

RESEARCH REPORT

The Antipoverty Effects of the Supplemental Nutrition Assistance Program

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Contents

| | |
|--|-----------|
| Acknowledgments | iv |
| Executive Summary | v |
| The Antipoverty Effects of SNAP | 1 |
| Program Background | 1 |
| Measuring the Antipoverty Effect of SNAP | 4 |
| Data and Methods | 8 |
| How Much Does SNAP Reduce Poverty? | 9 |
| Effect of Full Participation in SNAP | 17 |
| Discussion | 20 |
| Appendix A. Details of SNAP Eligibility Rules | 22 |
| How Are Eligibility and Benefits Determined? | 22 |
| Benefit Calculation | 22 |
| State Flexibility in Eligibility Rules | 23 |
| Appendix B. SNAP Simulation Methodology | 24 |
| Identifying Eligible Households | 24 |
| Calculating the Benefit | 25 |
| Selecting Participants | 26 |
| Correction for Underreporting | 26 |
| Appendix C. SPM Estimation | 28 |
| Adjustments to the SPM for This Report | 28 |
| Effect of TRIM3 Adjustments on the SPM | 30 |
| Effect of TRIM3 Adjustments on Program Antipoverty Effects | 32 |
| Appendix D. Additional Tables | 35 |
| Notes | 39 |
| References | 42 |
| About the Authors | 44 |
| Statement of Independence | 45 |

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Executive Summary

The Supplemental Nutrition Assistance Program (SNAP), which helps millions of poor and low-income Americans purchase food, is the nation's largest nutrition assistance program. By providing people assistance to buy food, SNAP also reduces poverty. When a family receives SNAP benefits, more of the family's resources are available to purchase other necessities, such as clothing, housing, and medical care.

In this report, we estimate SNAP's effect on poverty using the Supplemental Poverty Measure (SPM). The SPM is a comprehensive measure developed by the Census Bureau that captures family income, the benefits families receive from public programs, and the effects of taxes and other necessary expenses. The effects of government programs on poverty are often understated because respondents underreport their benefits in the survey data used for the estimates. This report augments the SPM by using data that have been corrected for underreporting of SNAP and other mean-tested benefits. Key findings from our analysis are as follows:

SNAP has a substantial antipoverty effect as measured by the SPM.

- SNAP removed 8.4 million people from poverty in 2015, reducing the poverty rate from 15.4 percent to 12.8 percent (a reduction of 17 percent).
- The reduction in poverty was particularly pronounced among children: the number of children in poverty fell 28 percent due to SNAP benefit receipt.
- SNAP also substantially reduced poverty among people living in nonmetropolitan areas (24 percent), individuals in families with a working adult (21 percent), and non-Hispanic blacks (21 percent).
- SNAP reduced the number of people in deep poverty (those below 50 percent of the SPM poverty level) 28 percent in 2015.
- The reduction in deep poverty was highest among children: SNAP reduced the number of children in deep poverty 49 percent.
- SNAP also substantially reduced deep poverty among Hispanics (37 percent), non-Hispanic blacks (36 percent), individuals in families with a working adult (34 percent), residents of the South (30 percent), and residents of nonmetropolitan areas (32 percent).

- Population groups with the largest number of people removed from poverty and deep poverty include adults ages 18 to 64, non-Hispanic whites, individuals in families with a working adult, residents of the South, and residents of metropolitan areas. These groups also have the largest overall populations.
- SNAP reduced the poverty gap (the aggregate amount of additional income required to remove all poor families from poverty) by \$35 billion (21 percent) in 2015. The poverty gap for families with children fell 37 percent because of SNAP.
- SNAP reduced the depth of poverty among recipients who remained poor despite receiving SNAP. SNAP reduced the average amount by which these families' resources fell short of the SPM poverty level by nearly one-third (\$3,039).

Some households eligible for SNAP do not participate in the program. Households are less likely to participate if they are eligible for lower benefits, contain members aged 60 or above, or contain legally resident noncitizens (Gray and Cunnyngham 2017). We estimate that if all eligible households participated in the program, SNAP would reduce poverty as measured by the SPM even further:

- Full participation would reduce poverty by an additional 1 million people (3 percent), deep poverty by an additional 572,000 people (5 percent), and the poverty gap by \$6.3 billion (5 percent).
- The relative effect of full participation would be greatest for people age 65 and older, reducing the share of older Americans in poverty an additional 4 percent, the share in deep poverty an additional 8 percent, and the poverty gap an additional 9 percent.
- Although full participation in SNAP would cause additional reductions in poverty, SNAP under current rules has achieved much of its antipoverty potential.

The Antipoverty Effects of SNAP

In this report, we provide detailed estimates of the antipoverty effects of SNAP using the Supplemental Poverty Measure (SPM). The antipoverty effects of SNAP and other government programs are often understated because respondents underreport program benefits in the survey data used for the estimates. We use data that have been corrected for underreporting using a comprehensive microsimulation model to more fully capture SNAP's antipoverty effect.

We begin by providing background on SNAP and the SPM. We describe prior research into the antipoverty effects of SNAP and discuss the methods used to correct for underreporting in this analysis. We then examine the effects of SNAP on the number of people in poverty, the number of people in deep poverty, and the size of the poverty gap. Finally, we estimate the additional potential of SNAP to reduce poverty if all people eligible for SNAP were to participate in the program. Further details about our methods and results are provided in the appendices.

Program Background

SNAP assists more than one in eight Americans and provided benefits to an average of 45.8 million people each month in 2015. Total federal costs for the program were \$74.0 billion in 2015, of which \$69.7 billion were for benefits; the remainder was for program administration (Gray, Fisher, and Lauffer 2016).

To receive SNAP benefits, a household must pass eligibility tests. Eligibility rules are set by the federal government, though states have flexibility in some areas. SNAP benefits are based on a household's income and size and are delivered to the household on an electronic benefit transfer card, which can be used in participating retail stores to purchase food. Eligibility rules are discussed further in appendix A.

Who Receives SNAP?

Most SNAP households contain a child, a person age 60 or older, or a person with a disability. In the average month of fiscal year (FY) 2015, 9.5 million households with children received SNAP, accounting for 43 percent of recipient households. About 4.4 million SNAP households (20 percent) included a

person age 60 or above, and 4.5 million SNAP households (20 percent) contained a person below age 60 who had a disability. About 4.3 million households (19 percent) contained adults ages 18 to 49 without disabilities and without children.

About 82 percent of SNAP recipient households were poor in 2015 according to the income definitions and poverty levels used to determine eligibility (Gray, Fisher, and Lauffer 2016). Twenty-two percent of SNAP households had no gross income, 32 percent had earnings, 20 percent received Supplemental Security Income (SSI), and 24 percent received Social Security income.

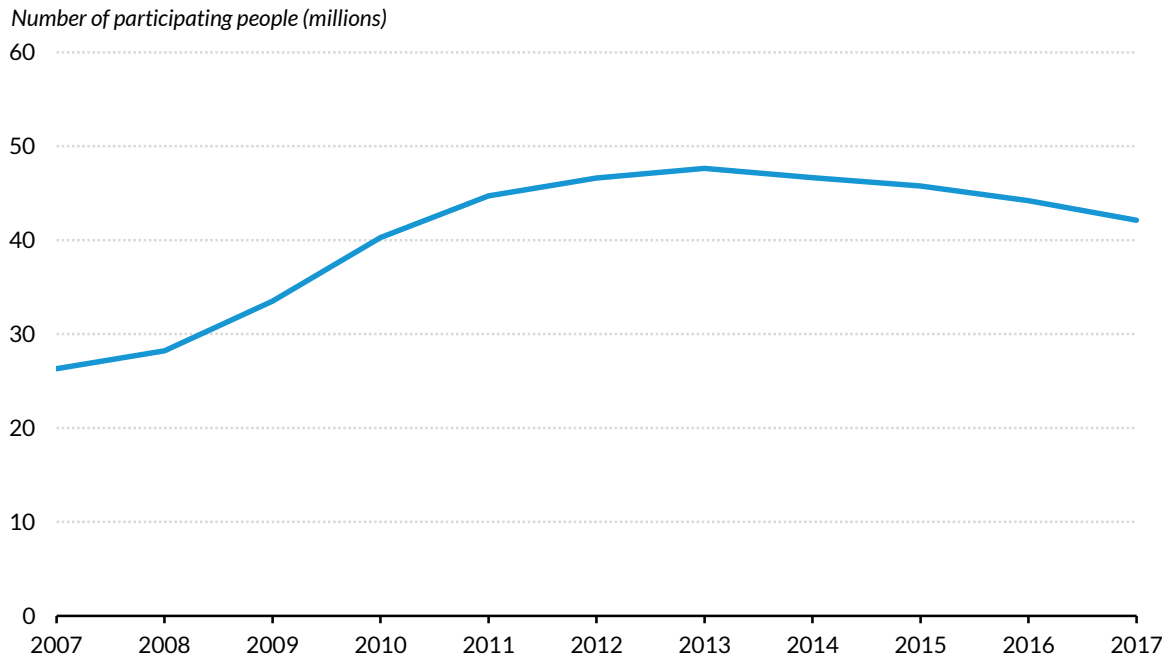
The average SNAP household in 2015 had two members, had \$786 in monthly gross income, and received \$254 in monthly SNAP benefits. Households with children tended to be somewhat larger, averaging 3.2 members. These households had an average of \$1,027 in monthly gross income and received an average of \$393 a month in SNAP benefits. SNAP households containing a person age 60 or older tended to be smaller, averaging 1.3 members per household. On average, households with a member age 60 or older had \$912 in monthly gross income and received \$128 a month in SNAP benefits in 2015 (Gray, Fisher, and Lauffer 2016).

How Are Program Participation and Costs Changing over Time?

SNAP enrollment increased considerably during the Great Recession and its aftermath, rising from 26.3 million participating people in the average month of FY 2007 to 47.6 million in FY 2013 (figure 1).¹ The increase in participation was driven by the difficult economic situations faced by many families during and in the aftermath of the Great Recession and by policy changes and increased program outreach.² SNAP enrollment began declining in FY 2014, falling to 42.1 million average monthly participants in FY 2017.

FIGURE 1

Monthly Participation in Supplemental Nutrition Assistance Program, Fiscal Years 2007–17

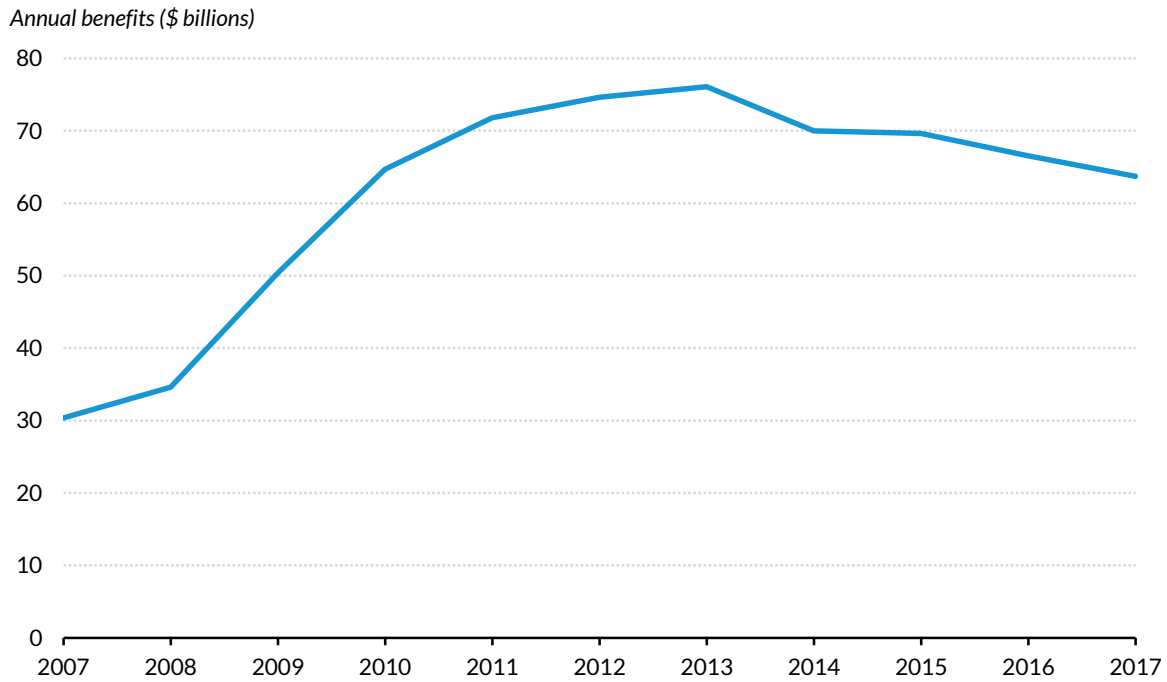


Source: “Supplemental Nutrition Assistance Program Participation and Costs,” Food and Nutrition Service, last published January 5, 2018.

Total SNAP benefits paid increased from \$30.4 billion in FY 2007 to \$76.1 billion in FY 2013 before declining to \$63.7 billion by FY 2017 (figure 2). The increase in benefits between FY 2009 and FY 2013 was attributable not only to an increase in the caseload but also to a temporary increase in the SNAP benefit enacted under the American Recovery and Reinvestment Act of 2009. Benefits paid declined after 2013 because the increased benefit amount from that law expired and the program’s overall caseload decreased.

FIGURE 2

Annual Benefits in the Supplemental Nutrition Assistance Program, Fiscal Years 2007–17



Source: “Supplemental Nutrition Assistance Program Participation and Costs,” Food and Nutrition Service, last published January 5, 2018.

