

# Household Food Security in the United States, 2002

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## Abstract

Eighty-nine percent of American households were food secure throughout the entire year 2002, meaning that they had access, at all times, to enough food for an active, healthy life for all household members. The remaining households were food insecure at least some time during that year. The prevalence of food insecurity rose from 10.7 percent in 2001 to 11.1 percent in 2002, and the prevalence of food insecurity with hunger rose from 3.3 percent to 3.5 percent. This report, based on data from the December 2002 food security survey, provides the most recent statistics on the food security of U.S. households, as well as on how much they spent for food and the extent to which food-insecure households participated in Federal and community food assistance programs. Survey responses indicate that the typical food-secure household in the U.S. spent 35 percent more on food than the typical food-insecure household of the same size and household composition. Just over one-half of all food-insecure households participated in one or more of the three largest Federal food assistance programs during the month prior to the survey. About 19 percent of food-insecure households—3.0 percent of all U.S. households—obtained emergency food from a food pantry at some time during the year.

**Keywords:** Food security, food insecurity, hunger, food spending, food pantry, soup kitchen, emergency kitchen, material well-being, Food Stamp Program, National School Lunch Program, WIC.

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## Summary

A large majority of U.S. households were food secure in 2002, but food security declined somewhat from the previous year. Eighty-nine percent of American households were food secure throughout the entire year 2002, meaning that they had access, at all times, to enough food for an active, healthy life for all household members. The prevalence of food insecurity increased from 10.7 percent of households in 2001 to 11.1 percent in 2002, and the prevalence of food insecurity with hunger increased from 3.3 percent to 3.5 percent.

Food security is one of several necessary conditions for a population to be healthy and well-nourished. The U.S. Department of Agriculture (USDA) monitors food security in the Nation's households through an annual U.S. Census Bureau survey of some 50,000 households. The most recent food security survey reveals that 88.9 percent of U.S. households were food secure throughout calendar year 2002. The remaining 11.1 percent of U.S. households (12.1 million) were food insecure. At some time during the year, these households were uncertain of having, or unable to acquire, enough food for all their members because they had insufficient money or other resources.

About one-third of food-insecure households (3.8 million, or 3.5 percent of all U.S. households) were food insecure to the extent that one or more household members were hungry, at least some time during the year, because they could not afford enough food. The other two-thirds of food-insecure households obtained enough food to avoid hunger, using a variety of coping strategies such as eating less varied diets, participating in Federal food assistance programs, or getting emergency food from community food pantries. Children were hungry at times during the year in 265,000 households (0.7 percent of households with children) because the household lacked sufficient money or other resources for food.

On average, households that were food insecure with hunger at some time during the year experienced the condition in 8 or 9 months, but for only a few days in each month. During the 30-day period from early November to early December 2002, 2.7 percent of

U.S. households (2.9 million households) were food insecure with hunger, compared with the annual rate of 3.5 percent. The prevalence of food insecurity with hunger on any given day during that period was much lower than the annual rate, averaging about 0.5 to 0.7 percent of households (517,000 to 775,000 households).

The amount households spend for food is an indicator of how adequately they are meeting their food needs. In 2002, the typical (median) U.S. household spent \$37.50 per person for food each week. Weekly food spending by the typical household was about 25 percent higher than the cost of USDA's Thrifty Food Plan—a low-cost food “market basket” that meets dietary standards, taking into account household size and the age and gender of household members. The typical food-secure household spent 32 percent more than the cost of the Thrifty Food Plan, while the typical food-insecure household spent 2 percent less than the cost of the Thrifty Food Plan.

Some households participate in Federal food assistance programs or turn to community resources such as food pantries and emergency kitchens for help when they lack money to buy food. Among all food-insecure households:

- 54.2 percent received help from one or more of the three largest Federal food assistance programs—food stamps, free or reduced-price school lunches, or the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)—during the month prior to the survey, up from 51.5 percent in 2001;
- 19.3 percent obtained emergency food from a food pantry, church, or food bank during the 12 months prior to the survey; and
- 2.5 percent had members who ate at an emergency kitchen sometime during the 12 months prior to the survey.

Some 3.3 million households—3.0 percent of all U.S. households—reported getting emergency food from food pantries, churches, or food banks one or more times during 2002.



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## Introduction

Since 1995, the U.S. Department of Agriculture (USDA) has collected information annually on food spending, food access and adequacy, and sources of food assistance for the U.S. population. The information is collected in yearly food security surveys, conducted as a supplement to the nationally representative Current Population Survey (CPS). A major impetus for this data collection is to provide information about the prevalences of food insecurity and food insecurity with hunger in U.S. households. USDA reports in the *Measuring Food Security in the United States* series have summarized the findings of this research for each year from 1995 to 2001. (See appendix B for background on the development of the food security measures and a list of the reports.)

This report updates the national statistics on food security, household food spending, the use of Federal and community food assistance by food-insecure households, and the numbers of households using community food

pantries and emergency kitchens, using data collected in the December 2002 food security survey. New in this year's report is information on the prevalence and frequency (number of days) of food insecurity with hunger during the 30-day period prior to the survey—from early November to early December 2002.

Unless otherwise noted, statistical differences described in the text are significant at the 90-percent confidence level.<sup>1</sup>

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<sup>1</sup>Standard errors of estimates, except for State-level estimates, are based on a design factor of 1.6 due to the complex sampling design of the CPS. That is, the standard error of an estimated proportion is calculated as the square root of  $[P \times Q \times 1.6 / N]$ , where P is the estimated proportion, Q is 1-P, and N is the unweighted number of households in the denominator. The design factor of 1.6 is consistent with estimates based on more complex balanced repeated replication (BRR) methods (Cohen et al., 2002a; Hamilton et al., 1997b). Standard errors of State-level estimates were calculated using jackknife replication methods with "month-in-sample" groups considered as separate, independent samples (see Nord et al., 1999).

## Section 1. 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, food insecurity, and food insecurity with hunger in U.S. households based on the December 2002 food security survey—the eighth annual survey in the Nation’s food security monitoring system.

### Methods

The results presented in all three sections of this report are based on data collected in the Current Population Survey (CPS) food security surveys for the years 1995–2002. The CPS includes about 60,000 households<sup>2</sup> and is representative, at State and national levels, of the civilian, noninstitutionalized population of the United States. About 50,000 households completed the food security section of the survey in December 2002; the remainder were unable or unwilling to do so. Weighting factors were calculated by the Census Bureau so that, when properly weighted, the food security survey, like the full CPS, is representative at State and national levels.<sup>3</sup> All statistics in this report were calculated by applying the food security supplement weights to the surveyed households to obtain nationally representative prevalence estimates. Household supplement weights were used to calculate household-level statistics and person supplement weights were used to calculate statistics for all individuals, for adults, and for children.

The statistics presented in section 1 are based on a measure of food security calculated from responses to a series of questions about conditions and behaviors known to characterize households having difficulty meeting basic food needs.<sup>4</sup> Each question asks

<sup>2</sup>The size of the CPS sample was increased in 2001; it had been around 50,000 households during the 1990s.

<sup>3</sup>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 minimizes the effect of nonresponse to the Supplement by households that completed the labor force part of the survey.

<sup>4</sup>The methods used to measure the extent of food insecurity and hunger have been described in several places (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). Further details on the development of the measure are provided in appendix B.

whether the condition or behavior occurred at any time during the previous 12 months and specifies a lack of money or other resources to obtain food as the reason for the condition or behavior. Voluntary fasting or dieting to lose weight are thereby excluded from the measure. The series includes 10 questions about food conditions at the household level and among adults in the household and, if there are children present in the household, an additional 8 questions about their food conditions (see box). Response frequencies for the 18 items used to classify households are provided in appendix A.

All interviewed households are classified into one of three categories—food secure, food insecure without hunger, food insecure with hunger—based on 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 if they report 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. Households without children are classified as food insecure with hunger if they report six or more food-insecure conditions. Households with children are classified as food insecure with hunger if they report eight or more food-insecure conditions, including conditions among both adults and children. Households with children are further classified as food insecure with hunger among children if they report five or more food-insecure conditions among the children (that is, in response to questions 11-18).

Thus, households classified as food insecure without hunger have reported multiple indications of food access problems, but typically have reported few, if any, indications of reduced food intake. All households classified as food insecure with hunger have reported multiple indications of reduced food intake and disrupted eating patterns due to inadequate resources for food, although not all have directly reported that household members were hungry.



## Questions Used To Assess the Food Security of Households in the CPS Food Security Survey

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 you couldn’t afford enough food? (Yes/No)
8. In the last 12 months, did you lose weight because you didn’t have 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 are asked only if the household included children age 0-18)**

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)



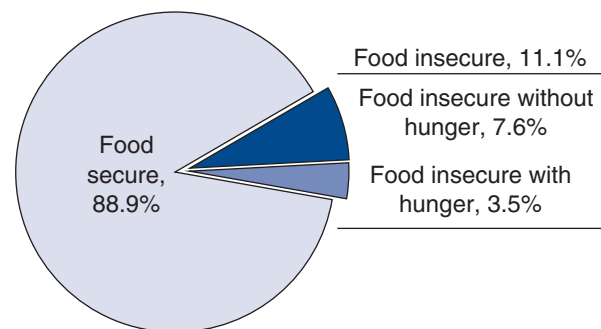
## Prevalences of Food Insecurity and Hunger—National Conditions and Trends

Eighty-nine percent of U.S. households were food secure throughout the entire year 2002 (fig. 1). “Food secure” means that all household members had access at all times to enough food for an active, healthy life.<sup>5</sup> The remaining 12.1 million U.S. households (11.1 percent of all households) were food insecure at some time during the year. That is, they were uncertain of having, or unable to acquire, enough food for all household members because they had insufficient money and other resources for food. About two-thirds of food-insecure households avoided hunger, in many cases by relying on a few basic foods and reducing variety in their diets. But 3.8 million households (3.5 percent of all U.S. households) were food insecure to the extent that one or more household members were hungry, at least some time during the year, because they couldn’t afford enough food.

In most households, children were protected from substantial reductions in food intake and ensuing hunger. However, in some 265,000 households (0.7 percent of households with children), food insecurity was sufficiently severe that 1 or more children in each household were also hungry on 1 or more days during the year because the household lacked money for enough

<sup>5</sup>Food security and insecurity, as measured for this report, are based on respondent perceptions of whether the household was able to obtain enough food to meet their needs. The measure does not specifically address whether the household’s food intake was sufficient for active healthy lives. Nonetheless, research based on other surveys has found food security, measured as in this report, to be associated with health, nutrition, and children’s development in a manner that generally supports the conceptualized link with sufficiency for active, healthy lives.

Figure 1  
U.S. households by food security status, 2002



Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

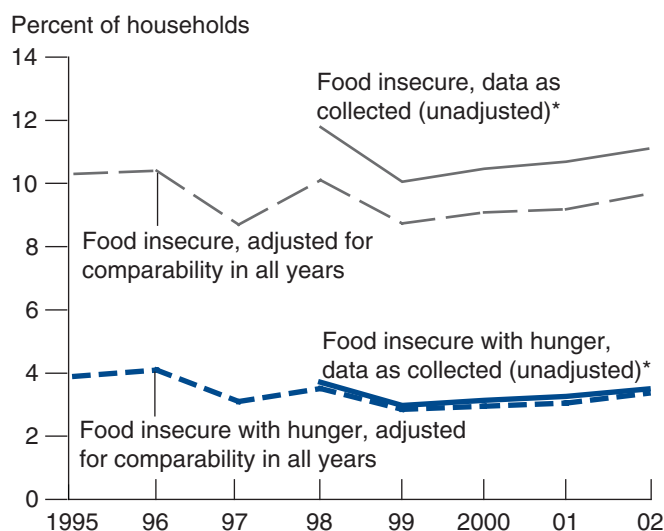
food. In some households with more than one child, not all the children experienced hunger. In particular, younger children often are protected from hunger even when older children are not.

When interpreting food security statistics, it is important to keep in mind that households are classified as food insecure or food insecure with hunger if they experienced the condition at any time during the previous 12 months. The rates of food insecurity and hunger on any given day are far below the annual rates. For example, the prevalence of hunger on an average day during the 30-day period from early November to early December 2002 is estimated to have been about 14 to 20 percent of the annual rate (see box), or 0.5 to 0.7 percent of households (517,000 to 775,000 households).

The prevalence rates of food insecurity and food insecurity with hunger increased slightly from 2001 to 2002, but remained below the levels at which they were first measured in 1995 (fig. 2).<sup>6</sup> The year-to-year deviations from a consistent downward trend from 1995-2000

<sup>6</sup>Because of changes in screening procedures used to reduce respondent burden, food security statistics from 1995-97 are not directly comparable with those from 1998-2002. Figure 1 presents statistics for the years 1995-2002, adjusted to be comparable across all years, as well as statistics for 1998-2002 based on data as collected. See Andrews et al. (2000) and Ohls et al. (2001) for detailed information about questionnaire screening and adjustments for comparability.

Figure 2  
Trends in prevalence of food insecurity and hunger in U.S. households, 1995-2002



\*Data as collected in 1995-97 are not directly comparable with data collected in 1998-2002.

Source: Calculated by ERS using data from Current Population Survey Food Security Supplements.

## How often were people hungry in households that were food insecure with hunger?

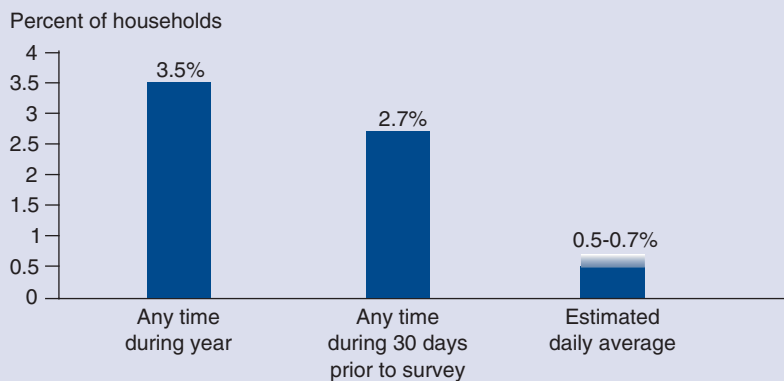
When food insecurity with hunger occurs in the United States, it is, in most cases, occasional or episodic, not chronic. The food security measurement approach used in this report is designed to register occasional or episodic occurrences. Most questions used to assess households' food security status ask whether a condition, experience, or behavior occurred at any time in the past 12 months, and households can be classified as food insecure with hunger based on a single, severe episode during the year.

It is important to keep this aspect of the scale in mind when interpreting food security and hunger statistics. Analysis 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 further insight into the frequency and duration of hunger in U.S. households. These analyses reveal that:

- About one-third of the hunger measured by the standard 12-month measure is rare or occasional, occurring in only 1 or 2 months of the year. Two-thirds is recurring, experienced in 3 or more months of the year.
- For about one-fifth of households classified as food insecure and one-fourth of those classified as food insecure with hunger, occurrence of the condition was frequent or chronic. That is, it occurred often, or in almost every month.
- On average, households that are food insecure with hunger at some time during the year experience this condition in 8 or 9 months during the year (see appendix E). During the 30-day period ending in early December 2002, 2.7 percent of U.S. households were food insecure with hunger—about 76 percent of the number that were food insecure with hunger at any time during the year.
- Most households that are food insecure with hunger at some time during a month experienced the condition in 1 to 7 days of the month. The average daily prevalence of food insecurity with hunger during the 30-day period ending in early December 2002 was probably between 517,000 and 775,000 households (0.5 to 0.7 percent of all households)—about 14 to 20 percent of the annual prevalence.
- The daily prevalence of food insecurity with hunger among children during the 30-day period ending in early December 2002 was probably between 30,000 and 38,000 households (0.08 to 0.10 percent of households with children)—about 11 to 14 percent of the annual prevalence.

(Appendix A provides information on how often conditions indicating food insecurity and hunger occurred as reported by respondents to the December 2002 food security survey. See Nord et al., 2000, for further information about the frequency of food insecurity and hunger.)

### Prevalence of food insecurity with hunger, by reference period



Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

included a substantial 2-year cycle that is believed to result from a seasonal influence on food security prevalence rates (Cohen et al., 2002a). The CPS food security surveys over this period were conducted in April in odd-numbered years and August or September in even-numbered years. Measured prevalence of food insecurity was higher in the August/September collections, suggesting a seasonal response effect. Beginning in 2001, the survey has been conducted in early December. Data collection is planned for December in future years, which will avoid further problems of seasonality in interpreting annual changes.<sup>7</sup>

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<sup>7</sup>A smaller food security survey also was conducted in April 2001 to provide information to bridge the new December series to the previous years' statistics, since seasonal effects of conducting the survey in December were unknown. Comparison of food security statistics from the April 2001 survey with those from April 1999 and December 2001 suggest that seasonal effects in early December were similar to those in April (Nord et al, 2002a).

