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Household Food Security in the United States in 2018

Alisha Coleman-Jensen
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Abstract

An estimated 88.9 percent of U.S. households were food secure throughout the entire year in 2018, with access at all times to enough food for an active, healthy life for all household members. The remaining households (11.1 percent, down from 11.8 percent in 2017) were food insecure at least some time during the year, including 4.3 percent with very low food security (not significantly different from 4.5 percent in 2017), where the food intake of one or more household members was reduced and their eating patterns disrupted at times because the household lacked money and other resources for obtaining food. The 2018 prevalence of food insecurity declined, for the first time, to pre-recession (2007) levels. Among children, changes from 2017 in food insecurity and very low food security were not statistically significant. Children and adults were food insecure in 7.1 percent of U.S. households with children in 2018; very low food security among children was 0.6 percent. In 2018, the typical food-secure household spent 21 percent more on food than the typical food-insecure household of the same size and household composition. About 56 percent of food-insecure households participated in one or more of the three largest Federal food and nutrition assistance programs (Supplemental Nutrition Assistance Program (SNAP, formerly food stamps); Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); and the National School Lunch Program) during the month prior to the 2018 survey.

Keywords: food security, food security, food insecurity, food spending, food pantry, soup kitchen, emergency kitchen, material well-being, material hardship, Supplemental Nutrition Assistance Program, SNAP, Food Stamp Program, National School Lunch Program, Special Supplemental Nutrition Program for Women, Infants, and Children, WIC

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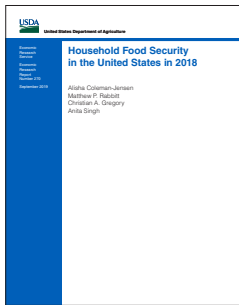
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Household Food Security in the United States in 2018

Alisha Coleman-Jensen, Matthew P. Rabbitt, Christian A. Gregory, and Anita Singh

What Is the Issue?

Most U.S. households have consistent, dependable access to enough food for active, healthy living—they are food secure. But some households experience food insecurity at times during the year, meaning their access to adequate food is limited by a lack of money and other resources. USDA’s food and nutrition assistance programs aim to increase food security by providing low-income households access to food for a healthful diet, as well as nutrition education. USDA monitors the extent and severity of food insecurity in U.S. households through an annual, nationally representative survey sponsored and analyzed by USDA’s Economic Research Service (ERS). This report presents statistics from the survey that cover household food security, food expenditures, and use of Federal food and nutrition assistance programs in 2018.

What Did the Study Find?

Main findings:

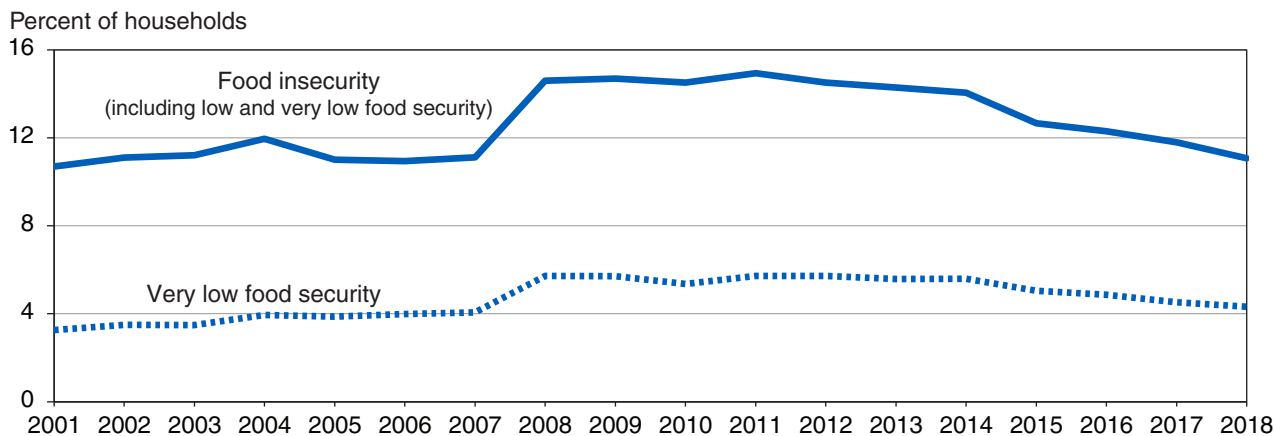
- The 2018 prevalence of food insecurity declined, for the first time, to the pre-recession (2007) level of 11.1 percent.
- In 2018, 88.9 percent of U.S. households were food secure. The remaining 11.1 percent (14.3 million households) were *food insecure*. Food-insecure households (those with low and very low food security) had difficulty at some time during the year providing enough food for all their members due to a lack of resources. The decline from 2017 (11.8 percent) was statistically significant and continued a decline from a high of 14.9 percent in 2011.
- In 2018, 4.3 percent of U.S. households (5.6 million households) had *very low food security*, not significantly different from 4.5 percent in 2017. In this more severe range of food insecurity, the food intake of some household members was reduced and normal eating patterns were disrupted at times during the year due to limited resources.

Findings for households with children:

- Children were food insecure at times during 2018 in 7.1 percent of U.S. households with children (2.7 million households), not significantly different from 7.7 percent in 2017. These households with *food insecurity among children* were unable at times to provide adequate, nutritious food for their children.

ERS is a primary source of economic research and analysis from the U.S. Department of Agriculture, providing timely information on economic and policy issues related to agriculture, food, the environment, and rural America.

Prevalence of food insecurity in 2018 is down from 2017



Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey Food Security Supplement.

- While children are usually shielded from the disrupted eating patterns and reduced food intake that characterize very low food security, in 2018 both children and adults experienced instances of very low food security in 0.6 percent of households with children (220,000 households), essentially unchanged from 0.7 percent in 2017. These households with *very low food security among children* reported that children were hungry, skipped a meal, or did not eat for a whole day because there was not enough money for food.

Findings for population subgroups and States:

- Rates of food insecurity were higher than the national average for the following groups: households with incomes near or below the Federal poverty line, all households with children and particularly households with children headed by single women or single men, women and men living alone, Black- and Hispanic-headed households, and households in principal cities.
- The prevalence of food insecurity varied considerably from State to State, ranging from 7.8 percent in New Hampshire to 16.8 percent in New Mexico in 2016-18. (Data for 3 years were combined to provide more reliable State-level statistics.)

Findings for food spending and Federal nutrition assistance participation:

- The typical (median) food-secure household spent 21 percent more for food than the typical food-insecure household of the same size and composition. These estimates include food purchases made with Supplemental Nutrition Assistance Program (SNAP) benefits.
- About 56 percent of food-insecure households in the survey reported that, in the previous month, they had participated in one or more of the three largest Federal nutrition assistance programs (SNAP; Special Supplemental Nutrition Program for Women, Infants, and Children (WIC); and National School Lunch Program).

How Was the Study Conducted?

Data for the ERS food security reports come from an annual survey conducted by the U.S. Census Bureau as the December supplement to the monthly Current Population Survey. ERS sponsors the annual Food Security Supplement survey and compiles and analyzes the responses. The 2018 survey covered 37,300 households, comprising a representative sample of about 130 million U.S. households. The survey asked one adult respondent per household questions about experiences and behaviors that indicate food insecurity during the calendar year, such as being unable to afford balanced meals, cutting the size of meals, or being hungry because of too little money for food. The food security status of the household was assigned based on the number of food-insecure conditions reported.

Household Food Security in the United States in 2018

Introduction

Since 1995, the U.S. Department of Agriculture has collected information annually on food access and adequacy, food spending, and sources of food assistance for the U.S. population. The information is collected in an annual survey, the Food Security Supplement, conducted by the U.S. Census Bureau as a supplement to the nationally representative Current Population Survey.¹ A major impetus for this data collection is to provide information about the prevalence and severity of food insecurity in U.S. households. Annual monitoring of food security contributes to the effective operation of the Federal nutrition assistance programs as well as private food assistance programs and other government initiatives aimed at reducing food insecurity. Previous reports in the series are available on the ERS website.

This report updates the national statistics on food security in calendar year 2018, household food spending, and the use of Federal food and nutrition assistance by food-insecure households, using data collected in the December 2018 food security survey—the 24th annual survey in the Nation’s food security monitoring system. Additional statistics—including the prevalence of food insecurity during the 30 days prior to the food security survey, the frequency of food-insecure conditions, and use of food pantries and emergency kitchens—are available in the Statistical Supplement to this report (Coleman-Jensen et al., 2019).

¹See Coleman-Jensen (2015) for the history of the food security measurement project and the development of the food security measures.

Household Food Security

Food security—access by all people at all times to enough food for an active, healthy life—is one of several conditions necessary for a population to be healthy and well nourished. This section provides information on food security and food insecurity in U.S. households over the course of the year ending in December 2018.

Methods

The statistics presented in this report are based on data collected in the Food Security Supplement to the Current Population Survey (CPS) conducted in December 2018.² The CPS currently includes about 50,000 households and is representative, at State and national levels, of the civilian, noninstitutionalized population of the United States. In December 2018, 37,300 households completed the Food Security Supplement; the remaining households were unable or unwilling to do so. Survey sample weights were calculated by the U.S. Census Bureau to indicate how many households were represented by each household that responded to the survey.³ All statistics in this report were calculated by applying the Food Security Supplement weights to responses by the surveyed households, so the statistics are nationally representative.

Unless otherwise noted, statistical differences described in the text are significant at the 90-percent confidence level.⁴ Statistical significance depends both on the size of the difference of the estimates and the precision of the estimates—or the size of the standard error of the estimates. Standard errors vary across population subgroups.

Household food security statistics presented here are based on a measure of food security calculated from responses to a series of questions about conditions and behaviors that characterize households when they are having difficulty meeting basic food needs.⁵ Each question asks whether the condition or behavior occurred at any time during the previous 12 months and specifies a lack of money and other resources to obtain food as the reason. Voluntary fasting or dieting to lose weight are thereby excluded from the measure. The series includes three questions about food conditions of the household as a whole and seven about food conditions of adults in the household; if children are present,

²The food security survey was conducted December 9-18, 2018.

³In 2018, 25.5 percent of households that responded to the monthly December CPS did not complete the Food Security Supplement. Reweighting of the Supplement takes into consideration income and other information about households that completed the labor-force portion of the survey but not the Food Security Supplement. This corrects, to some extent, biases that could result from nonresponse to the Supplement by households that completed only the labor-force part of the survey.

⁴Standard errors of national-level estimates from 2011 to the present were calculated using balanced repeated replication (BRR) methods based on replicate weights computed for the CPS Food Security Supplement by the U.S. Census Bureau. For years before 2011, standard errors of national estimates use a design factor of 1.6 based on the complex CPS sample design. State-level estimates from 2010 to the present use replicate weights computed for the CPS Food Security Supplement. Before 2010, standard errors of State-level estimates were calculated using jackknife replication methods with “month in sample” groups considered as separate independent samples. This report uses the phrase *essentially unchanged* to describe differences between estimates of a statistic for 2 years that are not statistically significant at the 90-percent confidence level. Standard errors of all estimates are available from the authors by request.

⁵The methods used to measure the extent and severity of food insecurity have been described in a number of studies (Hamilton et al., 1997a, 1997b; Andrews et al., 1998; Bickel et al., 1998; Carlson et al., 1999; Bickel et al., 2000; Nord and Bickel, 2002). See also the assessment of the measurement methods by a panel of the Committee on National Statistics (National Research Council, 2006). Further details on the development of the measure are provided on the ERS website.

an additional eight questions about their food conditions are included (see box, “Questions Used To Assess the Food Security of Households in the CPS Food Security Survey,” page 4).⁶

Responses to the 18 food security questions are reported in tables S-5 to S-6 of the Statistical Supplement (Coleman-Jensen et al., 2019). The food security status of each interviewed household is determined by the number of food-insecure conditions and behaviors the household reports. Households are classified as *food secure* if they report no food-insecure conditions or only one or two food-insecure conditions. (Food-insecure conditions are indicated by responses of “often” or “sometimes” to questions 1-3 and 11-13; “almost every month” or “some months but not every month” to questions 5, 10, and 17; and “yes” to the other questions.) They are classified as *food insecure* if they report three or more food-insecure conditions (based on questions 1-10 for households without children and questions 1-18 for households with children).⁷ Households are classified as having *food-insecure children* if they report two or more food-insecure conditions among the children in response to questions 11-18.⁸

Food-insecure households are further classified as having either *low food security* or *very low food security*.⁹ The very low food security category identifies households in which the food intake of one or more members was reduced and eating patterns disrupted because of insufficient money and other resources for food (see box, “What Is ‘Very Low Food Security’?” on page 5). Households without children are classified as having *very low food security* if they report six or more food-insecure conditions (based on questions 1-10). Households with children age 0-17 are classified as having *very low food security* if they report eight or more food-insecure conditions among adults and/or children (based on questions 1-18).¹⁰ They are further classified as having *very low food security among children* if they report five or more food-insecure conditions among the children (that is, if they respond affirmatively to five or more of questions 11-18).

⁶An official Spanish translation of the food security questions is used in the survey and available on the ERS website. ERS assessed the effect of interview language on Hispanics versus non-Hispanics and found no differences in the statistical properties of the food security measure (Rabbitt and Coleman-Jensen, 2017).

⁷To reduce the survey burden on higher income respondents, households with incomes above 185 percent of the Federal poverty line that give no indication of food-access problems on either of two preliminary screening questions are deemed to be food secure and are not asked the questions in the food security assessment series. The preliminary screening questions asked of all households are as follows:

- People do different things when they are running out of money for food in order to make their food or their food money go further. In the last 12 months, since December of last year, did you ever run short of money and try to make your food or your food money go further?
- Which of these statements best describes the food eaten in your household—enough of the kinds of food we want to eat, enough but not always the kinds of food we want to eat, sometimes not enough to eat, or often not enough to eat?

⁸Both qualitative and quantitative research studies have suggested that parents’ reports of their children’s food insecurity sometimes differed from adolescents’ self-reported food insecurity and that parents were sometimes unaware of the degree to which children reduced their own food intake due to household food insecurity (Fram et al., 2011; Nord and Hanson, 2012). The extent to which underreporting of children’s food insecurity may exist is unknown (see pp. 9-10 in Coleman-Jensen, McFall, and Nord (2013) for a discussion of research on parent-reported and self-reported food insecurity among children). A comprehensive review of diet quality and food security found evidence that adults shield children from food insecurity (Hanson and Connor, 2014).

⁹Prior to 2006, households with low food security were described as “food insecure without hunger” and households with very low food security were described as “food insecure with hunger.” Changes in these descriptions were made in 2006 at the recommendation of the Committee on National Statistics (National Research Council, 2006) in order to distinguish the physiological state of hunger from indicators of food availability. The criteria by which households were classified remained unchanged.

¹⁰Implications of differences in raw score thresholds for very low food security between households with and without children are discussed in Nord and Coleman-Jensen (2014) and Coleman-Jensen, Rabbitt, and Gregory (2017).

Questions Used To Assess the Food Security of Households in the CPS Food Security Supplement

1. “We worried whether our food would run out before we got money to buy more.” Was that often, sometimes, or never true for you in the last 12 months?
2. “The food that we bought just didn’t last and we didn’t have money to get more.” Was that often, sometimes, or never true for you in the last 12 months?
3. “We couldn’t afford to eat balanced meals.” Was that often, sometimes, or never true for you in the last 12 months?
4. In the last 12 months, did you or other adults in the household ever cut the size of your meals or skip meals because there wasn’t enough money for food? (Yes/No)
5. (If yes to question 4) How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?
6. In the last 12 months, did you ever eat less than you felt you should because there wasn’t enough money for food? (Yes/No)
7. In the last 12 months, were you ever hungry, but didn’t eat, because there wasn’t enough money for food? (Yes/No)
8. In the last 12 months, did you lose weight because there wasn’t enough money for food? (Yes/No)
9. In the last 12 months did you or other adults in your household ever not eat for a whole day because there wasn’t enough money for food? (Yes/No)
10. (If yes to question 9) How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?

(Questions 11-18 were asked only if the household included children age 0-17)

11. “We relied on only a few kinds of low-cost food to feed our children because we were running out of money to buy food.” Was that often, sometimes, or never true for you in the last 12 months?
12. “We couldn’t feed our children a balanced meal, because we couldn’t afford that.” Was that often, sometimes, or never true for you in the last 12 months?
13. “The children were not eating enough because we just couldn’t afford enough food.” Was that often, sometimes, or never true for you in the last 12 months?
14. In the last 12 months, did you ever cut the size of any of the children’s meals because there wasn’t enough money for food? (Yes/No)
15. In the last 12 months, were the children ever hungry but you just couldn’t afford more food? (Yes/No)
16. In the last 12 months, did any of the children ever skip a meal because there wasn’t enough money for food? (Yes/No)
17. (If yes to question 16) How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?
18. In the last 12 months did any of the children ever not eat for a whole day because there wasn’t enough money for food? (Yes/No)

Coding of Responses

Questions 1-3 and 11-13 are coded as affirmative (i.e., possibly indicating food insecurity) if the response is “often” or “sometimes.” Questions 5, 10, and 17 are coded as affirmative if the response is “almost every month” or “some months but not every month.” The remaining questions are coded as affirmative if the response is “yes.”

Assessing Food Security Status in Households without Children

Households without children are classified as *food insecure* if they report 3 or more indications of food insecurity in response to the first 10 questions; they are classified as having *very low food security* if they report 6 or more food-insecure conditions out of the first 10 questions.

Assessing Food Security Status in Households with Children Age 0-17

Households with children are classified as *food insecure* if they report 3 or more indications of food insecurity in response to the entire set of 18 questions; they are classified as having *very low food security* if they report 8 or more food-insecure conditions in response to the entire set of 18 questions.

The food security status of children in the household is assessed by responses to the child-referenced questions (questions 11-18). Households reporting two or more of these conditions are classified as having *food insecurity among children*. Households reporting five or more are classified as having *very low food security among children*.

What Is “Very Low Food Security”?

