance on health dominate in the long-term.

In sum, while many studies find that rates of obesity among SNAP recipients are relatively high, the most rigorous studies suggest that SNAP is likely not responsible for the prevalence of obesity, and that it may instead reduce obesity in the long run.

¹ For example, Baum (2007); Chen, Yen, and Eastwood (2005); Meyerhoefer and Pylypchuk (2008); and Gibson (2003, 2004) all find positive associations for women and girls but not for men and boys; Schmeiser (2012) finds a negative association for boys and younger girls; Kaushal (2007) and Fan (2010) both find negligible effects.

Adult Health Outcomes

There are at least two broad mechanisms through which SNAP benefits could lead to improvements in adult health. First, SNAP might improve health directly by increasing food consumption and improving diet. As discussed above, while the evidence linking SNAP to diet quality is mixed, there is strong evidence that SNAP reduces food insecurity—which is associated with a wide range of negative health outcomes, including worse reported health and higher rates of heart disease, diabetes, high blood pressure, and depression.¹⁷

A second possibility is that SNAP benefits free up money that a household would otherwise have spent on food and thereby allow for increased expenditures on health and preventative medical care. Consistent with this hypothesis, Kushel et al. (2005) find that food insecurity is associated with postponing needed medical care, postponing medications, increased emergency department use, and more frequent hospitalizations among low-income adults.

One recent study, which takes advantage of state variation in rules and policies that affect SNAP enrollment to isolate SNAP's causal impacts, finds evidence consistent with both mechanisms. Using data from 1999–2008 from the Medical Expenditure Panel Survey, Gregory and Deb (2015) find that SNAP has a significant positive effect on self-assessed health. SNAP recipients are not only more likely to report being in excellent or very good health; they also spend about 3 fewer days in bed due to illness each year, and report fewer visits to the doctor or hospital relative to other low-income households not receiving SNAP. However, while SNAP recipients seek less medical care than comparable non-recipients overall, they had more medical checkups—suggesting that they are able to invest more in their health.¹⁸

Other studies have focused more narrowly on vulnerable populations where food security may be especially critical for improving health outcomes. Adults with diabetes are one such group; among diabetics who take medicine to control their blood sugar, reduced food intake can lead to low blood sugar or hypoglycemia—a dangerous condition that often requires hospitalization. Clinical studies have found that going hungry is associated with a two- to three-fold increase in the odds of self-reported severe hypoglycemia, and researchers have hypothesized that food insecurity interferes with disease management through multiple channels—including reduced ability to adhere to a diabetic diet and increased emotional distress (Seligman and Schillinger 2010; Seligman et al. 2011; Seligman et al. 2012).

Seligman et al. (2014) investigate the potential role of SNAP in diabetic health by building on the existing evidence that SNAP recipients consume fewer calories as their benefits are exhausted at the end of the month.¹⁹ Using data on hospital admissions in California, the researchers evaluate whether the rate of hospitalizations for hypoglycemia varies over the SNAP “benefit cycle.” They

¹⁷ For examples, see Vozoris and Tarasuk (2003); Fitzgerald et al. 2011; Siefert, Heflin, Corcoran, and Williams 2004; Leung et al. 2014; Stuff et al. 2004.

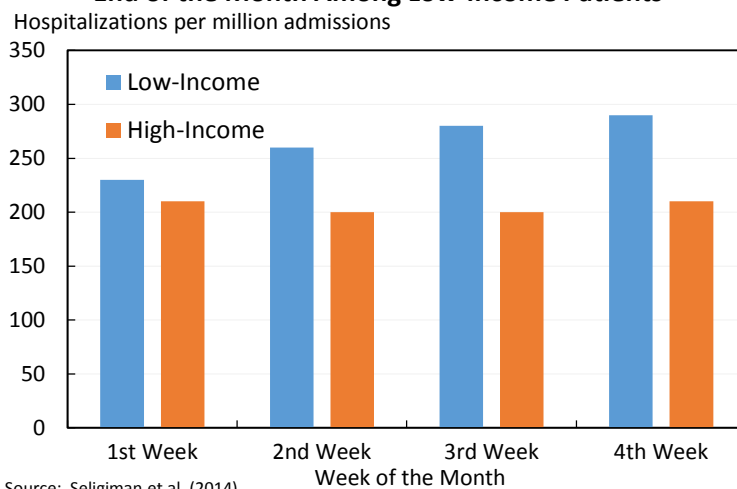
¹⁸ The researchers account for Medicaid receipt and other program participation, along with other demographic, employment, and health insurance variables in their model.