Measuring the Antipoverty Effect of SNAP

A key measure of the effect of a safety-net program is how much it reduces poverty. The US Census Bureau produces annual estimates of the effect of SNAP and other programs on poverty using the comprehensive Supplemental Poverty Measure (SPM).³ Unlike the official poverty measure, which has traditionally been used to measure poverty, the SPM includes benefits such as SNAP and housing subsidies, accounts for taxes and other nondiscretionary expenses, and uses poverty levels developed from recent consumer expenditure data.

How Is the SPM Used to Measure the Effect of SNAP?

SPM poverty levels vary by family size; number of children; and whether the family rents, owns with a mortgage, or owns without a mortgage; they are also adjusted for geographic variation in housing costs.

For example, an individual who rents in a nonmetropolitan⁴ area of Alabama (where housing costs are among the lowest in the country) would be considered poor if his or her annual resources (cash income plus benefits, less taxes and other nondiscretionary expenses) were below \$9,541 in 2015 (table 1). An individual living in a nonmetropolitan area of Minnesota would be counted as poor if his or her annual resources were below \$10,350. In Minneapolis, \$12,379 annually would be required to be considered nonpoor. In San Francisco (where housing costs are among the highest in the country) a single-person renter would be considered poor with annual resources below \$15,908.

Poverty levels are higher for a single parent with two children, reflecting the family’s larger size. If the family rents, the poverty level would be \$17,092 in nonmetropolitan areas of Alabama and \$28,500 in San Francisco.⁵

TABLE 1

Supplemental Poverty Measure Levels for Households in Example States, 2015

| | One-Adult Household | | | Single Parent with Two Children | | |
|---------------------------|---------------------|---------------|------------------|---------------------------------|---------------|------------------|
| | Renter | Owner | | Renter | Owner | |
| | | With mortgage | Without mortgage | | With mortgage | Without mortgage |
| Nonmetropolitan Alabama | \$9,541 | \$9,637 | \$8,477 | \$17,092 | \$17,264 | \$15,186 |
| Nonmetropolitan Minnesota | \$10,350 | \$10,469 | \$9,046 | \$18,541 | \$18,754 | \$16,206 |
| Minneapolis, MN | \$12,379 | \$12,554 | \$10,473 | \$22,176 | \$22,490 | \$18,763 |
| San Francisco, CA | \$15,908 | \$16,182 | \$12,956 | \$28,500 | \$28,990 | \$23,211 |

Source: Table file “SPM Thresholds by Metro Area: 2015,” US Census Bureau, last revised June 13, 2017.

To estimate the antipoverty effects of SNAP, the Census Bureau first determines whether the family has total resources greater than or equal to the family’s SPM poverty level. It then subtracts SNAP benefits from family resources and recalculates each family’s status. If a family’s resources are above the SPM poverty level before subtracting SNAP but below the poverty level when SNAP is excluded, the family is counted as being removed from poverty by SNAP.

What Has Past Research Shown about SNAP’s Antipoverty Effect?

In 2016, the Census Bureau’s published SPM poverty rate was 14.0—that is, 14 percent of the population was below the SPM poverty level. Without SNAP, the SPM poverty rate would have been 15.1 percent. Thus, SNAP reduced the SPM poverty rate by 1.1 percentage points, or 7 percent (Fox

2017). The Census Bureau's SPM estimates for 2009 to 2015 find a somewhat larger effect, with SNAP reducing poverty an estimated 9 or 10 percent during this period.⁶

The data required for the SPM have only been available since 2009. Several approaches have been used to estimate the antipoverty effects of SNAP for earlier years. One approach involves adding SNAP benefits to cash income and calculating how far SNAP benefits raise families above the poverty level used for the official poverty measure. Estimates following this approach date back to Census Bureau reports covering the late 1970s (US Census Bureau 1982, 1984). Tiehen, Jolliffe, and Smeeding (2015) apply this approach to data from 1988 to 2011 and show that SNAP has greater antipoverty effects in economic downturns and has a particularly strong effect on "deep poverty" (the share of the population below 50 percent of the poverty level). Their study finds that the antipoverty effects of SNAP were highest at the end of this period, coinciding with the temporary increase in SNAP benefits and removal of time limits for jobless adults without children under the American Recovery and Reinvestment Act of 2009. They estimate that in 2011, SNAP removed 3.9 million people from poverty, reducing the poverty rate from 15.0 to 13.8 percent (1.2 percentage points, or 8 percent).

In a variation of this approach, the Food and Nutrition Service (FNS) produces annual estimates of the extent to which SNAP benefits, when added to a family's gross income for SNAP eligibility purposes, raise families above the poverty level used to define SNAP eligibility. In 2016, 17 percent of SNAP participants had gross income above poverty. If the SNAP benefit is counted as income, an additional 10 percent of SNAP recipients have income above poverty (Lauffer 2017).

Another approach to estimating the antipoverty effects of SNAP uses the poverty level used for the official poverty measure but defines a broader resource measure that accounts for noncash transfers (such as SNAP and housing subsidies) as well as taxes and tax credits such as the earned income tax credit (Ben-Shalom, Moffitt, and Scholz 2012; Bitler and Hoynes 2013; Scholz, Moffit, and Cowan 2009). Bitler and Hoynes (2013) estimate that SNAP reduced the poverty rate by about 1 percentage point (7 percent) in 1982 and 1.4 percentage points (13 percent) in 2010. The studies by Scholz, Moffit, and Cowan (2009) and Ben-Shalom, Moffitt, and Scholz (2012) find a lower (0.4 percentage point) reduction in the poverty rate because of SNAP. However, their approach differs from most other studies in that they estimate the antipoverty effect of SNAP absent any other government program (including non-means-tested programs, such as Social Security and unemployment benefits). The antipoverty effects of SNAP in this context reflect how well SNAP would remove families from poverty absent any other government benefit.

The above studies do not account for any potential behavioral changes induced by the program (such as decisions around extent of work) and treat the benefit to the family as equivalent to cash. However, research has shown minimal effects from SNAP on work decisions, and analysts generally consider families to value SNAP benefits at their cash value given that families typically spend more than their SNAP benefit on food. For further discussion of these issues, see Tiehen, Jolliffe, and Smeeding (2015).

How Does Underreporting of SNAP Affect Antipoverty Estimates?

In this study, we contribute to the literature by providing detailed updated estimates of the antipoverty effects of SNAP that include correction for underreporting.

Underreporting refers to the tendency of surveyed households to fail to report their receipt of SNAP and other means-tested benefits (Meyer, Mok, and Sullivan 2015; Wheaton 2007). Underreporting occurs for many reasons. Families may not report receipt of assistance because of perceived stigma associated with program receipt, they may forget to report benefits received in earlier months of the year, they may be confused by the wording of the survey questions, or a survey respondent might be unaware of benefits received by other household members.

SNAP is substantially underreported in the Current Population Survey, Annual Social and Economic Supplement (CPS-ASEC) which provides the data for the Census Bureau's official poverty estimates and SPM. According to the CPS-ASEC, households received a total of \$36.6 billion in SNAP benefits in calendar year 2015. FNS administrative data show that \$68.9 billion in benefits were paid that year.⁷ Thus, the CPS-ASEC captured just over half of total SNAP benefits (53 percent) paid in 2015.

Research has found that correcting for underreporting substantially increases estimates of SNAP's antipoverty effect. Wheaton (2007) finds that correcting for underreporting increases the estimate of the number of people removed from poverty by the Food Stamp program in 2004 by 86 percent. Tiehen, Jolliffe, and Smeeding (2015) also find a large effect, with adjustment for underreporting doubling the effect of SNAP on the poverty rate in 2011 and having an even larger effect on estimates of the depth and severity of poverty.⁸ Sherman and Trisi (2015) draw upon an earlier year of the data used in this report to illustrate the effect of correction for underreporting on the SPM in 2012 and find that SNAP removed 10.3 million people from poverty that year.

Data and Methods

Our estimates use data from the 2016 CPS-ASEC, which provides information for a nationally representative sample of households regarding income and program participation in 2015. We use a detailed microsimulation model⁹ to correct the CPS-ASEC for underreporting of SNAP and other means-tested benefits and to estimate the potential for additional poverty reduction if all families eligible for assistance from SNAP were to participate.¹⁰

The model follows actual program policies to the greatest extent possible. Eligibility procedures include determining the appropriate “filing unit” for each program, applying categorical eligibility rules (for example, SSI recipients must be 65 or older or have a disability), applying rules related to noncitizens (based on survey-reported citizenship status and imputed immigrant status), counting gross and net income, and performing income eligibility tests. Eligibility and benefits are modeled on a monthly basis; to permit the monthly modeling, reported annual income amounts are distributed across the months using sophisticated procedures that account for reported months of employment and unemployment and for trends in monthly labor force participation. For many programs, policies vary by state, and the model captures those variations. Benefits are assigned to eligible households according to each program’s benefit formula.

For families simulated as eligible for a particular benefit, the model determines whether the benefit was received. Eligible families that report receiving the benefit are automatically included in the simulated caseload. The model assigns benefits to additional eligible households so that the size and composition of the simulated caseload comes as close as possible to the real-world caseload as indicated by administrative data. This corrects for the underreporting of benefits in the survey data. We provide additional details about the SNAP simulation methodology in appendix B.¹¹

We calculate SPM poverty following the Census Bureau’s methodology and using the SPM levels developed for the Census Bureau by the Bureau of Labor Statistics (Fox 2017). Our estimates differ from those of the Census Bureau because we correct for underreporting of SNAP and other means-tested programs in the CPS-ASEC. For internal consistency, we use the model’s child care expense, housing subsidy, and tax amounts rather than the amounts assigned by the Census Bureau. We provide additional details in appendix C.

How Much Does SNAP Reduce Poverty?

In 2015, an estimated 40.8 million people were living in poverty as defined by the SPM with correction for underreporting (table D.1).¹² Absent SNAP benefits, 49.1 million would be poor. Thus, SNAP removed 8.4 million people from poverty (figure 3), reducing the SPM poverty rate from 15.4 percent to 12.8 percent (a reduction of 17 percent).

We show SNAP's effects on poverty as a percent reduction and in absolute numbers. Percent reductions are useful when comparing the relative effect of SNAP among different groups. Numerical estimates highlight that large numbers of people are removed from poverty by SNAP even for groups where the percentage reduction in poverty is lower, especially if these groups represent a large share of the overall population.

In 2015, SNAP caused the largest percentage reduction in poverty for the following groups:

- **Children.** SNAP reduced the number of children in poverty 28 percent.
- **Non-Hispanic blacks.** Poverty among non-Hispanic blacks fell 21 percent because of SNAP.
- **Working families.** SNAP reduced poverty in working families 21 percent. Families are classified as “working” if they include at least one adult younger than age 65 without a disability and a family member worked at some point during the year (not necessarily in a month in which SNAP was received).
- **Residents of the Midwest and Northeast.** SNAP reduced poverty in the Midwest and Northeast 19 percent and 18 percent, respectively (figure 4).
- **Residents of nonmetropolitan areas.** Poverty fell nearly a quarter (24 percent) in nonmetropolitan areas because of SNAP.

SNAP has the smallest relative effect on poverty for older Americans (for whom it reduces poverty 7 percent), people who are not white, black, or Hispanic (14 percent), nonworking families without older adults or adults with disabilities (10 percent), residents of the West (15 percent) and residents of metropolitan areas (16 percent).

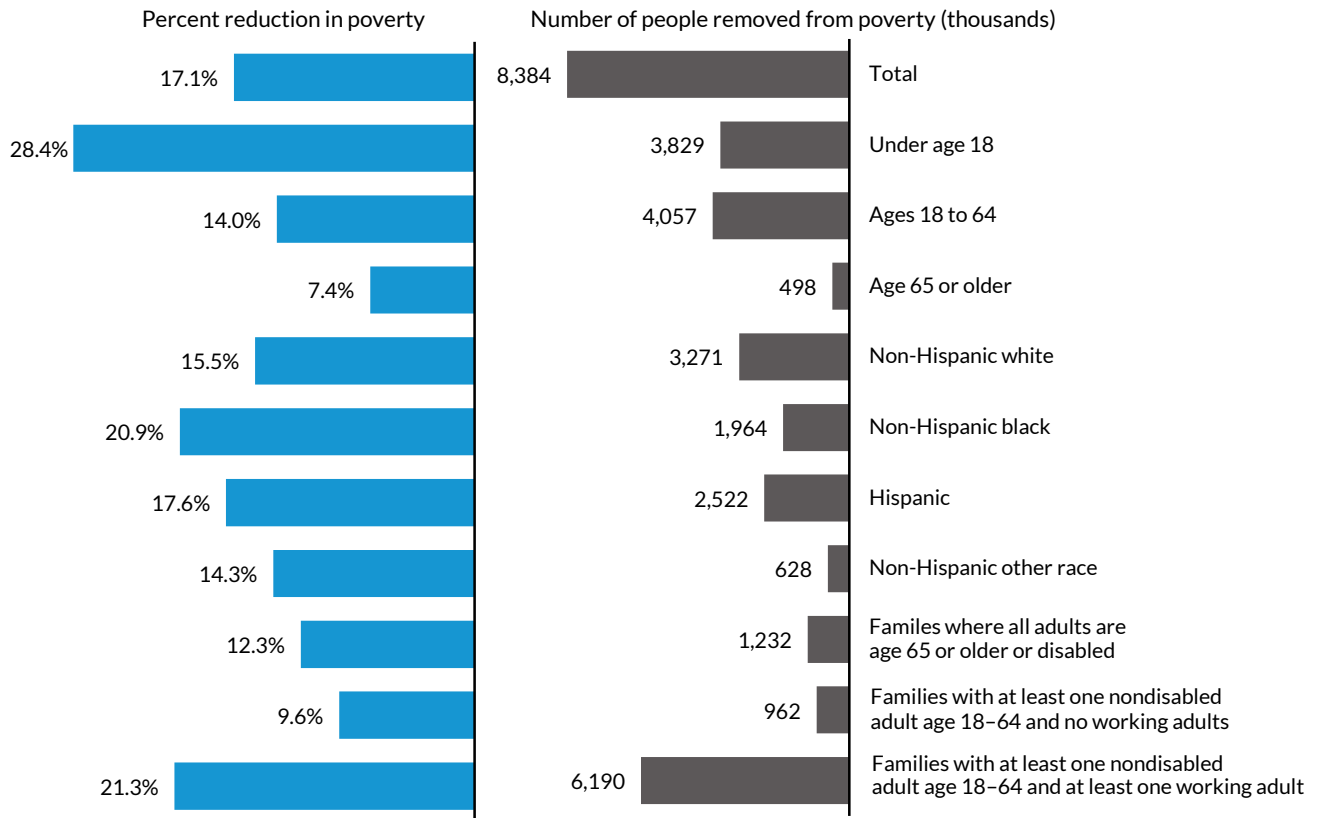
The following groups had the highest number of people removed from poverty by SNAP in 2015:

- **Adults below age 65.** SNAP lifted 4.1 million people between the ages of 18 to 64 out of poverty.