The prevalence of food insecurity rose from 10.7 percent in 2001 to 11.1 percent in 2002 and the prevalence of food insecurity with hunger rose from 3.3 percent to 3.5 percent (table 1). The number of food-insecure households increased from 11.5 million in 2001 to 12.1 million in 2002, an increase of 4.7 percent, and the number of households that were food insecure with hunger rose from 3.5 million to 3.8 million, an increase of 8.2 percent. (During this period, the total number of households in the Nation grew by 0.7 percent.) The prevalence of food insecurity with hunger among children was essentially unchanged from 2001 to 2002.

**Table 1—Prevalence of food security, food insecurity, and hunger, by year**

Unit	Total <sup>1</sup>	Food secure		Food insecure					
				All		Without hunger		With hunger	
	1,000	1,000	Percent	1,000	Percent	1,000	Percent	1,000	Percent
<b>Households:</b>									
1998	103,309	91,121	88.2	12,188	11.8	8,353	8.1	3,835	3.7
1999	104,684	94,154	89.9	10,529	10.1	7,420	7.1	3,109	3.0
2000	106,043	94,942	89.5	11,101	10.5	7,786	7.3	3,315	3.1
2001	107,824	96,303	89.3	11,521	10.7	8,010	7.4	3,511	3.3
2002	108,601	96,543	88.9	12,058	11.1	8,259	7.6	3,799	3.5
<b>All individuals (by food security status of household):<sup>2</sup></b>									
1998	268,366	232,219	86.5	36,147	13.5	26,290	9.8	9,857	3.7
1999	270,318	239,304	88.5	31,015	11.5	23,237	8.6	7,779	2.9
2000	273,685	240,454	87.9	33,231	12.1	24,708	9.0	8,523	3.1
2001	276,661	243,019	87.8	33,642	12.2	24,628	8.9	9,014	3.3
2002	279,035	244,133	87.5	34,902	12.5	25,517	9.1	9,385	3.4
<b>Adults (by food security status of household):<sup>2</sup></b>									
1998	197,084	174,964	88.8	22,120	11.2	15,632	7.9	6,488	3.3
1999	198,900	179,960	90.5	18,941	9.5	13,869	7.0	5,072	2.5
2000	201,922	181,586	89.9	20,336	10.1	14,763	7.3	5,573	2.8
2001	204,340	183,398	89.8	20,942	10.2	14,879	7.3	6,063	3.0
2002	206,493	184,718	89.5	21,775	10.5	15,486	7.5	6,289	3.0
<b>Households with children:</b>									
1998	38,036	31,335	82.4	6,701	17.6	6,370	16.7	331	.9
1999	37,884	32,290	85.2	5,594	14.8	5,375	14.2	219	.6
2000	38,113	31,942	83.8	6,171	16.2	5,916	15.5	255	.7
2001	38,330	32,141	83.9	6,189	16.1	5,978	15.6	211	.6
2002	38,647	32,267	83.5	6,380	16.5	6,115	15.8	265	.7
<b>Children (by food security status of household):<sup>2</sup></b>									
1998	71,282	57,255	80.3	14,027	19.7	13,311	18.7	716	1.0
1999	71,418	59,344	83.1	12,074	16.9	11,563	16.2	511	.7
2000	71,763	58,867	82.0	12,896	18.0	12,334	17.2	562	.8
2001	72,321	59,620	82.4	12,701	17.6	12,234	16.9	467	.6
2002	72,542	59,415	81.9	13,127	18.1	12,560	17.3	567	.8

<sup>1</sup>Totals exclude households whose food security status is unknown because they did not give a valid response to any of the questions in the food security scale. In 2002, these represented 336,000 households (0.3 percent of all households.)

<sup>2</sup>The food security survey measures food security status at the household level. Not all individuals residing in food-insecure households are appropriately characterized as food insecure. Similarly, not all individuals in households classified as food insecure with hunger, nor all children in households classified as food insecure with hunger among children, were subject to reductions in food intake or experienced resource-constrained hunger.

Sources: Calculated by ERS using data from the August 1998, April 1999, September 2000, December 2001, and December 2002 Current Population Survey Food Security Supplements.

## Prevalences of Food Insecurity and Hunger—Conditions and Trends, by Selected Household Characteristics

The prevalence rates of food insecurity and food insecurity with hunger varied considerably among household types (table 2). Rates of food insecurity were well below the national average of 11.1 percent for households with more than one adult and no children (6.3 percent) and for households with elderly persons (6.3 percent).<sup>8</sup> The following groups had rates of food insecurity substantially higher than the national average:

- Households with incomes below the official poverty line (38.1 percent),<sup>9</sup>
- Households with children, headed by a single woman (32.0 percent),
- Black households (22.0 percent), and Hispanic households (21.7 percent).

Overall, households with children reported food insecurity at more than double the rate for households without children (16.5 vs. 8.1 percent).<sup>10</sup> Among households with children, those with married-couple families showed the lowest rate of food insecurity (10.4 percent).

<sup>8</sup>“Elderly” in this report refers to persons age 65 and older.

<sup>9</sup>The Federal poverty line was \$18,244 for a family of four in 2002.

<sup>10</sup>The higher rate of food insecurity for households with children results, in part, from a difference in the measures applied to households with and without children. 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, households with children were 60 percent more likely to be food insecure than were households without children. This measurement issue does not bias comparisons at the hunger threshold because a higher threshold is applied to households with children consistent with the larger number of questions taken into consideration.

The prevalence rates of food insecurity for households located in central cities (14.4 percent) and nonmetropolitan areas (11.6 percent) substantially exceeded the rate for households in suburbs and other metropolitan areas outside central cities (8.8 percent). Regionally, the prevalence of food insecurity was higher in the South and West (12.4 and 12.1 percent, respectively) than in the Northeast and Midwest (9.2 and 9.6 percent).

The prevalence rates of food insecurity with hunger in various types of households followed a pattern similar to that observed for food insecurity. Hunger rates were lowest for married couples with children (1.9 percent), multiple-adult households with no children (2.3 percent), and households with elderly persons (1.9 percent). Hunger rates were higher than the 3.5 percent national average among families headed by single women (8.7 percent), Black and Hispanic households (7.2 and 5.7 percent, respectively), and households below the poverty line (14.3 percent). Geographically, hunger was more common in central-city households (5.0 percent) and in those in the South and West (3.6 and 3.9 percent, respectively).

Households showing the lowest rates of hunger among children were married-couple families and households with higher incomes (table 3). Children living with a single mother were more affected by resource-constrained hunger, as were Black and Hispanic children.

The increases in food insecurity and hunger from 2001 to 2002 appear to have affected most regions and types of households (figs. 3 and 4). Changes within categories were not statistically significant, however, except for single fathers with children and lower income households. Changes in other categories are within a range that could have resulted from sampling variation.

**Table 2—Prevalence of food security, food insecurity, and hunger, by selected household characteristics, 2002**

Category	Total <sup>1</sup>	Food secure		Food insecure					
		All	Without hunger	With hunger	All		Without hunger		With hunger
	1,000	1,000	Percent	1,000	Percent	1,000	Percent	1,000	Percent
All households	108,601	96,543	88.9	12,058	11.1	8,259	7.6	3,799	3.5
Household composition:									
With children < 18	38,647	32,268	83.5	6,379	16.5	4,899	12.7	1,480	3.8
With children < 6	17,073	14,039	82.2	3,034	17.8	2,450	14.4	584	3.4
Married-couple families	26,069	23,357	89.6	2,712	10.4	2,204	8.5	508	1.9
Female head, no spouse	9,496	6,456	68.0	3,040	32.0	2,212	23.3	828	8.7
Male head, no spouse	2,375	1,855	78.1	520	21.9	381	16.0	139	5.9
Other household with child <sup>2</sup>	707	599	84.7	108	15.3	102	14.4	6	.8
With no children < 18	69,954	64,276	91.9	5,678	8.1	3,360	4.8	2,318	3.3
More than one adult	41,538	38,929	93.7	2,609	6.3	1,651	4.0	958	2.3
Women living alone	16,174	14,472	89.5	1,702	10.5	985	6.1	717	4.4
Men living alone	12,242	10,875	88.8	1,367	11.2	724	5.9	643	5.3
With elderly	24,791	23,229	93.7	1,562	6.3	1,099	4.4	463	1.9
Elderly living alone	10,072	9,327	92.6	745	7.4	490	4.9	255	2.5
Race/ethnicity of households:									
White non-Hispanic	80,266	73,859	92.0	6,407	8.0	4,294	5.3	2,113	2.6
Black non-Hispanic	13,515	10,546	78.0	2,969	22.0	1,999	14.8	970	7.2
Hispanic <sup>3</sup>	10,344	8,099	78.3	2,245	21.7	1,654	16.0	591	5.7
Other non-Hispanic	4,475	4,038	90.2	437	9.8	313	7.0	124	2.8
Household income-to-poverty ratio:									
Under 1.00	11,515	7,128	61.9	4,387	38.1	2,736	23.8	1,651	14.3
Under 1.30	17,010	11,272	66.3	5,738	33.7	3,681	21.6	2,057	12.1
Under 1.85	25,134	17,802	70.8	7,332	29.2	4,894	19.5	2,438	9.7
1.85 and over	64,263	60,997	94.9	3,266	5.1	2,321	3.6	945	1.5
Income unknown	19,204	17,744	92.4	1,460	7.6	1,044	5.4	416	2.2
Area of residence:									
Inside metropolitan area	87,617	77,997	89.0	9,620	11.0	6,528	7.5	3,092	3.5
In central city <sup>4</sup>	26,922	23,047	85.6	3,875	14.4	2,517	9.3	1,358	5.0
Not in central city <sup>4</sup>	45,552	41,542	91.2	4,010	8.8	2,791	6.1	1,219	2.7
Outside metropolitan area	20,983	18,545	88.4	2,438	11.6	1,731	8.2	707	3.4
Census geographic region:									
Northeast	20,242	18,372	90.8	1,870	9.2	1,266	6.3	604	3.0
Midwest	25,180	22,755	90.4	2,425	9.6	1,602	6.4	823	3.3
South	39,195	34,325	87.6	4,870	12.4	3,442	8.8	1,428	3.6
West	23,984	21,090	87.9	2,894	12.1	1,950	8.1	944	3.9

<sup>1</sup>Totals exclude households whose food security status is unknown because they did not give a valid response to any of the questions in the food security scale. In 2002, these represented 336,000 households (0.3 percent of all households.)

<sup>2</sup>Households with children in complex living arrangements—e.g., children of other relatives or unrelated roommate or boarder.

<sup>3</sup>Hispanics may be of any race.

<sup>4</sup>Metropolitan area subtotals do not add to metropolitan area totals because central-city residence is not identified for about 17 percent of households in metropolitan statistical areas.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.



**Table 3—Prevalence of food security, food insecurity, and hunger in households with children, by selected household characteristics, 2002**

Category	Total <sup>1</sup>	Food secure		Food insecure							
		All	Without hunger among children	With hunger among children	All		Without hunger among children		With hunger among children		
	1,000	1,000	Percent	1,000	Percent	1,000	Percent	1,000	Percent	1,000	Percent
All households with children	38,647	32,267	83.5	6,380	16.5	6,115	15.8	265	0.7		
Household composition:											
With children < 6	17,073	14,039	82.2	3,034	17.8	2,952	17.3	82	.5		
Married-couple families	26,069	23,356	89.6	2,713	10.4	2,626	10.1	87	.3		
Female head, no spouse	9,496	6,456	68.0	3,040	32.0	2,888	30.4	152	1.6		
Male head, no spouse	2,375	1,856	78.1	519	21.9	493	20.8	26	1.1		
Other household with child <sup>2</sup>	707	599	84.7	108	15.3	108	15.3	0	0		
Race/ethnicity of households:											
White non-Hispanic	25,288	22,281	88.1	3,007	11.9	2,918	11.5	89	.4		
Black non-Hispanic	5,753	4,228	73.5	1,525	26.5	1,455	25.3	70	1.2		
Hispanic <sup>3</sup>	5,776	4,167	72.1	1,609	27.9	1,522	26.4	87	1.5		
Other non-Hispanic	1,830	1,591	86.9	239	13.1	219	12.0	20	1.1		
Household income-to-poverty ratio:											
Under 1.00	5,468	2,981	54.5	2,487	45.5	2,353	43.0	134	2.5		
Under 1.30	7,753	4,510	58.2	3,243	41.8	3,075	39.7	168	2.2		
Under 1.85	11,693	7,457	63.8	4,236	36.2	4,041	34.6	195	1.7		
1.85 and over	21,502	20,066	93.3	1,436	6.7	1,391	6.5	45	.2		
Income unknown	5,452	4,744	87.0	708	13.0	683	12.5	25	.5		
Area of residence:											
Inside metropolitan area	31,698	26,496	83.6	5,202	16.4	4,980	15.7	222	.7		
In central city <sup>4</sup>	8,849	6,868	77.6	1,981	22.4	1,864	21.1	117	1.3		
Not in central city <sup>4</sup>	17,378	15,132	87.1	2,246	12.9	2,179	12.5	67	.4		
Outside metropolitan area	6,949	5,771	83.0	1,178	17.0	1,135	16.3	43	.6		
Census geographic region:											
Northeast	6,894	5,939	86.1	955	13.9	914	13.3	41	.6		
Midwest	8,747	7,477	85.5	1,270	14.5	1,233	14.1	37	.4		
South	14,000	11,418	81.6	2,582	18.4	2,475	17.7	107	.8		
West	9,006	7,433	82.5	1,573	17.5	1,493	16.6	80	.9		
Individuals in households with children:											
All individuals in households											
with children	154,517	128,907	83.4	25,610	16.6	24,541	15.9	1,069	.7		
Adults in households with children	81,975	69,492	84.8	12,483	15.2	11,981	14.6	502	.6		
Children	72,542	59,415	81.9	13,127	18.1	12,560	17.3	567	.8		

<sup>1</sup>Totals exclude households whose food security status is unknown because they did not give a valid response to any of the questions in the food security scale. In 2002, these represented 114,000 households with children (0.3 percent.)

<sup>2</sup>Households with children in complex living arrangements—e.g., children of other relatives or unrelated roommate or boarder.

<sup>3</sup>Hispanics may be of any race.

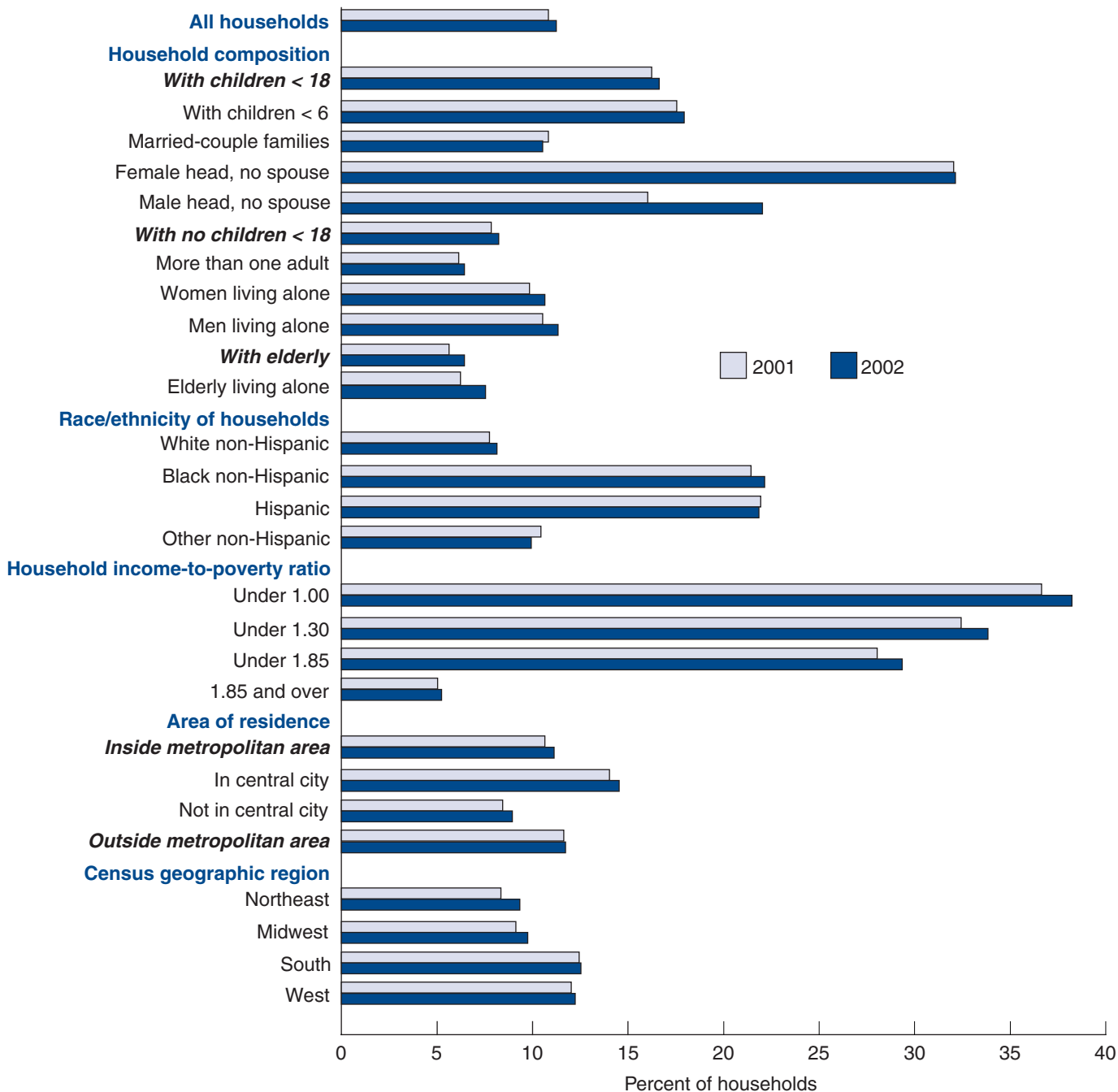
<sup>4</sup>Metropolitan area subtotals do not add to metropolitan area totals because central-city residence is not identified for about 17 percent of households in metropolitan statistical areas.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.