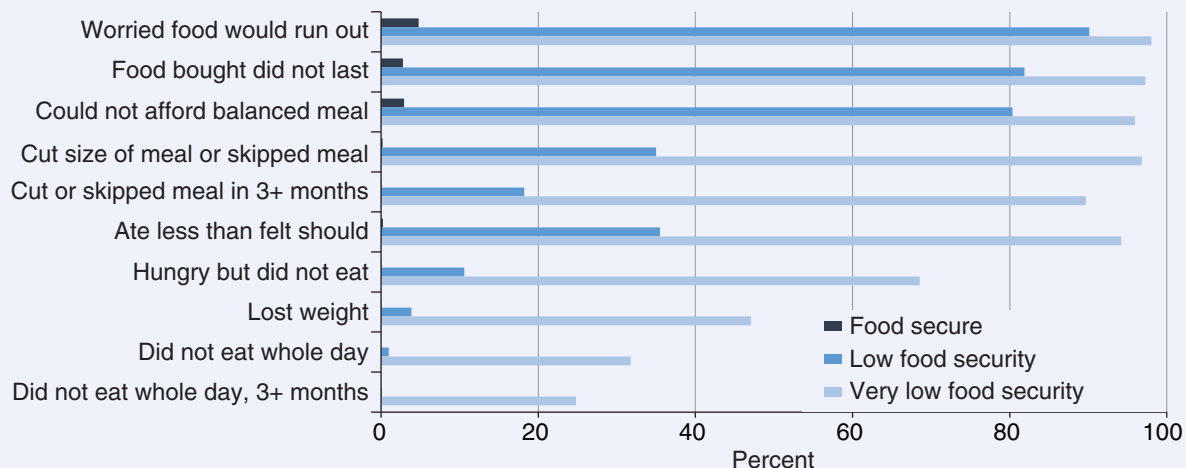
Very low food security can be characterized in terms of the conditions that households in this category reported in the food security survey. Households without children classified as having very low food security reported six or more food-insecure conditions, and households with children reported eight or more food-insecure conditions, including conditions among both adults and children. Thus, the conditions reported by respondents reflect the definition of “very low food security”: at times during the year, the food intake of household members was reduced and their normal eating patterns were disrupted because the household lacked money and other resources for food. In the 2018 survey, households classified as having very low food security (representing an estimated 5.6 million households nationwide) reported the following specific conditions:

- 98 percent reported having worried that their food would run out before they got money to buy more.
- 97 percent reported that the food they bought just did not last and they did not have money to get more.
- 96 percent reported that they could not afford to eat balanced meals.

- 97 percent reported that an adult had cut the size of meals or skipped meals because there was not enough money for food; 90 percent reported that this had occurred in 3 or more months.
- 94 percent reported that they had eaten less than they felt they should because there was not enough money for food.
- 69 percent reported that they had been hungry but did not eat because they could not afford enough food.
- 47 percent reported having lost weight because they did not have enough money for food.
- 32 percent reported that an adult did not eat for a whole day because there was not enough money for food; 25 percent reported that this had occurred in 3 or more months.

As noted above, all households without children classified as having very low food security reported at least six of these conditions. The majority of households with very low food security, 70 percent, reported seven or more food-insecure conditions. (Conditions reported by households with children were similar to those without children, but the reported food-insecure conditions of both adults and children were taken into account.)

Percentage of households reporting each indicator of food insecurity, by food security status, 2018



Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2018 Current Population Survey Food Security Supplement.

Low and very low food security differ in the extent and character of the adjustments the household makes to its eating patterns and food intake. Households classified as having *low food security* have reported multiple indications of food acquisition problems and reduced diet quality, but typically have reported few, if any, indications of reduced food intake. Those classified as having *very low food security* have reported multiple indications of reduced food intake and disrupted eating patterns due to inadequate resources for food. In most, but not all households with *very low food security*, the survey respondent reported that he or she was hungry at some time during the year but did not eat because there was not enough money for food.

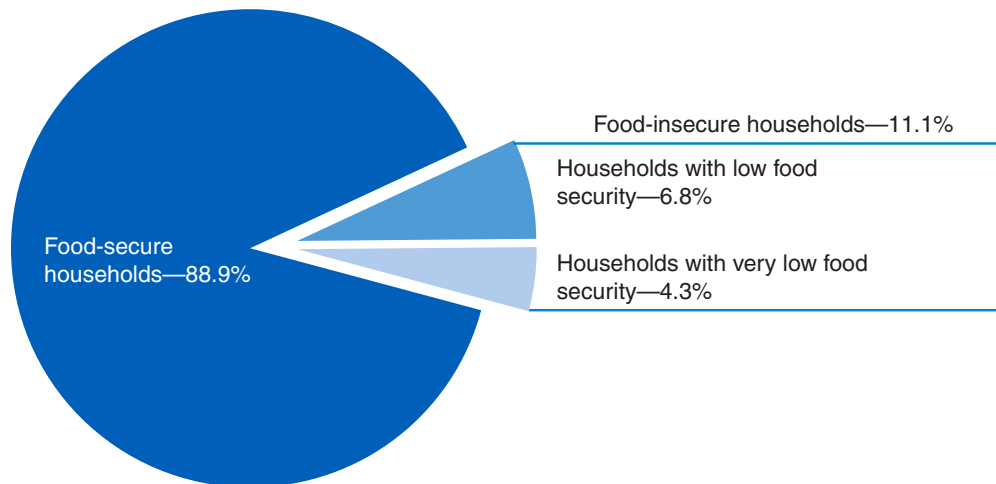
Prevalence of Food Insecurity—National Conditions and Trends

An estimated 88.9 percent of U.S. households were food secure throughout the entire year in 2018 (fig. 1, table 1A). In concept, “food secure” means that all household members had access at all times to enough food for an active, healthy life (Anderson, 1990).¹¹ The remaining 11.1 percent (14.3 million households) were food insecure at some time during the year. ***Food insecurity means that households were, at times, unable to acquire adequate food for one or more household members because they had insufficient money and other resources for food.*** A majority of food-insecure households—those classified as having low food security (but not very low food security)—avoided substantial reductions or disruptions in food intake, in some cases by relying on a few basic foods and reducing variety in their diets. But 4.3 percent (5.6 million households) had very low food security. ***Very low food security means that households were food insecure to the extent that eating patterns of one or more household members were disrupted and their food intake reduced, at least some time during the year, because they could not afford enough food.***

Among U.S. households with children under age 18, 86.1 percent were food secure in 2018. The remaining 13.9 percent of households with children were food insecure at some time during the year (fig. 2, table 1B). This prevalence is down significantly from 15.7 percent in 2017. Parents and caregivers often are able to maintain normal or near-normal diets and meal patterns for their children, even when the parents themselves are food insecure. In about half of food-insecure households with children in 2018, only adults were food insecure (6.8 percent of households with children). However, both children and adults were food insecure in 7.1 percent of households with children (2.7 million households) in 2018. In 0.6 percent of households with children (220,000 households), food insecurity among children was so severe that caregivers reported that children were hungry, skipped a meal, or did not eat for a whole day because there was not enough money for food. These households are described as having very low food security among children. Sometimes only older children in such households suffer the more severe effects of food insecurity, while younger children are protected from those effects (Coleman-Jensen et al., 2013; Nord, 2009a).

¹¹Food security statistics, as operationally measured for this report using survey data, are based on household responses to items about whether the household was able to obtain enough food to meet its needs. This operational measure does not specifically address whether the household members’ food intake was sufficient for active, healthy lives—the conceptual definition of food security. Nonetheless, research based on other data collections has found survey-based measures of food security to be statistically associated with various outcomes involving health, nutrition, and children’s development in a manner that generally supports the link between the report’s survey-based measure of food security and the conceptual definition of food security (see, for example, Coleman-Jensen et al., 2013; Gregory and Coleman-Jensen, 2017; Nord, 2009a; Nord and Hopwood, 2007; Nord and Kantor, 2006).

Figure 1
U.S. households by food security status, 2018



Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2018 Current Population Survey Food Security Supplement.

Table 1A
Households and individuals by food security status of household, 1998-2018

| Category and year | Total ¹ | Food secure | | Food insecure | | | | | | |
|--|--------------------|-------------|---------|---------------|------------------------|-----------------------------|-------|---------|-------|---------|
| | | 1,000 | Percent | All | With low food security | With very low food security | 1,000 | Percent | 1,000 | Percent |
| Households: | | | | | | | | | | |
| 2018 | 129,245 | 114,934 | 88.9 | 14,311 | 11.1 | 8,730 | 6.8 | 5,581 | 4.3 | |
| 2017 | 127,272 | 112,254 | 88.2 | 15,018 | 11.8 | 9,261 | 7.3 | 5,757 | 4.5 | |
| 2016 | 126,401 | 110,850 | 87.7 | 15,551 | 12.3 | 9,413 | 7.4 | 6,138 | 4.9 | |
| 2015 | 125,164 | 109,315 | 87.3 | 15,849 | 12.7 | 9,540 | 7.7 | 6,309 | 5.0 | |
| 2014 | 124,044 | 106,618 | 86.0 | 17,426 | 14.0 | 10,488 | 8.4 | 6,938 | 5.6 | |
| 2013 | 122,579 | 105,070 | 85.7 | 17,509 | 14.3 | 10,664 | 8.7 | 6,845 | 5.6 | |
| 2012 | 121,546 | 103,914 | 85.5 | 17,632 | 14.5 | 10,679 | 8.8 | 6,953 | 5.7 | |
| 2011 | 119,484 | 101,631 | 85.1 | 17,853 | 14.9 | 11,014 | 9.2 | 6,839 | 5.7 | |
| 2010 | 118,756 | 101,527 | 85.5 | 17,229 | 14.5 | 10,872 | 9.1 | 6,357 | 5.4 | |
| 2009 | 118,174 | 100,820 | 85.3 | 17,354 | 14.7 | 10,601 | 9.0 | 6,753 | 5.7 | |
| 2008 | 117,565 | 100,416 | 85.4 | 17,149 | 14.6 | 10,426 | 8.9 | 6,723 | 5.7 | |
| 2007 | 117,100 | 104,089 | 88.9 | 13,011 | 11.1 | 8,262 | 7.0 | 4,749 | 4.1 | |
| 2006 | 115,609 | 102,961 | 89.1 | 12,648 | 10.9 | 8,031 | 6.9 | 4,617 | 4.0 | |
| 2005 | 114,437 | 101,851 | 89.0 | 12,586 | 11.0 | 8,158 | 7.1 | 4,428 | 3.9 | |
| 2004 | 112,967 | 99,473 | 88.1 | 13,494 | 11.9 | 9,045 | 8.0 | 4,449 | 3.9 | |
| 2003 | 112,214 | 99,631 | 88.8 | 12,583 | 11.2 | 8,663 | 7.7 | 3,920 | 3.5 | |
| 2002 | 108,601 | 96,543 | 88.9 | 12,058 | 11.1 | 8,259 | 7.6 | 3,799 | 3.5 | |
| 2001 | 107,824 | 96,303 | 89.3 | 11,521 | 10.7 | 8,010 | 7.4 | 3,511 | 3.3 | |
| 2000 | 106,043 | 94,942 | 89.5 | 11,101 | 10.5 | 7,786 | 7.3 | 3,315 | 3.1 | |
| 1999 | 104,684 | 94,154 | 89.9 | 10,529 | 10.1 | 7,420 | 7.1 | 3,109 | 3.0 | |
| 1998 | 103,309 | 91,121 | 88.2 | 12,188 | 11.8 | 8,353 | 8.1 | 3,835 | 3.7 | |
| All individuals (by food security status of household): ² | | | | | | | | | | |
| 2018 | 323,005 | 285,778 | 88.5 | 37,227 | 11.5 | 24,577 | 7.6 | 12,650 | 3.9 | |
| 2017 | 320,418 | 280,374 | 87.5 | 40,044 | 12.5 | 27,159 | 8.5 | 12,885 | 4.0 | |
| 2016 | 319,029 | 277,825 | 87.1 | 41,204 | 12.9 | 26,556 | 8.3 | 14,648 | 4.6 | |
| 2015 | 316,161 | 273,923 | 86.6 | 42,238 | 13.4 | 27,605 | 8.7 | 14,633 | 4.6 | |
| 2014 | 313,305 | 265,170 | 84.6 | 48,135 | 15.4 | 30,922 | 9.9 | 17,213 | 5.5 | |

Continued—

Table 1A

Households and individuals by food security status of household, 1998-2018—continued

| Category and year | Total ¹ | Food insecure | | | | | | | | |
|--|--------------------|---------------|-------|---------|-------|---------|------------------------|---------|-----------------------------|---------|
| | | Food secure | | | All | | With low food security | | With very low food security | |
| | | 1,000 | 1,000 | Percent | 1,000 | Percent | 1,000 | Percent | 1,000 | Percent |
| All individuals (by food security status of household): ² | | | | | | | | | | |
| 2013 | 310,853 | 261,775 | 84.2 | 49,078 | 15.8 | 31,974 | 10.3 | 17,104 | 5.5 | |
| 2012 | 308,361 | 259,395 | 84.1 | 48,966 | 15.9 | 31,787 | 10.3 | 17,179 | 5.6 | |
| 2011 | 305,893 | 255,773 | 83.6 | 50,120 | 16.4 | 33,232 | 10.9 | 16,888 | 5.5 | |
| 2010 | 304,034 | 255,202 | 83.9 | 48,832 | 16.1 | 32,777 | 10.8 | 16,055 | 5.3 | |
| 2009 | 301,750 | 251,588 | 83.4 | 50,162 | 16.6 | 32,499 | 10.8 | 17,663 | 5.9 | |
| 2008 | 299,567 | 250,459 | 83.6 | 49,108 | 16.4 | 31,824 | 10.6 | 17,284 | 5.8 | |
| 2007 | 297,042 | 260,813 | 87.8 | 36,229 | 12.2 | 24,287 | 8.2 | 11,942 | 4.0 | |
| 2006 | 294,010 | 258,495 | 87.9 | 35,515 | 12.1 | 24,395 | 8.3 | 11,120 | 3.8 | |
| 2005 | 291,501 | 256,373 | 87.9 | 35,128 | 12.1 | 24,349 | 8.4 | 10,779 | 3.7 | |
| 2004 | 288,603 | 250,407 | 86.8 | 38,196 | 13.2 | 27,535 | 9.5 | 10,661 | 3.7 | |
| 2003 | 286,410 | 250,155 | 87.3 | 36,255 | 12.7 | 26,622 | 9.3 | 9,633 | 3.4 | |
| 2002 | 279,035 | 244,133 | 87.5 | 34,902 | 12.5 | 25,517 | 9.1 | 9,385 | 3.4 | |
| 2001 | 276,661 | 243,019 | 87.8 | 33,642 | 12.2 | 24,628 | 8.9 | 9,014 | 3.3 | |
| 2000 | 273,685 | 240,454 | 87.9 | 33,231 | 12.1 | 24,708 | 9.0 | 8,523 | 3.1 | |
| 1999 | 270,318 | 239,304 | 88.5 | 31,015 | 11.5 | 23,237 | 8.6 | 7,779 | 2.9 | |
| 1998 | 268,366 | 232,219 | 86.5 | 36,147 | 13.5 | 26,290 | 9.8 | 9,857 | 3.7 | |
| Adults (by food security status of household): ² | | | | | | | | | | |
| 2018 | 249,443 | 223,390 | 89.6 | 26,053 | 10.4 | 16,576 | 6.6 | 9,477 | 3.8 | |
| 2017 | 246,517 | 219,013 | 88.8 | 27,504 | 11.2 | 17,796 | 7.2 | 9,708 | 3.9 | |
| 2016 | 245,200 | 216,934 | 88.5 | 28,266 | 11.5 | 17,498 | 7.1 | 10,768 | 4.4 | |
| 2015 | 242,706 | 213,586 | 88.0 | 29,120 | 12.0 | 18,235 | 7.5 | 10,885 | 4.5 | |
| 2014 | 239,937 | 207,125 | 86.3 | 32,812 | 13.7 | 20,425 | 8.5 | 12,387 | 5.2 | |
| 2013 | 237,219 | 203,913 | 86.0 | 33,306 | 14.0 | 21,115 | 8.9 | 12,191 | 5.1 | |
| 2012 | 234,730 | 201,662 | 85.9 | 33,068 | 14.1 | 20,708 | 8.8 | 12,359 | 5.3 | |
| 2011 | 231,385 | 197,923 | 85.5 | 33,462 | 14.5 | 21,371 | 9.2 | 12,091 | 5.2 | |
| 2010 | 229,129 | 196,505 | 85.8 | 32,624 | 14.2 | 21,357 | 9.3 | 11,267 | 4.9 | |
| 2009 | 227,543 | 194,579 | 85.5 | 32,964 | 14.5 | 20,741 | 9.1 | 12,223 | 5.4 | |
| 2008 | 225,461 | 193,026 | 85.6 | 32,435 | 14.4 | 20,320 | 9.0 | 12,115 | 5.4 | |
| 2007 | 223,467 | 199,672 | 89.4 | 23,795 | 10.6 | 15,602 | 7.0 | 8,193 | 3.7 | |
| 2006 | 220,423 | 197,536 | 89.6 | 22,887 | 10.4 | 15,193 | 6.9 | 7,694 | 3.5 | |
| 2005 | 217,897 | 195,172 | 89.6 | 22,725 | 10.4 | 15,146 | 7.0 | 7,579 | 3.5 | |
| 2004 | 215,564 | 191,236 | 88.7 | 24,328 | 11.3 | 16,946 | 7.9 | 7,382 | 3.4 | |
| 2003 | 213,441 | 190,451 | 89.2 | 22,990 | 10.8 | 16,358 | 7.7 | 6,632 | 3.1 | |
| 2002 | 206,493 | 184,718 | 89.5 | 21,775 | 10.5 | 15,486 | 7.5 | 6,289 | 3.0 | |
| 2001 | 204,340 | 183,398 | 89.8 | 20,942 | 10.2 | 14,879 | 7.3 | 6,063 | 3.0 | |
| 2000 | 201,922 | 181,586 | 89.9 | 20,336 | 10.1 | 14,763 | 7.3 | 5,573 | 2.8 | |
| 1999 | 198,900 | 179,960 | 90.5 | 18,941 | 9.5 | 13,869 | 7.0 | 5,072 | 2.5 | |
| 1998 | 197,084 | 174,964 | 88.8 | 22,120 | 11.2 | 15,632 | 7.9 | 6,488 | 3.3 | |

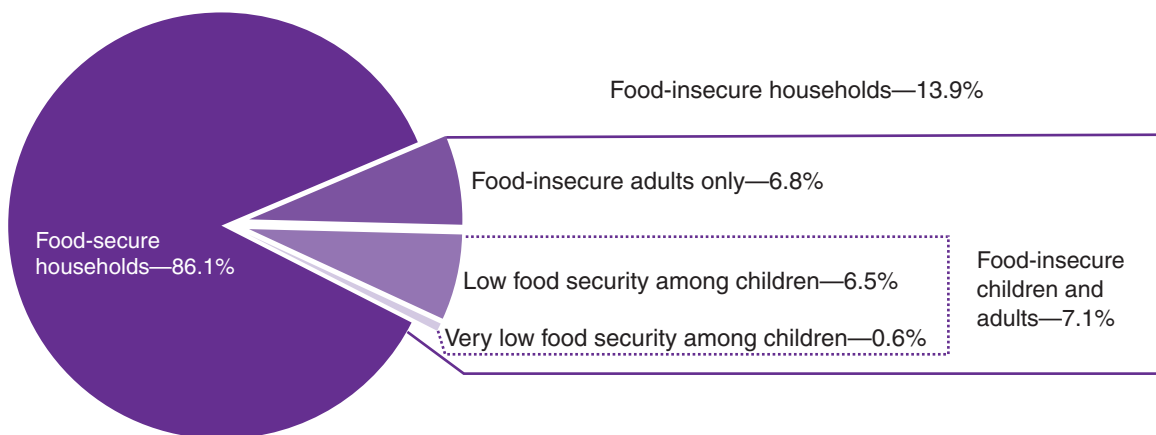
¹Totals exclude households for which food security status is unknown because household respondents did not give a valid response to any of the questions in the food security scale. In 2018, these exclusions represented 378,000 households (0.3 percent of all households).