¹⁹ Evidence on the benefit cycle in caloric intake is discussed in section IV.

find that for low-income individuals, hospital admissions for this condition rise over the course of the month, and the admission rate is 27 percent higher in the last week compared to the first week of the month (Figure 9). Furthermore, they find no comparable pattern either in hypoglycemia admissions among high-income households or in admissions for conditions unrelated to diet. This combination of findings leads them to conclude that exhaustion of food budgets are likely to be an important driver of the increased hospitalizations.

The researchers note that the costs of these unnecessary hospitalizations are large—the cost of a typical hospitalization for hypoglycemia is around \$1,500.²⁰ Moreover, the costs of food budget exhaustion among low-income diabetics are likely to be much larger than estimated in their study, since many episodes are treated in the emergency department (and thus not captured in their data) or go untreated altogether, leading to potentially serious health problems or death.

Figure 9: Hospital Admissions for Hypoglycemia Rise at the End of the Month Among Low-income Patients



Childhood Health and Development

Food insecurity has been associated with numerous health and developmental outcomes among children, suggesting a variety of ways in which improved food security through SNAP might affect childhood health and development.²¹ The positive impacts on child health likely begin *in utero*. Food insecurity among pregnant women has been associated with high rates of iron deficiency (Park and Eicher-Miller 2014), which in turn can affect birth weight and neonatal cognitive development.²² Insufficient diet during pregnancy can also lead to higher risk of birth defects (Carmichael et al. 2007).

²⁰ Adjusted for inflation from \$1,186 (2003).

²¹ See Hoynes and Schanzenbach (2015) for an overview of SNAP’s impacts, along with the effects of other food and nutrition programs that affect children, like WIC, the National School Lunch Program, and the School Breakfast Program.

²² Park and Eicher-Miller (2014) summarize the evidence for these relationships. Currie and Almond (2011) survey the literature on the impacts of prenatal nutrition on long-run outcomes.

In early childhood, hunger and insufficient nutrition continue to be linked to poor health outcomes such as increased risk for iron deficiency anemia (Skalicky 2006; Cook et al. 2004). Childhood hunger is further associated with a variety of indicators of poor social and emotional development. These include insecure attachment and less advanced mental proficiency (Zaslow et al. 2009); internalizing behavior problems such as anxiety and depression (Weinreb et al. 2002); and externalizing behaviors such as poor self-control (Kimbrow and Denney 2015). Inadequate diet may also impede children's ability to perform academically, and food insecurity in kindergarten has been linked to lower test scores even in later years (Jyoti, Frongillo, and Jones 2005).

Even if the children in a household are not food insecure, their development may be affected indirectly through the food insecurity of their parents. For example, studies have found maternal food insecurity to be correlated with depression and anxiety—conditions that may impact their children through changes in parenting behavior (Zaslow et al. 2009; Whitaker, Phillips, and Orzol 2006) or by inducing emotional reactions in their children (Frongillo, Fram, and Jones 2010).

Observational studies suggest that SNAP receipt may indeed have a positive impact on the outcomes that have been linked to food insecurity among children. In particular, SNAP participation has been linked to a lower risk of anemia and other nutritional deficiencies (Lee, Mackey-Bilaver, and Chin 2006), as well as to a lower likelihood of being at developmental risk, in fair or poor health, or overweight (Food Research and Action Center 2015; Goldman et al. 2014; Sheward et al. 2014). Since SNAP households are generally more disadvantaged than non-SNAP households, and are thus likely to have relatively worse outcomes in the absence of SNAP, the positive associations between SNAP and children's outcomes suggest that improved food security through SNAP is a driver of these positive outcomes.

A new set of studies that use rigorous research methods designed to isolate the causal effects of SNAP participation confirm that these programs have led to significant improvements in children's outcomes.

Almond, Hoynes, and Schanzenbach (2011) demonstrate that the benefits of food assistance for children begin even before birth. These researchers identify the impact of the early Food Stamp program on birth outcomes by studying the initial rollout of the program across US counties between 1961 and 1975. Comparing births in counties where Food Stamp access differed due to variation in the timing of implementation, they find that a mother's access to Food Stamps during pregnancy led to increased birth weight and may have reduced neonatal mortality. Specifically, maternal receipt of Food Stamps in the three months before delivery improved average birth weights by about half of one percent.