Figure 3

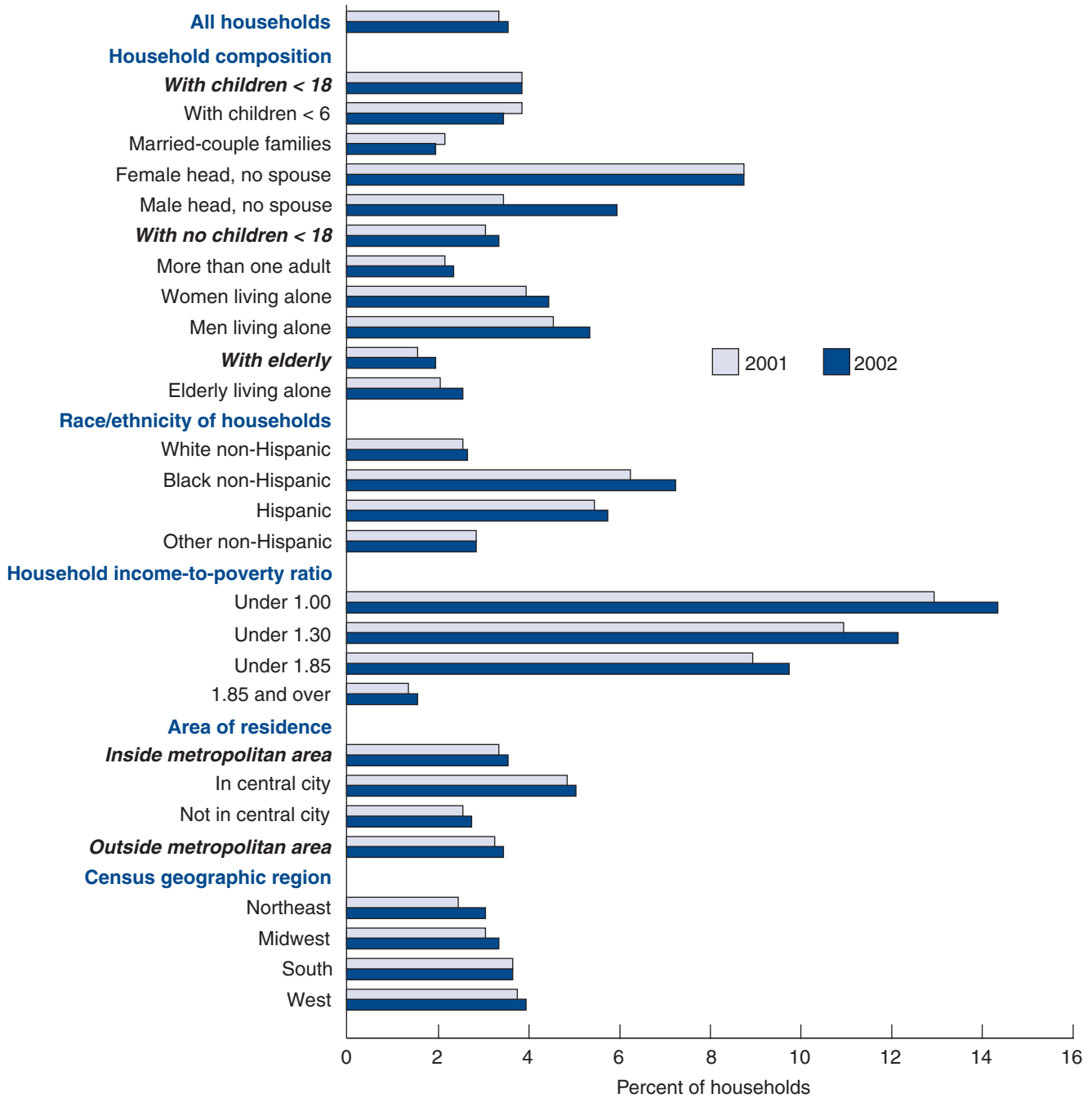
**Prevalence of food insecurity, 2001 and 2002**



Source: Calculated by ERS using data from the December 2001 and December 2002 Current Population Survey Food Security Supplements.

Figure 4

**Prevalence of hunger, 2001 and 2002**



Source: Calculated by ERS using data from the December 2001 and December 2002 Current Population Survey Food Security Supplements.

## Food Insecurity and Hunger in Low-Income Households

Food insecurity and food insecurity with hunger, as reported here, are by definition conditions that result from insufficient household resources. In 2002, food insecurity and hunger were six times as prevalent in households with annual income below 185 percent of the poverty line as in households with income above that range (table 2). However, many factors that might affect a household's food security (such as job loss, divorce, or other unexpected events) are not captured by an annual income measure. Some households experienced episodes of food insecurity, or even hunger, even though their annual income was well above the poverty line (Nord and Brent, 2002; Gundersen and Gruber, 2001). On the other hand, many low-income households (including almost two-thirds of those with income below the poverty line) were food secure.

Table 4 shows food security and hunger statistics for households with annual incomes below 130 percent of

the poverty line.<sup>11</sup> One in three of these households was food insecure, and in 12.1 percent, household members were hungry at times during the year. Low-income households with children were more affected by food insecurity than households without children (41.8 percent vs. 27.0 percent), although the prevalence of hunger was slightly lower among low-income households with children (10.8 percent) than among those without children (13.2 percent). Low-income single mothers with children were especially vulnerable to both food insecurity and hunger; 47.0 percent of these households were food insecure, including 13.4 percent in which one or more persons, usually the mother, was hungry at times during the year because of lack of money or other resources for food.

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<sup>11</sup>Households with income below 130 percent of the poverty line are eligible to receive food stamps, provided they meet other eligibility criteria. Children in these households are eligible for free meals in the National School Lunch and School Breakfast Programs.

**Table 4—Prevalence of food security, food insecurity, and hunger in households with income below 130 percent of the poverty line, by selected household characteristics, 2002**

Category	Total <sup>1</sup>	Food secure		Food insecure					
		All	Without hunger	With hunger	All		Without hunger		With hunger
	1,000	1,000	Percent	1,000	Percent	1,000	Percent	1,000	Percent
All low-income households	17,010	11,272	66.3	5,738	33.7	3,681	21.6	2,057	12.1
Household composition:									
With children < 18	7,753	4,510	58.2	3,243	41.8	2,406	31.0	837	10.8
With children < 6	4,186	2,503	59.8	1,683	40.2	1,304	31.2	379	9.1
Married-couple families	3,230	2,077	64.3	1,153	35.7	890	27.6	263	8.1
Female head, no spouse	3,856	2,042	53.0	1,814	47.0	1,299	33.7	515	13.4
Male head, no spouse	514	287	55.8	227	44.2	171	33.3	56	10.9
Other household with child <sup>2</sup>	154	105	68.2	49	31.8	45	29.2	4	2.6
With no children < 18	9,256	6,761	73.0	2,495	27.0	1,275	13.8	1,220	13.2
More than one adult	3,959	3,029	76.5	930	23.5	498	12.6	432	10.9
Women living alone	3,299	2,375	72.0	924	28.0	474	14.4	450	13.6
Men living alone	1,999	1,358	67.9	641	32.1	303	15.2	338	16.9
With elderly	4,089	3,296	80.6	793	19.4	528	12.9	265	6.5
Elderly living alone	2,044	1,642	80.3	402	19.7	239	11.7	163	8.0
Race/ethnicity of households:									
White non-Hispanic	9,194	6,444	70.1	2,750	29.9	1,691	18.4	1,059	11.5
Black non-Hispanic	3,778	2,288	60.6	1,490	39.4	889	23.5	601	15.9
Hispanic <sup>3</sup>	3,354	2,041	60.9	1,313	39.1	981	29.2	332	9.9
Other non-Hispanic	684	499	73.0	185	27.0	120	17.5	65	9.5
Area of residence:									
Inside metropolitan area	12,644	8,245	65.2	4,399	34.8	2,805	22.2	1,594	12.6
In central city <sup>4</sup>	5,390	3,351	62.2	2,039	37.8	1,205	22.4	834	15.5
Not in central city <sup>4</sup>	4,585	3,165	69.0	1,420	31.0	980	21.4	440	9.6
Outside metropolitan area	4,365	3,026	69.3	1,339	30.7	876	20.1	463	10.6
Census geographic region:									
Northeast	2,560	1,754	68.5	806	31.5	498	19.5	308	12.0
Midwest	3,256	2,222	68.2	1,034	31.8	619	19.0	415	12.7
South	7,356	4,852	66.0	2,504	34.0	1,694	23.0	810	11.0
West	3,838	2,443	63.7	1,395	36.3	871	22.7	524	13.7
Individuals in low-income households (by food security status of household):									
All individuals in low-income households	46,682	29,626	63.5	17,056	36.5	11,827	25.3	5,229	11.2
Adults in low-income households	29,633	19,848	67.0	9,785	33.0	6,478	21.9	3,307	11.2
Children in low-income households	17,049	9,778	57.4	7,271	42.6	5,348	31.4	1,923	11.3

<sup>1</sup>Totals exclude households whose income was not reported (about 18 percent of households), and those whose food security status is unknown because they did not give a valid response to any of the questions in the food security scale (0.8 percent of low-income households).

<sup>2</sup>Households with children in complex living arrangements—e.g., children of other relatives or unrelated roommate or boarder.

<sup>3</sup>Hispanics may be of any race.

<sup>4</sup>Metropolitan area subtotals do not add to metropolitan area totals because central-city residence is not identified for about 17 percent of households in metropolitan statistical areas.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

## **Number of Persons by Household Food Security Status and Household Type**

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 residing in food-insecure households, these estimates should not be used to characterize the number of individuals affected by food insecurity and hunger. Not all persons in food-insecure households are food insecure, and people who live in households classified as food insecure with hunger, especially young children, are not all subject to reductions in food intake and do not all experience hunger.

In 2002, 34.9 million people lived in food-insecure households, up from 33.6 million in 2001 (table 1). They constituted 12.5 percent of the U.S. population and included 21.8 million adults and 13.1 million children. Of these individuals, 6.3 million adults and 3.1 million children lived in households where someone experienced hunger during the year. The number of children living in households classified as food insecure with hunger among children was 567,000 (0.8 percent of the children in the Nation; table 1). Tables 5 and 6 present estimates of the numbers of persons and the numbers of children in the households in each food security status and household type.

**Table 5—Number of individuals, by food security status of households and selected household characteristics, 2002**

Category	Total <sup>1</sup>	Food secure		Food insecure					
		1,000	Percent	All	Without hunger		With hunger		
	1,000	1,000	Percent	1,000	Percent	1,000	Percent	1,000	Percent
All individuals in households	279,035	244,133	87.5	34,902	12.5	25,517	9.1	9,385	3.4
Household composition:									
With children < 18	154,517	128,906	83.4	25,611	16.6	19,820	12.8	5,791	3.7
With children < 6	72,010	58,635	81.4	13,375	18.6	10,703	14.9	2,672	3.7
Married-couple families	111,920	99,222	88.7	12,698	11.3	10,214	9.1	2,484	2.2
Female head, no spouse	31,854	21,238	66.7	10,616	33.3	7,830	24.6	2,786	8.7
Male head, no spouse	8,074	6,210	76.9	1,864	23.1	1,370	17.0	494	6.1
Other household with child <sup>2</sup>	2,669	2,236	83.8	433	16.2	406	15.2	27	1.0
With no children < 18	124,518	115,227	92.5	9,291	7.5	5,696	4.6	3,595	2.9
More than one adult	96,102	89,880	93.5	6,222	6.5	3,987	4.1	2,235	2.3
Women living alone	16,174	14,472	89.5	1,702	10.5	985	6.1	717	4.4
Men living alone	12,242	10,875	88.8	1,367	11.2	724	5.9	643	5.3
With elderly	47,222	43,833	92.8	3,389	7.2	2,508	5.3	881	1.9
Elderly living alone	10,072	9,327	92.6	745	7.4	490	4.9	255	2.5
Race/ethnicity of households:									
White non-Hispanic	196,303	179,450	91.4	16,853	8.6	12,132	6.2	4,721	2.4
Black non-Hispanic	34,615	26,473	76.5	8,142	23.5	5,957	17.2	2,185	6.3
Hispanic <sup>3</sup>	34,976	26,542	75.9	8,434	24.1	6,350	18.2	2,084	6.0
Other non-Hispanic	13,140	11,666	88.8	1,474	11.2	1,078	8.2	396	3.0
Household income-to-poverty ratio:									
Under 1.00	31,643	18,879	59.7	12,764	40.3	8,702	27.5	4,062	12.8
Under 1.30	46,682	29,626	63.5	17,056	36.5	11,827	25.3	5,229	11.2
Under 1.85	69,629	47,539	68.3	22,090	31.7	15,804	22.7	6,286	9.0
1.85 and over	163,293	154,739	94.8	8,554	5.2	6,457	4.0	2,097	1.3
Income unknown	46,113	41,856	90.8	4,257	9.2	3,255	7.1	1,002	2.2
Area of residence:									
Inside metropolitan area	227,353	199,122	87.6	28,231	12.4	20,549	9.0	7,682	3.4
In central city <sup>4</sup>	65,661	54,708	83.3	10,953	16.7	7,726	11.8	3,227	4.9
Not in central city <sup>4</sup>	122,536	110,462	90.1	12,074	9.9	8,996	7.3	3,078	2.5
Outside metropolitan area	51,682	45,010	87.1	6,672	12.9	4,968	9.6	1,704	3.3
Census geographic region:									
Northeast	52,151	46,716	89.6	5,435	10.4	3,929	7.5	1,506	2.9
Midwest	63,924	57,105	89.3	6,819	10.7	4,900	7.7	1,919	3.0
South	98,829	85,024	86.0	13,805	14.0	10,288	10.4	3,517	3.6
West	64,131	55,288	86.2	8,843	13.8	6,400	10.0	2,443	3.8

<sup>1</sup>Totals exclude individuals in households whose food security status is unknown because they did not give a valid response to any of the questions in the food security scale. In 2002, these represented 847,000 individuals (0.3 percent of all individuals.)

<sup>2</sup>Households with children in complex living arrangements—e.g., children of other relatives or unrelated roommate or boarder.

<sup>3</sup>Hispanics may be of any race.

<sup>4</sup>Metropolitan area subtotals do not add to metropolitan area totals because central-city residence is not identified for about 17 percent of households in metropolitan statistical areas.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

**Table 6—Number of children, by food security status of households and selected household characteristics, 2002**

Category	Total <sup>1</sup>	Food secure		Food insecure							
		All	Without hunger among children	With hunger among children	All		Without hunger among children		With hunger among children		
	1,000	1,000	Percent	1,000	Percent	1,000	Percent	1,000	Percent	1,000	Percent
All children	72,542	59,415	81.9	13,127	18.1	12,560	17.3	567	0.8		
Household composition:											
With children < 6	36,039	28,874	80.1	7,165	19.9	6,916	19.2	249	.7		
Married-couple families	50,862	44,769	88.0	6,093	12.0	5,877	11.6	216	.4		
Female head, no spouse	16,825	10,856	64.5	5,969	35.5	5,658	33.6	311	1.8		
Male head, no spouse	3,807	2,930	77.0	877	23.0	837	22.0	40	1.1		
Other household with child <sup>2</sup>	1,048	860	82.1	188	17.9	188	17.9	0	0		
Race/ethnicity of households:											
White non-Hispanic	45,987	40,173	87.4	5,814	12.6	5,645	12.3	169	.4		
Black non-Hispanic	10,783	7,611	70.6	3,172	29.4	3,033	28.1	139	1.3		
Hispanic <sup>3</sup>	12,267	8,685	70.8	3,582	29.2	3,386	27.6	196	1.6		
Other non-Hispanic	3,505	2,945	84.0	560	16.0	496	14.2	64	1.8		
Household income-to-poverty ratio:											
Under 1.00	12,091	6,580	54.4	5,511	45.6	5,216	43.1	295	2.4		
Under 1.30	17,049	9,778	57.4	7,271	42.6	6,895	40.4	376	2.2		
Under 1.85	24,832	15,551	62.6	9,281	37.4	8,839	35.6	442	1.8		
1.85 and over	37,874	35,383	93.4	2,491	6.6	2,428	6.4	63	.2		
Income unknown	9,836	8,481	86.2	1,355	13.8	1,293	13.1	62	.6		
Area of residence:											
Inside metropolitan area	59,748	49,050	82.1	10,698	17.9	10,232	17.1	466	.8		
In central city <sup>4</sup>	16,624	12,515	75.3	4,109	24.7	3,884	23.4	225	1.4		
Not in central city <sup>4</sup>	32,898	28,330	86.1	4,568	13.9	4,423	13.4	145	.4		
Outside metropolitan area	12,794	10,364	81.0	2,430	19.0	2,328	18.2	102	.8		
Census geographic region:											
Northeast	13,151	11,149	84.8	2,002	15.2	1,916	14.6	86	.7		
Midwest	16,882	14,213	84.2	2,669	15.8	2,612	15.5	57	.3		
South	25,126	20,054	79.8	5,072	20.2	4,841	19.3	231	.9		
West	17,383	13,998	80.5	3,385	19.5	3,191	18.4	194	1.1		

<sup>1</sup>Totals exclude children in households whose food security status is unknown because they did not give a valid response to any of the questions in the food security scale. In 2002, these represented 244,000 children (0.3 percent.)