²The food security survey measures food security status at the household level. Not all individuals residing in food-insecure households were directly affected by the households' food insecurity. Similarly, not all individuals in households classified as having very low food security were subject to the reductions in food intake and disruptions in eating patterns that characterize this condition. Young children, in particular, are often protected from effects of the households' food insecurity.

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey Food Security Supplement.

Figure 2

U.S. households with children by food security status of adults and children, 2018



Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2018 Current Population Survey Food Security Supplement.

The food security survey is designed to measure food security status at the household level. While it is informative to examine the number of persons living in food-insecure households, these statistics should be interpreted carefully. Within a food-insecure household, each household member may be affected differently by the household’s food insecurity. Some members—particularly young children—may experience only mild effects or none at all, while adults are more severely affected. It is more precise, therefore, to describe these statistics as representing “persons living in food-insecure households” rather than as representing “food-insecure persons.” Similarly, “persons living in households with very low food security” is a more precise description than “persons with very low food security.”

In 2018, 37.2 million people lived in food-insecure households (table 1A, bottom panel). They constituted 11.5 percent of the U.S. civilian noninstitutionalized population and included 26.1 million adults and 11.2 million children (table 1B, bottom panel). About 6.0 million children (8.2 percent) lived in households in which 1 or more child was food insecure. About 9.5 million adults (3.8 percent) lived in households with very low food security (table 1A), and 540,000 children (0.7 percent of children) lived in households with very low food security among children (table 1B, bottom panel).

Statistical Supplement tables S-2 and S-3 present estimates of the number of people and the number of children in households in each food security status and household type (Coleman-Jensen et al., 2019).

Table 1B

Households with children by food security status and children by food security status of household, 1998-2018

| Category and year | Food-secure households | | | Food-insecure households ² | | Households with food-insecure children ³ | | Households with very low food security among children | |
|---|-----------------------------|--------|---------|---------------------------------------|---------|---|---------|---|---------|
| | Total ¹ 1,000 | 1,000 | Percent | 1,000 | Percent | 1,000 | Percent | 1,000 | Percent |
| Households with children: | | | | | | | | | |
| 2018 | 37,612 | 32,369 | 86.1 | 5,243 | 13.9 | 2,658 | 7.1 | 220 | 0.6 |
| 2017 | 37,942 | 31,975 | 84.3 | 5,967 | 15.7 | 2,926 | 7.7 | 250 | 0.7 |
| 2016 | 38,400 | 32,058 | 83.5 | 6,342 | 16.5 | 3,069 | 8.0 | 298 | 0.8 |
| 2015 | 38,978 | 32,519 | 83.4 | 6,459 | 16.6 | 3,022 | 7.8 | 274 | 0.7 |
| 2014 | 39,079 | 31,590 | 80.8 | 7,489 | 19.2 | 3,665 | 9.4 | 422 | 1.1 |
| 2013 | 38,486 | 30,978 | 80.5 | 7,508 | 19.5 | 3,814 | 9.9 | 360 | 0.9 |
| 2012 | 39,201 | 31,354 | 80.0 | 7,847 | 20.0 | 3,910 | 10.0 | 463 | 1.2 |
| 2011 | 38,803 | 30,814 | 79.4 | 7,989 | 20.6 | 3,862 | 10.0 | 374 | 1.0 |
| 2010 | 39,419 | 31,447 | 79.8 | 7,972 | 20.2 | 3,861 | 9.8 | 386 | 1.0 |
| 2009 | 39,525 | 31,114 | 78.7 | 8,411 | 21.3 | 4,208 | 10.6 | 469 | 1.2 |
| 2008 | 39,699 | 31,364 | 79.0 | 8,335 | 21.0 | 4,361 | 11.0 | 506 | 1.3 |
| 2007 | 39,390 | 33,160 | 84.2 | 6,230 | 15.8 | 3,273 | 8.3 | 323 | 0.8 |
| 2006 | 39,436 | 33,279 | 84.4 | 6,157 | 15.6 | 3,312 | 8.4 | 221 | 0.6 |
| 2005 | 39,601 | 33,404 | 84.4 | 6,197 | 15.6 | 3,244 | 8.2 | 270 | 0.7 |
| 2004 | 39,990 | 32,967 | 82.4 | 7,023 | 17.6 | 3,808 | 9.5 | 274 | 0.7 |
| 2003 | 40,286 | 33,575 | 83.3 | 6,711 | 16.7 | 3,606 | 9.0 | 207 | 0.5 |
| 2002 | 38,647 | 32,267 | 83.5 | 6,380 | 16.5 | 3,456 | 8.9 | 265 | 0.7 |
| 2001 | 38,330 | 32,141 | 83.9 | 6,189 | 16.1 | 3,225 | 8.4 | 211 | 0.6 |
| 2000 | 38,113 | 31,942 | 83.8 | 6,171 | 16.2 | 3,282 | 8.6 | 255 | 0.7 |
| 1999 | 37,884 | 32,290 | 85.2 | 5,594 | 14.8 | 3,089 | 8.2 | 219 | 0.6 |
| 1998 | 38,036 | 31,335 | 82.4 | 6,701 | 17.6 | 3,627 | 9.5 | 331 | 0.9 |
| Children (by food security status of household): ⁴ | | | | | | | | | |
| 2018 | 73,562 | 62,388 | 84.8 | 11,174 | 15.2 | 5,999 | 8.2 | 540 | 0.7 |
| 2017 | 73,901 | 61,361 | 83.0 | 12,540 | 17.0 | 6,541 | 8.9 | 540 | 0.7 |
| 2016 | 73,829 | 60,891 | 82.5 | 12,938 | 17.5 | 6,519 | 8.8 | 703 | 1.0 |
| 2015 | 73,455 | 60,337 | 82.1 | 13,118 | 17.9 | 6,377 | 8.7 | 541 | 0.7 |
| 2014 | 73,368 | 58,045 | 79.1 | 15,323 | 20.9 | 7,949 | 10.8 | 914 | 1.2 |
| 2013 | 73,634 | 57,862 | 78.6 | 15,772 | 21.4 | 8,585 | 11.7 | 765 | 1.0 |
| 2012 | 73,631 | 57,733 | 78.4 | 15,898 | 21.6 | 8,290 | 11.3 | 977 | 1.3 |
| 2011 | 74,508 | 57,850 | 77.6 | 16,658 | 22.4 | 8,565 | 11.5 | 845 | 1.1 |
| 2010 | 74,905 | 58,697 | 78.4 | 16,208 | 21.6 | 8,458 | 11.3 | 976 | 1.3 |
| 2009 | 74,207 | 57,010 | 76.8 | 17,197 | 23.2 | 8,957 | 12.1 | 988 | 1.3 |
| 2008 | 74,106 | 57,433 | 77.5 | 16,673 | 22.5 | 9,098 | 12.3 | 1,077 | 1.5 |
| 2007 | 73,575 | 61,140 | 83.1 | 12,435 | 16.9 | 6,766 | 9.2 | 691 | 0.9 |
| 2006 | 73,587 | 60,959 | 82.8 | 12,628 | 17.2 | 7,065 | 9.6 | 430 | 0.6 |
| 2005 | 73,604 | 61,201 | 83.1 | 12,403 | 16.9 | 6,718 | 9.1 | 606 | 0.8 |
| 2004 | 73,039 | 59,171 | 81.0 | 13,868 | 19.0 | 7,823 | 10.7 | 545 | 0.7 |
| 2003 | 72,969 | 59,704 | 81.8 | 13,265 | 18.2 | 7,388 | 10.1 | 420 | 0.6 |
| 2002 | 72,542 | 59,415 | 81.9 | 13,127 | 18.1 | 7,397 | 10.2 | 567 | 0.8 |
| 2001 | 72,321 | 59,620 | 82.4 | 12,701 | 17.6 | 6,866 | 9.5 | 467 | 0.6 |
| 2000 | 71,763 | 58,867 | 82.0 | 12,896 | 18.0 | 7,018 | 9.8 | 562 | 0.8 |
| 1999 | 71,418 | 59,344 | 83.1 | 12,074 | 16.9 | 6,996 | 9.8 | 511 | 0.7 |
| 1998 | 71,282 | 57,255 | 80.3 | 14,027 | 19.7 | 7,840 | 11.0 | 716 | 1.0 |

¹Totals exclude households for which food security status is unknown because they did not give a valid response to any of the questions in the food security scale. In 2018, these exclusions represented 152,000 households with children (0.4 percent of all households with children). Children are age 0-17.

²Food-insecure households are those with low or very low food security among adults or children or both.

³In some food-insecure households with children, only adults were food insecure. Households with food-insecure children are those with low or very low food security among children.

⁴The food security survey measures food security status at the household level. Not all children residing in food-insecure households were directly affected by the households' food insecurity. Similarly, not all children in households classified as having very low food security among children were subject to the reductions in food intake and disruptions in eating patterns that characterize this condition. Young children, in particular, are often protected from effects of the households' food insecurity.

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey Food Security Supplement.

When interpreting food security statistics in this report, bear in mind that households were classified as having low or very low food security based on their experience of the conditions indicated in the module at any time during the previous 12 months. The prevalence of these conditions on any given day is far below the corresponding annual prevalence. For example, the prevalence of very low food security during the 30 days prior to the survey is 2.4 percent (table S-4) and the prevalence on an average day during the 30-day period prior to the December 2018 survey is an estimated 0.6-0.8 percent of households (0.8 million to 1.0 million households; see box, “When Food Insecurity Occurs in U.S. Households, It Is Usually Recurrent But Not Constant,” on page 11).¹² Children, along with adults, suffered very low food security in an estimated 36,000 to 47,000 households (0.09 to 0.12 percent of all U.S. households with children) on an average day during the same period.

From 2017 to 2018, there was a statistically significant decline in the prevalence of food insecurity from 11.8 percent to 11.1 percent (fig. 3, table 1a). This continues 6 years of declining food insecurity from a high of 14.9 percent in 2011, and is the first year that food insecurity returned to the 11.1 percent pre-recession level of 2007. Year-to-year declines in food insecurity from 2016 (12.3 percent) to 2017 and from 2014 (14.0 percent) to 2015 (12.7 percent) were statistically significant. Some year-to-year changes were not statistically significant; that is, the changes were within the range that could have resulted from sampling variation. The cumulative decline from 2011 (14.9 percent) to 2014 (14.0 percent) was statistically significant. In the previous decade, food insecurity had increased from 10.7 percent in 2001 to 11.9 percent in 2004, declined to about 11 percent in 2005-07, then increased significantly in 2008 (to 14.6 percent), and remained essentially unchanged (that is, the difference was not statistically significant) at that level in 2009 (14.7 percent) and 2010 (14.5 percent).

The prevalence of very low food security in 2018 (4.3 percent) was not significantly different from 2017 (fig. 3, table 1a). There were statistically significant declines in very low food security from 4.9 percent in 2016 to 4.5 percent in 2017 and from 5.6 percent in 2014 to 5.0 percent in 2015. Before that, the prevalence of very low food security was essentially unchanged from 2011 (5.7 percent) through 2014. The prevalence of very low food security was also 5.7 percent in 2008 and 2009. Prior to 2008, the prevalence of very low food security had increased from 3.3 percent in 2001 to 3.9 percent in 2004, and remained essentially unchanged through 2007 (4.1 percent).

From 2017 to 2018, there was a statistically significant decline in the prevalence of food insecurity in households with children from 15.7 percent to 13.9 percent (fig. 4, table 1b). Food insecurity in households with children in 2018 was lower than in any year back to 1998. Households with food insecurity among children in 2018 (7.1 percent) was not significantly different from the prevalence in 2017 (7.7 percent) or 2015 (7.8 percent). Households with food insecurity among children was also at the lowest level compared with any year back to 1998. Households with very low food security among children was essentially unchanged from 2017 (0.7 percent) to 2018 (0.6 percent). Households with very low food security among children in 2018 was also not statistically significantly different from the prevalence in 2016 or 2015, or in 1999 through 2007. Households with very low food security among children was significantly lower in 2018 than in any year from 2008 through 2014.

¹²Average daily prevalence of the various behaviors, experiences, and conditions characterizing very low food security is calculated based on the proportion of households reporting the condition at any time during the previous 30 days and the average number of days in which the condition occurred. The average daily prevalence for each condition is calculated as the product of the 30-day prevalence and the average number of days experienced divided by 30. The ratio of daily prevalence to monthly prevalence of the various indicator conditions provides the basis for approximating the average daily prevalence of very low food security during the reference 30-day period. The daily rate of very low food security is expressed as a range whose lower and upper bounds are based on the minimum and maximum ratio of daily prevalence to 30-day prevalence. See table S-9 in the online Statistical Supplement (Coleman-Jensen et al., 2019).

When Food Insecurity Occurs in U.S. Households, It Is Usually Recurrent but Not Constant

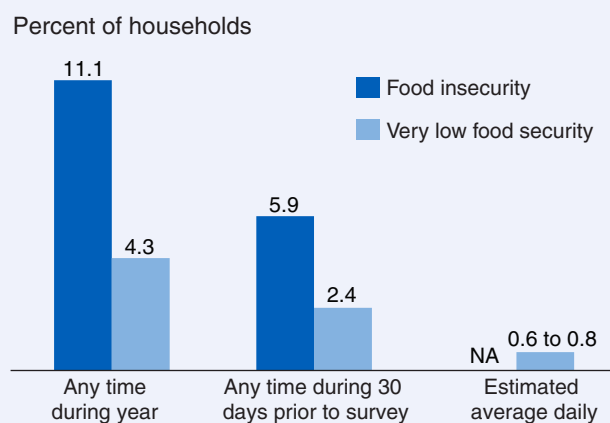
When households experience very low food security in the United States, the resulting instances of reduced food intake and disrupted eating patterns are usually occasional or episodic, but not usually constant. The food security measurement methods used in this report are designed to register these occasional or episodic occurrences. The questions used to assess households' food security status ask whether a condition, experience, or behavior occurred at any time in the past 12 months, and households can be classified as having very low food security based on a single, severe episode during the year. Readers should be mindful of this when interpreting food-insecurity statistics. Analyses of additional information collected in the food security survey on how frequently various food-insecure conditions occurred during the year, whether they occurred during the 30 days prior to the survey, and, if so, in how many days provide insight into the frequency and duration of food insecurity in U.S. households. These analyses reveal that in 2018:

- About one-fourth of U.S. households with very low food security at any time during the year experienced the associated conditions rarely or occasionally—in only 1 or 2 months of the year. For three-fourths of households, the conditions were recurrent, experienced in 3 or more months of the year.
- For about one-fourth of food-insecure households and one-third of those with very low food security, occurrence of the associated conditions was frequent or chronic. That is, the conditions occurred often, or in almost every month.
- On average, households that were food insecure at some time during the year were food insecure in 7 months during the year. During the 30-day period ending in mid-December 2018, 7.7 million households (5.9 percent of all households) were food insecure—about 54 percent of the number that were food insecure at any time during the year (see Statistical Supplement table S-4, Coleman-Jensen et al., 2019).
- Similarly, households with very low food security at some time during the year experienced the associated conditions, on average, in 7 months during the year. During the 30-day period ending in mid-December 2018, 3.1 million households (2.4 percent of all households) had very low food security—about 56 percent of the number with very low food security at some time during the year (see Statistical Supplement table S-4).

- Most households that had very low food security at some time during a month experienced the associated conditions in 1 to 7 days of the month. The average daily prevalence of very low food security during the 30-day period ending in mid-December 2018 was between 0.8 million and 1.0 million households (0.6 to 0.8 percent of all households)—about 14 to 18 percent of the annual prevalence.
- The daily prevalence of very low food security among children during the 30-day period ending in mid-December 2018 was probably between 36,000 and 47,000 households (0.09 to 0.12 percent of households with children)—about 16 to 21 percent of the annual prevalence.
- The omission of homeless families and individuals from these daily statistics biases the statistics downward, and the bias may be substantial relative to the estimates, especially for the most severe conditions.