Importantly, the authors found that the impacts of Food Stamp receipt on birth weight were concentrated at the bottom of the birth weight distribution, where changes are closely linked to

other measures of newborn health as well as to other long-run outcomes.²³ Their estimates imply that program participation reduced the incidence of low birth weight (defined as less than 2,500 grams) by between 7 to 8 percent for white infants and between 5 to 12 percent for black infants. Consistent with a link between birth weight and newborn health, the authors also find small improvements in neonatal mortality due to program participation.

A new study by East (2015) that examines the impact of Food Stamp receipt in a more recent time period confirms that program access has a positive impact on birth weight, and importantly, also confirms that it leads to significant health improvements as the child grows. This study focuses on the impact of changes in eligibility for immigrants following the 1996 welfare reform. A large group of legal immigrants lost eligibility in 1996 and eligibility was restored for some subsets of immigrants who lost eligibility at different times across different states between 1997 and 2003.²⁴ The author uses this variation to tease out the impacts of program eligibility for children in immigrant households.

The study finds that maternal receipt of Food Stamps during pregnancy reduced the likelihood of low birth weight by 23 percent. Furthermore, an additional year of eligibility before the age of 5 led to a significant increase in parent-reported child health at ages 6-16. The study also examined other indicators of childhood health—including the likelihood of being hospitalized, having multiple doctor visits, and missing school. While these outcomes are measured with less precision, the study's findings suggest that access to Food Stamps improved health outcomes along all of these dimensions, and that the impacts were especially large among children from more disadvantaged households.

Two recent studies demonstrate a link between SNAP benefits and children's performance in school by showing how student behavior and standardized test scores vary with the timing of benefit receipt. Both studies build on the existing evidence that SNAP households experience an end-of-month drop in caloric intake as their food resources are depleted.

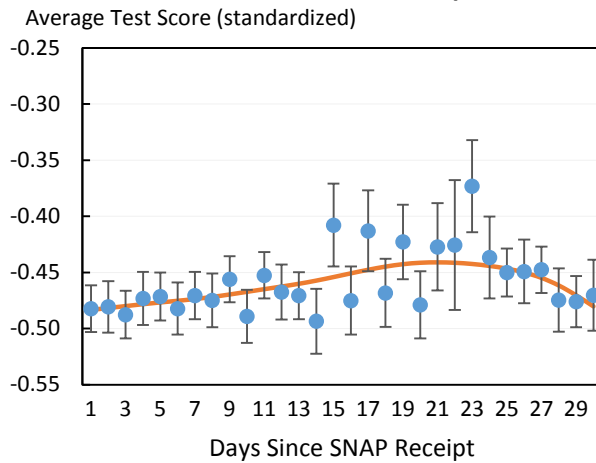
Gassman-Pines and Bellows (2015) examine test score data for students in North Carolina, where the timing of SNAP benefit distribution varies across households and is determined by the last digit of the household head's social security number. Focusing on students in third through eighth grade, the authors find that students' end-of-grade achievement test scores in math and reading

²³ For example, estimates from Almond, Chay, and Lee (2005) indicate that a one-pound increase in birth weight causes neonatal mortality to fall by 7 deaths per 1,000 births or 24 percent. Infant birth weight has also been linked to a variety of adult outcomes, including height, IQ, educational attainment levels, and adult earnings (Figlio et al. 2014; Black, Devereux, and Salvanes 2007).

²⁴ The Personal Responsibility and Work Opportunity Reconciliation Act of 1996 imposed a number of new restrictions on legal immigrants' eligibility for benefit programs. In SNAP, where undocumented immigrants already were ineligible, the Act excluded all legal immigrants with limited exceptions (chiefly for very recent refugees, those with 10 years of work history in the U.S., and veterans or members of the U.S. military.) The 1998 eligibility restorations included children, elderly, and disabled immigrants who lived in the U.S. in 1996 and additional refugees. In 2002 all legal immigrant children, individuals with disabilities, and individuals who have lived in the U.S. for at least five years regained eligibility.