- **Non-Hispanic whites.** SNAP removed 3.3 million non-Hispanic whites from poverty.
- **Working families.** Nearly three-quarters (6.2 million) of the people removed from poverty by SNAP were in working families.
- **Residents of the South.** About 40 percent (3.4 million) of the people removed from poverty by SNAP live in the South.
- **Residents of metropolitan areas.** More than 80 percent (6.8 million) of people removed from poverty by SNAP live in metropolitan areas.

In each of these cases, the population group with the largest number of individuals removed from poverty by SNAP is also the group with the largest overall population.

FIGURE 3
Reductions in Poverty from SNAP by Age, Race or Ethnicity, and Work or Disability Status, 2015

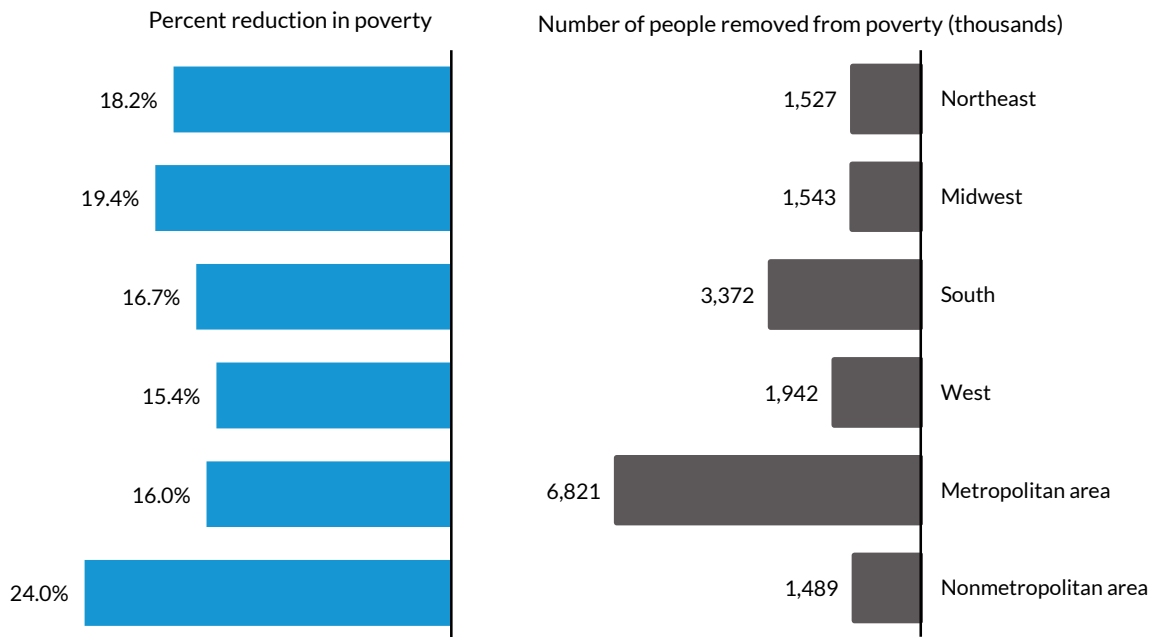


Source: Authors’ calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3.

Note: Figure measures poverty rates using the Supplemental Poverty Measure.

FIGURE 4

Reductions in Poverty from SNAP by Region and Metropolitan Status, 2015



Source: Authors' calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3.

Note: Figure measures poverty rates using the Supplemental Poverty Measure.

What Explains the Differences in SNAP's Antipoverty Effects?

Many factors contribute to the relative differences in the antipoverty effects of SNAP among different populations. Although providing a definitive answer is beyond the scope of this report, we present several possible explanations below.

Groups with higher rates of participation in SNAP may be more likely to be lifted out of poverty by SNAP than groups in which eligible people are less likely to participate. SNAP participation rates are highest for children and lowest for older Americans (Gray and Cunyngnam 2017). This likely contributes to the relatively greater antipoverty effects of SNAP among children. SNAP antipoverty effects and participation rates also follow a similar pattern by region, with the highest SNAP participation rate and antipoverty effect found in the Midwest, followed by the Northeast, South, and West.¹³

Groups with larger average SNAP benefits may be more likely to be removed from poverty by SNAP if their incomes without SNAP are similarly close to the SPM poverty level. This likely contributes

to the lower antipoverty effect of SNAP among older people (who tend to receive smaller benefits because of their smaller household size) than among children.

People who tend to have income just below the SPM poverty level may be more likely to be lifted above poverty by SNAP than people who tend to have incomes well below it. For example, working families, whose earnings bring them close to the SPM poverty level, may be more likely to be removed from poverty by SNAP than nonworking families without older adults or adults with disabilities. Without earnings, disability income, or Social Security or other retirement income, the latter group is likely to have little or no income, making them less likely to be lifted above the SPM poverty level by SNAP.

Lower housing costs (as measured by the SPM) may contribute to SNAP's greater antipoverty effect in nonmetropolitan areas. For example, the SPM poverty level for a single parent with two children who rents an apartment in Minneapolis is \$22,176 (table 1); the same family living in a nonmetropolitan area of Minnesota would have an SPM poverty level of \$18,541. A SNAP benefit sufficient to raise a family above the poverty level in a nonmetropolitan area in Minnesota might not be sufficient to raise the same family above the level in Minneapolis.

SNAP's Effect on Deep Poverty

"Deep poverty" refers to the share of the population with resources below half of the SPM poverty level. For example, a single-parent renter with two children in Minneapolis would be considered in deep poverty if his or her SPM resources were below \$11,088 (half of \$22,176). Deep poverty is a useful metric because it measures the severity of poverty. A reduction in deep poverty can reflect an improvement in family circumstances even when the overall number of people in poverty remains unchanged.

SNAP substantially reduces the deep poverty rate. Without SNAP, an estimated 16.8 million people would be in deep poverty. SNAP reduces this number to 12.1 million, a reduction of 28 percent (table D.2).

The following groups experienced the largest percentage reductions in deep poverty because of SNAP in 2015:

- **Children.** SNAP reduced the number of children in deep poverty by nearly half (49 percent) (figure 5).

- **Hispanics and non-Hispanic blacks.** Deep poverty among people of Hispanic ethnicity fell 37 percent because of SNAP; deep poverty among non-Hispanic blacks fell 36 percent.
- **Working families.** SNAP reduced deep poverty in working families more than one-third (34 percent).
- **Residents of the South.** SNAP reduced deep poverty in the South 30 percent (figure 6).
- **Residents of nonmetropolitan areas.** Deep poverty fell nearly one-third (32 percent) in nonmetropolitan areas because of SNAP.

SNAP has the smallest relative effect on deep poverty for older Americans, among whom it reduced deep poverty 13 percent, people who are not white, black, or Hispanic (19 percent), nonworking families without older adults or adults with disabilities (22 percent), persons outside of the South (26 percent in the Northeast and West and 27 percent in the Midwest), and residents of metropolitan areas (27 percent).

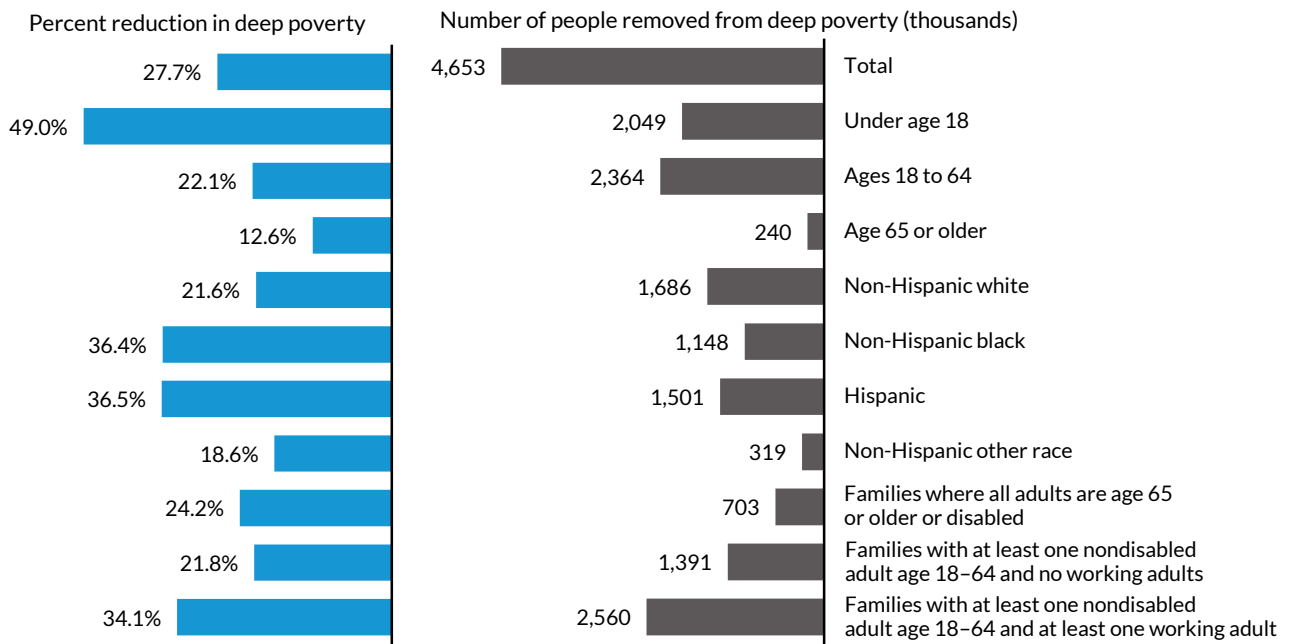
The following groups had the highest number of people removed from deep poverty by SNAP:

- **Adults below age 65.** SNAP lifted 2.4 million people ages 18 to 64 out of deep poverty.
- **Non-Hispanic whites.** SNAP removed 1.7 million non-Hispanic whites from deep poverty.
- **Working families.** About 2.6 million (or over half) of the people removed from deep poverty by SNAP were in working families containing at least one adult younger than age 65 without a disability.
- **Residents of the South.** About 2.2 million (almost half) of the people removed from deep poverty by SNAP live in the South.
- **Residents of metropolitan areas.** Around 3.9 million (or over 80 percent) of people removed from deep poverty by SNAP live in metropolitan areas.

As with our estimates for “standard” poverty, each group with the largest number of individuals removed from deep poverty by SNAP is also the group with the largest overall population.

FIGURE 5

Reductions in Deep Poverty from SNAP by Age, Race or Ethnicity, and Work or Disability Status, 2015

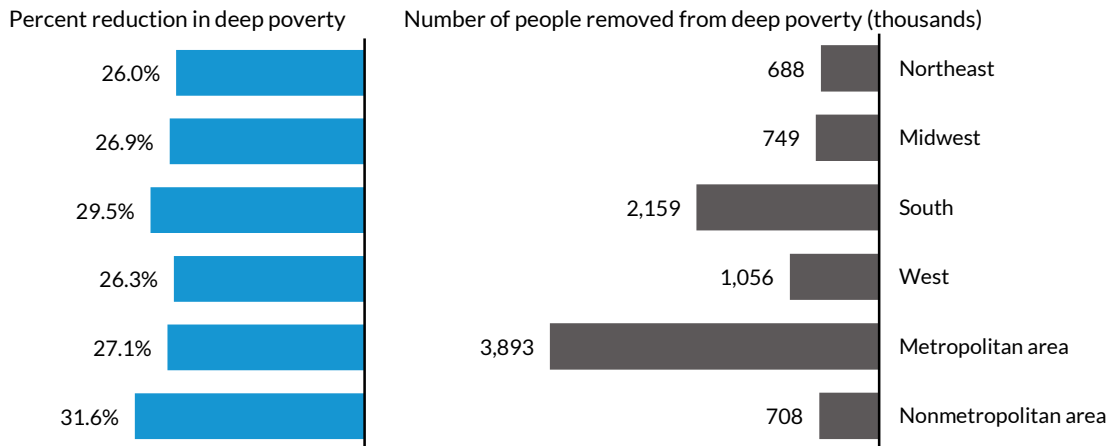


Source: Authors' calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3.