(Statistical Supplement tables S-7 to S-9 (Coleman-Jensen et al., 2019) provide information on how often conditions indicating food insecurity occurred, as reported by respondents to the December 2018 Food Security Supplement. See Nord et al. (2000) for more information about the frequency of food insecurity. See Ryu and Bartfeld (2012) and Wilde et al. (2010) for more information about longer term patterns of food insecurity.)

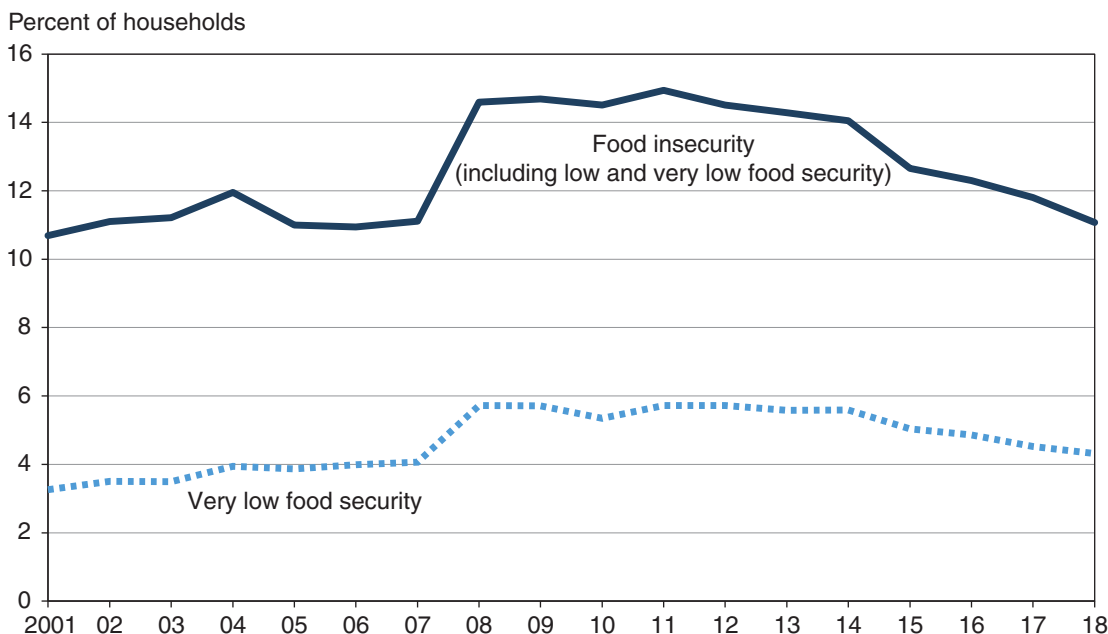
Prevalence of food insecurity and very low food security, by reference period (2018)



NA = Estimated average daily occurrence of food insecurity is not available because the survey did not collect information on the number of days that less severe food-insecure conditions occurred.

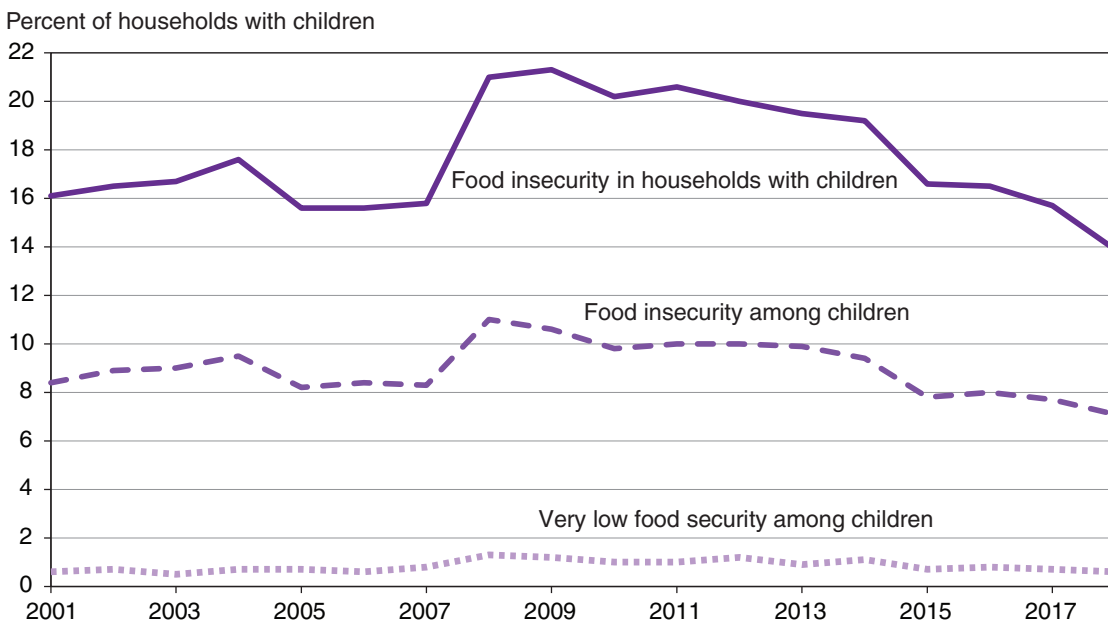
Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2018 Current Population Survey Food Security Supplement.

Figure 3
Trends in the prevalence of food insecurity and very low food security in U.S. households, 2001-2018



Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey Food Security Supplement.

Figure 4
Trends in the prevalence of food insecurity in households with children, 2001-2018



Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey Food Security Supplement.

Prevalence of Food Insecurity by Selected Household Characteristics

The prevalence of food insecurity varied considerably in 2018 among households with different demographic and economic characteristics (table 2). Differences in food security across demographic and geographic groups reflect, in part, differences in income across those groups; though no adjustment is made for income in the statistics presented in this report, food insecurity was strongly associated with income. For example, 35.3 percent of households with annual incomes below the official poverty line (household income-to-poverty ratio under 1.00) were food insecure, compared with just 5.4 percent of those with incomes at or above 185 percent of the poverty line (Table S-1 in the Statistical Supplement (Coleman-Jensen et al., 2019) shows food insecurity by selected household characteristics for households with annual income below 130 percent of the poverty line).¹³

Rates of food insecurity were below the national average of 11.1 percent for married-couple families with children (8.3 percent), households with more than one adult and no children (7.5 percent), households with elderly persons (7.5 percent), and the elderly living alone (8.9 percent).¹⁴ The prevalence of food insecurity was also below the national average for households headed by White, non-Hispanic adults (8.1 percent).

Rates of food insecurity were higher than the national average in 2018 for the following groups:

- All households with children (13.9 percent)¹⁵
- Households with children under age 6 (14.3 percent)
- Households with children headed by a single woman (27.8 percent) or a single man (15.9 percent)¹⁶ and other households with children (21.1 percent)
- Women living alone (14.2 percent) and men living alone (12.5 percent)
- Households with Black, non-Hispanic (21.2 percent) and Hispanic (16.2 percent) heads of household
- Households with incomes below 185 percent of the poverty threshold (29.1 percent).

¹³The Federal poverty line was \$25,465 for a family of four (two adults and two children) in 2018.

¹⁴“Elderly” in this report refers to persons age 65 and older.

¹⁵About half of the difference in food insecurity between households with and without children results from a difference in the measures applied to the two types of households. Responses to questions about children as well as adults are considered in assessing the food security status of households with children, but for both types of households, a total of three indications of food insecurity is required for classification as food insecure. Even with the child-referenced questions omitted from the scale, however, in 2018, 11.9 percent of households with children would be classified as food insecure (that is, as having food insecurity among adults), compared with 9.9 percent for households without children. Comparisons of very low food security are not biased substantially by this measurement issue because a higher threshold is applied to households with children, consistent with the larger number of questions taken into consideration (Nord and Coleman-Jensen, 2014). See Coleman-Jensen, Rabbitt, and Gregory (2017) for a discussion of a comparable classification method for households with and without children.

¹⁶Some households with children headed by a single woman or a single man as classified for these analyses included other adults, who may have been parents, siblings, cohabiting partners, adult children, other relatives of the reference person, or unrelated roomers or boarders.

Table 2

Households by food security status and selected household characteristics, 2018

| Category | Total ¹ | Food secure | | Food insecure | | | | | |
|---|--------------------|-------------|---------|---------------|---------|-------|------------------------|-------|-----------------------------|
| | | 1,000 | 1,000 | Percent | All | | With low food security | | With very low food security |
| | 1,000 | 1,000 | Percent | 1,000 | Percent | 1,000 | Percent | 1,000 | Percent |
| All households | 129,245 | 114,934 | 88.9 | 14,311 | 11.1 | 8,730 | 6.8 | 5,581 | 4.3 |
| Household composition: | | | | | | | | | |
| With children < 18 yrs | 37,612 | 32,369 | 86.1 | 5,243 | 13.9 | 3,750 | 9.9 | 1,493 | 4.0 |
| With children < 6 yrs | 16,306 | 13,967 | 85.7 | 2,339 | 14.3 | 1,720 | 10.5 | 619 | 3.8 |
| Married-couple families | 24,598 | 22,558 | 91.7 | 2,040 | 8.3 | 1,633 | 6.6 | 407 | 1.7 |
| Female head, no spouse | 9,349 | 6,753 | 72.2 | 2,596 | 27.8 | 1,715 | 18.4 | 881 | 9.4 |
| Male head, no spouse | 3,238 | 2,722 | 84.1 | 516 | 15.9 | 346 | 10.6 | 170 | 5.3 |
| Other household with child ² | 427 | 337 | 78.9 | 90 | 21.1 | NA | NA | NA | NA |
| With no children < 18 yrs | 91,633 | 82,565 | 90.1 | 9,068 | 9.9 | 4,980 | 5.4 | 4,088 | 4.5 |
| More than one adult | 54,274 | 50,222 | 92.5 | 4,052 | 7.5 | 2,413 | 4.5 | 1,639 | 3.0 |
| Women living alone | 20,225 | 17,352 | 85.8 | 2,873 | 14.2 | 1,552 | 7.7 | 1,321 | 6.5 |
| Men living alone | 17,134 | 14,991 | 87.5 | 2,143 | 12.5 | 1,015 | 5.9 | 1,128 | 6.6 |
| With elderly | 39,125 | 36,191 | 92.5 | 2,934 | 7.5 | 1,918 | 4.9 | 1,016 | 2.6 |
| Elderly living alone | 14,988 | 13,652 | 91.1 | 1,336 | 8.9 | 824 | 5.5 | 512 | 3.4 |
| Race/ethnicity of households: | | | | | | | | | |
| White, non-Hispanic | 84,975 | 78,106 | 91.9 | 6,869 | 8.1 | 4,109 | 4.9 | 2,760 | 3.2 |
| Black, non-Hispanic | 16,613 | 13,087 | 78.8 | 3,526 | 21.2 | 2,021 | 12.1 | 1,505 | 9.1 |
| Hispanic ³ | 18,101 | 15,164 | 83.8 | 2,937 | 16.2 | 2,018 | 11.1 | 919 | 5.1 |
| Other, non-Hispanic | 9,556 | 8,577 | 89.8 | 979 | 10.2 | 582 | 6.0 | 397 | 4.2 |
| Household income-to-poverty ratio: | | | | | | | | | |
| Under 1.00 | 12,140 | 7,855 | 64.7 | 4,285 | 35.3 | 2,356 | 19.4 | 1,929 | 15.9 |
| Under 1.30 | 17,061 | 11,419 | 66.9 | 5,642 | 33.1 | 3,186 | 18.7 | 2,456 | 14.4 |
| Under 1.85 | 26,836 | 19,033 | 70.9 | 7,803 | 29.1 | 4,584 | 17.1 | 3,219 | 12.0 |
| 1.85 and over | 70,795 | 66,964 | 94.6 | 3,831 | 5.4 | 2,517 | 3.5 | 1,314 | 1.9 |
| Income unknown | 31,614 | 28,937 | 91.5 | 2,677 | 8.5 | 1,629 | 5.2 | 1,048 | 3.3 |
| Area of residence: ⁴ | | | | | | | | | |
| Inside metropolitan area | 111,051 | 99,053 | 89.2 | 11,998 | 10.8 | 7,299 | 6.6 | 4,699 | 4.2 |
| In principal cities ⁵ | 37,881 | 32,877 | 86.8 | 5,004 | 13.2 | 2,984 | 7.9 | 2,020 | 5.3 |
| Not in principal cities | 55,847 | 50,855 | 91.1 | 4,992 | 8.9 | 3,083 | 5.5 | 1,909 | 3.4 |
| Outside metropolitan area | 18,194 | 15,882 | 87.3 | 2,312 | 12.7 | 1,430 | 7.9 | 882 | 4.8 |
| Census geographic region: | | | | | | | | | |
| Northeast | 22,517 | 20,227 | 89.8 | 2,290 | 10.2 | 1,341 | 6.0 | 949 | 4.2 |
| Midwest | 27,791 | 24,781 | 89.2 | 3,010 | 10.8 | 1,914 | 6.9 | 1,096 | 3.9 |
| South | 49,814 | 43,829 | 88.0 | 5,985 | 12.0 | 3,582 | 7.2 | 2,403 | 4.8 |
| West | 29,123 | 26,098 | 89.6 | 3,025 | 10.4 | 1,892 | 6.5 | 1,133 | 3.9 |

NA = Not reported; fewer than 10 households in the survey with this characteristic had very low food security.

¹Totals exclude households for which food security status is unknown because household respondents did not give a valid response to any of the questions in the food security scale. In 2018, these exclusions represented 378,000 households (0.3 percent of all households).

²Households with children in complex living arrangements, e.g., children of other relatives or unrelated roommate or boarder.

³Hispanics may be of any race.

⁴Metropolitan area residence is based on 2013 Office of Management and Budget delineation. Prevalence rates by area of residence are comparable with those for 2014 and later but are not precisely comparable with those of earlier years.

⁵Households within incorporated areas of the largest cities in each metropolitan area. Residence inside or outside of principal cities is not identified for about 16 percent of households in metropolitan statistical areas.

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2018 Current Population Survey Food Security Supplement.

Across residential classifications, food insecurity was higher in principal cities of metropolitan areas (13.2 percent) and nonmetropolitan (rural) areas (12.7 percent) than in suburbs/exurbs and other metropolitan areas outside principal cities (8.9 percent).¹⁷ Compared with the national average, food insecurity was higher in principal cities and lower in metropolitan areas outside principal cities, but not significantly different from the national average in nonmetropolitan areas. Regionally, the prevalence of food insecurity in the Northeast (10.2 percent) was significantly below the U.S. average, while the prevalence in the South (12.0 percent) was significantly above the U.S. average. The prevalence of food insecurity was significantly higher in the South than in each of the other three regions (table 2).

Statistics in table 2 can also be used to calculate the share that each demographic group contributes to the population of food-insecure households. Among all food-insecure households in 2018, 36.6 percent were households with children, 18.1 percent were female-headed households with children, and 14.3 percent were married-couple households with children.¹⁸ About 21 percent of all food-insecure households included elderly adults. Low-income households with reported incomes below 185 percent of the poverty threshold made up the majority of food-insecure households, 54.5 percent. Households with reported incomes at or above 185 percent of poverty made up about 27 percent of all food-insecure households in 2018.

The prevalence of very low food security in various types of households followed a pattern similar to that observed for food insecurity (table 2). Percentages were lower than the 2018 national average of 4.3 percent for married couples with children (1.7 percent); multiple-adult households with no children (3.0 percent); households with elderly persons (2.6 percent); elderly living alone (3.4 percent); households headed by White, non-Hispanics (3.2 percent); households with incomes at or above 185 percent of the poverty line (1.9 percent); and households in suburbs and exurbs outside principal cities within metropolitan areas (3.4 percent).

The prevalence of very low food security was significantly higher than the national average (4.3 percent) for the following groups:

- Households with children headed by a single woman (9.4 percent)
- Women living alone (6.5 percent) and men living alone (6.6 percent)
- Households headed by Black, non-Hispanics (9.1 percent) and Hispanics (5.1 percent)
- Households with incomes below 185 percent of the poverty line (12.0 percent)
- Households located in principal cities (5.3 percent)
- Households in the South (4.8 percent).

¹⁷Revised metropolitan statistical areas (MSAs) and principal cities within them were delineated by the Office of Management and Budget in 2013, based on revised standards developed by the U.S. Census Bureau in collaboration with other Federal agencies. The revised delineations were implemented beginning with the 2014 Current Population Survey Food Security Supplement. Food security prevalence statistics by area of residence for 2014 and later are comparable, but are not precisely comparable with corresponding statistics from earlier years. Principal cities include the incorporated areas of the largest city in each MSA and other cities in the MSA that meet specified criteria based on population size and commuting patterns.

¹⁸For example, the share of food-insecure households that are female-headed households with children can be calculated as $(2,596/14,311) = 0.181$. Similarly, the share of food-insecure households that are married-couple households with children is $(2,040/14,311) = 0.143$.

In 7.1 percent of households with children, one or more child was food insecure in 2018 (table 3).¹⁹ Among household categories, the percentage of households with food-insecure children was lower in married-couple households (3.5 percent); White, non-Hispanic households (5.1 percent); households headed by non-Hispanics of other, or multiple, races (4.8 percent); households with incomes at or above 185 percent of the poverty line (2.9 percent); and metropolitan households located in suburbs and exurbs outside of principal cities (5.4 percent). The percentage of households with food-insecure children was higher for female-headed households (15.9 percent); Black, non-Hispanic households (14.8 percent); households with incomes below 185 percent of the poverty line (16.5 percent); and households in principal cities (9.1 percent).

Compared with the prevalence for all households with children (0.6 percent), very low food security among children was less prevalent in married-couple families (0.2 percent); in households headed by White, non-Hispanic adults (0.3 percent); and in households with incomes at or above 185 percent of the poverty line (0.3 percent). Very low food security among children was more prevalent in households headed by a single woman (1.7 percent); households headed by Black, non-Hispanic adults (1.4 percent); households with incomes below 185 percent of the poverty line (1.4 percent); and households located in principal cities (1.1 percent).