<sup>2</sup>Households with children in complex living arrangements—e.g., children of other relatives or unrelated roommate or boarder.

<sup>3</sup>Hispanics may be of any race.

<sup>4</sup>Metropolitan area subtotals do not add to metropolitan area totals because central-city residence is not identified for about 17 percent of households in metropolitan statistical areas.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.



## Prevalences of Food Insecurity and Hunger, by State, 2000-02 (average)

Prevalence rates of food insecurity and food insecurity with hunger varied considerably from State to State. Data for 3 years, 2000-02, were combined to provide more reliable statistics at the State level (table 7). Measured prevalence rates of food insecurity during this 3-year period ranged from 6.4 percent in Massachusetts to 15.2 percent in Utah; measured prevalence rates of hunger ranged from 1.8 percent in Virginia to 5.1 percent in Oklahoma.

The margins of error for the State prevalence rates should be taken into consideration when interpreting these statistics, especially when comparing prevalence rates across States. Margins of error reflect sampling variation—the uncertainty associated with estimates that are based on information from only a limited number of households in each State. The margins of error presented in table 7 indicate the range (above or below the estimated prevalence rate) within which the true prevalence rate is 90 percent likely to be. In some States, margins of error were nearly 2 percentage points for estimated prevalence rates of food insecurity and larger than 1 percentage point for estimated prevalence rates of food insecurity with hunger. For example, the prevalence rate of food insecurity in Utah was

15.2 percent, plus or minus 1.70 percentage points. Considering the margin of error, it is not certain (statistically significant) that the rate of food insecurity in Utah was higher than of the States with the next eight highest prevalence rates of food insecurity.

Taking into account the margins of error of the State and U.S. estimates, the prevalence of food insecurity was higher than the national average in 17 States and lower than the national average in 22 States and the District of Columbia. In the remaining 11 States, differences from the national average were not statistically significant. The prevalence of food insecurity with hunger was higher than the national average in 9 States, lower than the national average in 11 States and the District of Columbia, and not significantly different from the national average in 30 States.

These State-level food security statistics cannot be compared directly with those published previously by ERS in *Prevalence of Food Insecurity and Hunger, by State, 1996-1998* (Nord et al., 1999) because of changes over the years in screening procedures used to reduce respondent burden in the CPS food security surveys. Appendix D provides prevalence rates for the earlier period that have been adjusted for these screening differences so as to be comparable with those for 2000-02.

**Table 7—Prevalence of household-level food insecurity and hunger, by State, average 2000-02<sup>1</sup>**

State	Number of households		Food insecure (with or without hunger)		Food insecure with hunger	
	Average 2000-02 <sup>2</sup>	Interviewed	Prevalence	Margin of error <sup>3</sup>	Prevalence	Margin of error <sup>3</sup>
	<i>Number</i>		<i>Percent</i>	<i>Percentage points</i>	<i>Percent</i>	<i>Percentage points</i>
U.S. total	107,489,000	138,152	10.8	0.22	3.3	0.09
AK	224,000	1,771	11.8	1.43	4.3*	.62
AL	1,774,000	2,064	12.5*	1.24	3.7	.73
AR	1,038,000	1,707	14.6*	1.61	4.4	1.15
AZ	1,917,000	1,925	12.5*	1.50	3.7	.82
CA	12,434,000	9,360	11.7*	.68	3.5	.38
CO	1,652,000	2,550	9.2*	.83	2.8	.48
CT	1,274,000	2,125	7.6*	.85	2.8	.49
DC	260,000	1,701	9.3*	1.04	2.3*	.53
DE	300,000	1,614	6.8*	1.42	1.9*	.76
FL	6,383,000	6,257	11.8*	.99	3.7	.55
GA	3,084,000	1,898	12.9*	1.32	3.5	.76
HI	408,000	1,399	11.9	1.93	3.6	1.03
IA	1,144,000	2,293	9.1*	1.17	2.8	.74
ID	484,000	1,937	13.7*	1.35	4.3*	.74
IL	4,666,000	5,040	8.6*	.77	2.7*	.41
IN	2,421,000	2,489	8.9*	.97	2.8	.59
KS	1,054,000	2,294	11.7	1.35	3.9	.72
KY	1,606,000	1,932	10.8	1.34	2.9	.70
LA	1,660,000	1,522	13.1*	1.66	2.9	.75
MA	2,441,000	2,809	6.4*	1.13	2.1*	.71
MD	2,049,000	2,118	8.2*	1.40	2.9	.72
ME	535,000	2,278	9.0*	1.08	2.8	.62
MI	3,907,000	4,076	9.2*	.74	3.0	.50
MN	1,877,000	2,526	7.1*	1.02	2.2*	.84
MO	2,236,000	2,094	9.9	1.37	3.3	.63
MS	1,080,000	1,503	14.8*	1.17	4.5*	.81
MT	365,000	1,764	12.8*	1.16	4.1	.81
NC	3,129,000	3,071	12.3*	1.08	3.7	.55
ND	259,000	2,279	8.1*	1.17	2.0*	.53
NE	649,000	2,188	10.7	1.63	3.1	.67
NH	485,000	2,139	6.7*	.99	2.1*	.56
NJ	3,104,000	3,435	8.5*	.90	2.7	.65
NM	687,000	1,639	14.3*	1.36	3.8	.76
NV	727,000	2,402	9.3*	.89	3.3	.75
NY	7,003,000	7,210	9.4*	.57	2.9	.36
OH	4,544,000	4,762	9.8*	.76	3.3	.43
OK	1,361,000	1,962	14.3*	1.28	5.1*	.68
OR	1,341,000	2,071	13.7*	1.12	5.0*	.87
PA	4,742,000	5,298	9.4*	.68	2.7*	.48
RI	395,000	2,183	10.1	1.49	3.4	.66
SC	1,576,000	1,677	12.3*	1.49	4.3	1.16
SD	291,000	2,240	8.0*	.92	2.2*	.53
TN	2,190,000	1,690	11.3	1.25	3.3	.66
TX	7,542,000	5,734	14.8*	1.05	4.1*	.46
UT	714,000	1,701	15.2*	1.70	4.6*	.99
VA	2,778,000	2,239	7.3*	1.13	1.8*	.49
VT	249,000	1,920	9.0*	1.16	2.4*	.56
WA	2,362,000	2,348	12.3*	1.36	4.4*	.86
WI	2,122,000	2,711	8.1*	.74	3.3	.49
WV	764,000	2,190	9.4*	1.11	2.7*	.45
WY	202,000	2,017	10.7	1.47	4.3*	1.00

\*Difference from U.S. total was statistically significant with 90 percent confidence ( $t > 1.645$ ).

<sup>1</sup>Prevalence 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. Comparable statistics for the earlier period are presented in appendix D.

<sup>2</sup>Totals exclude households whose food security status is unknown because they did not give a valid response to any of the questions in the food security scale. These represented about 0.3 percent of all households in each year.

<sup>3</sup>Margin of error with 90 percent confidence (1.645 times the standard error of the estimated prevalence rate).

Source: Prepared by ERS using data from the Sept. 2000, Dec. 2001, and Dec. 2002 Current Population Survey Food Security Supplements.

## Section 2. Household Spending on Food

This section provides information on how much households spent on food, as reported in the December 2002 food security survey. Food insecurity is a condition that arises specifically 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 eaten at home, or from cafeterias, restaurants, or vending machines to be eaten outside the home. The amount of money that a household spends on food, therefore, provides insight into how adequately it is meeting its food needs.<sup>12</sup> When households reduce food spending below some minimum level because of constrained resources, various aspects of food insecurity, such as disrupted eating patterns and reduced food intake, may result.

### Methods

The household food expenditure statistics in this report are based on usual weekly spending for food, as reported by respondents after they were given a chance to reflect on the household's actual food spending during the previous week.<sup>13</sup> Respondents were first asked about the actual amount of money their households

spent on food in the week prior to the interview (including any purchases made with food stamps) at: (a) supermarkets and grocery stores; (b) stores other than supermarkets and grocery stores such as meat markets, produce stands, bakeries, warehouse clubs, and convenience stores; (c) restaurants, fast food places, cafeterias, and vending machines; and (d) any other kind of place.<sup>14</sup> 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. Earlier analyses by ERS researchers found that food expenditures estimated from data collected by this method were consistent with estimates from the Consumer Expenditure Survey (CES)—the principal source of data on U.S. household expenditures for goods and services (Oliveira and Rose, 1996).

Food spending was adjusted for household size and composition in two ways. The first adjustment was calculated by dividing each household's usual weekly food spending by the number of persons in the household, 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. The Thrifty Food Plan—developed by USDA—serves as a national standard for a nutritious, low-cost diet. It represents a set of "market baskets" of food that people of specific ages and genders 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.<sup>15</sup> Each household's reported usual weekly food spending

<sup>12</sup>Food spending is, however, 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, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), meal programs for children in child care and for the elderly, and private charitable organizations. (Purchases with food stamps, however, are counted as food spending in the CPS food security survey.) 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 eat more meals at friends' or relatives' homes than they provide to friends or relatives. (Food spending overstates food consumption in households with the opposite characteristics.) Food spending also understates food consumption in geographical areas with relatively low food prices and overstates consumption in areas with high food prices.

<sup>13</sup>In CPS food security surveys that asked about both actual and usual food spending per week, median actual food spending was higher than median usual food spending. This finding was consistent across the various years in which the survey was conducted and across different household types. The reasons for this difference are under study. Pending outcomes of this research, analysts should be aware of a possible downward bias on food spending statistics based on "usual" food spending data.

<sup>14</sup>For spending in the first two categories of stores, respondents were also asked how much of the amount was for "nonfood items such as pet food, paper products, detergents, or cleaning supplies." These amounts are not included in calculating spending for food.

<sup>15</sup>The Thrifty Food Plan, in addition to its use as a research tool, is used as a basis for setting the maximum benefit amounts of the Food Stamp Program. (See appendix C for further information on the Thrifty Food Plan and estimates of the weekly cost of the Thrifty Food Plan and three other USDA food plans for each age-gender group.)

was divided by the cost of the Thrifty Food Plan for that household, based on the age and gender of each household member and the number of persons in the household (see appendix table C-1).

The median of each of the two food spending measures was calculated at the national level and for households in various categories to represent the usual weekly food spending—per person, and relative to the cost of the Thrifty Food Plan—of the typical household in each category. Medians are reported rather than averages because medians are not unduly affected by the few unexpectedly high values of usual food spending

that are believed to be reporting errors or data entry errors. Thus, the median better reflects what a typical household spent.

Data were weighted using food security supplement weights provided by the Census Bureau so that the interviewed households would represent all households in the United States. About 6 percent of households interviewed in the CPS food security survey did not respond to the food spending questions and were excluded from the analysis. As a result, the total number of households represented in tables 8 and 9 is somewhat smaller than that in tables 1 and 2.

## Food Expenditures, by Selected Household Characteristics

In 2002, the typical U.S. household spent \$37.50 per person each week for food (table 8). Median household food spending relative to the cost of the Thrifty Food Plan was 1.25. That is, the typical household usually spent 25 percent more on food than the cost of the Thrifty Food Plan for its household type.

Households with children under age 18 generally spent less for food, relative to the Thrifty Food Plan, than those without children. The typical household with children spent 14 percent more than the cost of the Thrifty Food Plan, while the typical household with no children spent 37 percent more than the cost of the Thrifty Food Plan. Median food expenditures relative to the Thrifty Food Plan were lower for single females with children (1.03) and for single males with children (1.11) than for married couples with children (1.18). Median food expenditures relative to the Thrifty Food Plan were highest for men living alone (1.50).

Median food expenditures relative to the Thrifty Food Plan were lower for Black households (1.07) and Hispanic households (1.11) than for non-Hispanic White households (1.33). This finding is consistent with the lower average incomes and higher poverty rates of these racial and ethnic minorities.

As expected, higher income households spent more money on food than lower income households.<sup>16</sup> The

<sup>16</sup>However, food spending does not rise proportionately with income increases, so high-income households actually spend a smaller proportion of their income on food than do low-income households.

typical household with income below the poverty line spent about 7 percent less than the cost of the Thrifty Food Plan, while the typical household with income above 185 percent of the poverty line spent 41 percent more than cost of the Thrifty Food Plan.

Median relative food spending of households outside metropolitan areas was 1.09, compared with 1.33 for households inside metropolitan areas. Median spending on food by households in the Midwest and South (1.21 and 1.24, respectively) was slightly lower than that for households in the Northeast (1.33) and West (1.36).

Median spending for food relative to the cost of the Thrifty Food Plan declined from 1.32 in 2001 to 1.25 in 2002, a decline of 5.3 percent.<sup>17</sup> Declines were largest for households with no children present (4.9 percent) households with incomes above 185 percent of the poverty line (4.1 percent), and households living outside of metropolitan areas (4.4 percent). Median relative food spending declined only 1.1 percent for households with incomes below 130 percent of the poverty line.

<sup>17</sup>Statistics on personal consumption expenditures (PCE) for food published by the U.S. Bureau of Economic Analysis are at variance with the decline in food spending reported here. PCE statistics (revised June 26, 2003) show a 1.8-percent increase (adjusted for inflation) in per capita expenditures on food and beverages by individuals between the fourth quarter of 2001 and the fourth quarter of 2002. Even though the PCE statistics are constructed for different purposes and based on different definitions and data collection methods than the results reported here, the discrepancy raises questions about the decline in food spending relative to the cost of the Thrifty Food Plan observed in the CPS food security survey. Reasons for the discrepancy in findings for this period are under investigation.

**Table 8—Weekly household food spending per person and relative to the cost of the Thrifty Food Plan (TFP), 2002**

Category	Number of households <sup>1</sup>	Median weekly food spending	
		Per person	Relative to TFP
	<i>1,000</i>	<i>Dollars</i>	<i>Ratio</i>
All households	101,987	37.50	1.25
Household composition:			
With children < 18	36,919	30.00	1.14
At least one child < 6	16,407	26.67	1.13
Married-couple families	24,973	30.00	1.18
Female head, no spouse	9,062	26.67	1.03
Male head, no spouse	2,203	30.00	1.11
Other household with child <sup>2</sup>	682	30.00	1.15
With no children < 18	65,068	44.00	1.37
More than one adult	38,716	40.00	1.30
Women living alone	14,957	45.00	1.38
Men living alone	11,395	52.00	1.50
With elderly	22,405	36.67	1.20
Elderly living alone	9,003	40.00	1.23
Race/ethnicity of households:			
White non-Hispanic	75,439	40.00	1.33
Black non-Hispanic	12,525	30.00	1.07
Hispanic <sup>3</sup>	9,881	30.00	1.11
Other non-Hispanic	4,142	35.00	1.23
Household income-to-poverty ratio:			
Under 1.00	11,080	25.00	.93
Under 1.30	16,363	26.00	.94
Under 1.85	24,122	27.50	.97
1.85 and over	61,695	40.00	1.41
Income unknown	16,171	37.50	1.24
Area of residence:			
Inside metropolitan area	82,159	39.00	1.33
In central city <sup>4</sup>	25,034	40.00	1.32
Not in central city <sup>4</sup>	42,805	40.00	1.36
Outside metropolitan area	19,829	32.50	1.09
Census geographic region:			
Northeast	18,745	40.00	1.33
Midwest	23,543	35.00	1.21
South	37,073	37.50	1.24
West	22,627	40.00	1.36

<sup>1</sup>Totals exclude households that did not answer the questions about spending on food. These represented 6.0 percent of all households.

<sup>2</sup>Households with children in complex living arrangements—e.g., children of other relatives or unrelated roommate or boarder.

<sup>3</sup>Hispanics may be of any race.

<sup>4</sup>Metropolitan area subtotals do not add to metropolitan area totals because central-city residence is not identified for about 17 percent of households in metropolitan statistical areas.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.



## Food Expenditures and Household Food Security

Food-secure households typically spent more on food than food-insecure households. Median food spending relative to the cost of the Thrifty Food Plan was 1.32 among food-secure households, compared with 0.98 among households classified as food insecure either with or without hunger (table 9). Thus, the typical food-secure household spent 35 percent more for food than the typical household of the same size and composition that was food insecure with hunger. Slightly more than half of the households that were food insecure spent, on a usual basis, less on food than the national average cost of the Thrifty Food Plan.