Note: Figure measures deep poverty rates using the Supplemental Poverty Measure.

FIGURE 6

Reductions in Deep Poverty from SNAP by Region and Metropolitan Status, 2015



Source: Authors' calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3.

Note: Figure measures deep poverty rates using the Supplemental Poverty Measure.

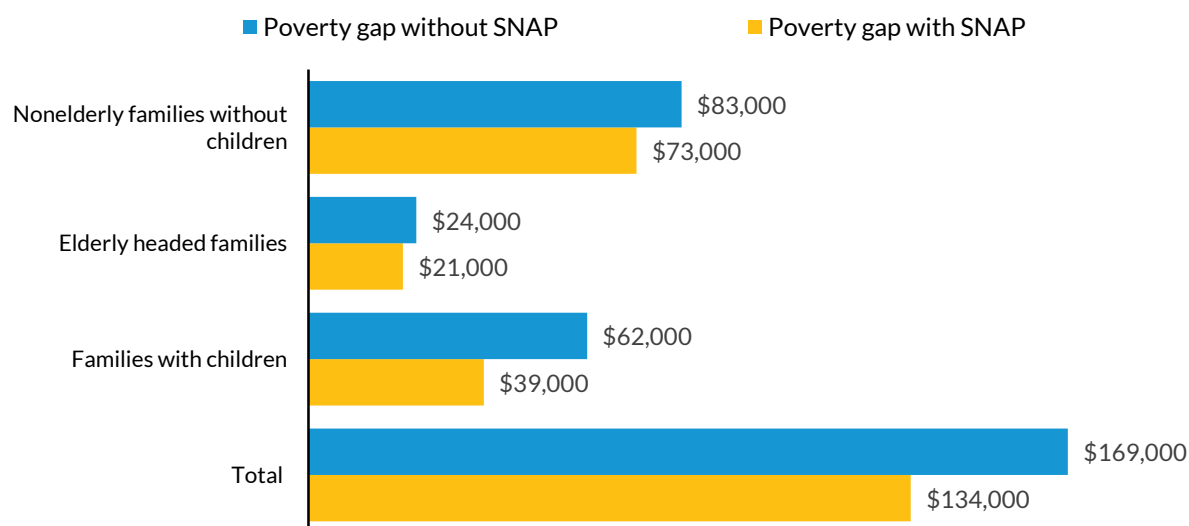
Effects of SNAP on the Poverty Gap

SNAP improves the resources of poor families even when the benefits are not sufficiently high to remove them from poverty or deep poverty. One measure of this effect can be seen through the change in the poverty gap, defined as the aggregate amount of additional income that would be required for all poor families to be removed from poverty.

FIGURE 7

Poverty Gap with and without SNAP, 2015

\$ millions



Source: Authors' calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3.

Note: Figure measures the poverty gap using the Supplemental Poverty Measure.

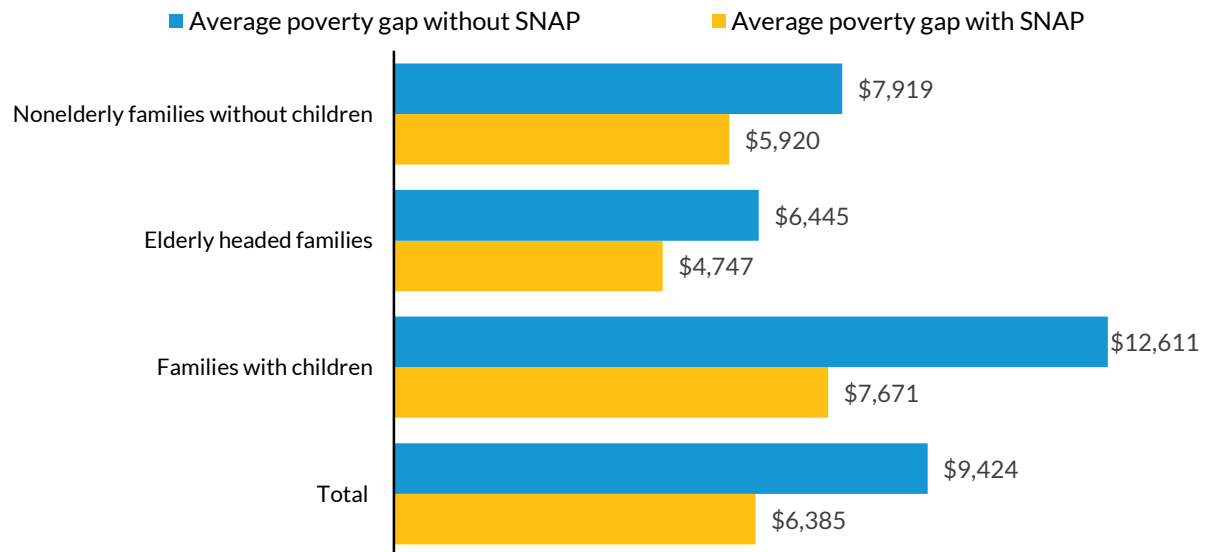
We estimate that the poverty gap was \$133.9 billion in 2015 (figure 7).¹⁴ Absent SNAP, the poverty gap would have been \$169 billion. Thus, SNAP reduced the poverty gap by \$34.9 billion (21 percent) in 2015.

Not all SNAP benefits go toward reducing the poverty gap. Some SNAP benefits are received by families whose SPM resources are above the SPM poverty level even without SNAP. For families lifted above the poverty level by SNAP, the SNAP benefits required to raise resources up to the SPM poverty level are counted as reducing the poverty gap, but benefits beyond that amount are not counted. We estimate that about 55 percent of SNAP benefits went to filling the poverty gap in 2015.¹⁵

Most of the reduction in the poverty gap (\$22.7 billion) was experienced by families with children. This is not surprising, because families with children receive the largest share of SNAP benefits. According to FNS data, households with children received 66 percent of SNAP benefits paid out in the average month of 2015 (Gray, Fisher, and Lauffer 2016). Families with children also experienced the largest percentage reduction in the poverty gap, 37 percent, compared with 11 percent for families without children headed by someone over age 65 and 12 percent for families without children headed by someone ages 18 to 64.

Another measure of SNAP’s effect is the reduction in the average poverty gap for families that remain poor despite receiving SNAP. The average poverty gap reflects the average amount by which the resources of poor families fall below the SPM poverty level. Among poor families that receive SNAP, the average poverty gap without SNAP is \$9,424 (figure 8). In other words, these families would require an average of \$9,424 to bring them up to the poverty level. SNAP reduces the average poverty gap among poor recipient families to \$6,385, a reduction of nearly one-third. Families with children experience the largest average reduction, \$4,940 (or 39 percent).

FIGURE 8
Average Poverty Gap with and without SNAP among Families That Are Poor Despite Receiving SNAP, 2015
Dollars



Source: Authors’ calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3.

Note: Figure measures the average poverty gap using the Supplemental Poverty Measure. The average poverty gap is calculated for families that receive SNAP and are below poverty despite receipt of SNAP benefits.

Effect of Full Participation in SNAP

Not all families who are eligible to receive assistance from a program choose to participate. To estimate the full potential of SNAP to reduce poverty, we perform a simulation in which all identified as “eligible” in the simulation are assigned to participate. The results are shown relative to the “baseline” simulation for 2015. The baseline simulation models the eligibility and benefit rules in effect in 2015, corrects for underreporting of the survey data, and is the source of the antipoverty estimates presented earlier in this report.

As shown in appendix table D.5, we estimate that if all people eligible for SNAP participated in the program, the number of people receiving SNAP in at least one month of 2015 would increase by 25 million (44 percent) and annual benefits would increase by \$12.2 billion (19 percent).¹⁶ The increase in participants is proportionately larger than the increase in benefits because those who are eligible for SNAP but do not participate in the program tend to have higher incomes than those who participate. Because SNAP benefits fall as income rises, eligible nonparticipants are more likely to receive lower benefits than the typical participant.

Full participation would have the greatest relative effect on people age 65 and over (where current participation rates are lowest) and the least effect on children (where participation rates are highest). People age 65 and over would experience the greatest relative effect, with the number of recipients more than doubling and benefits increasing 90 percent. Children would be least affected. The number of children receiving SNAP in at least one month of the year would increase by 3 million (13 percent), and benefits received by children would increase 6 percent. Participation among adults ages 18 to 64 would increase 43 percent, and benefit amounts would increase 21 percent. Adults ages 18 to 64 would experience the largest numeric increase in participation, with 12.5 million new recipients.

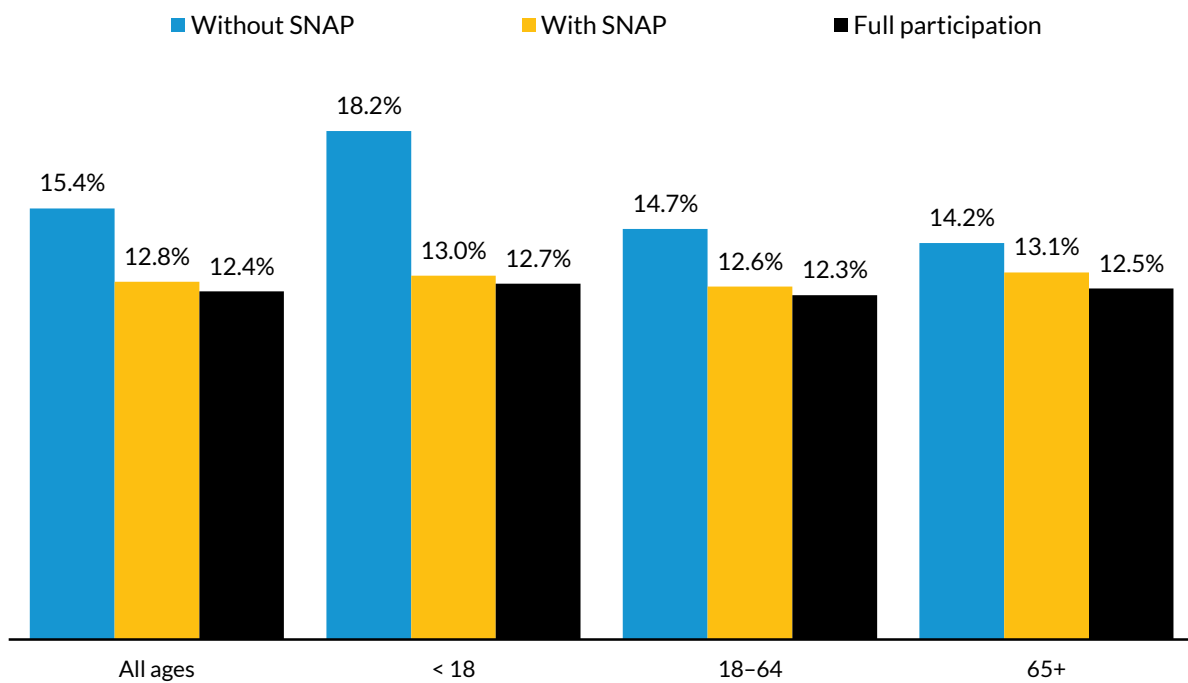
Full participation in SNAP would lead to additional reductions in poverty, deep poverty, and the poverty gap. Full participation would reduce poverty by 1 million people (3 percent), deep poverty by 572,000 people (5 percent), and the poverty gap by \$6.3 billion (5 percent). The relative effect of full participation would be greatest for people age 65 and over, reducing poverty 4 percent, deep poverty 8 percent, and the poverty gap 9 percent. Adults ages 18 to 64 would experience the greatest numeric reduction in poverty: full participation in SNAP would remove from poverty an estimated 606,000 adults ages 18 to 64 compared with 274,000 adults age 65 or over and 215,000 children.

Although increased participation in SNAP would contribute to further reductions in poverty, much of the antipoverty effect of SNAP under its current design has already been achieved. Absent SNAP, we

estimate that 15.4 percent of people would be in poverty under the SPM measure. This falls to 12.8 percent with SNAP and would fall slightly further to 12.4 percent with full participation in SNAP (figure 9). Of the three age groups, older Americans have the most potential for further poverty reduction because of their relatively lower current rates of participation. Absent SNAP, 14.2 percent of those age 65 and over are poor. SNAP reduces their poverty rate to 13.1 percent. With full participation, their poverty rate would fall further still to 12.5 percent.