The prevalence of food insecurity declined from 2017 for a number of population subgroups (fig 5).²⁰ Food insecurity declined significantly for all households with children (from 15.7 percent in 2017 to 13.9 percent in 2018), households with children under age 6 (16.4 percent to 14.3 percent), married couples with children (9.5 percent to 8.3 percent), and households with children headed by single women (30.3 percent to 27.8 percent) and single men (from 19.7 percent to 15.9 percent). Food insecurity also declined in White, non-Hispanic households (8.8 percent to 8.1 percent), Hispanic households (18.0 percent to 16.2 percent), households with incomes below 185 percent of poverty (30.8 percent to 29.1 percent), metropolitan households (11.5 percent to 10.8 percent), and households in the South (13.4 percent to 12.0 percent). There were no statistically significant increases in food insecurity between 2017 and 2018.

The prevalence of very low food security (fig. 6) declined significantly from 2017 to 2018 among households with elderly (from 3.1 percent in 2017 to 2.6 percent in 2018); White, non-Hispanic households (3.6 percent to 3.2 percent); and households in the Midwest (4.8 percent to 3.9 percent). There was one statistically significant increase in very low food security from 2017 to 2018—very low food security in the Northeast increased from 3.3 percent to 4.2 percent.

¹⁹Households are classified as having food insecurity among children if they report two or more food-insecure conditions among children in response to questions 11-18 in box on page 4.

²⁰Estimates of food insecurity and very low food security for 2017 were published in *Household Food Security in the United States in 2017* (Coleman-Jensen et al., 2018).

Table 3

Prevalence of food security and food insecurity in households with children by selected household characteristics, 2018

| Category | Total ¹ | Food-secure households | | Food-insecure households ² | | Households with food-insecure children ³ | | Households with very low food security among children | |
|---|--------------------|------------------------|---------|---------------------------------------|---------|---|---------|---|---------|
| | | 1,000 | Percent | 1,000 | Percent | 1,000 | Percent | 1,000 | Percent |
| All households with children | 37,612 | 32,369 | 86.1 | 5,243 | 13.9 | 2,658 | 7.1 | 220 | 0.6 |
| Household composition: | | | | | | | | | |
| With children < 6 yrs | 16,306 | 13,967 | 85.7 | 2,339 | 14.3 | 1,091 | 6.7 | 63 | 0.4 |
| Married-couple families | 24,598 | 22,559 | 91.7 | 2,039 | 8.3 | 873 | 3.5 | 46 | 0.2 |
| Female head, no spouse | 9,349 | 6,752 | 72.2 | 2,597 | 27.8 | 1,483 | 15.9 | 162 | 1.7 |
| Male head, no spouse | 3,238 | 2,721 | 84.0 | 517 | 16.0 | 269 | 8.3 | NA | NA |
| Other household with child ⁴ | 427 | 337 | 78.9 | 90 | 21.1 | NA | NA | NA | NA |
| Race/ethnicity of households: | | | | | | | | | |
| White, non-Hispanic | 21,059 | 18,863 | 89.6 | 2,196 | 10.4 | 1,067 | 5.1 | 60 | 0.3 |
| Black, non-Hispanic | 5,136 | 3,840 | 74.8 | 1,296 | 25.2 | 759 | 14.8 | 72 | 1.4 |
| Hispanic ⁵ | 8,108 | 6,745 | 83.2 | 1,363 | 16.8 | 673 | 8.3 | 77 | 0.9 |
| Other, non-Hispanic | 3,310 | 2,922 | 88.3 | 388 | 11.7 | 159 | 4.8 | NA | NA |
| Household income-to-poverty ratio: | | | | | | | | | |
| Under 1.00 | 4,426 | 2,729 | 61.7 | 1,697 | 38.3 | 969 | 21.9 | 94 | 2.1 |
| Under 1.30 | 6,911 | 4,534 | 65.6 | 2,377 | 34.4 | 1,331 | 19.3 | 132 | 1.9 |
| Under 1.85 | 9,940 | 6,831 | 68.7 | 3,109 | 31.3 | 1,637 | 16.5 | 143 | 1.4 |
| 1.85 and over | 19,820 | 18,531 | 93.5 | 1,289 | 6.5 | 571 | 2.9 | 52 | 0.3 |
| Income unknown | 7,852 | 7,006 | 89.2 | 846 | 10.8 | 449 | 5.7 | NA | NA |
| Area of residence: ⁶ | | | | | | | | | |
| Inside metropolitan area | 32,534 | 28,131 | 86.5 | 4,403 | 13.5 | 2,253 | 6.9 | 205 | 0.6 |
| In principal cities ⁷ | 10,281 | 8,543 | 83.1 | 1,738 | 16.9 | 938 | 9.1 | 113 | 1.1 |
| Not in principal cities | 17,562 | 15,642 | 89.1 | 1,920 | 10.9 | 950 | 5.4 | 73 | 0.4 |
| Outside metropolitan area | 5,079 | 4,239 | 83.5 | 840 | 16.5 | 405 | 8.0 | NA | NA |
| Census geographic region: | | | | | | | | | |
| Northeast | 6,057 | 5,264 | 86.9 | 793 | 13.1 | 423 | 7.0 | NA | NA |
| Midwest | 7,901 | 6,751 | 85.4 | 1,150 | 14.6 | 554 | 7.0 | 52 | 0.7 |
| South | 14,561 | 12,361 | 84.9 | 2,200 | 15.1 | 1,121 | 7.7 | 67 | 0.5 |
| West | 9,093 | 7,994 | 87.9 | 1,099 | 12.1 | 560 | 6.2 | 68 | 0.7 |

NA = Not reported; fewer than 10 households in the survey with this characteristic had very low food security among children.

¹Totals exclude households for which food security status is unknown because they did not give a valid response to any of the questions in the food security scale. In 2018, these exclusions represented 152,000 households with children (0.4 percent of all households with children).

²Food-insecure households are those with low or very low food security among adults or children or both.

³In some food-insecure households with children, only adults were food insecure. Households with food-insecure children are those with low or very low food security among children.

⁴Households with children in complex living arrangements, e.g., children of other relatives or unrelated roommate or boarder.

⁵Hispanics may be of any race.

⁶Metropolitan area residence is based on 2013 Office of Management and Budget delineation. Prevalence rates by area of residence are comparable with those for 2014 and later but are not precisely comparable with those of earlier years.

⁷Households within incorporated areas of the largest cities in each metropolitan area. Residence inside or outside of principal cities is not identified for about 14 percent of households with children in metropolitan statistical areas.

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2018 Current Population Survey Food Security Supplement.

Prevalence of Food Insecurity by State

The prevalence of food insecurity varies considerably by State. In addition to household-level characteristics such as income, employment, and household structure, the prevalence of food insecurity is also affected by State-level characteristics, such as average wages, cost of housing, unemployment, and State-level policies that affect access to unemployment insurance, the State Earned Income Tax Credit, and nutrition assistance programs (Bartfeld et al., 2006; Bartfeld and Men, 2017). State-level estimates were obtained by averaging 3 years of data (2016-18) in order to have a larger sample size in each State to provide more reliable statistics (more precise estimates). Estimated prevalence rates of food insecurity during this 3-year period ranged from 7.8 percent in New Hampshire to 16.8 percent in New Mexico; estimated prevalence rates of very low food security ranged from 2.8 percent in New Hampshire to 6.8 percent in Alabama and Louisiana.²¹

The margin of error for State food insecurity rates should be considered when interpreting these statistics, especially when comparing prevalence rates across States. The margin of error reflects sampling variation—the uncertainty associated with estimates that are based on information from a limited number of households in each State.²² The margins of error presented in table 4 indicate the range (above or below the estimated prevalence rate) that is 90 percent likely to include the true prevalence rate. For example, considering the margins of error, it is not certain that the prevalence of very low food security was higher in Alabama and Louisiana than in the States with the next 14 highest prevalence rates.

Taking into account margins of error of the State and U.S. estimates, the prevalence of food insecurity was higher (i.e., statistically significantly higher) than the national average in 12 States (AL, AR, IN, KY, LA, MS, NC, NM, OH, OK, TX, and WV) and lower than the national average in 16 States (CA, CO, HI, IA, ID, MA, MN, MT, ND, NH, NJ, NY, VA, VT, WA, and WI).²³ In the remaining 22 States and the District of Columbia, differences from the national average were not statistically significant. The prevalence of very low food security was higher than the national average in 10 States (AL, AR, KS, LA, MS, NM, OH, OK, TX, and WV), lower than the national average in 11 States (CA, HI, ID, MA, MN, ND, NH, NJ, NY, VT, and WI), and not significantly different from the national average in 29 States and the District of Columbia.

State-level rates of food insecurity and very low food security for 2016-18 are compared with 2013-15 and 2006-08 averages in table 5. Prevalence rates for 2013-15 are from *Household Food Security in the United States in 2015* (Coleman-Jensen et al., 2016). The 2006-08 rates are from *Household Food Security in the United States, 2008* (Nord et al., 2009) and are presented as a baseline to assess changes in State-level food security conditions over the past decade.²⁴

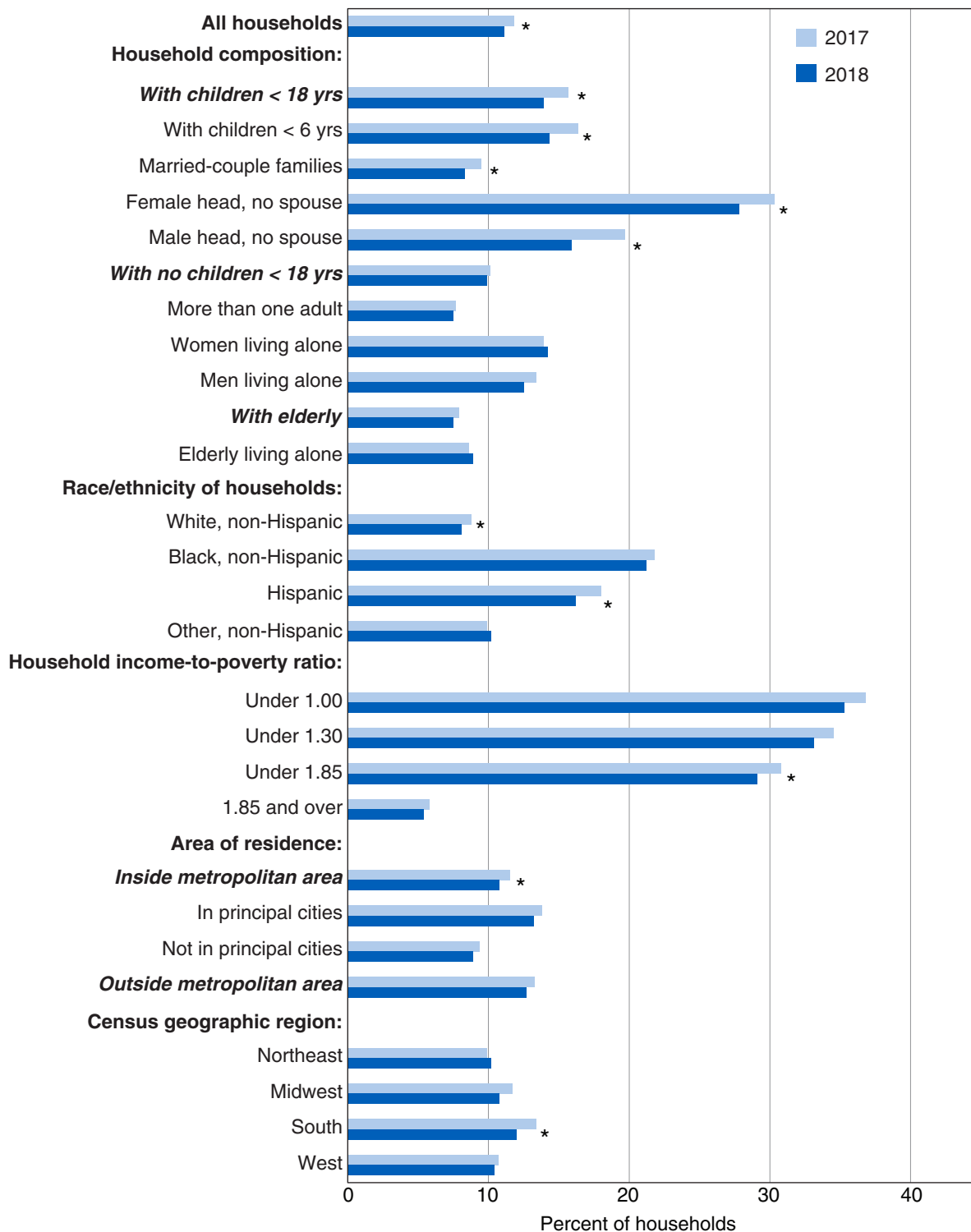
²¹A map of the States showing the prevalence of food insecurity for 2016-18 is available for download on the ERS website.

²²Margin of error is calculated as 1.645 times the standard error of the estimated prevalence rate. Standard errors were estimated using balanced repeated replication (BRR) methods based on replicate weights for the CPS Food Security Supplement.

²³Standard error of difference assumes that there is no correlation between national and individual State estimates.

²⁴Prevalence rates for 1996-98 reported in *Prevalence of Food Insecurity and Hunger, by State, 1996-1998* (Nord et al., 1999) are not directly comparable with the rates reported here because of differences in screening procedures in the CPS Food Security Supplements from 1995 to 1998. Statistics for 1996-98, adjusted to be comparable with those for recent years, are presented in *Statistical Supplement to Food Security in the United States in 2010*, table S-4 (Coleman-Jensen et al., 2011). Standard errors of State-level estimates for 2006-08 were calculated using jackknife replication methods with “month-in-sample” groups considered as separate independent samples (see Nord et al., 1999).

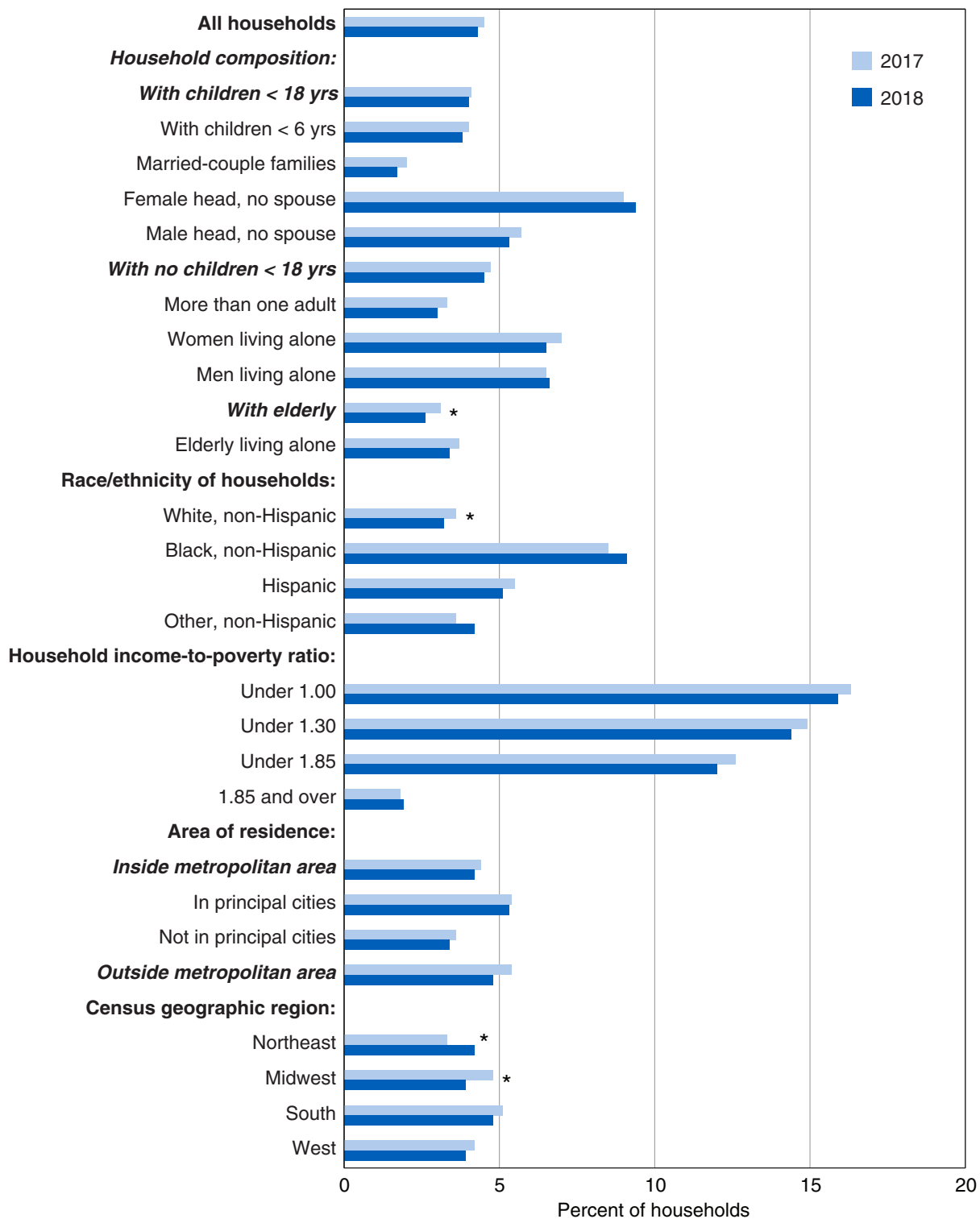
Figure 5
Prevalence of food insecurity, 2017 and 2018



*Change from 2017 to 2018 was statistically significant with 90-percent confidence ($t > 1.645$).

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2017 and 2018 Current Population Survey Food Security Supplement.

Figure 6
Prevalence of very low food security, 2017 and 2018



*Change from 2017 to 2018 was statistically significant with 90-percent confidence ($t > 1.645$).

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2017 and 2018 Current Population Survey Food Security Supplement

There were no statistically significant increases in the State-level prevalence of food insecurity from 2013-15 to 2016-18, while food insecurity declined significantly in 22 States (AK, AL, AR, AZ, CA, CO, GA, ID, LA, MO, MS, NC, NE, NH, NJ, NY, OH, OR, TN, TX, WA, and WI) and the District of Columbia (table 5). During the same period, the prevalence of very low food security declined significantly in 13 States (CA, CT, FL, GA, ID, MA, MO, MT, NH, NJ, NY, OR, and VT), with no statistically significant increases.