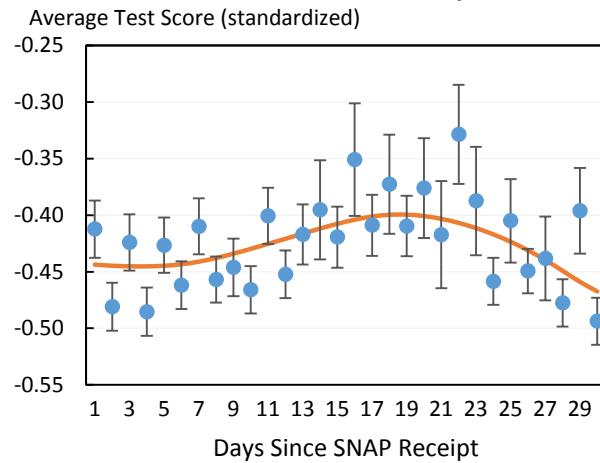
vary in a pattern that is predicted by the timing of their SNAP benefit receipt. Specifically, test scores (standardized with an average of zero) are highest among students whose families received their benefits two to three weeks prior to the test score date (Figure 10). These findings suggest that learning and test preparation in the weeks leading up to the test are disrupted by the fall off in food consumption at the end of the SNAP benefit cycle. Food disruptions in the prior weeks may also have lagged effects on student concentration on the date of the test if the effects of stress or reduced sleep take time to dissipate.

Figure 10a. Math Average Test Scores by Days Since SNAP Benefit Receipt



.Source: Gassman-Pines and Bellows (2015)

Figure 10b. Reading Average Test Scores by Days Since SNAP Benefit Receipt



.Source: Gassman-Pines and Bellows (2015)

The results of a second study suggest that the relationship between SNAP benefit exhaustion and test scores may be partly related to the effects of food insecurity on behavioral problems. Using data on students in fifth through eighth grades in the City of Chicago School District, Gennetian et al. (2015) study the relationship between benefit timing and disciplinary incidents among SNAP and non-SNAP participants. Their analysis shows that not only do children from SNAP households have higher overall rates of disciplinary incidents than non-SNAP students—but further, this discipline gap rises toward the end of the benefit month. A simple comparison shows that the SNAP-nonSNAP difference in discipline incidents grows from 25 events in the first two weeks of the month to 37 events in the fourth week. A more sophisticated analysis that adjusts for differences in student characteristics suggests that the exhaustion of SNAP benefits causes an 11 percent increase in the rate of disciplinary actions between the first and last week of the month for SNAP students.

The findings of both Gennetian et al. (2015) and Gassman-Pines and Bellows (2015) imply that helping families maintain their food consumption through the end of the month would likely lead to improvements in academic performance among children from recipient households. Moreover, the findings of Gennetian et al. suggest that the benefits of SNAP may also extend to children from non-SNAP households. Previous studies have found that behavioral problems in the classroom negatively affect learning for other students (Carrell and Hoekstra 2010). Consistent with this type of negative peer effect, Gennetian et al. show that as disciplinary

incidents rise among SNAP participants at the end of the month, there is also a significant, though smaller, rise among non-participants.

Long-Term Impacts of SNAP

Individuals who receive food assistance *in utero* or as children may continue to reap the benefits decades after initial exposure. A growing body of research suggests that health investments *in utero* have important long-run implications (Currie and Almond 2011). There is also rigorous evidence that improvements in infant birth weight lead to better adult outcomes, including higher IQ, higher levels of educational attainment, and higher adult earnings (Figlio et al. 2014; Black, Devereux, and Salvanes 2007).

Other research points to the long-run importance of good nutrition in the first few years of life. For example, the type of nutrition young children receive can determine the architecture of the brain and central nervous system in a variety of ways (Georgieff 2007; Rosales, Reznick, and Ziesel 2009). Further, the evidence that SNAP benefits lead to improvements in student discipline and academic performance suggest a host of long-run benefits that could follow from these short-run outcomes—including reductions in high school dropouts and criminal behavior (Heller et al. 2015; Lochner and Moretti 2004), as well as increases in earnings, college attendance, home ownership, and retirement savings (Chetty et al. 2011).

A compelling new study by Hoynes, Schanzenbach, and Almond (forthcoming) demonstrates that the short-run benefits of food assistance to young children can indeed translate into long-term impacts on adult health and economic self-sufficiency. Building on their earlier research on the impact of the early Food Stamp Program on birth weight, the authors identify the long-term impact of the Food Stamp program by studying the rollout of the program across U.S. counties between 1961 and 1975.²⁵ The new research focuses on the adult outcomes of individuals who were children at the time of the roll-out and were living in disadvantaged households (defined as with parents who had less than a high school education).