The relationship between food expenditures and food security was consistent across household structure, race/ethnicity, income, metropolitan residence, and geographic region (table 10). For every household type, median food spending relative to the cost of the Thrifty Food Plan was higher for food-secure than food-insecure households. This was true even for households within the same income category. For example, among households with incomes below the poverty line, median food spending relative to the cost of the Thrifty Food Plan was 0.90 for food-insecure households compared with 0.98 for food-secure households. Furthermore, for food-secure households, median food spending for every household type except those with incomes below 185 percent of the poverty line was higher than the cost of the Thrifty Food Plan.

Although the *relationship* between food expenditures and food security was consistent, the *levels* of food expenditure varied substantially across household types, even within the same food security status. For food-insecure households, food expenditures of the

typical households in most categories were close to the cost of the Thrifty Food Plan, but there were some notable exceptions. Food-insecure individuals living alone—especially nonelderly men—spent substantially more on food than the cost of the Thrifty Food Plan for their age and gender. Food-insecure households with incomes above 185 percent of the poverty line also registered median food expenditures substantially higher than the cost of the Thrifty Food Plan.<sup>18</sup>

<sup>18</sup>Analysis by ERS (Nord et al., 2000) has found that the experiences of food insecurity of higher and middle-income households are, disproportionately, occasional and of short duration. Their food expenditures during those food-insecure periods may have been lower than the amount they reported as their “usual” weekly spending for food.

**Table 9—Weekly household food spending per person and relative to the cost of the Thrifty Food Plan (TFP) by food security status, 2002**

Category	Number of households <sup>1</sup>	Median weekly food spending	
		Per person	Relative to TFP
		Dollars	Ratio
All households	101,987	37.50	1.25
Food security status:			
Food secure	90,204	38.57	1.32
Food insecure	11,576	27.50	.98
Without hunger	7,926	26.67	.98
With hunger	3,650	30.00	.98

<sup>1</sup>Totals for all households exclude households that did not answer the questions about spending on food. These represented 6.0 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.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.



**Table 10—Median weekly household food spending relative to the cost of the Thrifty Food Plan (TFP), by food security status and selected household characteristics, 2002**

Category	Food secure	Ratio <sup>1</sup>	Food insecure
All households	1.32		0.98
Household composition:			
With children < 18	1.18		.93
At least one child < 6	1.19		.95
Married-couple families	1.21		.95
Female head, no spouse	1.09		.92
Male head, no spouse	1.18		.89
Other household with child <sup>2</sup>	1.15		NA
With no children < 18	1.39		1.06
More than one adult	1.33		.92
Women living alone	1.52		1.08
Men living alone	1.64		1.23
With elderly	1.21		.92
Elderly living alone	1.23		1.08
Race/ethnicity of households:			
White non-Hispanic	1.37		1.02
Black non-Hispanic	1.09		.93
Hispanic <sup>3</sup>	1.16		.93
Other non-Hispanic	1.25		.94
Household income-to-poverty ratio:			
Under 1.00	.98		.90
Under 1.30	.96		.91
Under 1.85	1.00		.92
1.85 and over	1.43		1.12
Income unknown	1.24		.95
Area of residence:			
Inside metropolitan area	1.37		1.00
In central city	1.37		1.01
Not in central city	1.39		1.04
Outside metropolitan area	1.11		.90
Census geographic region:			
Northeast	1.36		1.08
Midwest	1.23		1.01
South	1.28		.92
West	1.41		.99

NA = Median not reported; fewer than 100 interviewed households in the category.

<sup>1</sup>Statistics exclude households that did not answer the questions about spending on food and those that did not provide valid responses to any of the questions on food security. These represented 6.6 percent of all households.

<sup>2</sup>Households with children in complex living arrangements—e.g., children of other relatives or unrelated roommate or boarder.

<sup>3</sup>Hispanics may be of any race.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

## Section 3. Use of Federal and Community Food Assistance Programs

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

This section presents information about the food security status and food expenditures of households that participated in the three largest Federal food programs and the two most common community food programs. (See box, page 28). It also provides information about the extent to which food-insecure households participated in these programs and about the characteristics of households that obtained food from community food pantries. Overall participation rates in the Federal food assistance programs, participation rates of eligible households in those programs, and characteristics of participants in those programs are not described in this report. Extensive information on those topics is available from the USDA's Food and Nutrition Service.<sup>19</sup>

### Methods

The December 2002 CPS food security survey included a number of questions about the use of Federal and community-based food assistance programs. All households with incomes below 185 percent of the Federal poverty threshold were asked these questions. In order to minimize the burden on respondents, households with incomes above that range were not asked the questions unless they indicated some level of difficulty in meeting their food needs on preliminary screener questions. The questions analyzed in this section are:

- “During the past 12 months...did anyone in this household get food stamp benefits—that is, either food stamps or a food-stamp benefit card?” Households that responded affirmatively were then asked in which months they received food stamp benefits and on what date they last received them. Information from these three questions was combined to identify households that received food stamps in the 30 days prior to the survey.
- “During the past 30 days, did any children in the household...receive free or reduced-cost lunches at school?” (Only households with children ages 5-18 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 ages 0-5 or a woman ages 15-45 were asked this question.)
- “In the last 12 months, did you or other adults in your household ever get emergency food from a church, a food pantry, or food bank?” The use of these resources any time during the last 12 months is referred to in the rest of this section as “food pantry use.” Households that reported using a food pantry in the last 12 months were asked, “How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?” Households reporting that they did not use a food pantry in the last 12 months were asked, “Is there a church, food pantry, or food bank in your community where you could get emergency food if you needed it?”
- “In the last 12 months, did you or other adults in your household ever eat any meals at a soup kitchen?” The use of this resource is referred to as “use of an emergency kitchen” in the following discussion.

Prevalence rates of food security, food insecurity, and food insecurity with hunger, as well as median food expenditures relative to the cost of the Thrifty Food Plan, were calculated for households reporting use of each food assistance program or facility and for comparison groups of nonparticipating households with incomes and household compositions similar to those of program participants. Statistics for participating households excluded households with incomes above

<sup>19</sup>Information on Federal food and nutrition assistance programs, including participation rates and characteristics of participants, is available from the Food and Nutrition Service website at [www.fns.usda.gov](http://www.fns.usda.gov). Additional research findings on the operation and effectiveness of these programs are available from the ERS website at [www.ers.usda.gov/briefing/foodnutritionassistance](http://www.ers.usda.gov/briefing/foodnutritionassistance).

the ranges specified for the comparison groups.<sup>20</sup> The proportions of food-insecure households participating in each of the three largest Federal food assistance programs were calculated, as well as the proportion that participated in any of the three programs. 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.

The numbers and proportions of households using food pantries and emergency kitchens were calculated at the national level, as were the proportions of households in selected categories that used food pantries. Households that had incomes above 185 percent of the poverty line and gave no indication of food insecurity on either of two preliminary screener questions were not asked whether they had used food pantries and emergency kitchens; it was assumed that they did not. Analysis (not shown) indicated that this assumption resulted in negligible downward bias to estimated participation rates.

Estimates of emergency kitchen use from the CPS food security surveys almost certainly understate the proportion of the population that actually uses these providers. The CPS selects households to interview from an address-based list and therefore interviews only persons who occupy housing units. People who are homeless at

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<sup>20</sup>Some program participants reported incomes that were higher than the program eligibility criteria. They may have had incomes below the eligibility threshold during part of the year, or subfamilies within the household may have had incomes low enough to have been eligible.

the time of the survey are not included in the sample, and those in tenuous housing arrangements (for instance, temporarily doubled up with another family) also may be missed. Exclusion of the homeless and underrepresentation of those who are tenuously housed bias estimates of emergency kitchen use downward, especially among certain subgroups of the population. This is much less true for food pantry users because they need cooking facilities to make use of items from a food pantry.<sup>21</sup> Therefore, detailed analyses in this section focus primarily on the use of food pantries.

Finally, proportions were calculated of households participating in the three largest Federal food programs who also obtained food from food pantries and emergency kitchens. This analysis was restricted to households with annual incomes below 185 percent of the poverty line.

Data for all calculations were weighted using food security supplement weights. These weights, provided by the Census Bureau, are based on sampling probabilities and enable the interviewed households to statistically represent all civilian households in the United States.

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<sup>21</sup>Previous studies of emergency kitchen users and food pantry users confirm these assumptions. A survey of clients of emergency food providers affiliated with America's Second Harvest found that more than one-fourth of emergency kitchen users were homeless, while this was true of less than 5 percent of food pantry users (America's Second Harvest, 1998, p. 118). A nationally representative survey of people who use food pantries and emergency kitchens found that about 36 percent of emergency kitchen clients and 8 percent of households that received food from food pantries were homeless in 2001 (Briefel et al., 2003).

## Federal and Community Food Assistance Programs

### Federal Food Assistance Programs

USDA's Food and Nutrition Service (FNS) administers 15 domestic food and nutrition assistance programs. The three largest programs are as follows:

- The Food Stamp Program provides benefits, through electronic benefit transfer (EBT) or paper coupons, to eligible low-income households. Clients qualify for the program based on available household income, assets, and certain basic expenses. Food stamps can be used to purchase food from eligible retailers. In an average month of fiscal year 2002, the FSP provided benefits to 19.1 million people in the United States, totaling over \$18 billion for the year. The average benefit was about \$80 per person per month.
- The National School Lunch Program operates in more than 99,000 public and nonprofit private schools and residential child care institutions. All meals served under the program receive Federal subsidies, and free or reduced-price lunches are available to low-income students. In 2002, the program provided lunches to an average of 28 million children each school day. About 58 percent of the lunches served in 2002 were free or reduced-price.
- WIC (The Special Supplemental Nutrition Program for Women, Infants, and Children) 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 non-breastfeeding postpartum women, for infants in low-income families, and for children under 5 in low-income families who are found to be at nutritional risk. Most State WIC programs provide vouchers that participants use to acquire supplemental food packages at authorized food stores. In fiscal year 2002, WIC served an average 7.5 million participants per month with an average monthly benefit of about \$35 per person.

### Community Food Assistance Programs

#### *Food-Assistance Providers*

Food pantries and emergency kitchens are the main direct providers of emergency food assistance. These agencies are locally based and rely heavily on volunteers. The majority of them are affiliated with faith-based organizations. (See Ohls et al., 2002, for more information.) Most of the food distributed by food pantries and emergency kitchens comes from local resources, but USDA supplements these resources through The Emergency Food Assistance Program (TEFAP). In 2000, TEFAP supplied 422 million pounds of commodities to community emergency food providers. Over half of all food pantries and emergency kitchens received TEFAP commodities in 2000, and these commodities accounted for about 14 percent of all food distributed by them (Ohls et al., 2002). Pantries and kitchens play different roles, as follows:

- Food pantries distribute unprepared foods for offsite use. An estimated 32,737 pantries operated in 2000 and distributed, on average, 239 million pounds of food per month. Households using food pantries received an average of 38.2 pounds of food per visit.
- Emergency kitchens (sometimes referred to as soup kitchens) provide individuals with prepared food to eat at the site. In 2000, an estimated 5,262 emergency kitchens served a total of 474,000 meals on an average day.

## Food Security and Food Spending of Households That Received Food Assistance

The relationship between food assistance program use and food security is complex. There are reasons to expect that households observed to be using food assistance programs in a one-time survey can either be more or less food secure than low-income households not using food assistance. Since these programs provide food and other resources to reduce the risk of hunger, households are expected to be more food secure after receiving program benefits than before doing so. On the other hand, it is the more food-insecure households, having greater difficulty meeting their food needs, that seek assistance from the programs.<sup>22</sup> More than half of food stamp households, and nearly half of the households that received free or reduced-cost school lunches or WIC, were food insecure (table 11). The prevalence rate of hunger among households participating in the Food Stamp Program or receiving free or reduced-cost school lunches was about twice that of nonparticipating households in the same income ranges and with similar household composition. About 70 percent of households that obtained emergency food from community food pantries were food insecure, and more than one-third were food insecure with hunger. For those who ate meals at emergency kitchens, rates of food insecurity and hunger were even higher.

<sup>22</sup>This “self-selection” effect is evident in the association between food security and food program participation that is observed in the food security survey. Participating households were less food secure than similar nonparticipating households. More complex analysis using methods to account for this self-targeting is required to assess the extent to which the programs improve food security (see especially Gundersen and Oliveira, 2001; Gundersen and Gruber, 2001; Nelson and Lurie, 1998).

A possible complicating factor in the preceding analysis is that food insecurity was measured over a 12-month period. An episode of food insecurity or food insecurity with hunger may have occurred at a different time during the year than the use of a specific food assistance program. A similar analysis using a 30-day measure of food insecurity with hunger largely overcomes this potential problem because measured food insecurity with hunger and reported use of food assistance programs are more likely to refer to contemporaneous conditions when both are referenced to the previous 30 days. That analysis (see appendix E; table E-2) found associations between prevalence rates of hunger and the use of food assistance programs that were generally similar to those in table 11.

Households that received food assistance also spent substantially less for food than nonrecipient households (table 12).<sup>23</sup> Typical (median) food expenditures of households that received food stamps were 90 percent of the cost of the Thrifty Food Plan.<sup>24</sup> The corresponding statistics were 88 percent for households receiving free or reduced-price school lunches, 94 percent for households receiving WIC, and 90 percent for households that received emergency food from food pantries. Typical food expenditures for nonparticipating households in these income ranges were higher than those of participating households, but still somewhat below the cost of the Thrifty Food Plan.

<sup>23</sup>Food purchased with food stamps is included in household food spending as calculated here. However, the value of school lunches and food obtained with WIC vouchers is not included. Food from these sources supplemented the food purchased by many of these households.

<sup>24</sup>The maximum benefit for food stamp households is equal to the cost of the Thrifty Food Plan. About 20 percent of the FSP caseload receives the maximum benefit. Households with countable income receive less.

**Table 11—Prevalence rates of food security, food insecurity, and hunger, by participation in selected Federal and community food assistance programs, 2002**

Category	Food secure	Food insecure		
		All	Without hunger	With hunger
		<i>Percent</i>		
Income less than 130 percent of poverty line:				
Received food stamps previous 30 days	48.6	51.4	31.5	19.9
Did not receive food stamps previous 30 days	71.3	28.7	18.9	9.8
Income less than 185 percent of poverty line; school-age children in household:				
Received free or reduced-price school lunch previous 30 days	52.3	47.7	35.1	12.6
Did not receive free or reduced-price school lunch previous 30 days	77.1	22.9	17.8	5.1
Income less than 185 percent of poverty line; children under age 5 in household:				
Received WIC previous 30 days	57.0	43.0	34.2	8.8
Did not receive WIC previous 30 days	68.7	31.3	24.6	6.7
Income less than 185 percent of poverty line:				
Received emergency food from food pantry previous 12 months	29.1	70.9	35.1	35.8
Did not receive emergency food from food pantry previous 12 months	75.4	24.6	17.7	6.9
Ate meal at emergency kitchen previous 12 months	23.1	76.9	22.6	54.3
Did not eat meal at emergency kitchen previous 12 months	71.5	28.5	19.3	9.2

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

**Table 12—Weekly household food spending relative to the cost of the Thrifty Food Plan (TFP), by participation in selected Federal and community food assistance programs, 2002**

Category	Median weekly food spending relative to cost of the TFP
	<i>Ratio</i>
Income less than 130 percent of poverty line:	
Received food stamps previous 30 days	0.90
Did not receive food stamps previous 30 days	.95
Income less than 185 percent of poverty line; school-age children in household:	
Received free or reduced-price school lunch previous 30 days	.88
Did not receive free or reduced-price school lunch previous 30 days	.95
Income less than 185 percent of poverty line; children under age 5 in household:	
Received WIC previous 30 days	.94
Did not receive WIC previous 30 days	.96
Income less than 185 percent of poverty line:	
Received emergency food from food pantry previous 12 months	.90
Did not receive emergency food from food pantry previous 12 months	.98

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.



## Participation in Federal Food Assistance Programs by Food-Insecure Households

Somewhat more than half (54.2 percent) of food-insecure households received assistance from at least one of the three largest Federal food assistance programs during the month prior to the December 2002 food security survey (table 13). The largest share of food-insecure households was reached by the National School Lunch Program (36.4 percent), followed by the Food Stamp Program (28.0 percent) and the WIC program (13.5 percent).<sup>25</sup> The proportions of food-insecure households that received food stamps and free or reduced-price school lunches increased from 2001 to 2002 (by 2.9 and 3.0 percentage points, respectively), while the proportion that received WIC was unchanged. The pattern of program participation by households classified as food insecure with hunger was similar to that of all food-insecure households, with 49.8 percent of these more severely food-insecure households participating in one or more of the three largest Federal food assistance programs; changes from 2001 were not statistically significant.

<sup>25</sup>These statistics may be biased downward somewhat. It is known from comparisons of administrative records and household survey data that food program participation is underreported by household survey respondents, including those in the CPS. 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 these households were eligible for certain of the programs. (For example, those without pregnant women or children and with incomes above 130 percent of poverty would not have been eligible for any of the programs).