There was a statistically significant percentage-point increase in the prevalence of food insecurity from 2006-08 to 2016-18 in six States, with statistically significant declines in seven States and the District of Columbia. The prevalence of very low food security increased significantly from 2006-08 to 2016-18 in four States, with statistically significant declines in four States. Changes not marked as statistically significant (*) in table 5 were within ranges that could have resulted from sampling variation (that is, a non-zero difference between sample estimates, based on the households that happen to be chosen for the sample, which is consistent with no actual change in food security in the State's general population).

Table 4

Prevalence of household food insecurity and very low food security by State, average 2016-18

| States | Number of households | | Food insecurity (low or very low food security) | | Very low food security | |
|--------|---------------------------------|---------------|--|------------------------------|------------------------|------------------------------|
| | Average 2016-18 ¹ | Interviewed | Prevalence | Margin of error ² | Prevalence | Margin of error ² |
| | <i>Number</i> | <i>Number</i> | <i>Percent</i> | <i>Percentage points</i> | <i>Percent</i> | <i>Percentage points</i> |
| U.S. | 127,639,000 | 115,576 | 11.7 | 0.20 | 4.6 | 0.14 |
| AK | 267,000 | 1,351 | 10.8 | 1.72 | 4.3 | 1.00 |
| AL | 1,977,000 | 2,199 | 14.7 * | 1.86 | 6.8 * | 1.34 |
| AR | 1,235,000 | 2,012 | 15.1 * | 2.14 | 6.1 * | 1.31 |
| AZ | 2,699,000 | 1,906 | 12.4 | 1.37 | 5.1 | 0.99 |
| CA | 14,011,000 | 9,015 | 10.6 * | 0.70 | 3.9 * | 0.41 |
| CO | 2,377,000 | 1,269 | 9.1 * | 1.43 | 3.6 | 1.10 |
| CT | 1,426,000 | 1,045 | 12.4 | 2.13 | 4.2 | 1.35 |
| DC | 321,000 | 2,496 | 10.6 | 1.19 | 4.5 | 0.93 |
| DE | 377,000 | 1,238 | 10.5 | 1.87 | 4.5 | 1.20 |
| FL | 8,679,000 | 4,822 | 11.7 | 0.92 | 4.2 | 0.62 |
| GA | 4,023,000 | 2,693 | 11.3 | 1.62 | 3.8 | 0.77 |
| HI | 488,000 | 1,469 | 8.0 * | 1.43 | 3.2 * | 0.79 |
| IA | 1,323,000 | 1,451 | 9.2 * | 1.47 | 3.9 | 1.10 |
| ID | 639,000 | 1,904 | 9.8 * | 1.58 | 3.3 * | 0.78 |
| IL | 4,995,000 | 3,275 | 10.7 | 1.07 | 4.4 | 0.68 |
| IN | 2,708,000 | 1,843 | 13.5 * | 1.57 | 4.8 | 0.98 |
| KS | 1,160,000 | 1,576 | 13.8 | 2.39 | 6.2 * | 1.58 |
| KY | 1,763,000 | 1,549 | 14.7 * | 1.82 | 5.7 | 1.37 |
| LA | 1,859,000 | 2,697 | 15.8 * | 1.29 | 6.8 * | 0.94 |
| MA | 2,776,000 | 2,317 | 9.3 * | 1.24 | 3.2 * | 0.64 |
| MD | 2,322,000 | 1,367 | 11.1 | 1.85 | 5.2 | 1.36 |
| ME | 568,000 | 1,173 | 13.6 | 2.47 | 5.9 | 1.45 |
| MI | 4,080,000 | 2,556 | 12.9 | 1.53 | 5.3 | 1.02 |
| MN | 2,247,000 | 1,565 | 8.6 * | 2.05 | 3.3 * | 1.02 |
| MO | 2,494,000 | 1,807 | 12.0 | 1.96 | 4.4 | 1.05 |
| MS | 1,180,000 | 2,475 | 15.9 * | 1.79 | 6.3 * | 1.11 |
| MT | 449,000 | 2,394 | 10.3 * | 1.34 | 3.9 | 0.81 |
| NC | 4,203,000 | 2,575 | 13.9 * | 1.46 | 5.5 | 1.05 |
| ND | 319,000 | 1,852 | 8.8 * | 1.25 | 3.6 * | 0.82 |
| NE | 775,000 | 1,404 | 11.4 | 1.33 | 4.7 | 1.21 |
| NH | 537,000 | 1,622 | 7.8 * | 1.55 | 2.8 * | 0.84 |
| NJ | 3,411,000 | 2,142 | 8.5 * | 1.26 | 3.1 * | 0.69 |
| NM | 836,000 | 2,209 | 16.8 * | 1.84 | 5.8 * | 1.01 |
| NV | 1,131,000 | 1,433 | 12.9 | 1.82 | 5.4 | 1.27 |
| NY | 7,870,000 | 4,421 | 10.5 * | 0.95 | 3.8 * | 0.53 |
| OH | 4,728,000 | 3,230 | 13.2 * | 1.14 | 5.8 * | 0.84 |
| OK | 1,539,000 | 1,696 | 15.6 * | 2.08 | 6.1 * | 1.29 |
| OR | 1,691,000 | 1,740 | 11.1 | 1.62 | 4.8 | 1.16 |
| PA | 5,283,000 | 3,036 | 11.1 | 1.28 | 4.2 | 0.74 |
| RI | 434,000 | 1,089 | 11.0 | 2.01 | 4.7 | 1.32 |
| SC | 2,099,000 | 1,823 | 11.0 | 2.18 | 4.0 | 1.00 |
| SD | 352,000 | 1,449 | 10.9 | 1.80 | 4.8 | 1.23 |
| TN | 2,709,000 | 2,357 | 12.4 | 1.46 | 5.2 | 0.75 |
| TX | 10,384,000 | 6,053 | 14.0 * | 1.05 | 5.4 * | 0.71 |
| UT | 1,041,000 | 1,663 | 9.8 | 2.30 | 3.2 | 1.57 |
| VA | 3,260,000 | 2,178 | 10.1 * | 1.43 | 4.8 | 0.96 |
| VT | 264,000 | 1,704 | 9.6 * | 1.38 | 3.3 * | 0.81 |
| WA | 2,960,000 | 2,210 | 10.3 * | 1.29 | 4.0 | 0.87 |
| WI | 2,377,000 | 1,875 | 8.9 * | 1.15 | 3.4 * | 0.73 |
| WV | 758,000 | 2,567 | 15.7 * | 2.27 | 5.9 * | 1.01 |
| WY | 234,000 | 1,784 | 12.6 | 1.44 | 5.0 | 1.07 |

*Difference from U.S. average was statistically significant with 90-percent confidence ($t > 1.645$). Standard error of differences assumes that there is no correlation between national and individual State estimates.

¹Totals exclude households for which food security status is unknown because household respondents did not give a valid response to any of the questions in the food security scale. These exclusions represented about 0.3 percent of all households in 2016, 0.3 percent in 2017, and 0.3 percent in 2018.

²Margin of error with 90-percent confidence (1.645 times the standard error of the estimated prevalence rate). Standard errors were estimated using balanced repeated replication (BRR) methods based on replicate weights for the CPS Food Security Supplement.

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2016, 2017, and 2018 Current Population Survey Food Security Supplements.

Table 5

Change in prevalence of household food insecurity and very low food security by State, 2016-18 (average), 2013-15 (average), and 2006-08 (average)¹

| States | Food insecurity (low or very low food security) | | | | | Very low food security | | | | |
|--------|---|---------|-------------------|--------------------------|--------------------------|------------------------|-------------------|---------|--------------------------|--------------------------|
| | Average | Average | Average | Change | Change | Average | Average | Average | Change | Change |
| | 2016-18 | 2013-15 | 2006-08 | 2013-15 to 2016-18 | 2006-08 to 2016-18 | 2016-18 | 2013-15 | 2006-08 | 2013-15 to 2016-18 | 2006-08 to 2016-18 |
| | Percent | | Percentage points | | Percent | | Percentage points | | | |
| U.S. | 11.7 | 13.7 | 12.2 | -2.0* | -.5* | 4.6 | 5.4 | 4.6 | -0.8* | 0.0 |
| AK | 10.8 | 13.3 | 11.6 | -2.5* | -.8 | 4.3 | 4.4 | 4.4 | -.1 | -.1 |
| AL | 14.7 | 17.6 | 13.3 | -2.9* | 1.4 | 6.8 | 7.3 | 5.4 | -.5 | 1.4 |
| AR | 15.1 | 19.2 | 15.9 | -4.1* | -.8 | 6.1 | 7.4 | 5.6 | -1.3 | .5 |
| AZ | 12.4 | 14.9 | 13.2 | -2.5* | -.8 | 5.1 | 6.0 | 4.9 | -.9 | .2 |
| CA | 10.6 | 12.6 | 12.0 | -2.0* | -1.4* | 3.9 | 4.5 | 4.3 | -.6* | -.4 |
| CO | 9.1 | 12.1 | 11.6 | -3.0* | -2.5* | 3.6 | 5.1 | 5.0 | -1.5 | -1.4* |
| CT | 12.4 | 13.1 | 11.0 | -.7 | 1.4 | 4.2 | 6.3 | 4.1 | -2.1* | .1 |
| DC | 10.6 | 13.2 | 12.4 | -2.6* | -1.8* | 4.5 | 4.8 | 4.2 | -.3 | .3 |
| DE | 10.5 | 11.9 | 9.4 | -1.4 | 1.1 | 4.5 | 3.2 | 3.7 | 1.3 | .8 |
| FL | 11.7 | 12.7 | 12.2 | -1.0 | -.5 | 4.2 | 5.4 | 4.9 | -1.2* | -.7 |
| GA | 11.3 | 14.9 | 14.2 | -3.6* | -2.9* | 3.8 | 5.6 | 5.4 | -1.8* | -1.6* |
| HI | 8.0 | 9.7 | 9.1 | -1.7 | -1.1 | 3.2 | 3.0 | 3.0 | .2 | .2 |
| IA | 9.2 | 10.6 | 11.6 | -1.4 | -2.4* | 3.9 | 4.5 | 4.8 | -.6 | -.9 |
| ID | 9.8 | 13.8 | 11.4 | -4.0* | -1.6 | 3.3 | 5.1 | 3.9 | -1.8* | -.6 |
| IL | 10.7 | 11.1 | 11.1 | -.4 | -.4 | 4.4 | 4.3 | 4.1 | .1 | .3 |
| IN | 13.5 | 14.8 | 11.2 | -1.3 | 2.3* | 4.8 | 6.1 | 4.3 | -1.3 | .5 |
| KS | 13.8 | 14.6 | 13.8 | -.8 | .0 | 6.2 | 5.5 | 4.8 | .7 | 1.4 |
| KY | 14.7 | 17.6 | 12.6 | -2.9 | 2.1 | 5.7 | 7.3 | 4.4 | -1.6 | 1.3 |
| LA | 15.8 | 18.4 | 11.0 | -2.6* | 4.8* | 6.8 | 7.7 | 3.7 | -.9 | 3.1* |
| MA | 9.3 | 9.7 | 8.3 | -.4 | 1.0 | 3.2 | 4.5 | 3.8 | -1.3* | -.6 |
| MD | 11.1 | 10.7 | 9.6 | .4 | 1.5 | 5.2 | 3.8 | 3.4 | 1.4 | 1.8* |
| ME | 13.6 | 15.8 | 13.7 | -2.2 | -.1 | 5.9 | 7.4 | 6.4 | -1.5 | -.5 |
| MI | 12.9 | 14.9 | 12.0 | -2.0 | .9 | 5.3 | 6.4 | 4.4 | -1.1 | .9 |
| MN | 8.6 | 9.9 | 10.3 | -1.3 | -1.7 | 3.3 | 3.8 | 4.1 | -.5 | -.8 |
| MO | 12.0 | 15.2 | 14.0 | -3.2* | -2.0 | 4.4 | 6.7 | 5.8 | -2.3* | -1.4 |
| MS | 15.9 | 20.8 | 17.4 | -4.9* | -1.5 | 6.3 | 7.9 | 7.4 | -1.6 | -1.1 |
| MT | 10.3 | 12.2 | 10.9 | -1.9 | -.6 | 3.9 | 5.6 | 4.4 | -1.7* | -.5 |
| NC | 13.9 | 15.9 | 13.7 | -2.0* | .2 | 5.5 | 6.2 | 4.4 | -.7 | 1.1 |
| ND | 8.8 | 8.5 | 6.9 | .3 | 1.9* | 3.6 | 2.9 | 2.6 | .7 | 1.0 |
| NE | 11.4 | 14.8 | 10.4 | -3.4* | 1.0 | 4.7 | 5.6 | 4.0 | -.9 | .7 |
| NH | 7.8 | 10.1 | 8.5 | -2.3* | -.7 | 2.8 | 4.3 | 3.1 | -1.5* | -.3 |
| NJ | 8.5 | 11.1 | 10.3 | -2.6* | -1.8* | 3.1 | 4.7 | 3.4 | -1.6* | -.3 |
| NM | 16.8 | 14.4 | 14.1 | 2.4 | 2.7* | 5.8 | 5.7 | 4.6 | .1 | 1.2 |
| NV | 12.9 | 14.2 | 12.4 | -1.3 | .5 | 5.4 | 5.6 | 4.6 | -.2 | .8 |
| NY | 10.5 | 14.1 | 11.3 | -3.6* | -.8 | 3.8 | 4.9 | 4.3 | -1.1* | -.5 |
| OH | 13.2 | 16.1 | 13.3 | -2.9* | -.1 | 5.8 | 6.6 | 5.2 | -.8 | .6 |
| OK | 15.6 | 15.5 | 14.0 | .1 | 1.6 | 6.1 | 6.4 | 5.9 | -.3 | .2 |
| OR | 11.1 | 16.1 | 13.1 | -5.0* | -2.0 | 4.8 | 6.6 | 6.6 | -1.8* | -1.8* |
| PA | 11.1 | 12.4 | 11.2 | -1.3 | -.1 | 4.2 | 4.8 | 4.2 | -.6 | .0 |
| RI | 11.0 | 11.8 | 11.7 | -.8 | -.7 | 4.7 | 5.0 | 4.2 | -.3 | .5 |
| SC | 11.0 | 13.2 | 13.1 | -2.2 | -2.1 | 4.0 | 4.6 | 5.2 | -.6 | -1.2 |
| SD | 10.9 | 11.5 | 10.3 | -.6 | .6 | 4.8 | 4.5 | 4.1 | .3 | .7 |
| TN | 12.4 | 15.1 | 13.5 | -2.7* | -1.1 | 5.2 | 6.0 | 4.6 | -.8 | .6 |
| TX | 14.0 | 15.4 | 16.3 | -1.4* | -2.3* | 5.4 | 6.0 | 5.7 | -.6 | -.3 |
| UT | 9.8 | 11.9 | 11.2 | -2.1 | -1.4 | 3.2 | 4.5 | 4.5 | -1.3 | -1.3 |
| VA | 10.1 | 9.8 | 8.6 | .3 | 1.5 | 4.8 | 4.3 | 3.3 | .5 | 1.5* |
| VT | 9.6 | 11.4 | 12.1 | -1.8 | -2.5* | 3.3 | 5.1 | 5.7 | -1.8* | -2.4* |
| WA | 10.3 | 12.9 | 11.1 | -2.6* | -.8 | 4.0 | 4.8 | 4.3 | -.8 | -.3 |
| WI | 8.9 | 11.3 | 10.1 | -2.4* | -1.2 | 3.4 | 4.7 | 3.7 | -1.3 | -.3 |
| WV | 15.7 | 15.0 | 12.0 | .7 | 3.7* | 5.9 | 6.2 | 4.5 | -.3 | 1.4 |
| WY | 12.6 | 13.2 | 9.2 | -.6 | 3.4* | 5.0 | 5.3 | 2.9 | -.3 | 2.1* |

*Change was statistically significant with 90-percent confidence ($t > 1.645$).

¹Percentages exclude households for which food security status is unknown because household respondents did not give a valid response to any of the questions in the food security scale.

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, Current Population Survey Food Security Supplements.

Household Spending on Food

Food insecurity is a condition that arises from lack of money and other resources to acquire food. In most households, the majority of food consumed by household members is purchased, either from supermarkets or grocery stores, to be prepared and eaten at home; some food also comes from cafeterias, restaurants, or vending machines to be eaten outside the home. The amount of money a household spends on food thus indicates how adequately the household is meeting its food needs.²⁵ When a household reduces food spending below some minimum level, such as USDA's Thrifty Food Plan, because of constrained resources, disrupted eating patterns and reduced food intake may result. This section provides information on how much households spent on food, as reported in the December 2018 Food Security Supplement.

Methods

The household food expenditure statistics in this report are based on usual weekly spending for food, as reported by respondents after reflecting on the household's actual food spending during the previous week. Respondents were first asked to report the amounts of money their households had spent on food in the week prior to the interview, including any purchases made with SNAP benefits (Supplemental Nutrition Assistance Program, formerly called food stamps) at:

- supermarkets and grocery stores;
- stores other than supermarkets and grocery stores, such as meat markets, produce stands, bakeries, warehouse clubs, and convenience stores;
- restaurants, fast-food places, cafeterias, and vending machines; and
- "...any other kind of place."²⁶

Total spending for food, based on responses to this series of questions, was verified with the respondent, and the respondent was then asked how much the household usually spent on food during a week.²⁷ ERS analyses have shown that usual food expenditures estimated from data collected by this method were consistent with estimates from the Consumer Expenditure Survey (CES)—the

²⁵Food spending is only an indirect indicator of food consumption. It understates food consumption in households that receive food from in-kind programs, such as the National School Lunch and School Breakfast Programs, WIC, meal programs for children in childcare and for the elderly, and private charitable organizations. Purchases with SNAP benefits, however, are counted as food spending in the CPS Food Security Supplement. Food spending also understates food consumption in households that acquire a substantial part of their food supply through gardening, hunting, or fishing, as well as in households that obtain groceries from friends or relatives or eat more meals at friends' or relatives' homes than they provide to friends or relatives. Food spending also understates food consumption in geographical areas with relatively low food prices and overstates consumption in areas with relatively high food prices.