FIGURE 9

Poverty Rate by Age without SNAP, with SNAP, and with Full Participation in SNAP, 2015



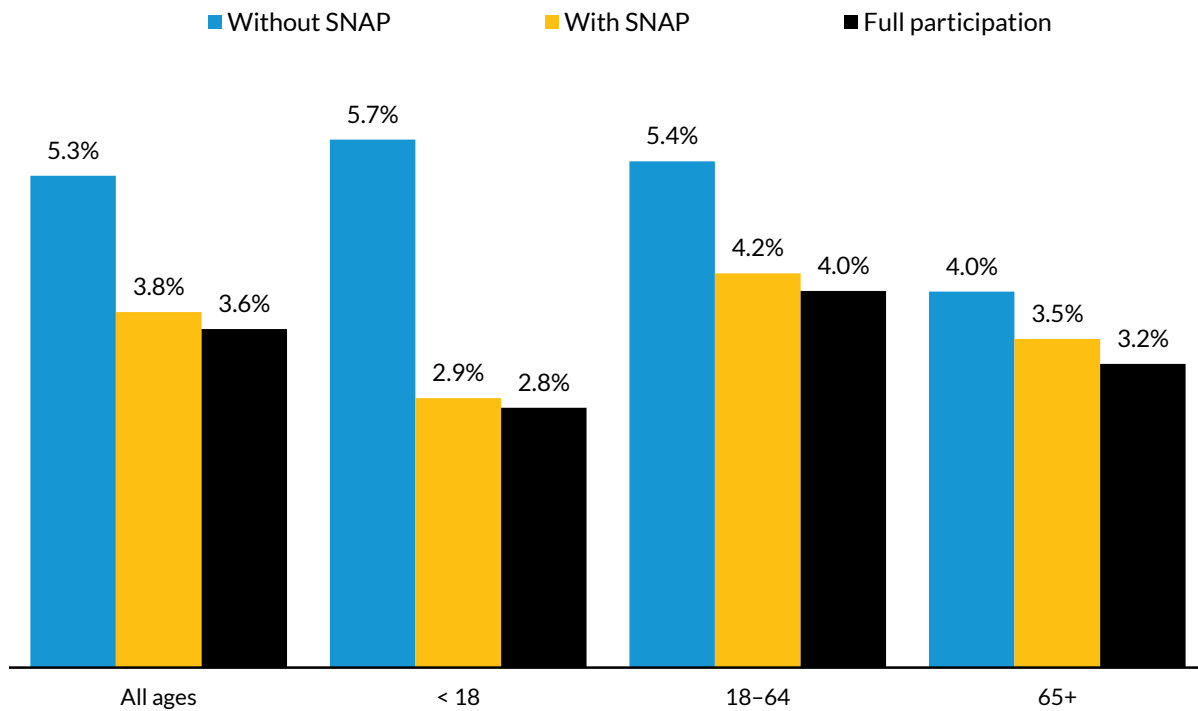
Source: Authors' calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3.

Note: Figure measures poverty rates using the Supplemental Poverty Measure.

As currently designed, SNAP has also already achieved much of its potential to reduce deep poverty. Absent SNAP, 5.3 percent of the population would be in deep poverty (figure 10). That share has fallen to 3.8 percent with SNAP and would fall slightly further (to 3.6 percent) with full participation in SNAP. Among people age 65 and over, the deep poverty rate would be 4.0 percent without SNAP, is 3.5 percent with SNAP, and would fall to 3.2 percent with full participation in SNAP.

FIGURE 10

Deep Poverty Rate by Age without SNAP, with SNAP, and with Full Participation in SNAP, 2015



Source: Authors' calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3.

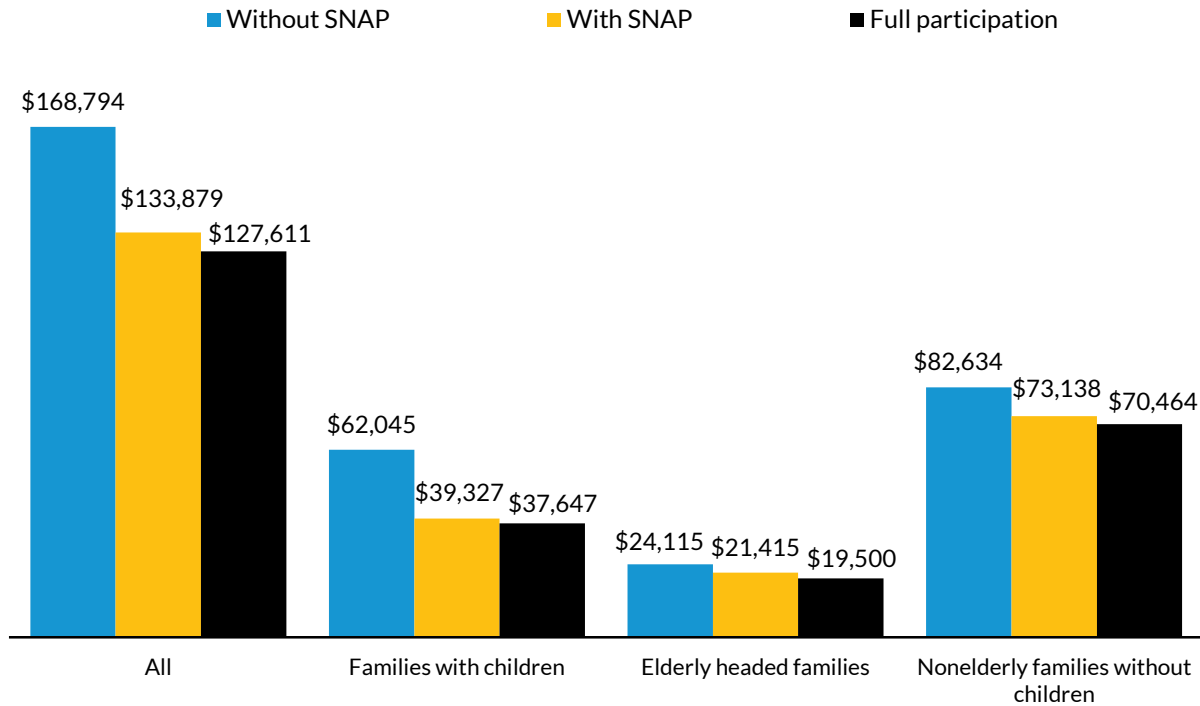
Note: Figure measures poverty rates using the Supplemental Poverty Measure.

Figure 11 illustrates the poverty gap without SNAP, with SNAP, and with full participation in SNAP. Currently, SNAP reduces the poverty gap from \$169 billion to \$134 billion (21 percent). With full participation, this reduction would be slightly greater, but the result would still round to 21 percent. Among families with children, SNAP reduces the poverty gap from \$62.0 billion to \$39.3 billion (37 percent). With full participation, the total reduction would be 38 percent. SNAP reduces the poverty gap 11 percent for families without children and would reduce it 12 percent with full participation.

FIGURE 11

Total Poverty Gap without SNAP, with SNAP, and with Full Participation in SNAP, 2015

\$ millions



Source: Authors’ calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3.

Note: Figure measures poverty gap using the Supplemental Poverty Measure.

Discussion

Previous studies have highlighted the importance of SNAP’s antipoverty effects. However, the antipoverty effects of SNAP are often understated because of the underreporting of SNAP and other benefits in the survey data used to develop the estimates. We contribute to the literature by providing detailed estimates of the antipoverty effect of SNAP that correct for underreporting.

We find that SNAP reduced SPM poverty an estimated 17 percent in 2015 and filled 21 percent of the poverty gap. The effects were particularly pronounced for children. SNAP reduced child poverty 28 percent, reduced the number of children in deep poverty by nearly half, and shrank the poverty gap among families with children by more than one-third.

The antipoverty effects of SNAP described here are substantially higher than in SPM estimates that do not correct for the underreporting of SNAP or other means-tested benefits. Without these adjustments, SNAP is estimated to reduce poverty 9 percent overall and 14 percent among children.¹⁷

Most of the people removed from poverty by SNAP are in families that work for at least part of the year. This demonstrates the importance of SNAP as a supplement for low-income working families. SNAP benefits alone are not large enough to raise a family above the poverty level. But SNAP, when added to earnings or other income, may be sufficient to move a family out of poverty. SNAP also provides a safety net for working families who turn to it during spells of unemployment.

Our simulations suggest that SNAP, as currently designed, has already reached most of its antipoverty potential. Full participation would have the greatest relative effect on the poverty rate of adults age 65 and over—decreasing it from 13.1 percent to 12.5 percent—because of the lower levels of current participation among this group. The largest numeric reduction would be among adults ages 18 to 64. Full participation in SNAP would remove from poverty an estimated 606,000 additional adults ages 18 to 64, 274,000 adults age 65 and older, and 215,000 children.

The antipoverty effects presented here are for 2015. Effects are likely to change as economic circumstances change and changes are made to the program. The forthcoming 2018 farm bill, which provides funding for SNAP, will likely include changes to scale back SNAP. Such changes are likely to reduce the antipoverty effectiveness of SNAP assuming no changes are made to other government programs. Others have called for preserving and expanding upon the current program. For example, H.R. 1276, the Closing the Meal Gap Act of 2017, would base the SNAP benefit on the US Department of Agriculture’s Low-Cost Food Plan and take additional steps to expand eligibility and benefits under the program.¹⁸ Changes in this direction would likely increase the program’s antipoverty effect.

The results presented here describe estimates of the immediate antipoverty effects of SNAP. Although the effects measured here are important, SNAP also has benefits beyond these. SNAP has been found to increase household food security (Kreider et al. 2012; Gundersen, Kreider, and Pepper 2017; Swann 2017).¹⁹ Other research has found that SNAP receipt led to improved health outcomes throughout life for adults who received SNAP as young children (Hoynes, Schanzenbach, and Almond 2016). Thus, the beneficial effects of SNAP extend beyond the immediate antipoverty effects presented here.

Appendix A. Details of SNAP Eligibility Rules

How Are Eligibility and Benefits Determined?

Under federal SNAP eligibility rules, a household must have net income (income after various deductions) below 100 percent of the federal poverty level—\$973 for a single-person household and \$1,650 for a three-person household in 2015.²⁰ Households without a person age 60 or above and without a person with a disability must also have gross income below 130 percent of the federal poverty level. In addition to income tests, the federal eligibility rules include limits on countable resources (assets), which include cash, resources easily converted to cash (such as checking and savings accounts), a share of the value of certain vehicles, and some nonliquid resources. In 2015, households were allowed up to \$2,250 in countable resources (\$3,250 for households with members age 60 and above or members with disabilities). Households in which all members receive SSI, Temporary Assistance to Needy Families (TANF), or General Assistance are categorically eligible for SNAP, meaning that they are not subject to SNAP income and resource tests.

Most people who meet the program's income and resource eligibility requirements can receive SNAP. Exceptions include certain students, people on strike, people living in institutions, people fleeing felony convictions, people with drug-related felony convictions, undocumented immigrants, nonimmigrants temporarily in the United States, and some lawful-permanent-resident noncitizens. Adults without disabilities ages 18 to 49 who are in households without children are limited to 3 months of SNAP in a 36-month period unless they meet work requirements. However, the time limit does not apply to individuals living in areas granted waivers by FNS because of high unemployment.

Benefit Calculation

A household's SNAP benefit is calculated by subtracting one-third of its net income (income after deductions) from the maximum SNAP allotment for the household's size. The maximum SNAP allotment is based on the US Department of Agriculture's Thrifty Food Plan, which is designed to provide a healthful and minimal-cost diet. The SNAP allotment is adjusted for differences in household size and for differences in food costs outside the contiguous US.

In 2015, single-person households received a maximum of \$194 in SNAP benefits, and three-person households received a maximum of \$511 in benefits.²¹ Larger households are eligible to receive higher maximum benefits. Benefits are reduced as household income increases, and on average, single-person households received \$142 and three-person households received \$379 per month in 2015 (Gray, Fisher, and Lauffer 2016). Households with one or two members have a guaranteed minimum benefit of \$16.

State Flexibility in Eligibility Rules

Although SNAP is a federal program, states are allowed flexibility in setting some eligibility rules. Under broad-based categorical eligibility (BBCE) policies, states can grant automatic eligibility to families receiving a service or product funded by their TANF program. Many states use BBCE to confer eligibility to a large share of their caseload by offering a product, such as an informational brochure, that is funded by TANF.²²

Most states using BBCE eliminate the resource test. This streamlines eligibility determination by avoiding the need to collect information on bank accounts, vehicles, and other countable resources. Further, using BBCE enables households to accrue savings without concern that they will lose eligibility for SNAP as a result. Eliminating asset tests (or allowing higher assets) has been found to increase low-income household financial security and to reduce short-term cycling on and off SNAP while not affecting households' total time on SNAP (Ratcliffe et al. 2016).

Another type of flexibility available to states is to align their vehicle rules with the rules of their TANF program (if the TANF rules are less restrictive). As of 2015, almost all states and territories had done so, and over half of all states and territories had adopted rules excluding all vehicles from the resource test (Gray, Fisher, and Lauffer 2016).

In addition to eliminating the resource test, many states with BBCE increase the gross income limit (from 130 percent of the federal poverty level to as much as 200 percent of the federal poverty level) and most eliminate the net income test. This streamlines eligibility determination and extends eligibility to some households above the federal eligibility limits. However, because the SNAP benefit formula remains the same, a family that meets the BBCE eligibility criteria does not necessarily qualify for SNAP benefits. Households with one or two members are guaranteed a minimum benefit, but there is no such guarantee for larger households, and households with income above the federal eligibility limit account for a very small share of the overall caseload.²³

Appendix B. SNAP Simulation Methodology

The SNAP benefits in this report are obtained from the TRIM3 microsimulation model based on data from the 2016 CPS-ASEC, which provides data on income and benefit receipt in 2015 for a nationally representative sample of households.²⁴ Although SNAP receipt and benefits are reported in the CPS-ASEC data, they fall considerably short of the actual amount number of recipients and benefits according to FNS administrative data. According to the CPS-ASEC, households received a total of \$36.6 billion in SNAP benefits in calendar year 2015. FNS administrative data show that \$68.9 billion in benefits were paid that year.²⁵ TRIM3 corrects for the underreporting of SNAP in the CPS-ASEC.