**Table 13—Participation of food-insecure households in selected Federal food assistance programs, 2002**

Program	Share of food-insecure households that participated in the program during the previous 30 days <sup>1</sup>	Share of food-insecure-with-hunger households that participated in the program during the previous 30 days <sup>1</sup>
<i>Percent</i>		
Food stamps	28.0	31.8
Free or reduced-price school lunch	36.4	28.9
WIC	13.5	8.4
Any of the three programs	54.2	49.8
None of the three programs	45.8	50.2

<sup>1</sup>Analysis 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.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.



## Use of Food Pantries and Emergency Kitchens

Some 3.3 million households (3.0 percent of all households) obtained food from food pantries one or more times during the 12-month period ending in December 2002 (table 14). A much smaller number—395,000 households (0.4 percent)—had members who ate one or more meals at an emergency kitchen. Households that

obtained food from food pantries included 5.7 million adults and 3.9 million children. Forty-seven percent of households that reported having obtained food from a food pantry in the last 12 months reported that this had occurred in only 1 or 2 months; 20 percent reported that it had occurred in almost every month; and the remaining 33 percent reported that it had occurred in “some months, but not every month.”

**Table 14—Use of food pantries and emergency kitchens, 2002**

Category	Pantries			Kitchens		
	Total <sup>1</sup>	Users		Total <sup>1</sup>	Users	
	<i>1,000</i>	<i>1,000</i>	<i>Percent</i>	<i>1,000</i>	<i>1,000</i>	<i>Percent</i>
All households	108,405	3,251	3.0	108,407	395	0.36
All persons in households	278,460	9,621	3.5	278,462	867	.31
Adults in households	206,125	5,673	2.8	206,096	612	.30
Children in households	72,335	3,947	5.5	72,365	255	.35
Food security status:						
Food secure	96,371	943	1.0	96,381	92	.10
Food insecure	11,969	2,309	19.3	11,948	303	2.54
Without hunger	8,195	1,161	14.2	8,182	102	1.25
With hunger	3,774	1,148	30.4	3,766	201	5.34

<sup>1</sup>Totals exclude households that did not answer the question about food pantries or emergency kitchens. Totals in the bottom section also exclude households that did not answer any of the questions in the food security scale.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

## **Use of Food Pantries and Emergency Kitchens, by Food Security Status**

Use of food pantries and emergency kitchens was strongly associated with food insecurity. Food-insecure households were 19 times more likely than food-secure households to have obtained food from a food pantry, and 25 times more likely than food-secure households to have eaten a meal at an emergency kitchen. Furthermore, among food-insecure households, those registering hunger were more than twice as likely to have used a food pantry and four times as likely to have used an emergency kitchen as those that were food insecure without hunger.

A large majority (81 percent) of food-insecure households, and of households that were food insecure with hunger (70 percent), did not use a food pantry at any time during the previous year. In some cases, this was because there was no food pantry available or because the household believed there was none available.

Among food-insecure households that did not use a food pantry, 27 percent reported that there was no such resource in their community, and an additional 21 percent said they did not know if there was. Nevertheless, even among food-insecure households that knew there was a food pantry in their community, only 31 percent availed themselves of it.

About 29 percent of households that used food pantries and emergency kitchens were classified as food secure. Just over half (51 percent) of these food-secure households did, however, report some concerns or difficulties in obtaining enough food by responding positively to 1 or 2 of the 18 indicators of food insecurity. (A household must report occurrence of at least three of the indicators to be classified as food insecure; see appendix A). The proportions using food pantries and emergency kitchens were much higher among households that reported one or two indicators of food insecurity than among households that reported none—11 times as high for food pantry use and 5 times as high for use of emergency kitchens.

## Use of Food Pantries, by Selected Household Characteristics

The use of food pantries varied considerably by household structure and by race and ethnicity (table 15). Households with children were twice as likely as those without children to use food pantries (4.5 percent compared with 2.2 percent). Food pantry use was especially high among female-headed households with children (9.7 percent), while use by married couples with children (2.5 percent) was lower than the national average. Few households with elderly members used food pantries (1.8 percent). Use of food pantries was higher among Blacks (6.6 percent) and Hispanics (4.5 percent) than among non-Hispanic Whites (2.2 percent), consistent with higher rates of poverty, food insecurity, and hunger among those minorities. In spite of their lower use, non-Hispanic Whites comprised a majority (55 percent) of food-pantry users because of their larger share in the general population.

About 14 percent of households with incomes below the poverty line received food from food pantries, compared with 0.7 percent of households with incomes above 185 percent of the poverty line.<sup>26</sup> Among households with incomes above the poverty line but below 185 percent of the poverty line, 784,000 used food pantries in 2002, comprising 24 percent of all households using food pantries and 5.8 percent of households in that income range.

Use of food pantries was higher in central cities (3.9 percent) and in nonmetropolitan areas (3.9 percent) than in metropolitan areas outside of central cities (2.1 percent). There was not a large regional variation in the use of food pantries, although use was more common in the West (3.6 percent) and the Midwest (3.5 percent).

<sup>26</sup>Use of food pantries by households with incomes higher than 1.85 times the poverty line was probably slightly underreported by the CPS food security survey. Households in this income range were not asked the question about using a food pantry unless they had indicated some level of food stress on at least one of two preliminary screener questions. However, analysis of the use of food pantries by households at different income levels below 1.85 times the poverty line (and thus not affected by the screen) indicates that the screening had only a small effect on the estimate of food pantry use by households with incomes above that range.

**Table 15—Use of food pantries, by selected household characteristics, 2002**

Category	Total <sup>1</sup>	Pantry users	
	1,000	1,000	Percent
All households	108,405	3,251	3.0
Household composition:			
With children < 18	38,550	1,726	4.5
At least one child < 6	17,012	841	4.9
Married-couple families	26,020	660	2.5
Female head, no spouse	9,467	920	9.7
Male head, no spouse	2,359	118	5.0
Other household with child <sup>2</sup>	705	28	4.0
With no children < 18	69,855	1,525	2.2
More than one adult	41,479	626	1.5
Women living alone	16,161	522	3.2
Men living alone	12,216	376	3.1
With elderly	24,762	434	1.8
Elderly living alone	10,056	232	2.3
Race/ethnicity of households:			
White non-Hispanic	80,136	1,800	2.2
Black non-Hispanic	13,496	887	6.6
Hispanic <sup>3</sup>	10,311	461	4.5
Other non-Hispanic	4,462	104	2.3
Household income-to-poverty ratio:			
Under 1.00	11,474	1,656	14.4
Under 1.30	16,947	2,057	12.1
Under 1.85	25,029	2,440	9.7
1.85 and over	64,205	423	.7
Income unknown	19,172	388	2.0
Area of residence:			
Inside metropolitan area	87,454	2,441	2.8
In central city <sup>4</sup>	26,853	1,051	3.9
Not in central city <sup>4</sup>	45,492	959	2.1
Outside metropolitan area	20,951	810	3.9
Census geographic region:			
Northeast	20,173	498	2.5
Midwest	25,149	888	3.5
South	39,143	1,010	2.6
West	23,940	855	3.6

<sup>1</sup>Totals exclude households that did not answer the question about getting food from a food pantry. They represented 0.5 percent of all households.

<sup>2</sup>Households with children in complex living arrangements—e.g., children of other relatives or unrelated roommate or boarder.

<sup>3</sup>Hispanics may be of any race.

<sup>4</sup>Metropolitan area subtotals do not add to metropolitan area totals because central-city residence is not identified for about 17 percent of households in metropolitan statistical areas.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

## Combined Use of Federal and Community Food Assistance

Both Federal and community food assistance programs are important resources for low-income households. To design and manage these programs so that they function together effectively as a nutrition safety net, it is important to know how they complement and supplement each other. The extent to which households that participate in Federal food assistance programs also receive assistance from community food assistance programs provides information about these relationships.

About one-fourth (25.9 percent) of the households that received food stamps in the month prior to the survey also obtained food from a food pantry at some time during the year (table 16). These households comprised 42.3 percent of all households that reported using a food pantry. Food pantry use was somewhat less common among households that participated in the National School Lunch Program (16.5 percent) and the WIC Program (16.3 percent), reflecting the higher income-eligibility criteria of these programs. A sizeable majority of food pantry users (63.2 percent)

received food from at least one of the three largest Federal food programs. The remainder of food pantry users (36.8 percent) did not participate in any of these Federal programs.

Only small proportions (from 0.9 to 2.5 percent) of households that participated in the three largest Federal food assistance programs reported eating at an emergency kitchen during the 12 months prior to the survey. Nevertheless, these households comprised a sizable share of emergency kitchen users. Among households with incomes less than 185 percent of the poverty line who reported eating one or more meals at an emergency kitchen, 33.6 percent received food stamps, 16.3 percent received free or reduced-cost school lunches, 7.7 percent received WIC benefits, and 40.4 percent participated in at least one of these three programs. These statistics probably overstate the actual shares of emergency kitchen users who participate in the Federal food programs, however. The households most likely to be underrepresented in the food security survey—those homeless or tenuously housed—are also less likely than other households to participate in the Federal food programs.

**Table 16—Combined use of Federal and community food assistance programs by low-income households, 2002<sup>1</sup>**

Category	Share of category that obtained food from food pantry	Share of food pantry users in category	Share of category that ate meal at emergency kitchen	Share of emergency kitchen users in category
	<i>Percent</i>			
Received food stamps previous 30 days	25.9	42.3	2.5	33.6
Received free or reduced-price school lunch previous 30 days	16.5	37.4	.9	16.3
Received WIC previous 30 days	16.3	15.2	1.0	7.7
Participated in one or more of the three Federal programs	18.0	63.2	1.4	40.4
Did not participate in any of the three Federal programs	5.5	36.8	1.1	59.6

<sup>1</sup>Analysis 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.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

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## Appendix A. Household Responses to Questions in the Food Security Scale

The 18 questions from which the food security measure is calculated ask about conditions, experiences, and behaviors that characterize a wide range of severity of food insecurity and hunger. One way the range of severity represented by the questions is observed is in the percentages of households that respond affirmatively to the various questions. For example, the least severe item, *We worried that our food would run out before we got money to buy more*, was reported by 15.6 percent of households in 2002 (table A-1). *Adults cutting the size of meals or skipping meals because there wasn't enough money for food* was reported by 6.0 percent of households. The most severe item, *children not eating for a whole day because there wasn't enough money for food*,

was reported by 0.1 percent of households with children. (See box on page 3 for full wording of these questions.)

The two least severe questions indicate uncertainty about having enough food and the experience of running out of food. The remaining 16 items indicate increasingly severe disruptions of normal eating patterns and reductions in food intake. Three or more affirmative responses are required for a household to be classified as food insecure, so all households with that classification affirmed at least one item indicating disruption of normal eating patterns or reduction in food intake. Most food-insecure households reported multiple indicators of these conditions (table A-2).

**Table A-1—Responses to items in the food security scale, 1999-2002<sup>1</sup>**

Scale item <sup>2</sup>	Households affirming item <sup>3</sup>			
	1999	2000	2001	2002
	<i>Percent</i>			
<b>Household items:</b>				
Worried food would run out before (I/we) got money to buy more	14.7	15.1	15.3	15.6
Food bought didn't last and (I/we) didn't have money to get more	12.2	12.2	12.3	12.4
Couldn't afford to eat balanced meals	9.5	9.9	10.0	10.5
<b>Adult items:</b>				
Adult(s) cut size of meals or skipped meals	5.2	5.4	5.7	6.0
Respondent ate less than felt he/she should	4.8	5.2	5.7	5.9
Adult(s) cut size or skipped meals in 3 or more months	3.6	3.8	4.0	4.2
Respondent hungry but didn't eat because couldn't afford	2.2	2.4	2.4	2.7
Respondent lost weight	1.2	1.5	1.5	1.8
Adult(s) did not eat for whole day	1.0	1.0	1.1	1.2
Adult(s) did not eat for whole day in 3 or more months	.7	.7	.8	.8
<b>Child items:</b>				
Relied on few kinds of low-cost food to feed child(ren)	14.4	16.3	15.7	16.5
Couldn't feed child(ren) balanced meals	8.2	8.9	8.6	8.9
Child(ren) were not eating enough	4.7	4.7	4.1	4.3
Cut size of child(ren)'s meals	1.0	1.2	1.0	1.2
Child(ren) were hungry	.8	.8	.7	.9
Child(ren) skipped meals	.5	.6	.4	.7
Child(ren) skipped meals in 3 or more months	.4	.4	.3	.5
Child(ren) did not eat for whole day	.1	.2	.1	.1

<sup>1</sup>Survey responses weighted to population totals.

<sup>2</sup>The actual wording of each item includes explicit reference to resource limitation—e.g., "...because (I was/we were) running out of money to buy food," or "...because there wasn't enough money for food."

<sup>3</sup>Households not responding to item are excluded from the denominator. Households without children are excluded from the denominator of child-referenced items.

Source: Calculated by ERS using data from the April 1999, September 2000, December 2001, and December 2002 Current Population Survey Food Security Supplements.



Most food-secure households (72.9 percent of all households with children and 85.7 percent of those without children) reported no problems or concerns in meeting their food needs. However, households that reported only one or two indications of food insecurity (11 percent of households with children and 6.2 percent of households without children) are also classified as food secure. Most of these households affirmed one or both of the first two items, indicating uncertainty about having enough food or about exhausting their food supply, but did not indicate actual disruptions of normal eating patterns or reductions in food intake.

Although these households are classified as food secure, the food security of some of them may have been tenuous at times, especially in the sense that they lacked “assured ability to acquire acceptable foods in socially acceptable ways,” a condition that the Life Sciences Research Office includes in its definition of food insecurity (Anderson, 1990, p. 1598). Further research is under way on the characteristics and conditions of this least severe range measured by the food security scale, evidenced by households affirming just one or two food insecurity indicators.

**Table A-2—Percentage of households by food security raw score, 2002**

<i>Panel A: Households with children</i>			
Raw score (number of food security questions affirmed)	Percent of households <sup>1</sup>	Cumulative percent of households <sup>1</sup>	Food security status
0	72.92	72.92	Food secure
1	5.73	78.65	
2	4.84	83.49	
3	4.00	87.49	Food insecure without hunger
4	2.68	90.18	
5	2.39	92.57	
6	2.14	94.72	
7	1.45	96.17	
8	1.07	97.24	Food insecure with hunger
9	.81	98.05	
10	.65	98.70	
11	.41	99.10	
12	.28	99.39	
13	.28	99.66	
14	.12	99.78	
15	.08	99.86	
16	.05	99.91	
17	.06	99.97	
18	.03	100.00	
<i>Panel B: Households with no children</i>			
Raw score (number of food security questions affirmed)	Percent of households	Cumulative percent of households	Food security status
0	85.67	85.67	Food secure
1	3.44	89.11	
2	2.77	91.88	
3	2.56	94.44	Food insecure without hunger
4	1.20	95.64	
5	1.05	96.69	
6	1.14	97.82	Food insecure with hunger
7	.86	98.68	
8	.63	99.31	
9	.27	99.59	
10	.41	100.00	

<sup>1</sup>Survey responses weighted to population totals.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

## Frequency of Occurrence of Behaviors, Experiences, and Conditions That Indicate Food Insecurity

Most of the questions in the food security scale include information about how often the behavior, experience, or condition occurred. The food security scale is constructed to register food insecurity or hunger if these conditions occurred at any time during the year, but the frequency-of-occurrence information provided by the individual questions in the scale provides additional insight into the frequency and duration of food insecurity and hunger. Frequency-of-occurrence information is collected in the CPS Food Security Supplements using two different methods (see box, “Questions Used To Assess the Food Security of Households in the CPS Food Security Survey,” page 3):

- Method 1: A condition is described, and the respondent is asked whether this was often, sometimes, or never true for his or her household during the past 12 months.
- Method 2: Respondents who answer “yes” to a yes/no question are asked, “How often did this happen—almost every month, some months but not every month, or in only 1 or 2 months?”

Table A-3 presents responses to each food security question broken down by reported frequency of occurrence for all households interviewed in the December 2002 survey. Questions using method 1 are presented in the

top panel of the table and those using method 2 are presented in the bottom panel. Most households that responded affirmatively to method 1 questions reported that the behavior, experience, or condition occurred “sometimes,” while 14 to 24 percent (depending on the specific question), reported that it occurred “often.” For example, 2.5 percent of households reported that they often could not afford to eat balanced meals in the past 12 months, and 8.0 percent reported that this had occurred sometimes (but not often). Thus, a total of 10.5 percent of households reported that this had occurred at some time during the past 12 months, and, of those, 24 percent reported that it had occurred often.

In response to method 2 questions, 24 to 35 percent of households that responded “yes” to the base question reported that the behavior, experience, or condition occurred “in almost every month;” 38 to 44 percent reported that it occurred in “some months, but not every month;” and 27 to 32 percent reported that it occurred “in only 1 or 2 months.” For example, 5.9 percent of households reported that an adult cut the size of a meal or skipped a meal because there was not enough money for food. In response to the followup question asking how often this happened, 1.8 percent said that it happened in almost every month (i.e., 31 percent of those who responded “yes” to the base question), 2.4 percent said it happened in some months but not every month (41 percent of those who responded “yes” to the base question), and 1.7 percent said it happened in only 1 or 2 months (29 percent of those who responded “yes” to the base question).