The authors use the Panel Study of Income Dynamics, a survey that follows individuals over time, to link respondents to their county of residence in early childhood. They then compare individuals who differed in their access to Food Stamps before the age of 5, depending on whether the program had been introduced in their county.

They find, first, that increased exposure to Food Stamps *in utero* and in early childhood led to a significant reduction the incidence of “metabolic syndrome” (obesity, high blood pressure, heart disease and diabetes) (Figure 11), including a 16 percentage point reduction in the likelihood of being obese (relative to a mean of 33 percent).²⁶ Turning to the program’s impact on economic success and self-sufficiency, they find that early access to Food Stamps lead to an 18 percentage

²⁵ The birth weight study by Almond, Hoynes, and Schanzenbach (2011) is discussed earlier in this section.

²⁶ The study measures metabolic syndrome as an index that puts equal weight on five related components: high blood pressure, heart disease, heart attack, obesity, and diabetes. The results show that among these components, Food Stamp exposure had the largest impact on obesity, but all five components showed improvement.

point increase in the likelihood of completing high school (with an overall mean of 80 percent). Finally, their results show even broader impacts for women, who benefited through significant improvements in overall health and economic self-sufficiency (Figure 12)—based on a measure that combines increased educational attainment, increased earnings, and reduced participation in public assistance programs.

Figure 11: Impact of Food Stamp Exposure on Metabolic Syndrome, by Age of First Exposure

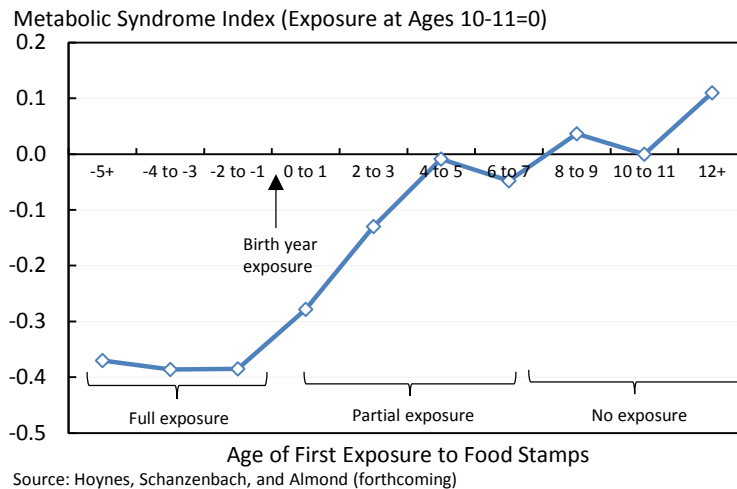
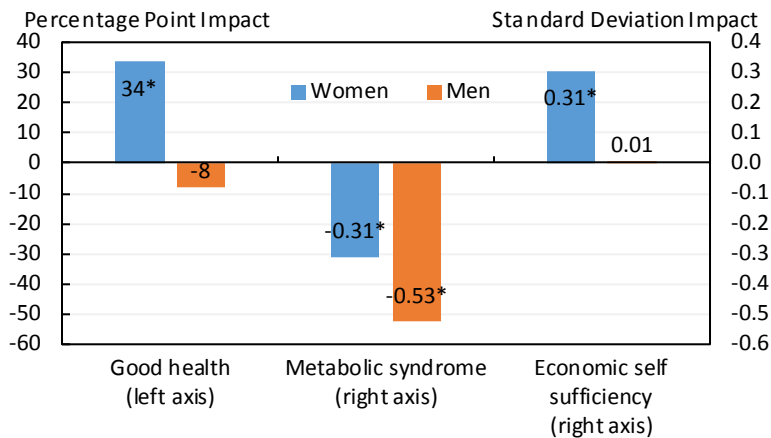


Figure 12: Long-Term Impacts of Exposure to Food Stamps as a Child



Note: * denotes statistically significant result; estimates are for a high-impact sample where the head of household had less than a high school education
 Source: Hoynes, Schanzenbach, and Almond (forthcoming)

In sum, the results of this study suggest that the Food Stamp program has produced substantial benefits to both the individual recipients and to society. These findings are consistent with other

recent research showing that programs that help low-income families meet basic needs, such as the Earned Income Tax Credit and Medicaid, can have large long-term benefits for children.²⁷

²⁷ See Furman and Ruffini (2015) for a survey of these findings.