Identifying Eligible Households

The simulation begins by identifying households eligible for SNAP. The model performs a very detailed simulation of the program, determining eligibility on a monthly basis. The first step in determining eligibility is to establish the filing unit or units within a household. TRIM3 assumes that everyone in the household files together as a single SNAP unit unless (a) someone in the household receives TANF; (b) the household reports that some, but not all household members receive SNAP; or (c) the household is imputed to be split into multiple filing units.²⁶ Households meeting any of these conditions are split into multiple filing units to the extent permitted by SNAP regulations (which require that married couples file together and minor children file with their parents). SSI recipients in California receive a supplemental SSI payment in lieu of SNAP and are excluded from the SNAP filing unit.

The model follows the same steps as would be followed by a caseworker, such as applying rules for noncitizens' and students' eligibility, applying the liquid assets (resource) test, computing gross income, calculating deductions to determine net income, and performing the income tests. The model captures state variation in requirements for reporting income and status changes. In determining net income, each of the deductions and disregards in SNAP (i.e., earned income deduction, child care deduction, child support deduction, excess shelter expense deduction, medical deduction, and standard deduction) is modeled separately, including variations for units with and without members who are over age 60 or who have disabilities and including variations for Alaska and Hawaii relative to other states and the District of Columbia. The CPS-ASEC does not collect information about vehicles, so the model does not

simulate ineligibility due to vehicle assets; however, over half of states now exclude all vehicles from the assets test (Gray, Fisher, and Lauffer 2016).

The model captures state BBCE rules, which allow automatic SNAP eligibility for households eligible to receive a benefit or service funded by a state's TANF block grant or from state funds counted for TANF maintenance of effort purposes (for further details about BBCE, see appendix A).

The model approximates the rule that limits adults without disabilities ages 18 to 49 who are in households without children (able-bodied adults without dependents, or ABAWDs) to 3 months of SNAP in a 36-month period unless they meet work requirements. In 2015, most states had waivers from this rule because unemployment remained high in the aftermath of the Great Recession. ABAWD time limits are applied in 17 states in the 2015 estimates provided here. If waivers were in effect for only part of a state, ABAWDs were randomly selected as living in waived or nonwaived areas, with the selection weighted by the share of the state's low-income population living in each area. When simulating time limits, the model assumes that an ABAWD's pattern of work and SNAP eligibility were the same in prior years as in the current year. Probabilities of participation developed from prior-year data are used to randomly assign some ABAWDs as having participated in SNAP in prior years. This information, along with information about when the ABAWD's state reinstated time limits, is used to infer the number of time-limited months used by the ABAWD in prior calendar years. This, in turn, is used to determine the number of months in the current year that the ABAWD can receive SNAP without meeting the work requirement.

Calculating the Benefit

For units found eligible for SNAP benefits, the monthly benefit amount assigned is based on the SNAP program rules and the SNAP benefit formula. A unit's SNAP benefit is calculated by subtracting one-third of its net income (income after deductions) from the maximum SNAP allotment for the unit's size. Units with one or two people are guaranteed a minimum benefit. Units with more than two people are not guaranteed a minimum benefit. If one-third of a unit's net income is higher than the maximum SNAP allotment for a unit of its size, the unit does not qualify for a benefit and is not counted as eligible.

SNAP benefits are calculated at the SNAP unit level. The model calculates a per-person benefit by dividing the SNAP benefit equally among the eligible individuals in the SNAP unit. When computing the SPM resource measure, person-level SNAP benefits (assigned in the SNAP simulation) are summed for each member of the SPM poverty unit.

Selecting Participants

After determining eligibility and calculating the benefit, the model uses two procedures to determine which eligible units participate in the program. First, the model brings into the simulated caseload all units that appear to be eligible and report receiving SNAP in the CPS-ASEC interview. (Households that do not answer the CPS-ASEC question about receipt of SNAP and are assigned through Census Bureau “allocation” procedures to receive SNAP are not counted as receiving SNAP for this purpose.) The model then selects additional participants from among the eligible nonreporters to come as close as possible to administrative targets. Targets include the overall national caseload, each state’s caseload, and the number of units with various characteristics. Caseload characteristics considered when aligning to targets include the presence of earnings, TANF, and SSI; the presence of a member age 60 or older; the marital status of the head of the family; the presence of children in the household; the citizenship and immigrant status of household members; and the potential monthly benefit level.

When selecting the additional recipients, the model excludes eligible units with high annual incomes. In households in which all members are eligible for SNAP but SNAP receipt was not reported, participation is never assigned if annual family income exceeds 340 percent of the federal poverty level; if only some members of the household are eligible, the maximum allowable income is 435 percent of the federal poverty level. This restriction avoids assigning SNAP benefits to families who appear to have no income for a short time but have very high income for most of the year (for example, annual earnings of \$200,000 earned over 10 months and no other income), or individuals with low incomes who live with very high-income individuals. The limits are based on the highest annual family incomes observed among households that report SNAP in recent CPS-ASEC data.

Correction for Underreporting

According to the CPS-ASEC, 14 million households received SNAP at some point during calendar year 2015, and 12.2 million households received SNAP in the average month of the year.²⁷ This accounts for 55 percent of the actual number of units receiving SNAP in the average month of the year according to administrative data.²⁸ Aggregate SNAP benefits reported in the CPS ASEC are \$36.6 billion, accounting for 53 percent of the actual \$68.9 billion in benefits paid that year.

After correcting for underreporting, the data match the actual number of households with SNAP in the average month of 2015 (22.4 million). Total SNAP benefits assigned by the model fall 8.5 percent

short of the total benefits paid according to the administrative data. The model assigns a total of \$63.0 billion in SNAP benefits for calendar year 2015.

Although we could make an across-the-board adjustment to match the benefit dollars in the model to the amount according to the administrative data, doing so would make the benefit amounts for each household inconsistent with the income reported by the household in the CPS-ASEC. To preserve underlying consistency between income and SNAP benefit amounts, we leave the benefit amounts at the amount calculated by the model. This pattern of hitting the target for the number of units with SNAP but falling somewhat short of the target for total benefit dollars is consistent with prior years' estimates and is likely driven by characteristics of the underlying CPS-ASEC data.

Appendix C. SPM Estimation

The SPM is a comprehensive poverty measure designed to address many of the shortcomings of the official poverty measure. The official measure, based on cash income, fails to account for many antipoverty policies implemented over the past several decades. Further, the thresholds for measuring whether a family is poor are based on outdated data about food consumption and are adjusted only for changes in the consumer price index.²⁹

In recognition of these shortcomings, a panel convened by the National Academy of Sciences developed recommendations for an improved poverty measure. The recommendations, released in 1995, proposed that the poverty measure include in-kind benefits such as SNAP and housing subsidies, account for nondiscretionary expenses, and use thresholds developed from recent consumer expenditure data that are consistent with the resources included in the poverty measure.³⁰

Years of research on the National Academy of Sciences measure by the Census Bureau, Bureau of Labor Statistics, and others eventually led to the development of the SPM, based on recommendations by an Interagency Technical Working Group (ITWG 2010).³¹ The Census Bureau has released annual reports with SPM estimates covering 2009 and subsequent years.

The Census Bureau publications include estimates of the number of people in poverty and the poverty rate under the SPM as well as estimates of the antipoverty effect of government programs. To estimate the antipoverty effect of a government program, the Census Bureau subtracts the benefit from family resources and recalculates each family's poverty status. If a family's resources are above the poverty threshold before the benefit is subtracted but below the poverty threshold when the benefit is excluded, the family is counted as removed from poverty by the benefit.

Adjustments to the SPM for This Report

The SPM estimates presented here follow the Census Bureau methodology for calculating the SPM but substitute certain components of SPM resources with amounts simulated by the TRIM3 model. For some components (SSI, TANF, SNAP, and the Low Income Home Energy Assistance Program, or LIHEAP), the simulated amounts replace amounts that are reported in the survey data. These benefits are substantially underreported in the CPS-ASEC, but the simulated amounts come close to the actual level of benefits provided according to administrative data. For other SPM components, the simulated amounts replace amounts (such as taxes and housing subsidies) that are not included in the survey but are calculated or

imputed by the Census Bureau. Using TRIM3 rather than Census Bureau amounts for these variables preserves the internal consistency between simulated benefits in different programs. For example, the simulation of the SNAP excess shelter expense deductions relies on variables created by the public and subsidized housing simulation and is internally consistent with these amounts. If the Census Bureau’s imputed housing subsidy amount was used in the TRIM3 SPM estimate, this internal consistency would be lost.

Table C.1 shows the TRIM3 variables included in the SPM estimates provided here. All other elements of SPM resources are the same as are included in the Census Bureau’s SPM definition.

TABLE C.1

TRIM3 Benefits and Expenses Included in the 2015 SPM

| SPM benefit or expense | Notes |
|-------------------------------|---|
| Child support income | The TRIM3 SPM estimate excludes child support retained by the government as reimbursement for TANF expenses. In some years (but not 2015), TRIM3 corrects for underreporting of child support paid on behalf of TANF families. |
| Capital gains | Statistically matched from the IRS Public Use File as part of the TRIM3 Federal income tax baseline. The Census Bureau tax model does not impute capital gains, so they are not included in the Census Bureau SPM. ^a However, capital gains must be included in the TRIM3 SPM because capital gains are included in the calculation of TRIM3 federal and state income taxes. |
| Child care expenses | Primarily reflects amounts reported by the Current Population Survey. However, for families simulated by TRIM3 to receive child care subsidies from the Child Care and Development Fund, this reflects the required copayment amount. Child care expenses are counted as an expense in the SPM. |
| SSI | TRIM3 baseline SSI amounts are used instead of the reported amounts. |
| TANF | TRIM3 baseline TANF amounts are used instead of the reported amounts. |
| Public and subsidized housing | Uses public and subsidized housing subsidies assigned through the TRIM3 baseline rather than imputed by the Census Bureau. TRIM3 follows the Census Bureau SPM methodology of capping the amount counted for the SPM at the share of the SPM threshold representing shelter and utility expenses, less the household’s required rental payment. |
| SNAP | TRIM3 baseline SNAP amounts are used instead of the reported amounts. |
| Payroll taxes | TRIM3 baseline simulated amounts are used instead of Census Bureau simulated amounts. |
| Federal income tax | TRIM3 baseline simulated amounts are used instead of Census Bureau simulated amounts. Includes taxes on capital gains (not included in the Census Bureau estimate). Includes refundable credits (the earned income tax credit and additional child tax credit). |
| State income tax | TRIM3 baseline simulated amounts are used instead of Census Bureau simulated amounts. Includes taxes on capital gains. Includes refundable credits. Replaces Census Bureau simulated amounts. |
| WIC | TRIM3 baseline simulated amounts are used instead of the Census Bureau values assigned to people who report WIC receipt in the CPS-ASEC. |
| LIHEAP | TRIM3 baseline simulated amounts are used instead of reported amounts. |

Note: LIHEAP = the Low Income Home Energy Assistance Program; SNAP = the Supplemental Nutrition Assistance Program; SPM = the Supplemental Poverty Measure; SSI = Supplemental Security Income; TANF = Temporary Assistance for Needy Families; TRIM3 = the Transfer Income Model, version 3; WIC = Special Supplemental Nutrition Program for Women, Infants, and Children.

^a For a review and comparison of the Census Bureau and TRIM3 tax methodology, see Wheaton and Stevens (2016).

Effect of TRIM3 Adjustments on the SPM

To show the effect of the TRIM3 adjustments on the SPM, we first demonstrate the model's ability to produce results close to the Census Bureau's published estimates. The estimates presented here are comparable with the *revised* 2015 SPM estimates included in the Census Bureau's 2016 SPM report, not the estimates in the original 2015 SPM report. In preparing the 2016 SPM, the Census Bureau revised the earned income tax credit, housing subsidy, and work-related expense imputations. For consistency, the Census Bureau reissued estimates for 2015 using the 2016 methodological improvements and included the results in the 2016 SPM report (Fox 2017).³² We use the revised 2015 variables for our estimates.

The Census Bureau's revised 2015 SPM estimates show 46.250 million people in poverty in 2015 (table C.2). When we calculate SPM poverty using CPS-ASEC and Census Bureau-imputed values only, we find that 46.252 million people were in poverty. Small differences such as this arise from the fact that our calculated results are generated using public-use data rather than internal Census Bureau files, and certain minor household heads living with parents are classified as children when calculating the SPM threshold in our calculated results but not in the published results.³³

We next show the incremental effects of substituting TRIM3 variables for the CPS-ASEC and Census Bureau variables in the poverty calculation, focusing first on TRIM3 correction for underreporting of SSI, TANF, SNAP, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), and LIHEAP, and then describing the effects of incorporating other TRIM3 variables. We find that substituting TRIM3-simulated SSI income into the Census Bureau SPM poverty definition lowers the estimated SPM poverty rate from 14.5 percent to 14.1 percent. For children, the poverty rate drops from 16.3 percent to 15.5 percent. If we keep the TRIM3-simulated SSI in the SPM definition and next substitute TRIM3-simulated TANF for the CPS-reported amount, the poverty rate drops from 14.1 percent to 13.9 percent overall and from 15.5 percent to 15.1 percent for children. Replacing CPS-reported SNAP with TRIM3-simulated amounts has a notable effect, decreasing the estimated poverty rate from 13.9 percent to 12.9 percent overall and from 15.1 percent to 12.8 percent for children. Replacing the Census Bureau's WIC value with TRIM3-simulated WIC decreases poverty slightly—from 12.9 percent to 12.8 percent overall and from 12.8 percent to 12.6 percent for children. Replacing reported LIHEAP with TRIM3-simulated LIHEAP reduces the overall poverty rate and poverty rate for people over age 65 by 0.1 percentage points. Taken together, the TRIM3 adjustments for underreporting reduce the estimated SPM poverty rate from 14.5 percent to 12.7 percent overall and from 16.3 percent to 12.6 percent for children.