²⁶For spending in the first two categories of stores, respondents were also asked how much of the amount was for "non-food items, such as pet food, paper products, alcohol, detergents, or cleaning supplies." These amounts are subtracted from total spending at each of these stores to arrive at spending for food.

²⁷Beginning with the 2015 Current Population Survey Food Security Supplement, food-spending amounts are categorized in public-use data. Categorizing the dollar amounts reduces the risk of disclosure and is now standard for data collected by the U.S. Census Bureau. ERS analysis suggests this change has little effect on the estimates of median food spending reported in the annual food security reports. The tables presented in this section are based on the categorical food-spending data and are comparable to the 2016 estimates but are not precisely comparable with estimates published in prior annual food security reports. Changes in food spending from 2017 described in the text are based on comparable estimates of 2017 categorical food-spending data published in Coleman-Jensen et al. (2018).

principal source of data on U.S. household expenditures for goods and services (Oliveira and Rose, 1996; Nord, 2009b).

Usual food spending was adjusted for household size and composition in two ways. First, we divided each household's usual weekly food expenditure by the number of household members, yielding the "usual weekly food spending per person" for that household. The second adjustment accounts more precisely for the different food needs of households by comparing each household's usual food spending to the estimated cost of the Thrifty Food Plan for that household in December 2018.²⁸ USDA's Thrifty Food Plan (TFP) serves as a national standard for a nutritious, minimal-cost diet. It represents a set of "market baskets" of food that people in specific age and gender categories could consume at home to maintain a healthful diet that meets current dietary standards, taking into account the food consumption patterns of U.S. households (U.S. Department of Agriculture, Center for Nutrition Policy and Promotion, 2007).²⁹ Each household's reported usual weekly food spending was divided by the household-specific cost of the TFP, based on the age- and gender-specific cost of the TFP for each household member and the number of persons in the household (U.S. Department of Agriculture, Center for Nutrition Policy and Promotion, 2019).³⁰

The medians of each of the two food-spending measures (spending per person per week and total spending relative to the cost of the TFP) were estimated at the national level and for households in various categories. Medians are reported rather than averages (means) because medians are not unduly affected by the few unexpectedly high values of usual food spending that are believed to be reporting or data entry errors. Thus, the median better reflects what a typical household spent.

About 7.3 percent of households interviewed in the CPS Food Security Supplement did not respond to the food-spending questions (or reported zero usual food spending) and were excluded from the analysis. As a result, the total number of households represented in tables 6 and 7 is smaller than in tables 1 and 2, and food-spending estimates may not be fully representative of all households in the United States.³¹

Food Expenditures by Selected Household Characteristics

In 2018, the typical U.S. household spent \$50.00 per person each week for food (table 6). Median household food spending relative to the cost of the TFP—which adjusts for food price inflation and adjusts more precisely for the food needs of persons in different age-gender categories—was 1.27, up from 1.24 in 2017 (Coleman-Jensen et al., 2018). That is, in 2018, the typical household spent 27 percent more on food than the cost of the TFP for that household.

²⁸The cost of the TFP is revised each month to account for inflation in food prices. For this report, TFP costs are estimated by ERS separately for Alaska and Hawaii, using adjustment factors calculated from USDA's TFP costs for those States for the second half of 2018. USDA's TFP costs for Alaska and Hawaii are available on USDA's Center for Nutrition Policy and Promotion website.

²⁹The TFP, in addition to its use as a research tool, is used as a basis for setting the maximum SNAP benefit amounts (U.S. Department of Agriculture, Center for Nutrition Policy and Promotion, 2007).

³⁰The cost of a TFP for a household is calculated under the assumption that all food purchased by household members is shared.

³¹Households that were unable or unwilling to report food spending were less likely to be food insecure than those that did report food spending (8.2 percent compared with 12.1 percent). Food spending may, therefore, be slightly underestimated from these data.

Table 6

Weekly household food spending per person and relative to the household cost of the Thrifty Food Plan (TFP), 2018

| Category | Number of households ¹ | Median weekly food spending | |
|---|-----------------------------------|-----------------------------|-------------------------|
| | | Per person | Relative to cost of TFP |
| | <i>1,000</i> | <i>Dollars</i> | <i>Ratio</i> |
| All households | 118,469 | 50.00 | 1.27 |
| Household composition: | | | |
| With children < 18 yrs | 35,304 | 40.00 | 1.15 |
| At least one child < 6 yrs | 15,493 | 37.50 | 1.15 |
| Married-couple families | 23,189 | 41.67 | 1.17 |
| Female head, no spouse | 8,695 | 40.00 | 1.09 |
| Male head, no spouse | 3,002 | 41.67 | 1.12 |
| Other household with child ² | 417 | 40.00 | 1.08 |
| With no children < 18 yrs | 83,166 | 60.00 | 1.33 |
| More than one adult | 49,822 | 50.00 | 1.24 |
| Women living alone | 17,980 | 60.00 | 1.35 |
| Men living alone | 15,363 | 80.00 | 1.56 |
| With elderly | 34,829 | 50.00 | 1.19 |
| Elderly living alone | 12,922 | 60.00 | 1.33 |
| Race/ethnicity of households: | | | |
| White, non-Hispanic | 78,445 | 55.00 | 1.33 |
| Black, non-Hispanic | 14,923 | 50.00 | 1.11 |
| Hispanic ³ | 16,501 | 46.67 | 1.13 |
| Other, non-Hispanic | 8,601 | 50.00 | 1.23 |
| Household income-to-poverty ratio: | | | |
| Under 1.00 | 11,287 | 40.00 | 1.06 |
| Under 1.30 | 15,921 | 40.00 | 1.04 |
| Under 1.85 | 25,223 | 40.00 | 1.07 |
| 1.85 and over | 67,428 | 60.00 | 1.42 |
| Income unknown | 25,818 | 50.00 | 1.19 |
| Area of residence: ⁴ | | | |
| Inside metropolitan area | 101,576 | 50.00 | 1.30 |
| In principal cities ⁵ | 34,321 | 55.00 | 1.32 |
| Not in principal cities | 51,257 | 50.00 | 1.31 |
| Outside metropolitan area | 16,894 | 50.00 | 1.13 |
| Census geographic region: | | | |
| Northeast | 20,274 | 55.00 | 1.33 |
| Midwest | 25,644 | 50.00 | 1.19 |
| South | 45,667 | 50.00 | 1.23 |
| West | 26,884 | 53.33 | 1.33 |

¹Totals exclude households that did not answer the questions about spending on food or reported zero usual food spending. These exclusions represented 8.6 percent of all households.

²Households with children in complex living arrangements, e.g., children of other relatives or unrelated roommate or boarder.

³Hispanics may be of any race.

⁴Metropolitan area residence is based on 2013 Office of Management and Budget delineation.

⁵Households within incorporated areas of the largest cities in each metropolitan area. Residence inside or outside of principal cities is not identified for about 15 percent of households in metropolitan statistical areas.

Note: These estimates are based on categorical food spending data rather than on continuous data that were used in 2014 and earlier years. Beginning with the 2015 Current Population Survey Food Security Supplement, food spending amounts are categorized in public-use data. ERS analysis suggests that this change has little effect on the estimates of median food spending reported here.

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2018 Current Population Survey Food Security Supplement.

Table 7

Weekly household food spending per person and relative to the cost of the Thrifty Food Plan (TFP) by food security status, 2018

| Category | Number of households ¹ | Median weekly food spending | |
|--|-----------------------------------|-----------------------------|-------------------------|
| | | Per person | Relative to cost of TFP |
| | <i>1,000</i> | <i>Dollars</i> | <i>Ratio</i> |
| All households | 118,469 | 50.00 | 1.27 |
| Food security status: | | | |
| Food-secure households | 104,787 | 50.00 | 1.31 |
| Food-insecure households | 13,467 | 43.33 | 1.08 |
| Households with low food security | 8,225 | 41.67 | 1.09 |
| Households with very low food security | 5,242 | 46.67 | 1.08 |

¹Total for all households excludes households that did not answer the questions about spending on food or reported zero usual spending for food. These represented 8.6 percent of all households. Totals in the bottom section also exclude households that did not answer any of the questions in the food security scale.

Note: These estimates are based on categorical food spending data rather than on continuous data that were used in 2014 and earlier years. Beginning with the 2015 Current Population Survey Food Security Supplement, food spending amounts are categorized in public-use data. ERS analysis suggests that this change has little effect on the estimates of median food spending reported here.

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2018 Current Population Survey Food Security Supplement.

Households with children under age 18 generally spent less for food, relative to the household cost of the TFP, than those without children. The typical household with children spent 15 percent more than the cost of the TFP on food, while the typical household with no children spent 33 percent more. Median household food expenditures relative to the cost of the TFP were lower for households with children headed by single women (1.09) than for married couples with children (1.17). Median food expenditures relative to the cost of the TFP were highest for men living alone (1.56).

Median food expenditures relative to the cost of the TFP were lower (than the national average) for Black non-Hispanic (1.11) and Hispanic households (1.13) than for White non-Hispanic households (1.33). This pattern is consistent with the lower average incomes and higher prevalence rates of food insecurity for these racial and ethnic minorities.

As expected, households with higher incomes spent more money on food than did lower income households.³² The typical household with income below the poverty line spent about 6 percent more than the cost of the TFP, while the typical household with income at or above 185 percent of the poverty line spent 42 percent more than the cost of the TFP.

Median food spending relative to the cost of the TFP was lower for households in nonmetropolitan areas (1.13) than for those inside metropolitan statistical areas (1.30). Regionally, median spending on food relative to the cost of the TFP was lowest in the Midwest (1.19), followed by the South (1.23), and highest in the West (1.33) and Northeast (1.33).

³²However, food spending does not rise proportionately with income, so high-income households actually spend a smaller proportion of their income on food than low-income households.

Food Expenditures and Household Food Security

Food-secure households typically spent more on food than did food-insecure households. Median food spending relative to the cost of the TFP was 1.31 among food-secure households in 2018, compared with 1.08 among food-insecure households (table 7). Thus, taking into account estimated food need, the median food-secure household spent 21 percent more for food than the median food-insecure household (estimated as $1.31/1.08=1.21$).³³

³³The pattern of higher food spending among food-secure households compared with food-insecure households was also found in USDA's National Food Acquisition and Purchase Survey (FoodAPS) data (Tiehen et al., 2017).

Federal Food and Nutrition Assistance Programs and Food Security

Households with limited resources use a variety of methods to help meet their food needs. Some participate in Federal food and nutrition assistance programs or obtain food from emergency providers in their communities to supplement the food they purchase. Households that turn to Federal and community food and nutrition assistance programs typically do so because they are having difficulty meeting their food needs. The use of such programs by low-income households provides insight into the extent of these households' difficulties in obtaining enough food. The relationship between food security status and use of food and nutrition assistance programs also provides insight into the ways low-income households cope with difficulties in acquiring adequate food.

This section presents information about the food security status of households that participated in the three largest Federal food and nutrition assistance programs: SNAP, the National School Lunch Program, and WIC (see box, "Federal Food and Nutrition Assistance Programs," p. 31). It also provides information about the extent to which food-insecure households participated in these programs. Total participation in the Federal food and nutrition assistance programs, participation rates of eligible households in those programs, and characteristics of participants in the programs are not described in this report. Extensive information on those topics is available from USDA's Food and Nutrition Service (FNS).³⁴

Statistical Supplement tables S-11 to S-16 provide information on food spending by participants and low-income nonparticipants in selected Federal and community food and nutrition assistance programs and about the extent to which households obtained assistance from community food pantries and emergency kitchens (Coleman-Jensen et al., 2019).

Statistical Supplement tables S-11 to S-16 provide information on food spending by participants and low-income nonparticipants in selected Federal and community food and nutrition assistance programs and about the extent to which households obtained assistance from community food pantries and emergency kitchens (Coleman-Jensen et al., 2019).

Methods

The December 2018 CPS Food Security Supplement included questions about the use of Federal food and nutrition assistance programs. All households with reported annual incomes below 185 percent of the Federal poverty threshold were asked these questions. To minimize respondent burden, households with annual incomes above that range were not asked the questions unless they indicated some level of difficulty in meeting their food needs on the first of the two preliminary screener questions asked of all households (listed in footnote 7, p. 3). Therefore, these analyses were restricted to households with annual incomes below 185 percent of the poverty line because most households with incomes above this range were not asked whether they participated in these programs.

³⁴Additional research findings on the operation and effectiveness of these programs are available from the ERS website.

Federal Food and Nutrition Assistance Programs

The U.S. Department of Agriculture's Food and Nutrition Service (FNS) administers 15 domestic food and nutrition assistance programs. The three largest programs are:

- *The Supplemental Nutrition Assistance Program (SNAP)*, formerly the Food Stamp Program. The program provides monthly benefits to eligible low-income households to purchase food items at SNAP-authorized retailers. SNAP is available to all individuals who meet financial and nonfinancial eligibility criteria. In an average month of fiscal year 2018 (October 1, 2017, through September 30, 2018), SNAP provided benefits to 40.4 million people in the United States (about 12 percent of individuals). The average benefit was about \$126 per person per month, and Federal expenditures for the program were \$65 billion that year.
- *The National School Lunch Program*. The program operates in over 100,000 public and nonprofit private schools and residential childcare institutions. All meals served under the program receive Federal subsidies, and free or reduced-price lunches are available to low-income students. In fiscal year 2018, the program provided lunches to an average of 29.7 million children each school day. About two-thirds (68 percent) of the lunches served in 2018 were free, and an additional 6 percent were provided at reduced prices.
- *The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)*. The program is a federally funded preventive nutrition program that provides grants to States to support distribution of supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and nonbreastfeeding postpartum women; for infants in low-income families; and for children younger than age 5 in low-income families and who are found to be at nutritional risk. Most State WIC agencies provide vouchers that participants use to acquire supplemental food packages at authorized food stores. In fiscal year 2018, WIC served 6.9 million participants per month at an average monthly cost for food (after rebates to WIC from manufacturers) of about \$41 per person.

(FNS Program data accessed from FNS website on May 8, 2019; for more information, see Oliveira, 2019.)

Three questions are used to determine whether respondents participated in SNAP in the 30 days before the survey interview. The questions analyzed in this section regarding SNAP participation are:

- During the past 12 months, since December of last year, did anyone in this household get SNAP or food stamp benefits?³⁵

Households that responded affirmatively were then asked:

- In which months of 2018 were SNAP or food stamp benefits received?

³⁵The Food Stamp Program was renamed the Supplemental Nutrition Assistance Program (SNAP) in October 2008. Both names were mentioned in the survey question, as well as the State's name for the program in States that used a different name.

Households that reported participation in November, but not December, were then asked:

- On what date in November did your household receive SNAP or food stamp benefits?

Information from the three questions was used to identify households that received SNAP benefits in the 30 days prior to the survey, which is from mid-November to mid-December 2018.³⁶

Questions about the National School Lunch Program and WIC are also analyzed here. These questions are:

- During the past 30 days, did any children in the household (between 5 and 18 years old) receive free or reduced-price lunches at school? (Only households with children between the ages of 5 and 18 were asked this question.)
- During the past 30 days, did any women or children in this household get food through the WIC program? (Only households with a child under age 5 or a woman age 15-45 were asked this question.)

Prevalence rates of food security, food insecurity, and very low food security were calculated for households reporting use of each food and nutrition assistance program and for comparison groups of nonparticipating households with incomes and household compositions similar to those of food assistance recipients. Statistics for participating households excluded households with annual incomes above the ranges specified for the comparison groups.³⁷ The proportions of food-insecure households participating in each of the three largest Federal food and nutrition assistance programs—SNAP, the National School Lunch Program, and WIC—were calculated, as well as the proportion that participated in any of the three programs.

Food Security of Households That Received Food and Nutrition Assistance

The relationship between food security and the use of food and nutrition assistance programs is complex. Households that report using food and nutrition assistance programs in a one-time survey can either be more food secure or less food secure than low-income households not using those programs. Since the programs provide food and other resources to reduce the severity of food insecurity, households are expected to be more food secure after receiving program benefits than they were before. On the other hand, it is the more food-insecure households—those having greater difficulty meeting their food needs—that seek assistance from the programs. Data confirm this self-selection into nutrition assistance programs.³⁸ In 2018, an estimated 47.5 percent of households that

³⁶The CPS household does not always match the SNAP unit. In some households, only some members are eligible for SNAP (Czajka et al., 2012; Scherpf et al., 2015).

³⁷Some program participants reported annual incomes that were higher than 12 times the program eligibility criteria, which are based on monthly income (relative to poverty). They may have had monthly incomes below the monthly eligibility threshold during part of the year, or subfamilies within the household may have had incomes low enough to have been eligible.

³⁸This “self-selection” effect is evident in the association between food security and food program participation observed in the food security survey. Participating households were less food secure than similar nonparticipating households. Research that uses methods to account for this self-targeting is required to assess the extent to which the programs improve food security (see Gregory et al., 2015, for a review of this literature and these methods; also see Mabli et al., 2013; Nord, 2013; Nord, 2012; Nord and Prell, 2011; Ratcliffe and McKernan, 2011; Nord and Golla, 2009; Yen et al., 2008; Wilde and Nord, 2005; Gundersen and Oliveira, 2001; Gundersen and Gruber, 2001; Nelson et al., 1998). Overall, these studies find that SNAP improves food security.

received SNAP benefits were food insecure, as were 39.5 percent of households that received free or reduced-price school lunches and 36.9 percent of those that received WIC benefits (table 8).

The prevalence of very low food security among households participating in SNAP was more than double that of nonparticipating households in the same low-income range (21.7 percent versus 9.4 percent). For households that received free or reduced-price school lunches, the prevalence of very low food security was nearly triple that of nonparticipating households with school-age children in the same income range (13.0 percent versus 4.5 percent). Very low food security was also more prevalent among WIC recipient households (12.3 percent) than similar non-WIC households (6.6 percent).