VI. Adequacy of SNAP Benefits: Evidence and Policy Efforts

SNAP lifts millions of families out of poverty and hunger each year, and research shows that improving food security through SNAP significantly improves child and adult outcomes, now and in the future. Recent research suggests, however, that SNAP benefit levels are lower than is optimal, and that modestly higher benefit levels would generate significant positive outcomes.

Evidence for why SNAP Benefits Levels are Inadequate

As discussed earlier in this report, while SNAP substantially improves food security relative to no assistance, a majority of SNAP households still reported experiencing low or very low food security in 2014 (Coleman-Jensen et al. 2015). And a number of studies have shown that the current level of benefits often cannot adequately sustain families through the end of the month. The findings of other research on the food budgets and spending patterns of SNAP households reinforce the concern that current benefit levels are not sufficient to fill the gap between a family's resources and its need for food. Using data from the Consumer Expenditure Survey, Hoynes, McGranahan and Schanzenbach (2014) find that SNAP recipients' food bills exceed their SNAP benefit amounts (consistent with the assumption that households will spend some of their own income on food), but they also find that food bills often exceed the Thrifty Food Plan (TFP) "needs standard" used to determine the SNAP benefits amount. This suggests that current benefits may fall short of what households need to purchase an adequate diet, even when they include their own income in addition to SNAP.²⁸

Consistent with this conclusion, a new study Bronchetti, Christensen and Hansen (2015) uses local price data to estimate the cost a SNAP household would face if it purchased the food in the TFP market basket. They find that for roughly 30 percent of households, the average cost of the TFP in their county exceeds the maximum SNAP benefit, even after basing the TFP cost on prices in the lowest quintile for each food category (in other words assuming that SNAP recipients purchase foods far below their average cost).²⁹

Nutrition experts have reached similar conclusions when asked to evaluate whether the SNAP benefit level is sufficient for meeting the minimal cost of a healthy diet. A committee convened by the Institute of Medicine identified a number of reasons why the benefit formula is likely to be insufficient in practice (Caswell and Yaktine 2013), including insufficient adjustments for geographic variation in food prices as well as outdated assumptions underlying the composition of the TFP market basket. For example, the committee pointed to implicit assumptions about the

²⁸ The Thrifty Food Plan is a market basket of food that is intended to reflect a low-cost, healthy diet. The maximum benefit in SNAP is set at the cost of the TFP adjusted for different household sizes. As discussed in the following text box, the TFP market basket likely does not reflect the cost of a realistic diet.

²⁹ The authors estimate TFP cost using a "low basket price" calculation, which assumes SNAP recipients obtain prices in the lowest quintile for each TFP food category. When the TFP cost is calculated instead using the median price in each category, the estimated share of households that cannot afford the average TFP cost in their county is substantially higher.

time recipient households are able to spend shopping for the lowest food prices and preparing meals from the lowest-cost ingredients—assumptions that have become even more unrealistic as recipient households include increasing numbers of working parents.³⁰

³⁰ The role of inadequate access to low-cost grocery stores has also been highlighted by several recent studies. These studies have found that access and proximity are important determinants of whether households shop at low-cost supermarkets (Gustafson and Allen 2015; Taylor and Villas-Boas 2015), their purchases of fruits and vegetables (Gustafson and Allen 2015; US Department of Agriculture 2009), and SNAP’s efficacy in improving food security and nutrition (Mabli 2014; Handbury, Rahkovsky, and Schnell 2015).

WHY THE SNAP BENEFIT FORMULA MAY UNDERESTIMATE NEED

The maximum SNAP benefit for a family of four is set at the retail cost of the “Thrifty Food Plan” (TFP), a market basket that represents a minimal cost healthy diet. In order to address the question of whether the SNAP benefit is adequate at meeting the needs of a minimal cost healthy diet, the USDA asked the Institute of Medicine (IOM) to convene an expert committee to examine the feasibility of defining the adequacy of SNAP benefit levels. The Committee released its findings in 2013 in a report entitled, “Supplemental Nutrition Assistance Program: Examining the Evidence to Define Benefit Adequacy” (Caswell and Yaktine 2013).

The TFP was first set in 1975 by USDA. Since that time, the market basket has changed to accommodate updated nutrition guidance, but USDA has kept the cost of the TFP constant, adjusted only for inflation.