TABLE C.2

Effect of TRIM3 Adjustments on SPM Poverty, 2015

| | Number of People in Poverty (thousands) | | | | Poverty Rate | | | |
|--|--|------------|---------------|------------|--------------|------------|---------------|------------|
| | Overall | Age <18 | Ages 18-64 | Age 65+ | Overall | Age <18 | Ages 18-64 | Age 65+ |
| Census (published) | 46,250 | 12,026 | 27,719 | 6,506 | 14.5% | 16.2% | 14.1% | 13.7% |
| Census (calculated) | 46,252 | 12,038 | 27,718 | 6,496 | 14.5% | 16.3% | 14.1% | 13.7% |
| TRIM3 adjustments | | | | | | | | |
| <i>Correction for underreporting^a</i> | | | | | | | | |
| SSI | 44,879 | 11,462 | 27,040 | 6,378 | 14.1% | 15.5% | 13.7% | 13.4% |
| + TANF | 44,462 | 11,205 | 26,893 | 6,364 | 13.9% | 15.1% | 13.6% | 13.4% |
| + SNAP | 41,017 | 9,502 | 25,224 | 6,292 | 12.9% | 12.8% | 12.8% | 13.2% |
| + WIC | 40,794 | 9,362 | 25,144 | 6,289 | 12.8% | 12.6% | 12.7% | 13.2% |
| + LIHEAP | 40,618 | 9,324 | 25,066 | 6,228 | 12.7% | 12.6% | 12.7% | 13.1% |
| <i>Other TRIM3 adjustments^b</i> | | | | | | | | |
| + Housing | 40,343 | 9,295 | 24,897 | 6,151 | 12.7% | 12.5% | 12.6% | 12.9% |
| + Child care expenses | 40,514 | 9,378 | 24,985 | 6,151 | 12.7% | 12.7% | 12.7% | 12.9% |
| + Taxes and tax credits | 40,760 | 9,633 | 24,887 | 6,240 | 12.8% | 13.0% | 12.6% | 13.1% |

Source: TRIM3 tabulations using data from the 2016 CPS-ASEC and table A-1 from Fox (2017).

Notes: LIHEAP = the Low Income Home Energy Assistance Program; SNAP = the Supplemental Nutrition Assistance Program; SPM = the Supplemental Poverty Measure; SSI = Supplemental Security Income; TANF = Temporary Assistance for Needy Families; TRIM3 = the Transfer Income Model, version 3; WIC = the Special Supplemental Nutrition Program for Women, Infants, and Children.

^a The “correction for underreporting” rows show the effects of replacing the CPS-ASEC amounts with TRIM3-simulated variables that correct for underreporting. First, TRIM3-simulated SSI is substituted for reported SSI. Starting from that simulation, TRIM3-simulated TANF is then substituted for reported TANF, and so-on. TRIM3 child support income adjustments are incorporated at the same time as TANF.

^b The “other TRIM3 adjustments” rows show the effects of replacing the CPS-ASEC amounts (obtained from the Census Bureau's SPM research file) with TRIM3-simulated variables. Starting from the correction for underreporting simulation that includes LIHEAP, TRIM3-simulated housing subsidies are substituted for the Census Bureau imputed subsidies. Next, TRIM3 child care expenses are substituted for the Census Bureau amounts. Finally, TRIM3 payroll taxes, federal income taxes and credits, and state income taxes and credits are substituted for the Census Bureau values. TRIM3 imputed realized capital gains (and losses) are incorporated at the same time as taxes.

The remaining rows in table C.2 show the effects on the SPM poverty estimate as other TRIM3 adjustments (housing subsidies, child care expenses, and taxes) are incorporated into the SPM definition. As noted, these adjustments do not correct for underreporting but are typically included in TRIM3 poverty estimates and analyses to preserve internal consistency between simulated programs and between baseline and alternative policy scenarios. These adjustments have little effect on the SPM poverty estimate for all age groups except for children, where the SPM poverty rate rises from 12.6 (after correction for underreporting) to 13.0 (after replacing the Census Bureau's housing subsidies, child care expenses, and taxes with those from TRIM3).

Taken together, the TRIM3 correction for underreporting and other TRIM3 adjustments reduce the overall SPM poverty rate from 14.5 to 12.8 percent and the child poverty rate from 16.3 percent to 13.0 percent.

Effect of TRIM3 Adjustments on Program Antipoverty Effects

Table C.3 shows the estimated antipoverty effects of SSI, TANF and General Assistance, SNAP, WIC, and LIHEAP. The table shows the percentage-point increase in SPM poverty rates absent a particular program. Without SSI, for example, the Census Bureau estimates that the SPM poverty rate would increase by 1.07 percentage points. Thus, SSI can be said to reduce poverty by 1.07 percentage points. SNAP has the largest estimated antipoverty effect of the programs shown here—reducing the overall poverty rate by 1.44 percentage points and the child poverty rate by 2.72 percentage points under the Census Bureau's definition.

The estimated antipoverty effect of these programs is substantially higher after TRIM3 correction for underreporting. The TRIM3 “correction for underreporting” row in table C.3 provides the estimated antipoverty effect of each program under an SPM definition that includes TRIM3 correction for underreporting of SSI, TANF, SNAP, WIC, and LIHEAP but excludes the other TRIM3 adjustments. Under this definition, the estimated reduction in poverty attributable to SSI increases from 1.07 percentage points to 1.62 percentage points. Correction for underreporting has an even larger effect on the estimated SSI antipoverty effect for children. Without TRIM3 correction for underreporting, SSI reduces child poverty by an estimated 0.81 percentage points; with TRIM3 correction for underreporting, the estimated reduction rises to 1.75 percentage points.

Correction for underreporting nearly doubles the estimated antipoverty effect of TANF and General Assistance, increasing it from 0.22 percentage points to 0.43 percentage points overall and from 0.49 percentage points to .98 percentage points for children. The estimated anti-poverty effect of SNAP also increases substantially after correction, from 1.44 percentage points in the Census Bureau estimate to 2.57 percentage points in the TRIM3 estimate overall and from 2.72 percentage points to 5.02 percentage points for children. The effect of LIHEAP doubles from 0.06 percent to 0.12 percent and increases from 0.08 percent to 0.13 percent for children. The effects of WIC increase from 0.11 percent to 0.17 percent overall and from 0.28 percent to 0.42 percent for children.

The bottom row of table C.3 shows the estimated antipoverty effect of each program under the final TRIM3 SPM definition that includes correction or underreporting as well as TRIM3 housing subsidies, child care expenses, and taxes and credits. Except for WIC, the estimated antipoverty effect of each program increases slightly once the TRIM3 housing subsidy, child care expense, and tax estimates are incorporated into the SPM. The estimated antipoverty effect of WIC is slightly lower in the estimate with all TRIM3 adjustments (0.15) than in the estimate with just TRIM3 correction for underreporting (0.17), although still higher than the estimate without TRIM3 adjustments (0.11).

TABLE C.3

Percentage-Point Reduction in the SPM Poverty Rate for Select Safety-Net Programs, 2015

| | Overall | | | | | People under Age 18 | | | | |
|--|---------|--------------------------|------|------|--------|---------------------|--------------------------|------|------|--------|
| | SSI | TANF and GA ^a | SNAP | WIC | LIHEAP | SSI | TANF and GA ^a | SNAP | WIC | LIHEAP |
| Census (published) | 1.07 | 0.21 | 1.44 | 0.11 | 0.06 | 0.81 | 0.47 | 2.72 | 0.26 | 0.08 |
| Census (calculated) | 1.07 | 0.22 | 1.44 | 0.11 | 0.06 | 0.81 | 0.49 | 2.72 | 0.28 | 0.08 |
| TRIM3 adjustments | | | | | | | | | | |
| Correction for underreporting of SSI, TANF, SNAP, WIC, and LIHEAP ^b | 1.62 | 0.43 | 2.57 | 0.17 | 0.12 | 1.75 | 0.98 | 5.02 | 0.42 | 0.11 |
| Estimate with all TRIM3 adjustments ^c | 1.63 | 0.45 | 2.63 | 0.15 | 0.13 | 1.82 | 1.06 | 5.17 | 0.37 | 0.13 |

Source: TRIM3 tabulations using data from the 2016 CPS ASEC, “The Research Supplemental Poverty Measure: 2016.” Used appendix table A-6 for first row results.

Notes:

^a TANF/GA includes TANF, SSF, and General Assistance benefits.

^b The “correction for underreporting” row shows the effect of substituting TRIM3-simulated SSI, TANF, SNAP, WIC, and LIHEAP amounts for CPS-ASEC variables in the SPM estimate. TRIM3 adjustments to child support income are also incorporated.

^c The “other TRIM3 adjustments” row shows the SPM with all TRIM3 adjustments. Starting from the “correction for underreporting” simulation (in the row above), this simulation incorporates TRIM3-simulated housing subsidies, child care expenses, payroll taxes, federal income taxes and credits, state income taxes and credits, and realized capital gains (or losses).

Appendix D. Additional Tables

TABLE D.1

People in Poverty with and without SNAP, 2015

| | Total people (thousands) | People in Poverty | | People in Poverty if Not for SNAP | | Reduction in Poverty from SNAP | |
|--|--------------------------|-------------------|---------|-----------------------------------|---------|--------------------------------|---------|
| | | Total (thousands) | Percent | Total (thousands) | Percent | Number (thousands) | Percent |
| Total | 318,868 | 40,760 | 12.8 | 49,144 | 15.4 | 8,384 | 17.1 |
| Age | | | | | | | |
| Under 18 | 74,062 | 9,633 | 13.0 | 13,462 | 18.2 | 3,829 | 28.4 |
| 18 to 64 | 197,260 | 24,887 | 12.6 | 28,944 | 14.7 | 4,057 | 14.0 |
| 65+ | 47,547 | 6,240 | 13.1 | 6,738 | 14.2 | 498 | 7.4 |
| Race or ethnicity | | | | | | | |
| Non-Hispanic white | 195,646 | 17,764 | 9.1 | 21,035 | 10.8 | 3,271 | 15.5 |
| Non-Hispanic black | 39,257 | 7,435 | 18.9 | 9,398 | 23.9 | 1,964 | 20.9 |
| Hispanic | 56,873 | 11,787 | 20.7 | 14,309 | 25.2 | 2,522 | 17.6 |
| Non-Hispanic other race | 27,093 | 3,774 | 13.9 | 4,402 | 16.2 | 628 | 14.3 |
| Work or disability status of adults in family | | | | | | | |
| All adults are 65+ or disabled | 46,011 | 8,769 | 19.1 | 10,001 | 21.7 | 1,232 | 12.3 |
| <i>At least one nondisabled adult age 18-64</i> | | | | | | | |
| No working adults | 16,938 | 9,077 | 53.6 | 10,040 | 59.3 | 962 | 9.6 |
| At least one working adult | 255,920 | 22,913 | 9.0 | 29,103 | 11.4 | 6,190 | 21.3 |
| Region | | | | | | | |
| Northeast | 55,879 | 6,866 | 12.3 | 8,393 | 15.0 | 1,527 | 18.2 |
| Midwest | 67,115 | 6,409 | 9.5 | 7,952 | 11.8 | 1,543 | 19.4 |
| South | 120,115 | 16,814 | 14.0 | 20,187 | 16.8 | 3,372 | 16.7 |
| West | 75,759 | 10,671 | 14.1 | 12,613 | 16.6 | 1,942 | 15.4 |
| Metropolitan area status^a | | | | | | | |
| Metropolitan area | 273,677 | 35,679 | 13.0 | 42,500 | 15.5 | 6,821 | 16.0 |
| Nonmetropolitan area | 42,398 | 4,706 | 11.1 | 6,195 | 14.6 | 1,489 | 24.0 |

Source: Authors' calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement (CPS-ASEC) and the Transfer Income Model, version 3. Poverty estimates are calculated using the Supplemental Poverty Measure.

Notes: SNAP = the Supplemental Nutrition Assistance Program.

^a Results by metropolitan area status exclude about 2.8 million people whose metropolitan status is not identified in the public-use CPS-ASEC.