**Table A-3—Frequency of occurrence of behaviors, experiences, and conditions indicating food insecurity and hunger, all U.S. households, 2002<sup>1</sup>**

Condition <sup>2</sup>	Frequency of occurrence		Total (ever during the year)
	Often	Sometimes	
	<i>Percent<sup>3</sup></i>		
Worried food would run out before (I/we) got money to buy more	3.5	12.1	15.6
Food bought didn't last and (I/we) didn't have money to get more	2.3	10.1	12.4
Couldn't afford to eat balanced meals	2.5	8.0	10.5
Relied on few kinds of low-cost food to feed child(ren)	3.2	13.3	16.5
Couldn't feed child(ren) balanced meals	1.4	7.5	8.9
Child(ren) were not eating enough	.6	3.7	4.3

	Frequency of occurrence			Total (ever during the year)
	Almost every month	Some months but not every month	In only 1 or 2 months	
	<i>Percent<sup>3</sup></i>			
Adult(s) cut size of meals or skipped meals	1.8	2.4	1.7	5.9
Respondent ate less than felt he/she should	1.7	2.5	1.7	5.8
Respondent hungry but didn't eat because couldn't afford	.9	1.0	.7	2.7
Respondent lost weight	NA	NA	NA	1.8
Adult(s) did not eat for whole day	.4	.5	.3	1.1
Cut size of child(ren)'s meals	.3	.5	.4	1.2
Child(ren) were hungry	.2	.4	.3	.9
Child(ren) skipped meals	.2	.3	.2	.7
Child(ren) did not eat for whole day	NA	NA	NA	.1

NA = Frequency of occurrence information was not collected for these conditions.

<sup>1</sup>Survey responses weighted to population totals.

<sup>2</sup>The actual wording of each item includes explicit reference to resource limitation—e.g., "...because (I was/we were) running out of money to buy food," or "...because there wasn't enough money for food."

<sup>3</sup>Households not responding to item or not responding to the followup question about frequency of occurrence are excluded from the denominator. Households without children are excluded from the denominator of child-referenced items.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

Table A-4 presents the same frequency-of-occurrence response statistics for households classified as food insecure with hunger. Almost all of these households responded affirmatively to the first four questions—questions that are sensitive to less severe aspects of food insecurity—and more than one in three reported that these conditions occurred often during the past year. In response to method 2 questions, 27 to 45 percent of households that affirmed each base question reported that the condition occurred in “almost every month.”

Monthly and daily frequency of occurrence were estimated for a subset of the behaviors, experiences, and conditions that indicate the food security status of households. For 9 of the questions, an affirmative response is followed up with a question as to whether the behavior, experience, or condition occurred during

the 30 days prior to the survey. (Responses to these questions are used to assess the food security status of households during the 30-day period prior to the survey, which are reported in appendix E.) For 7 of the questions, if the condition is reported to have occurred during the prior 30 days, respondents are then asked in how many days the behavior, experience, or condition occurred during that period. Responses to these questions are summarized in table A-5.

Most households that reported the occurrence of reduced food intake or hunger during the 30 days prior to the survey, reported that these conditions were of relatively short duration, although some households reported longer or more frequent spells. For example, of the 3.76 percent of households in which adults cut the size of meals or skipped meals during the previous 30 days

**Table A-4—Frequency of occurrence of behaviors, experiences, and conditions indicating food insecurity and hunger in households classified as food insecure with hunger, 2002<sup>1</sup>**

Condition <sup>2</sup>	Frequency of occurrence		Total (ever during the year)	
	Often	Sometimes		
	<i>Percent<sup>3</sup></i>			
Worried food would run out before (I/we) got money to buy more	49.7	48.7	98.4	
Food bought didn't last and (I/we) didn't have money to get more	38.7	58.4	97.2	
Couldn't afford to eat balanced meals	40.5	53.7	94.2	
Relied on few kinds of low-cost food to feed child(ren)	36.0	59.8	95.8	
Couldn't feed child(ren) balanced meals	22.7	63.6	86.3	
Child(ren) were not eating enough	12.3	46.9	59.3	
	Frequency of occurrence			
	Almost every month	Some months but not every month	In only 1 or 2 months	Total (ever during the year)
	<i>Percent<sup>3</sup></i>			
Adult(s) cut size of meals or skipped meals	42.8	42.6	10.6	95.9
Respondent ate less than felt he/she should	38.7	42.0	13.1	93.8
Respondent hungry but didn't eat because couldn't afford	24.6	25.0	12.3	62.0
Respondent lost weight	NA	NA	NA	44.7
Adult(s) did not eat for whole day	9.8	12.4	7.6	29.9
Cut size of child(ren)'s meals	7.1	12.3	6.2	25.6
Child(ren) were hungry	6.2	9.8	6.6	22.6
Child(ren) skipped meals	4.3	7.2	4.5	15.9
Child(ren) did not eat for whole day	NA	NA	NA	3.0

NA = Frequency of occurrence information was not collected for these conditions.

<sup>1</sup>Survey responses weighted to population totals for households classified as food-insecure with hunger.

<sup>2</sup>The actual wording of each item includes explicit reference to resource limitation—e.g., “...because (I was/we were) running out of money to buy food,” or “...because there wasn't enough money for food.”

<sup>3</sup>Households not responding to item or not responding to the followup question about frequency of occurrence are excluded from the denominator. Households without children are excluded from the denominator of child-referenced items.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

because there wasn't enough money for food, 64.3 percent reported that this had occurred in 1 to 7 days, 14.4 percent reported that it had occurred in 8-14 days, and 21.3 percent reported that it had occurred in 15 days or more of the previous 30 days. On average, households reporting occurrence of this condition at any time in the previous 30 days reported that it occurred in 8.7 days. The daily occurrence patterns were generally similar for all of the indicators of reduced food intake and hunger, except that the most severe adult-reference behavior, *adult did not eat for whole day*, and the child-referenced conditions tended to occur in fewer days when they occurred at all. Average days of occurrence ranged from 6.2 days for *adult did not eat for whole day* to 9.9 days for *respondent hungry but didn't eat because couldn't afford enough food*.

Average daily prevalence of the various behaviors, experiences, and conditions of reduced food intake and hunger were 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.<sup>27</sup> These daily prevalence rates ranged from 1.09 percent for *adult cut size of meals or skipped meals* to 0.08 percent for *children skipped meals*.

No direct measure of the daily prevalence of food insecurity with hunger based on the data available in the food security survey has yet been developed. However, the ratio of daily prevalence to annual prevalence of the various indicator conditions provides a basis for estimating the likely range for the average daily prevalence of hunger during the reference 30-day period. For the adult-referenced items, daily prevalences (table A-5) ranged from 13.6 to 20.4 percent of their prevalence at any time during the year (table A-3). The corresponding range for the child-referenced items was 11.4 percent to 14.4 percent. These findings are generally consistent with those of Nord et al. (2000), and are used to estimate upper and lower bounds of the daily prevalence of hunger described in section 1 of this report.

<sup>27</sup>Average daily prevalence is calculated as the product of the 30-day prevalence and the average number of days divided by 30.

**Table A-5—Monthly and daily frequency of occurrence of behaviors, experiences, and conditions that indicate food insecurity with hunger, 2002<sup>1</sup>**

Condition <sup>2</sup>	Ever during previous 30 days	For households reporting condition at any time during previous 30 days			Monthly average occurrence	Average daily prevalence
		Number of days out of previous 30 days				
		1-7	8-14	15-30		
		-----Percent <sup>3</sup> -----			Days <sup>3</sup>	Percent <sup>3</sup>
Adult(s) cut size of meals or skipped meals	3.76	64.3	14.4	21.3	8.7	1.09
Respondent ate less than felt he/she should	3.37	58.6	16.0	25.4	9.6	1.08
Respondent hungry but didn't eat because couldn't afford	1.65	58.3	14.5	27.2	9.9	.55
Respondent lost weight	1.08	NA	NA	NA	NA	NA
Adult(s) did not eat for whole day	.73	77.9	9.7	12.4	6.2	.15
Cut size of child(ren)'s meals	.65	73.8	11.0	15.2	7.3	.16
Child(ren) were hungry	.55	77.8	10.5	11.8	6.9	.13
Child(ren) skipped meals	.37	78.7	6.6	14.7	6.5	.08
Child(ren) did not eat for whole day	.07	NA	NA	NA	NA	NA

NA = Number of days of occurrence was not collected for these conditions.

<sup>1</sup>Survey responses weighted to population totals. The 30-day and daily statistics refer to the 30-day period from early November to early December; the survey was conducted during the second week of December 2002.

<sup>2</sup>The actual wording of each item includes explicit reference to resource limitation—e.g., "...because (I was/we were) running out of money to buy food," or "...because there wasn't enough money for food."

<sup>3</sup>Households without children are excluded from the denominator of child-referenced items.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.

## Appendix B. Background on the U.S. Food Security Measurement Project

This report of household food security in 2002 is the latest in a series of reports on Measuring Food Security in the United States. Previous reports in the series are:

- *Household Food Security in the United States in 1995: Summary Report of the Food Security Measurement Project* (Hamilton et al., 1997a)
- *Household Food Security in the United States in 1995: Technical Report* (Hamilton et al., 1997b)
- *Household Food Security in the United States, 1995-1998: Advance Report* (Bickel et al., 1999)
- *Prevalence of Food Insecurity and Hunger, by State, 1996-1998* (Nord et al., 1999)
- *Guide to Measuring Household Food Security, Revised 2000* (Bickel et al., 2000)
- *Household Food Security in the United States, 1999* (Andrews et al., 2000)
- *Household Food Security in the United States, 1995-1997: Technical Issues and Statistical Report* (Ohls et al., 2001)
- *Household Food Security in the United States, 1998 and 1999: Technical Report* (Cohen et al. 2002a)
- *Household Food Security in the United States, 1998 and 1999: Detailed Statistical Report* (Cohen et al. 2002b)
- *Household Food Security in the United States, 2000* (Nord et al., 2002b)
- *Measuring Children's Food Security in U.S. Households, 1995-99* (Nord and Bickel, 2002)
- *Household Food Security in the United States, 2001* (Nord et al., 2002a)
- *A 30-Day Food Security Scale for Current Population Survey Food Security Supplement Data* (Nord, 2002)

The series was inaugurated in September 1997 with the three-volume report, *Household Food Security in the United States in 1995* (Hamilton et al., 1997a and 1997b; Price et al., 1997). The advance report of findings for 1995-98 (Bickel, Carlson, and Nord, 1999) was released in July 1999, and a report detailing prevalence rates of food insecurity and hunger by State for the 1996-98 period (Nord, Jemison, and Bickel, 1999) was released in September 1999. Summary reports of findings for 1999 (Andrews et al., 2000), 2000 (Nord et al. 2002b) and

2001 (Nord et al., 2002a) continued the national report series and expanded its scope. Detailed statistical reports for 1995-97 (Ohls et al., 2001) and for 1998-99 (Cohen et al., 2002b) provided additional prevalence statistics along with standard errors for prevalence estimates and explored technical issues in food security measurement.

The estimates contained in all of these reports are based on a direct survey measure developed over several years by the U.S. Food Security Measurement Project, an ongoing collaboration among Federal agencies, academic researchers, and both commercial and nonprofit private organizations (Carlson et al., 1999; Olson, 1999.) The measure was developed in response to the National Nutrition Monitoring and Related Research Act of 1990. The Ten-Year Comprehensive Plan developed under the Act specified the following task:

*Recommend a standardized mechanism and instrument(s) for defining and obtaining data on the prevalence of "food insecurity" or "food insufficiency" in the U.S. and methodologies that can be used across the NNMRR Program and at State and local levels.*<sup>28</sup>

Beginning in 1992, USDA staff reviewed the existing research literature, focusing on the conceptual basis for measuring the severity of food insecurity and hunger and on the practical problems of developing a survey instrument for use in sample surveys at national, State, and local levels.

In January 1994, USDA's Food and Nutrition Service (FNS) joined with the U.S. Department of Health and Human Services' National Center for Health Statistics, (NCHS), in sponsoring a National Conference on Food Security Measurement and Research. This meeting brought together leading academic experts and other private researchers and key staff of the concerned Federal agencies. The conference identified the consensus among researchers in the field as to the strongest conceptual basis for a national measure of food insecurity and hunger. It also led to a working agreement about the best method for implementing such a measure in national surveys (USDA, 1995).

<sup>28</sup>Task V-C-2.4, U.S. Department of Health and Human Services and U.S. Department of Agriculture: Ten-Year Comprehensive Plan for the National Nutrition Monitoring and Related Research Program, *Federal Register* 1993, 58:32 752-806.



After extensive cognitive assessment, field testing, and analysis by the U.S. Census Bureau, a food security survey questionnaire was fielded by the bureau as a supplement to the Current Population Survey (CPS) of April 1995.<sup>29</sup> The CPS food security survey was repeated in September 1996, April 1997, August 1998, April 1999, September 2000, April 2001, December 2001, and December 2002. Minor modifications to the questionnaire format and screening procedures were made over the first several years, and a more substantial revision in screening and format, designed to reduce respondent burden and improve data quality, was introduced with the August 1998 survey. However, the content of the 18 questions upon which the U.S. Food Security Scale is based remained constant in all years.

Initial analysis of the 1995 data was undertaken by Abt Associates Inc., through a cooperative venture with FNS, the interagency working group, and other key researchers involved in developing the questionnaire. The Abt team used nonlinear factor analysis and other state-of-the-art scaling methods to produce a measurement scale for the severity of deprivation in basic food needs, as experienced by U.S. households. Extensive testing was carried out to establish the validity and reliability of the scale and its applicability across various household types in the broad national sample (Hamilton et al., 1997a, 1997b).<sup>30</sup>

Following collection of the September 1996 and April 1997 CPS food security data, Mathematica Policy Research, Inc. (MPR), under a contract awarded by FNS, reproduced independently the results from the 1995 CPS food security data, estimated food insecurity and hunger prevalences for 1996 and 1997, and

assessed the stability and robustness of the measurement model when applied to the separate datasets. The MPR findings (Ohls et al., 2001) establish the stability of the food security measure over the 1995-97 period. That is, the relative severity of the items were found to be nearly invariant across years and across major population groups and household types.

In 1998, USDA's Economic Research Service (ERS) assumed sponsorship of the Census Bureau's annual CPS food security data collection for USDA. ERS and IQ Solutions (working under a contract awarded by ERS) analyzed the 1998 and 1999 data, applying and refining the procedures developed for USDA in the Abt and MPR research. These analyses found continuing stability of the measure in those 2 years (Cohen et al., 2002a). Research by ERS and FNS also developed measurement methods for assessing the food security of children (Nord and Bickel, 2002) and for measuring the food security of households during the 30 days prior to interview based on the CPS food security survey data (Nord, 2002).

A large number of independent researchers in the academic and nutrition communities also have used the U.S. food security survey module and food security scale to assess the severity and prevalence of food insecurity in various population groups. One general result of these studies has been to verify the consistency of the measurement construct and the robustness of the measurement method in diverse populations and survey contexts. A summary list of many of these studies is available from the Brandeis University Center on Hunger and Poverty at [www.centeronhunger.org](http://www.centeronhunger.org).

Nonetheless, the following caveats need to be kept in mind when interpreting the prevalence estimates in this report:

- The Current Population Survey, which carries the food security survey as a supplement, is representative of the noninstitutionalized population of the United States. It is based on a complete address list of sampled areas (counties and metropolitan areas), but does not include homeless persons who are not in shelters. This may result in an underestimate of the number of more severely food-insecure persons.
- Case study and ethnographic research suggests that some parents are reluctant to report inadequate food intake for their children even when it has occurred (Hamilton et al., 1997b, p. 88). This may result in an underestimate of the prevalence of children's hunger based on food security survey data.

<sup>29</sup> The Current Population Survey (CPS) is a representative national sample of approximately 60,000 households conducted monthly by the U.S. Census Bureau for the U.S. Department of Labor, Bureau of Labor Statistics. Its primary purpose is to monitor labor force participation and employment in the United States and each of the 50 States. Various Federal agencies sponsor collection of specialized supplementary data by the CPS following the labor-force interview. The CPS food security survey has been conducted annually since 1995 as one such CPS supplement, sponsored by USDA. From 1995 to 2000 the food security survey alternated between April and August/September; beginning in 2001, it has been conducted in early December.

<sup>30</sup> The food security scale reported here is based on the Rasch measurement model, an application of maximum likelihood estimation in the family of Item Response Theory models (Wright, 1977, 1983). These statistical measurement models were developed in educational testing, where test items vary systematically in difficulty and the overall score measures the level of difficulty that the tested individual has mastered. In the present application, the severity of food insecurity recently experienced by household members is analogous to the level of test difficulty that an individual has mastered.