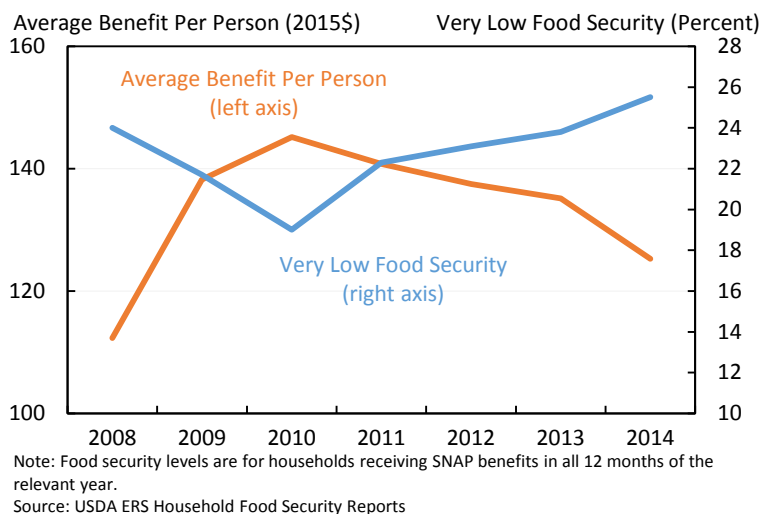
The Institute of Medicine panel found that the adequacy of SNAP benefits, including their ability to purchase a healthy diet, may be undermined in several ways by assumptions underlying the TFP, including:

- **Variety and palatability:** The TFP departs sharply from average food consumption patterns. Researchers have documented that in order to meet the cost constraints, the TFP assumes consumption of foods like beans, whole wheat pasta, and a limited range of vegetables (e.g. cabbage, potatoes, and carrots) in quantities as much as 20 times higher than the average American consumes, while assuming near-zero consumption of some healthful foods that average Americans eat regularly (Hartline-Grafton and Weil 2012; Drewnowski and Eichelsdoerfer 2011). If SNAP recipients purchase foods outside of the narrow range of foods in the TFP, then their benefits may not be adequate to purchase a healthy diet.
- **Prep time:** The TFP assumes greater meal prep time than families typically spend preparing meals. TFP-recommended recipes require between 1-2 hours of prep time per day, excluding shopping, but studies of low-income women found that they do not spend as much time on food prep as the TFP assumes—on average, they spend 40 minutes per day, similar to the average time spent by families across the income distribution (Mancino and Newman 2007). In 2014, more than 50 percent of SNAP households with children had earned income, up from about 25 percent in 1990 (Gray 2015; Heiser 1992). As the share of SNAP families that are working continues to rise, the TFP’s assumptions about prep time have increasingly departed from the experience of most families.
- **Variation in cost.** The cost of the TFP is not regionally adjusted across the 48 contiguous states, though food costs vary substantially by location. In addition, low-income households are less likely to have access to large grocery stores that offer lower prices, meaning that they may not be able to take advantage of low-cost stores to stretch their grocery budgets.
- **Lag in inflation adjustment.** Every year, the TFP is adjusted for inflation. Food cost data from June are used to determine the inflation adjustment to the TFP, which then goes into effect in October. Because of this, there is a lag in the inflation adjustment of as much as 16 months by the following September. If food prices are rising over that 16 month period, the value of SNAP benefits are eroding.

The Committee also raised questions about the formula for calculating a household's benefits. The benefit formula assumes that households spend 30 percent of their net income on food, or about 20-25 percent of their gross income. Households may spend less on food because they need to spend more on necessities such as shelter and transportation. The assumption that households can spend 30 percent of their net income on food, then, can leave a substantial hole in many low-income families' food budgets, even with food spending at the TFP level. In addition, the net income that a household has to spend on food is calculated by taking certain deductions from their gross income; however, many of the expenses that households face are not included in these deductions, therefore overstating the income available to purchase food.

Evidence from the decline in SNAP benefits following the temporary benefit increase implemented with the Recovery Act further indicate that that SNAP benefit formula is underestimating need. Despite the improving economic conditions, the fraction of SNAP households that experienced severe food insecurity rose in tandem with the benefit decline, and this rate of very low food security has now surpassed its recessionary peak in 2008 (Figure 13).

Figure 13: As ARRA SNAP Benefit Increases Subside, Severe Food Insecurity is Rising Among SNAP Recipient Households



Research shows that both the National School Lunch Program and the School Breakfast Program work alongside SNAP to help reduce food insecurity and improve diet quality among school-age children (Bhattacharya, Currie and Haider 2006; Nord and Romig 2006). Thus it is not surprising that studies suggest that children's food security declines during the summer months when many households with children are left relying only on SNAP.