TABLE D.2

People in Deep Poverty with and without SNAP, 2015

| | Total people (thousands) | People in Deep Poverty | | People in Deep Poverty without SNAP | | Reduction in Deep Poverty from SNAP | |
|--|--------------------------------|---------------------------|---------|---|---------|--|---------|
| | | Total (thousands) | Percent | Total (thousands) | Percent | Number (thousands) | Percent |
| Total | 318,868 | 12,135 | 3.8 | 16,788 | 5.3 | 4,653 | 27.7 |
| Age | | | | | | | |
| Under 18 | 74,062 | 2,136 | 2.9 | 4,185 | 5.7 | 2,049 | 49.0 |
| 18 to 64 | 197,260 | 8,326 | 4.2 | 10,690 | 5.4 | 2,364 | 22.1 |
| 65+ | 47,547 | 1,674 | 3.5 | 1,914 | 4.0 | 240 | 12.6 |
| Race or ethnicity | | | | | | | |
| Non-Hispanic white | 195,646 | 6,131 | 3.1 | 7,817 | 4.0 | 1,686 | 21.6 |
| Non-Hispanic black | 39,257 | 2,007 | 5.1 | 3,155 | 8.0 | 1,148 | 36.4 |
| Hispanic | 56,873 | 2,606 | 4.6 | 4,107 | 7.2 | 1,501 | 36.5 |
| Non-Hispanic other race | 27,093 | 1,392 | 5.1 | 1,710 | 6.3 | 319 | 18.6 |
| Work or disability status of adults in family | | | | | | | |
| All adults are 65+ or disabled | 46,011 | 2,207 | 4.8 | 2,910 | 6.3 | 703 | 24.2 |
| <i>At least one nondisabled adult age 18-64</i> | | | | | | | |
| No working adults | 16,938 | 4,981 | 29.4 | 6,371 | 37.6 | 1,391 | 21.8 |
| At least one working adult | 255,920 | 4,947 | 1.9 | 7,507 | 2.9 | 2,560 | 34.1 |
| Region | | | | | | | |
| Northeast | 55,879 | 1,964 | 3.5 | 2,652 | 4.7 | 688 | 26.0 |
| Midwest | 67,115 | 2,041 | 3.0 | 2,790 | 4.2 | 749 | 26.9 |
| South | 120,115 | 5,165 | 4.3 | 7,325 | 6.1 | 2,159 | 29.5 |
| West | 75,759 | 2,965 | 3.9 | 4,022 | 5.3 | 1,056 | 26.3 |
| Metropolitan area status^a | | | | | | | |
| Metropolitan area | 273,677 | 10,456 | 3.8 | 14,349 | 5.2 | 3,893 | 27.1 |
| Nonmetropolitan area | 42,398 | 1,530 | 3.6 | 2,239 | 5.3 | 708 | 31.6 |

Source: Authors' calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3.

Notes: "Deep poverty" is defined as having income less than 50 percent of the poverty level (measured here using the Supplemental Poverty Measure).

^aResults by metropolitan area status exclude about 2.8 million people whose metropolitan status is not identified in the public-use CPS-ASEC.

TABLE D.3

Reduction in Poverty Gap from SNAP, 2015

\$ Millions

| | Poverty gap | Poverty gap without SNAP | Reduction in Poverty Gap from SNAP | |
|---|-------------|--------------------------|------------------------------------|---------|
| | | | Amount | Percent |
| Total poverty gap | 133,879 | 168,794 | 34,915 | 20.7 |
| Family type^a | | | | |
| Families with children | 39,327 | 62,045 | 22,718 | 36.6 |
| Families headed by 65+ adult | 21,415 | 24,115 | 2,700 | 11.2 |
| Families without children headed by 18-64 adult | 73,138 | 82,634 | 9,496 | 11.5 |

Source: Authors' calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3. The poverty gap is calculated using the Supplemental Poverty Measure.

Note:

^aFamilies are placed in the first row that describes them.

TABLE D.4

Reduction in Average Poverty Gap for Poor Families Receiving SNAP, 2015

Dollars

| | Poverty gap | Poverty gap without SNAP | Reduction in Poverty Gap from SNAP | |
|---|-------------|--------------------------|------------------------------------|---------|
| | | | Amount | Percent |
| Average poverty gap ^a | 6,385 | 9,424 | 3,039 | 32.2 |
| Family type^b | | | | |
| Families with children | 7,671 | 12,611 | 4,940 | 39.2 |
| Families headed by 65+ adult | 4,747 | 6,445 | 1,698 | 26.3 |
| Families without children headed by 18-64 adult | 5,920 | 7,919 | 1,999 | 25.2 |

Source: Authors' calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3.

^aThe average poverty gap is calculated for families that receive SNAP and are below poverty according to the Supplemental Poverty Measure despite receipt of SNAP benefits.

^bFamilies are placed in the first row that describes them.

TABLE D.5

SNAP Receipt, Benefits, and Poverty, Baseline and with Full Participation, 2015

| | Baseline | With full participation | Change | Percent change |
|---|----------|-------------------------|--------|----------------|
| SNAP recipients (thousands) | | | | |
| <i>Total</i> | 55,820 | 80,566 | 24,746 | 44% |
| <i>Age</i> | | | | |
| Under 18 | 22,866 | 25,847 | 2,981 | 13% |
| 18 to 64 | 28,842 | 41,370 | 12,527 | 43% |
| 65+ | 4,112 | 13,350 | 9,238 | 225% |
| SNAP benefits (millions) | | | | |
| <i>Total</i> | 63,535 | 75,706 | 12,171 | 19% |
| <i>Age</i> | | | | |
| Under 18 | 25,844 | 27,515 | 1,671 | 6% |
| 18 to 64 | 33,735 | 40,659 | 6,924 | 21% |
| 65+ | 3,956 | 7,532 | 3,576 | 90% |
| People in poverty (thousands) | | | | |
| <i>Total</i> | 40,760 | 39,665 | -1,095 | -3% |
| <i>Age</i> | | | | |
| Under 18 | 9,633 | 9,418 | -215 | -2% |
| 18 to 64 | 24,887 | 24,281 | -606 | -2% |
| 65+ | 6,240 | 5,966 | -274 | -4% |
| People in deep poverty (thousands) | | | | |
| <i>Total</i> | 12,135 | 11,563 | -572 | -5% |
| <i>Age</i> | | | | |
| Under 18 | 2,136 | 2,061 | -75 | -4% |
| 18 to 64 | 8,326 | 7,956 | -369 | -4% |
| 65+ | 1,674 | 1,545 | -128 | -8% |
| Poverty gap (millions) | | | | |
| <i>Total</i> | 133,879 | 127,611 | -6,268 | -5% |
| <i>Family type^a</i> | | | | |
| Families with children | 39,327 | 37,647 | -1,680 | -4% |
| Families headed by 65+ adult | 21,415 | 19,500 | -1,915 | -9% |
| Families without children headed by 18-64 adult | 73,138 | 70,464 | -2,674 | -4% |

Source: Authors' calculations based on the 2016 Current Population Survey, Annual Social and Economic Supplement and the Transfer Income Model, version 3. The poverty estimates are calculated using the Supplemental Poverty Measure.

^a Families are placed in the first row that describes them.

Notes

1. FNS reports program totals according to the program fiscal year, which runs from October of the prior calendar year through September. See “[Supplemental Nutrition Assistance Program Participation and Costs](#),” Food and Nutrition Service, last updated February 1, 2018, accessed February 1, 2018.
2. Estimates vary regarding the extent to which the economy and policy changes explain the rise in participation. See Ziliak (2015) for a review of the literature.
3. See for example Fox (2017).
4. Metropolitan areas are defined by the US Office of Management and Budget. A metropolitan area consists of one or more counties with an urban core with a population of at least 50,000, as well as neighboring counties with a high degree of economic and social integration as defined by commuting patterns (Wilson et al. 2012). Metropolitan areas contain urban areas but can also contain less densely populated rural areas in surrounding counties.
5. Poverty levels for individuals and families who own their home and have a mortgage are typically close to the poverty levels for renters. People who own their house without a mortgage have somewhat lower poverty levels because of their lower expected housing costs.
6. The Census Bureau reports include results for the current year. For some years, they also show results from the previous year for comparison. In some cases, the previous-year results change from the previous year’s report because of changes in methodology or, as is the case of the 2013 estimates, the CPS-ASEC sample used. Results cited here use the most recent estimate available and are drawn from Short (2011, 2013, 2015) and Fox (2017).
7. The \$68.9 billion is a calendar-year figure calculated from underlying monthly data obtained from FNS. We show the calendar-year value rather than the FY figures typically reported by FNS for consistency with the calendar year covered by the CPS-ASEC.
8. The estimates by Wheaton (2007) and Tiehen, Jolliffe, and Smeeding (2015) cited here estimate the antipoverty effect of SNAP using the official poverty measure but include SNAP benefits as income. Tiehen, Jolliffe, and Smeeding present their estimate as a sensitivity test to the primary findings in their analysis (which do not adjust for underreporting).
9. For this report, we use the Transfer Income Model version 3 (TRIM3). TRIM3 is a highly-developed, detailed microsimulation model of the major tax and benefit programs affecting low-income families and has been used for more than four decades to analyze the impacts of government programs and the potential impact of changes to government programs.
10. TRIM3 is copyrighted by the Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation (HHS/ASPE). The Urban Institute maintains and develops TRIM3 under primary funding from HHS/ASPE. TRIM3 requires users to input assumptions and/or interpretations about economic behavior and the rules governing federal programs. Therefore, the conclusions presented here are attributable only to the authors of this report.
11. For general discussion of TRIM3’s modeling approach, see Giannarelli et al. (2015) and Zedlewski and Giannarelli (2015). Online documentation of TRIM3 is available at trim3.urban.org.
12. This estimate is lower than the Census Bureau’s SPM estimate for 2015 (46.3 million people; see Fox 2017) because of the TRIM3 model’s correction for underreporting. Additional detail is provided in appendix B.
13. Regional SNAP participation rates are obtained from Cunyngnam (2018).
14. Detailed results for the poverty gap are provided in table D.3.

15. A total of \$68.9 billion in SNAP benefits was paid in calendar year 2015. However, the TRIM3 estimate falls somewhat short of that, capturing \$63.0 billion in benefits. Our estimate that 55 percent of SNAP benefits went to reducing the poverty gap is achieved by dividing the TRIM3 estimated poverty gap reduction (\$34.9 billion) by the total amount of SNAP benefits captured in TRIM3 (\$63.0 billion).
16. The SNAP baseline is aligned to administrative targets for the number of participating households, but it falls somewhat short of target for annual benefits. The 2015 baseline assigns \$63.5 billion in benefits for calendar year 2015. According to SNAP administrative data, \$69.6 billion in benefits were paid in FY 2015 (covering October 2014 through September 2015) and \$66.5 billion in benefits were paid in FY 2016.
17. Authors' calculations based on data in appendix tables A-6 and A-7 from Fox (2017).
18. The Low-Cost Food Plan is more generous than the Thrifty Food Plan, which SNAP is currently based on.
19. Estimating the effect of SNAP on food insecurity is complicated by the endogeneity caused by self-selection of people into SNAP and by the underreporting of SNAP in survey data. When these factors are controlled for, SNAP is found to reduce food insecurity.
20. The income limit is adjusted for the higher cost of living in Alaska and Hawaii. The following deductions are subtracted from gross income to calculate net income (dollars shown are for fiscal year 2015): a standard deduction (\$155 per month for a family of one to three in the contiguous US, with higher amounts for larger households and residents of Alaska and Hawaii), earned income deduction (20 percent of earnings), dependent care deduction, and child support payment deduction. Households containing an elderly member or member with disabilities can deduct out-of-pocket medical expenses above \$35 per month. Households receive an excess shelter expense deduction equal to the amount of shelter expenses that exceed half of the household's income after other deductions. The excess shelter expense deduction is capped for households without an elderly member or a member with a disability. The cap is equal to \$490 in the contiguous US with higher amounts for Alaska and Hawaii (Gray, Fisher, and Lauffer 2016).
21. Households in Alaska, Hawaii, Guam, and the Virgin Islands have higher maximum benefits. See the FY 2015 allotments and deductions document at "[Cost of Living Adjustment \(COLA\) Information](#)," Food and Nutrition Service, last published January 23, 2018, accessed February 7, 2018.
22. Forty-two states and territories had BBCE policies in effect by the end of FY 2015 (Gray, Fisher, and Lauffer 2016).
23. In FY 2014, an estimated 3 percent of participating households had income above the federal eligibility limit, and these households received less than 1 percent of all SNAP benefits. Households with income above the federal eligibility limit received an average of \$58 a month in SNAP benefits compared with \$260 a month for households with income within the federal eligibility limit (Cunyngham 2016).
24. For further information about TRIM3, see trim3.urban.org.
25. The \$68.9 billion is a calendar-year figure calculated from underlying monthly data obtained from FNS. We show the calendar-year value rather than the FY figures typically reported by FNS for consistency with the calendar year covered by the CPS-ASEC.
26. The imputation uses logit models estimated on data from the Survey of Income and Program Participation to determine whether the following two types of households are split into multiple units: non-TANF households in which there are multiple potential units and all members are reported to receive SNAP, and low-income non-TANF households with multiple potential units that do not report receiving SNAP.
27. Each household with SNAP is asked to report the number of months that SNAP benefits were received. From this, we calculate the average monthly number of households receiving SNAP.
28. We calculated the program totals from administrative data from the monthly information provided in the National Data Bank, available at "[Program Data—Supplemental Nutrition Assistance Program](#)," Food and Nutrition Service, last published February 2, 2018, accessed February 7, 2018. Although FNS typically reports

results by the program fiscal year, we use calendar year numbers here to correspond to the calendar year covered by the CPS ASEC.

29. For further discussion of the shortcomings in the official poverty measure, see Blank and Greenberg (2008).
30. For a complete report of the academy's recommendations, see Citro and Michael (1995).
31. For a summary of research completed to evaluate the NAS measure of poverty as well as expert opinion on its various elements, see Iceland (2005).
32. Census Bureau SPM variables not included in the CPS-ASEC were obtained from "[2015 Supplemental Poverty Measure \(SPM\) Research File](#)," US Census Bureau, last revised June 29, 2017, accessed February 6, 2018.
33. The change in the number of children results from TRIM3's restructuring of "inverted households." These households have a teen or young adult reported to be the household reference person, despite having one or both parents present. TRIM3 reorganizes the inverted households, so that a parent is the household reference person. If the teen is under the age of 18, reclassifying the teen from "head" to "child" increases the number of children in the unit, thus affecting the SPM poverty threshold. If the teen is working, then reclassification as a "child" also affects the unit's work expenses, as the SPM methodology does not assign work expenses to children under the age of 18 unless they are the head or spouse of the SPM unit.

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