A possible complicating factor in interpreting table 8 is that food insecurity was measured over a 12-month period, while program participation is measured over a 30-day period. An episode of food insecurity may have occurred at a different time during the year than the use of a specific food and nutrition assistance program. A similar tabulation using a 30-day measure of food insecurity largely overcomes this potential problem because measured food insecurity and reported use of food and nutrition assistance programs both are referenced to the previous 30 days. That tabulation shows patterns of food insecurity and the use of food and nutrition assistance programs that are similar to those using the 12-month food insecurity measure in table 8, although 30-day food insecurity prevalence rates were lower than the corresponding 12-month rates (see Statistical Supplement table S-15, Coleman-Jensen et al., 2019).

Participation in Federal Food and Nutrition Assistance Programs by Food-Insecure Households

About 56 percent of food-insecure households reported receiving assistance from one or more of the three largest Federal food and nutrition assistance programs during the month prior to the December 2018 food security survey (table 9). SNAP provided assistance to 41.2 percent of food-insecure households, children in 28.2 percent of food-insecure households received free or reduced-price school lunches, and women or children in 8.1 percent of food-insecure households received WIC food vouchers.³⁹ An estimated 56.5 percent of households classified as having very low food security reported participating in one or more of the three largest Federal food and nutrition assistance programs, with the largest share (45.7 percent) participating in SNAP.⁴⁰

³⁹These statistics may be biased downward. It is known from comparisons between household survey data and administrative records that food program participation is underreported by household survey respondents, including those in the CPS (Meyer and George, 2011; Parker, 2011; Meyer et al., 2009; Meyer et al., 2015; Meyer and Mittag, 2019). This is probably true for food-insecure households as well, although the extent of underreporting by these households is not known. Statistics are based on the subsample of households with annual incomes below 185 percent of the poverty line. Not all of these households were eligible for certain programs. (For example, many households without pregnant women or children and with incomes above 130 percent of poverty would not have been eligible for any of the programs.)

⁴⁰The statistics in table 9 were also calculated for households that were food insecure during the 30-day period prior to the survey. In principle, that analysis is preferable because food security status and use of programs are more certainly contemporaneous than when food insecurity is assessed over a 12-month period. However, the results differed only slightly from those in table 9 and are not presented in a separate table. In 2018, an estimated 58.5 percent of households that were food insecure during the 30-day period prior to the survey participated in SNAP, free or reduced-price school lunch, or WIC during that same period. Among households that experienced very low food security in the 30-day period prior to the survey, 59.7 percent participated in SNAP, free or reduced-price school lunch, or WIC during that same period.

Table 8

Percentage of households by food security status and participation in selected Federal food and nutrition assistance programs, 2018

| Category | Food secure | Food insecure | | |
|--|-------------|---------------|------------------------|-----------------------------|
| | | All | With low food security | With very low food security |
| <i>Percent</i> | | | | |
| Income less than 130 percent of poverty line: | | | | |
| Received SNAP ¹ benefits previous 12 months | 52.5 | 47.5 | 25.8 | 21.7 |
| Received SNAP benefits all 12 months | 54.2 | 45.8 | 24.6 | 21.2 |
| Received SNAP benefits 1 to 11 months | 48.4 | 51.6 | 28.6 | 23.0 |
| Did not receive SNAP benefits previous 12 months | 76.7 | 23.3 | 13.9 | 9.4 |
| Income less than 185 percent of poverty line; school-age children in household: | | | | |
| Received free or reduced-price school lunch previous 30 days | 60.5 | 39.5 | 26.5 | 13.0 |
| Did not receive free or reduced-price school lunch previous 30 days | 80.4 | 19.6 | 15.1 | 4.5 |
| Income less than 185 percent of poverty line; children under age 5 in household: | | | | |
| Received WIC ² previous 30 days | 63.1 | 36.9 | 24.5 | 12.3 |
| Did not receive WIC previous 30 days | 74.9 | 25.1 | 18.5 | 6.6 |

¹SNAP = Supplemental Nutrition Assistance Program, formerly the Food Stamp Program.

²WIC = Special Supplemental Nutrition Assistance Program for Women, Infants, and Children.

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2018 Current Population Survey Food Security Supplement.

Table 9

Participation of food-insecure households in selected Federal food and nutrition assistance programs, 2018

| Program | Share of food-insecure households that participated in the program during the previous 30 days ^{1,2} | Share of households with very low food security that participated in the program during the previous 30 days ^{1,2} |
|------------------------------------|---|---|
| <i>Percent</i> | | |
| SNAP ³ | 41.2 | 45.7 |
| Free or reduced-price school lunch | 28.2 | 22.5 |
| WIC ⁴ | 8.1 | 6.4 |
| Any of the three programs | 56.0 | 56.5 |
| None of the three programs | 44.0 | 43.5 |

¹Analysis is restricted to households with annual incomes less than 185 percent of the poverty line because most households with incomes above that range were not asked whether they participated in food assistance programs.

²These statistics understate the extent of food and nutrition program participation because program participation is underreported by household survey respondents, see footnote 39.

³SNAP = Supplemental Nutrition Assistance Program, formerly the Food Stamp Program.

⁴WIC = Special Supplemental Nutrition Assistance Program for Women, Infants, and Children.

Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, 2018 Current Population Survey Food Security Supplement.

References

- Anderson, S.A. (ed.). 1990. "Core Indicators of Nutritional State for Difficult-To-Sample Populations," *Journal of Nutrition* 120(11S):1557-1600. Report by the Life Sciences Research Office, Federation of American Societies for Experimental Biology, for the American Institute of Nutrition.
- Andrews, Margaret, Gary Bickel, and Steven Carlson. 1998. "Household Food Security in the United States in 1995: Results From the Food Security Measurement Project," *Family Economics and Nutrition Review* 11(1&2):17-28, U.S. Department of Agriculture, Center for Nutrition Policy and Promotion.
- Bartfeld, Judi, Rachel Dunifon, Mark Nord, and Steven Carlson. 2006. *What Factors Account for State-to-State Differences in Food Security?* EIB-20, U.S. Department of Agriculture, Economic Research Service.
- Bartfeld, Judi, and Fei Men. 2017. "Food Insecurity Among Households with Children: The Role of the State Economic and Policy Context," *Social Service Review* 91(4):691-732.
- Bickel, G., M. Andrews, and S. Carlson. 1998. "The Magnitude of Hunger: A New National Measure of Food Security," *Topics in Clinical Nutrition* 13(4):15-30.
- Bickel, G., M. Nord, C. Price, W.L. Hamilton, and J.T. Cook. 2000. *Guide to Measuring Household Food Security, Revised 2000*. U.S. Department of Agriculture, Food and Nutrition Service.
- Carlson, S.J., M.S. Andrews, and G.W. Bickel. 1999. "Measuring Food Insecurity and Hunger in the United States: Development of a National Benchmark Measure and Prevalence Estimates," *The Journal of Nutrition* 129(2):510S-516S.
- Czajka, John L., Anne Peterson, Brittany McGill, Betsy Thorn, and Catharine Warner-Griffin. 2012. *The Extent and Nature of Underreporting of SNAP Participation in Federal Surveys*. U.S. Department of Agriculture, Food and Nutrition Service.
- Coleman-Jensen, Alisha. 2015. "Commemorating 20 Years of U.S. Food Security Measurement," *Amber Waves* 13(9), U.S. Department of Agriculture, Economic Research Service.
- Coleman-Jensen, Alisha, William McFall, and Mark Nord. 2013. *Food Insecurity in Households With Children: Prevalence, Severity, and Household Characteristics, 2010-11*. EIB-113, U.S. Department of Agriculture, Economic Research Service.
- Coleman-Jensen, Alisha, Matthew P. Rabbitt, and Christian Gregory. 2017. *Examining an "Experimental" Food Security Status Classification Method for Households with Children*. TB-1945, U.S. Department of Agriculture, Economic Research Service.
- Coleman-Jensen, Alisha, Matthew P. Rabbitt, Christian Gregory, and Anita Singh. 2016. *Household Food Security in the United States in 2015*. ERR-215, U.S. Department of Agriculture, Economic Research Service.

- Coleman-Jensen, Alisha, Matthew P. Rabbitt, Christian Gregory, and Anita Singh. 2018. *Household Food Security in the United States in 2017*. ERR-256, U.S. Department of Agriculture, Economic Research Service.
- Coleman-Jensen, Alisha, Matthew P. Rabbitt, Christian Gregory, and Anita Singh. 2019. *Statistical Supplement to Household Food Security in the United States in 2018*. AP-81, U.S. Department of Agriculture, Economic Research Service.
- Fram, Maryah Stella, Edward A. Frongillo, Sonya J. Jones, Roger C. Williams, Michael P. Burke, Kendra P. DeLoach, and Christine E. Blake. 2011. "Children are Aware of Food Insecurity and Take Responsibility for Managing Food Resources," *The Journal of Nutrition* 141(6):1114-19.
- Gregory, Christian, and Alisha Coleman-Jensen. 2017. *Food Insecurity, Chronic Disease, and Health Among Working-Age Adults*. ERR-235, U.S. Department of Agriculture, Economic Research Service.
- Gregory, Christian A., Matthew P. Rabbitt, and David C. Ribar. 2015. "The Supplemental Nutrition Assistance Program and Food Insecurity," in *SNAP Matters: How Food Stamps Affect Health and Well-Being*. Judith Bartfeld, Craig Gundersen, Timothy M. Smeeding, and James P. Ziliak (eds.), pp. 74-106. Stanford University Press.
- Gundersen, Craig, and Joseph Gruber. 2001. "The Dynamic Determinants of Food Insecurity," in *Second Food Security Measurement and Research Conference, Volume II: Papers*, FANRR-11-2, Margaret Andrews and Mark Prell (eds.), pp. 92-110. U.S. Department of Agriculture, Economic Research Service.
- Gundersen, Craig, and Victor Oliveira. 2001. "The Food Stamp Program and Food Insufficiency," *American Journal of Agricultural Economics* 83(4):875-87.
- Hamilton, W.L., J.T. Cook, W.W. Thompson, L.F. Buron, E.A. Frongillo, Jr., C.M. Olson, and C.A. Wehler. 1997a. *Household Food Security in the United States in 1995: Summary Report of the Food Security Measurement Project*, prepared for U.S. Department of Agriculture, Food and Consumer Service.
- Hamilton, W.L., J.T. Cook, W.W. Thompson, L.F. Buron, E.A. Frongillo, Jr., C.M. Olson, and C.A. Wehler. 1997b. *Household Food Security in the United States in 1995: Technical Report*, prepared for U.S. Department of Agriculture, Food and Consumer Service.
- Hanson, Karla, and L. Connor. 2014. "Food Insecurity and Dietary Quality in US Adults and Children: A Systematic Review." *American Journal of Clinical Nutrition*. 100: 684-692.
- Mabli, James, Jim Ohls, Lisa Dragoset, Laura Castner, and Betsy Santos. 2013. *Measuring the Effect of Supplemental Nutrition Assistance Program (SNAP) Participation on Food Security*, prepared for U.S. Department of Agriculture, Food and Nutrition Service.
- Meyer, Bruce D., and Robert M. George. 2011. "Errors in Survey Reporting and Imputation and their Effects on Estimates of Food Stamp Program Participation." Working Paper, The Harris School, University of Chicago.

- Meyer, Bruce D., and Nikolas Mittag. 2019. "Misreporting of Government Transfers: How Important are Survey Design and Geography?" *Southern Economic Journal*. 86(1): 230-53.
- Meyer, Bruce D., Wallace K.C. Mok, and James X. Sullivan. 2009. "The Under-Reporting of Transfers in Household Surveys: Its Nature and Consequences." National Bureau of Economic Research Working Paper No. 15181. Cambridge, MA: National Bureau of Economic Research.
- Meyer, Bruce D., Wallace K.C. Mok, and James X. Sullivan. 2015. "Household Surveys in Crisis," *Journal of Economic Perspectives* 29(4): 199-226.
- National Research Council. 2006. *Food Insecurity and Hunger in the United States: An Assessment of the Measure*. Committee on National Statistics, Panel to Review the U.S. Department of Agriculture's Measurement of Food Insecurity and Hunger, Gooloo S. Wunderlich and Janet L. Norwood (eds.). Washington, DC: The National Academies Press.
- Nelson, K., M. Brown, and N. Lurie. 1998. "Hunger in an Adult Patient Population," *Journal of the American Medical Association* 279(15):1211-14.
- Nord, Mark. 2009a. *Food Insecurity in Households With Children: Prevalence, Severity, and Household Characteristic*. EIB-56, U.S. Department of Agriculture, Economic Research Service.
- Nord, Mark. 2009b. *Food Spending Declined and Food Insecurity Increased for Middle-Income and Low-Income Households from 2000 to 2007*. EIB-61, U.S. Department of Agriculture, Economic Research Service.
- Nord, Mark. 2012. "How Much Does the Supplemental Nutrition Assistance Program Alleviate Food Insecurity? Evidence from Recent Programme Leavers," *Public Health Nutrition* 15(5): 811-17.
- Nord, Mark. 2013. *Effects of the Decline in the Real Value of SNAP Benefits From 2009 to 2011*. ERR-151, U.S. Department of Agriculture, Economic Research Service.
- Nord, Mark, Margaret Andrews, and Steven Carlson. 2009. *Household Food Security in the United States, 2008*. ERR-83, U.S. Department of Agriculture, Economic Research Service.
- Nord, Mark, Margaret Andrews, and F. Joshua Winicki. 2000. "Frequency and Duration of Food Insecurity and Hunger in U.S. Households." Paper presented at the Fourth International Conference on Dietary Assessment Methods, Tucson, AZ, Sept. 17-20.
- Nord, Mark, and Gary Bickel. 2002. *Measuring Children's Food Security in U.S. Households, 1995-9*. FANRR-25, U.S. Department of Agriculture, Economic Research Service.
- Nord, Mark, and Alisha Coleman-Jensen. 2014. "Improving Food Security Classification of Households With Children," *Journal of Hunger and Environmental Nutrition* 9(3):318-33.
- Nord, Mark, and Anne Marie Golla. 2009. *Does SNAP Decrease Food Insecurity? Untangling the Self-Selection Effect*. ERR-85, U.S. Department of Agriculture, Economic Research Service.

- Nord, Mark, and Karla Hanson. 2012. "Adult Caregiver Reports of Adolescents' Food Security do Not Agree Well with Adolescents' Own Reports," *Journal of Hunger and Environmental Nutrition* 7(4):363-80.
- Nord, Mark, and Heather Hopwood. 2007. "Recent Advances Provide Improved Tools for Measuring Children's Food Security," *Journal of Nutrition* 137(3): 533-36.
- Nord, M., K. Jemison, and G.W. Bickel. 1999. *Prevalence of Food Insecurity and Hunger by State, 1996-1998*. FANRR-2, U.S. Department of Agriculture, Economic Research Service.
- Nord, Mark, and Linda S. Kantor. 2006. "Seasonal Variation in Food Insecurity Is Associated with Heating and Cooling Costs Among Low-Income Elderly Americans," *Journal of Nutrition* 136(11):2939-44.
- Nord, Mark, and Mark Prell. 2011. *Food Security Improved Following the 2009 Increase in SNAP Benefits*. ERR-116, U.S. Department of Agriculture, Economic Research Service.
- Oliveira, Victor. 2019. *The Food Assistance Landscape: FY 2018 Annual Report*. EIB-207, U.S. Department of Agriculture, Economic Research Service.
- Oliveira, Victor, and Donald Rose. 1996. *Food Expenditure Estimates From the 1995 CPS Food Security Supplement: How Do They Compare With the Consumer Expenditure Survey?* Staff Report No. AGES9617, U.S. Department of Agriculture, Economic Research Service.
- Parker, Julie. 2011. "SNAP Misreporting on the CPS: Does it Affect Poverty Estimates?" Social, Economic, and Housing Statistics Division Working Paper No. 2012-1, U.S. Department of Commerce, U.S. Census Bureau.
- Rabbitt, Matthew P., and Alisha Coleman-Jensen. 2017. "Rasch Analysis of the Standardized Spanish Translation of the U.S. Household Food Security Survey Module," *Journal of Economic and Social Measurement* 42(2):171-197.
- Ratcliffe, Caroline, and Signe-Mary McKernan. 2011. "How Much Does the Supplemental Nutrition Assistance Program Reduce Food Insecurity?" *American Journal of Agricultural Economics* 93(4):1082-98.
- Ryu, Jeong-Hee, and Judith S. Bartfeld. 2012. "Household Food Insecurity During Childhood and Subsequent Health Status: The Early Childhood Longitudinal Study–Kindergarten Cohort," *American Journal of Public Health* 102(11): e50-e55.
- Scherpf, Erik, Constance Newman, and Mark Prell. 2015. *Improving the Assessment of SNAP Targeting Using Administrative Records*. ERR-186, U.S. Department of Agriculture, Economic Research Service.
- Tiehen, Laura, Constance Newman, and John Kirlin. 2017. *The Food Spending Patterns of SNAP Households: Findings From the National Food Acquisition and Purchase Survey Data*. EIB-176, U.S. Department of Agriculture, Economic Research Service.
- U.S. Department of Agriculture, Center for Nutrition Policy and Promotion. 2019. *Official USDA Food Plans: Cost of Food at Home at Four Levels, U.S. Average, December 2018*. January.

- U.S. Department of Agriculture, Center for Nutrition Policy and Promotion. 2007. *The Thrifty Food Plan, 2006*. CNPP-19.
- Wilde, Parke, and Mark Nord. 2005. "The Effect of Food Stamps on Food Security: A Panel Data Approach," *Review of Agricultural Economics* 27(3):425-32.
- Wilde, Parke E., Robert E. Zagar, and Mark Nord. 2010. "In Longitudinal Data from the Survey of Program Dynamics, 16.9% of the U.S. Population Was Exposed to Household Food Insecurity in a 5-Year Period," *Journal of Hunger and Environmental Nutrition* 5(3):380-98.
- Yen, Steven T., Margaret Andrews, Zhuo Chen, and David B. Eastwood. 2008. "Food Stamp Program Participation and Food Insecurity: An Instrumental Variables Approach," *American Journal of Agricultural Economics* 90(1):117-32.