In light of this summer food gap for children, policies that serve to supplement or increase SNAP benefits during the summer are also important. The Summer Food Service Program helps to alleviate hunger during the summer for some children, but recent data suggest that only 10

percent of children enrolled in the National School Lunch Program also benefit from the Summer Food Service Program (Hoynes and Schanzenbach 2015). A promising new policy to address summer food gaps is the Summer Electronic Benefit Transfer to Children (SEBTC) which began in 2011 and uses the same EBT technology as SNAP and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). Preliminary findings of the SEBTC pilot studies, discussed earlier in this report, show that providing families with children with even modest (\$30) additions to their food budgets during the summer can be integral to reducing food insecurity and improving nutrition, and that larger increases (\$60) lead to further improvements in household food security and nutrition.

While the SEBTC pilots confirm the importance of expanding food assistance to children during the summer months, a broader lesson from these studies is that the assistance provided by the current SNAP benefit formula is insufficient for many households, and that modestly higher benefit levels would likely lead to substantial improvements in food security and nutrition.

EFFORTS TO ADDRESS FOOD INSECURITY UNDER THE OBAMA ADMINISTRATION

The Obama Administration has taken steps to ameliorate food insecurity faced by American families through enhancements to core nutrition programs. Through the American Recovery and Reinvestment Act of 2009 (ARRA), the Administration temporarily increased the maximum SNAP benefit by 13.6 percent to help families put more food on the table during difficult economic times. Under the ARRA increase, the maximum benefit of a four-person family increased by \$80 per month. ARRA also allowed states to suspend time limits for unemployed able-bodied adults through 2010, increased the minimum benefit from \$14 to \$16 per month, and enhanced administrative funding to states. USDA found that food security among low-income households improved from 2008 to 2009. A significant part of that improvement is likely attributable to the increase in SNAP benefits implemented under ARRA.¹

Several Administration initiatives have specifically sought to improve food security and nutrition of vulnerable children. For example, the most recent revision to the WIC food package, which provides supplemental nutrition to low-income women, infants, and children, added a cash value voucher (CVV) to allow participants to purchase fruits and vegetables on top of the basket of goods historically provided by the program. The CVV represents a substantial increase in the value of the package. Further, the Community Eligibility Provision (CEP), which was offered nationwide starting in 2014, allows schools in high-poverty areas to offer free breakfast and lunch to all students. CEP has improved access to healthy meals in eligible schools, while eliminating the administrative burden and costs associated with collecting and processing household applications for subsidized school meals.

The Administration has also worked to expand access for low-income children to nutritious food during the summer months when school meals are unavailable and the risk of food insecurity is heightened. In 2014, the U.S. Department of Agriculture (USDA) delivered 23 million more summer meals than in 2009. USDA's Food and Nutrition Service (FNS) continues to build on this progress, working to expand the number of accessible feeding sites, including through partnerships with the Department of Housing and Urban Development, the Department of the Interior, the Corporation for National and Community Service, and other agencies within USDA. In addition, based on the Administration's successful demonstration, in 2015 Congress provided \$16 million in funding to expand the Summer Electronic Benefits Transfer for Children (SEBTC) program, which provides additional SNAP or WIC benefits to families with low-income children during the summer months. SEBTC has proven effective in reducing very low food security, and the President's Fiscal Year 2016 Budget request proposed a nearly \$70 million investment in the program.

VII. Conclusion

Each year, SNAP lifts millions of families out of poverty and hunger. A growing body of research shows that improving food security through SNAP leads to positive outcomes in the short-run and long-run. These positive impacts are especially pronounced for children, whose families receive a large majority of SNAP benefits. Moreover, SNAP's beneficial impacts on children's health and educational outcomes not only improve children's present well-being, but also are likely to result in better life outcomes and increased self-sufficiency in the future.

At the same time, a variety of compelling evidence suggests that too many American families continue to struggle with food insecurity. A number of studies have shown that the current level of benefits often cannot sustain families through the end of the month, and new research has linked the gap in food access to high-cost consequences—including increased hospitalizations among adults with diabetes and disruptions in learning among school-aged children.

The Obama Administration has taken a number of steps to ameliorate food insecurity through enhancements to the core U.S. nutrition programs—including a temporary expansion of SNAP benefits through the American Recovery and Reinvestment Act of 2009; new policies that expand summer benefits for households with children; improvements to the WIC food package; and policies that expand access to free school meals in high poverty communities.

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