- Small, random measurement errors, combined with the nature of the distribution of households across the range of severity of food insecurity, may result in a modest overestimate of food insecurity and hunger. False positives—the incorrect classification of food secure households as food insecure—are more likely than false negatives because there are

more households just above the food insecurity threshold than in a similar range just below it. (Most households are food secure, and the number in each range of severity declines as severity increases.) The same is true at the hunger threshold (Hamilton et al., 1997a, p. 65; Hamilton et al., 1997b, p. 89).

## Appendix C. USDA's Thrifty Food Plan

The Thrifty Food Plan—developed by USDA—serves as a national standard for a nutritious diet at low cost. It represents a set of “market baskets” of food that people of specific age and gender 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. The cost of the meal plan for each age/gender category is calculated based on average national food prices adjusted for inflation. The cost of the market basket for a household is further adjusted by household size to account for economies of scale. The cost of the Thrifty Food Plan is used in section 2 to adjust household spending on food so that spending can be compared meaningfully among households of different sizes and age-gender compositions. It provides a baseline that takes into account differences in household food needs due to these differences in household composition. This appendix provides background information on the Thrifty Food Plan and details of how it is calculated for each household.

In 1961, USDA developed four cost-specific, nutritionally balanced food plans: Economy, Low-cost, Moderate-cost, and Liberal. The food plans were developed by studying the food purchasing patterns of households in the United States and modifying these choices by the least amount necessary to meet nutritional guidelines at specific cost objectives. The Economy Food Plan, and the Thrifty Food Plan that replaced it at the same designated cost level in 1975, have been used for a number of important policy and statistical purposes over the years. In the 1960s, a low-income threshold based on the Economy Food Plan was adopted as the official poverty threshold of the United States (Citro and Michael, 1995, p. 110). The cost of the Thrifty Food Plan is used by USDA's Food and Nutrition Service as a basis for determining families' maximum food stamp allotments.<sup>31</sup>

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<sup>31</sup>The Thrifty Food Plan was revised several times over the years (with major changes in 1983 and 1999) in order to take into account new information about nutritional needs, nutritional values of foods, food consumption preferences, and food prices (Kerr et al., 1984). In these revisions, USDA gave attention both to cost containment—keeping the cost of the Thrifty Food Plan near the food stamp benefit level—and to the buying patterns of households (Citro and Michael, 1995, p. 111).

The Thrifty Food Plan was most recently revised by USDA's Center for Nutrition Policy and Promotion (CNPP) in 1999. This was done to reflect updated dietary recommendations and food composition data and current food prices and consumption patterns, while maintaining the cost at the level of the previous market baskets (USDA, 1999). CNPP updates the cost of each of USDA's four food plans monthly to reflect changes in food prices, as measured by the Consumer Price Index for specific food categories. Table C-1 lists estimated weekly costs of the four USDA food plans for the month of December 2002—the month the 2002 CPS food security survey was conducted.

The cost of the Thrifty Food Plan was calculated for each household in the food security survey, based on the information in table C-1, and was used as a baseline for comparing food expenditures across different types of households in section 2. The food plan costs in table C-1 are given for individuals in the context of four-person families. For households that are larger or smaller than four persons, the costs must be adjusted for economies of scale, as specified in the first footnote of table C-1. For example, the weekly Thrifty Food Plan cost for a household composed of a married couple with no children, ages 29 (husband) and 30 (wife), is given by adding the individual Thrifty Food Plan costs for the husband (\$30.50) and wife (\$27.50) and adjusting the total upward by 10 percent. The adjusted total (\$63.80) represents the cost of the Thrifty Food Plan for this type of household.

**Table C-1—Weekly cost of USDA food plans: Cost of food at home at four levels, December 2002**

Age-gender group <sup>1</sup>	Thrifty plan	Low-cost plan	Moderate-cost plan	Liberal plan
<i>Dollars</i>				
Child:				
1 year <sup>2</sup>	16.60	20.50	24.10	29.30
2 years	16.60	20.50	24.10	29.30
3-5 years	18.10	22.50	27.90	33.40
6-8 years	22.60	30.00	37.30	43.40
9-11 years	26.50	34.00	43.40	50.30
Male:				
12-14 years	27.50	38.40	47.50	55.90
15-19 years	28.50	39.60	49.30	56.90
20-50 years	30.50	39.50	49.10	59.50
51 years and over	27.70	37.60	46.20	55.50
Female:				
12-19 years	27.50	33.10	40.10	48.40
20-50 years	27.50	34.50	42.00	53.90
51 years and over	27.10	33.60	41.70	49.70
<i>Examples of families</i>				
1. Couple: 20-50 years	63.80	81.40	100.20	124.70
2. Couple, 20-50 years, with 2 children, ages 2 and 3-5 years	92.70	117.00	143.10	176.10

<sup>1</sup>The costs given are for individuals in four-person families. For individuals in families of other sizes, the following adjustments are suggested: 1-person (add 20 percent), 2-person (add 10 percent), 3-person (add 5 percent), 5- or 6-person (subtract 5 percent), 7-or-more-person (subtract 10 percent).

<sup>2</sup>USDA does not have official food plan cost estimates for children younger than 1 year. Since the Thrifty Food Plan identifies the most economical sources of food, in this analysis, we assume a food plan based on breastfeeding. We arbitrarily set the cost of feeding a child younger than 1 year at half the cost of feeding a 1-year-old child, in order to account for the added food intake of mothers and other costs associated with breastfeeding. While this estimate is rather arbitrary, it affects only 2.5 percent of households in our analysis.

Source: USDA, Center for Nutrition Policy and Promotion, <http://www.cnpp.usda.gov/using3.htm>.

## Appendix D. Changes in Prevalence Rates of Food Insecurity and Hunger by State, 1996-98 (average) to 2000-02 (average)

To assess changes in prevalence rates of food insecurity and food insecurity with hunger over time, adjustments must be made for year-to-year differences in screening procedures used to reduce respondent burden in the CPS food security surveys.<sup>32</sup> The State-level prevalence rates of food insecurity and hunger reported in *Prevalence of Food Insecurity and Hunger, by State, 1996-1998* (Nord et al., 1999) were based on data that had been edited to be comparable across all years.<sup>33</sup> Those rates cannot be compared directly with the prevalence rates for 2000-02 presented in section 1, which are based on data collected under screening procedures initiated in 1998. The older, more restrictive, screening procedures depressed prevalence estimates—especially for food insecurity—compared with those in use since 1998 because a small proportion of the households screened out were actually food insecure. The effect of the screening differences at the

national level can be seen in figure 2, which presents prevalence rates from 1998 to 2002 based both on the unedited data for each year and on data edited to be comparable across all years.

Table D-1 compares State-level prevalence rates for 2000-02 (repeated from table 7) with the adjusted 1996-1998 rates. The estimated prevalence rates of food insecurity and hunger declined in most States from 1996-98 to 2000-02. Declines in prevalences of food insecurity were statistically significant in six States and the District of Columbia. Declines in prevalence rates of food insecurity with hunger were statistically significant in eight States and the District of Columbia. On the other hand, five States registered increases in food insecurity prevalence rates large enough to be statistically significant, and two States registered statistically significant increases in prevalence rates of food insecurity with hunger.<sup>34</sup>

<sup>32</sup>Households—especially those with higher incomes—that report no indication of any food access problems on two or three “screener” questions are not asked the questions in the food security module. They are classified as food secure. Screening procedures in the CPS food security surveys were modified from year to year prior to 1998 to achieve an acceptable balance between accuracy and respondent burden. Since 1998, screening procedures have remained unchanged.

<sup>33</sup>To make prevalence rates comparable across all years, data for each year were edited so that households were classified as food secure if they would have been screened out of the food security module under procedures used in any year’s survey.

<sup>34</sup>Seasonal effects on food security measurement (discussed in section 1) probably bias prevalence rates for 2000-02 downward somewhat compared with 1996-98. Use of 3-year averages reduces the size of this bias substantially (to one-third the size of the effect on comparisons between two single-year statistics). At the national level, this effect would depress the prevalence rate of food insecurity by about 0.4 percentage points and the prevalence rate of food insecurity with hunger by about 0.2 percentage points. However, seasonal effects may vary from State to State.

**Table D-1—Changes in prevalence rates of food insecurity and hunger, by State, 1996-98 (average) to 2000-02 (average)<sup>1</sup>**

State	Food insecure (with or without hunger)			Food insecure with hunger		
	Average, 1996-98	Average, 2000-02	Change*	Average, 1996-98	Average, 2000-02	Change
	-----Percent-----			-----Percent-----		
	Percentage points			Percentage points		
U.S. total	11.3	10.8	-0.5*	3.7	3.3	-0.4*
AK	8.7	11.8	3.1*	3.6	4.3	.7
AL	12.5	12.5	0	3.3	3.7	.4
AR	13.7	14.6	.9	4.8	4.4	-.4
AZ	14.6	12.5	-2.1	4.3	3.7	-.6
CA	13.3	11.7	-1.6*	4.3	3.5	-.8*
CO	10.8	9.2	-1.6	3.8	2.8	-1.0*
CT	11.0	7.6	-3.4*	4.1	2.8	-1.3
DC	13.7	9.3	-4.4*	4.7	2.3	-2.4*
DE	8.1	6.8	-1.3	2.9	1.9	-1.0
FL	13.2	11.8	-1.4	4.5	3.7	-.8*
GA	10.9	12.9	2.0	3.4	3.5	.1
HI	12.9	11.9	-1.0	3.1	3.6	.5
IA	8.0	9.1	1.1	2.6	2.8	.2
ID	11.3	13.7	2.4*	3.3	4.3	1.0
IL	9.6	8.6	-1.0*	3.2	2.7	-.5
IN	9.0	8.9	-.1	2.9	2.8	-.1
KS	11.5	11.7	.2	4.2	3.9	-.3
KY	9.7	10.8	1.1	3.4	2.9	-.5
LA	14.4	13.1	-1.3	4.4	2.9	-1.5*
MA	7.5	6.4	-1.1	2.1	2.1	0
MD	8.7	8.2	-.5	3.3	2.9	-.4
ME	9.8	9.0	-.8	4.0	2.8	-1.2
MI	9.6	9.2	-.4	3.1	3.0	-.1
MN	8.6	7.1	-1.5	3.1	2.2	-.9
MO	10.1	9.9	-.2	3.0	3.3	.3
MS	14.6	14.8	.2	4.2	4.5	.3
MT	11.2	12.8	1.6	3.0	4.1	1.1*
NC	9.8	12.3	2.5*	2.7	3.7	1.0*
ND	5.5	8.1	2.6*	1.6	2.0	.4
NE	8.7	10.7	2.0	2.5	3.1	.6
NH	8.6	6.7	-1.9	3.1	2.1	-1.0
NJ	8.9	8.5	-.4	3.1	2.7	-.4
NM	16.5	14.3	-2.2	4.8	3.8	-1.0*
NV	10.4	9.3	-1.1	4.0	3.3	-.7
NY	11.9	9.4	-2.5*	4.1	2.9	-1.2*
OH	9.7	9.8	.1	3.5	3.3	-.2
OK	13.1	14.3	1.2	4.2	5.1	.9
OR	14.2	13.7	-.5	6.0	5.0	-1.0
PA	8.3	9.4	1.1*	2.6	2.7	.1
RI	10.2	10.1	-.1	2.7	3.4	.7
SC	11.0	12.3	1.3	3.5	4.3	.8
SD	8.2	8.0	-.2	2.2	2.2	0
TN	11.8	11.3	-.5	4.4	3.3	-1.1
TX	15.2	14.8	-.4	5.5	4.1	-1.4*
UT	10.3	15.2	4.9*	3.1	4.6	1.5
VA	10.2	7.3	-2.9*	3.0	1.8	-1.2*
VT	8.8	9.0	.2	2.7	2.4	-.3
WA	13.2	12.3	-.9	4.7	4.4	-.3
WI	8.5	8.1	-.4	2.6	3.3	.7
WV	9.5	9.4	-.1	3.1	2.7	-.4
WY	9.9	10.7	.8	3.5	4.3	.8

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

<sup>1</sup>Statistics for 1996-98 revised to account for changes in survey screening procedures introduced in 1998.

Source: Prepared by ERS using data from Current Population Survey Food Security Supplements.

## Appendix E. Food Insecurity With Hunger During 30 Days Prior to Food Security Survey

The annual food security survey is designed primarily to assess households' food security during the 12-month period prior to the survey. For a subset of the food security questions, however, information is also collected for the 30-day period prior to the survey. Households that respond affirmatively to the 12-month question are asked whether the same behavior, experience, or condition occurred during the last 30 days. Responses to these questions are used to identify households that were food insecure with hunger during the 30 days prior to the survey (see Nord, 2002, for detailed information about the 30-day measure).

The 30-day food security scale identifies households that were food insecure with hunger, but does not measure the less severe range of food insecurity. The questions that are sensitive to less severe conditions of food insecurity are asked only with respect to the previous 12 months and are not followed up to determine whether the reported conditions occurred during the previous 30 days.

About 2.9 million households (2.7 percent) were food insecure with hunger (table E-1) at some time during the 30-day period from early November to early December 2002.<sup>35</sup> The 30-day prevalence was just over three-fourths (76.2 percent) that for the entire 12 months prior to the survey. The corresponding statistics for other 30-day periods in earlier years' surveys were: 72.8 percent in July/August 1998, 66.1 percent in March/April 1999, and 74.4 percent in August/September 2000. Taken together, these statistics imply that, on average, households that were food insecure with hunger at some time during the year experienced this condition in 8 or 9 months of the year.

The prevalence of food insecurity with hunger during the 30-days prior to the survey varied across household types following the same general pattern as the 12-month measure. The prevalence of hunger was lowest for households with two or more adults without children, for households that included an elderly person, and for

households with incomes higher than 185 percent of the poverty line. Prevalences of hunger were highest for single women with children, Blacks, and households with incomes below the poverty line. The ratios of prevalence rates of hunger for the two reference periods ranged from 62.0 percent for elderly living alone to 83.7 percent for households with annual incomes above 185 percent of the poverty line.<sup>36</sup>

The 30-day measure of food insecurity with hunger facilitates a more temporally precise analysis of the relationship between households' food insecurity and their use of Federal and community food assistance programs. That is, measured food insecurity with hunger and reported use of food assistance programs are more likely to refer to contemporaneous conditions when both are referenced to the previous 30 days than when one or both is referenced to the previous 12 months. For households that left the Food Stamp Program during the year, the 30-day measure of food security can also provide information about their food security status after they left the program.

The prevalence of food insecurity with hunger during the 30 days prior to the food security survey among households that left the Food Stamp Program during the year (14.5 percent) was twice that of households that did not receive food stamps at any time during the year (6.9 percent) and was essentially the same as that of households that received food stamps during the 30 days prior to the survey (14.4 percent; table E-2). This implies that not all households that left the Food Stamp Program did so because their economic situations had improved to a level that assured access to enough food without food stamps. Associations of 30-day prevalence rates of hunger with use of other food assistance programs were similar to those of the 12-month measure reported in table 11, although the contrasts between users and non-users were generally slightly greater for the 30-day measure.

<sup>35</sup>The food security survey was conducted in the second week of December in 2002.

<sup>36</sup>Only six interviewed households in the category "Other household with child" registered hunger on the 12-month measure, so comparison of the 30-day and 12-month measures was not considered reliable.

**Table E-1—Prevalence of food insecurity with hunger during 12 months and 30 days prior to food security survey, by selected household characteristics, 2002<sup>1</sup>**

Category	Food insecure with hunger					
	Total <sup>2</sup>	Previous 12 months		Previous 30 days		Previous 30 days as percentage of previous 12 months
		1,000	1,000	Percent	1,000	Percent
All households	108,601	3,799	3.5	2,895	2.7	76.2
Household composition:						
With children < 18	38,647	1,480	3.8	1,151	3.0	77.8
With children < 6	17,073	584	3.4	458	2.7	78.4
Married-couple families	26,069	508	1.9	414	1.6	81.5
Female head, no spouse	9,496	828	8.7	616	6.5	74.4
Male head, no spouse	2,375	139	5.9	112	4.7	80.6
Other household with child <sup>3</sup>	707	6	.8	6	.8	100.0
With no children < 18	69,954	2,318	3.3	1,744	2.5	75.2
More than one adult	41,538	958	2.3	702	1.7	73.3
Women living alone	16,174	717	4.4	518	3.2	72.2
Men living alone	12,242	643	5.3	524	4.3	81.5
With elderly	24,791	463	1.9	303	1.2	65.4
Elderly living alone	10,072	255	2.5	158	1.6	62.0
Race/ethnicity of households:						
White non-Hispanic	80,266	2,113	2.6	1,657	2.1	78.4
Black non-Hispanic	13,515	970	7.2	741	5.5	76.4
Hispanic <sup>4</sup>	10,344	591	5.7	399	3.9	67.5
Other non-Hispanic	4,475	124	2.8	97	2.2	78.2
Household income-to-poverty ratio:						
Under 1.00	11,515	1,651	14.3	1,197	10.4	72.5
Under 1.30	17,010	2,057	12.1	1,499	8.8	72.9
Under 1.85	25,134	2,438	9.7	1,804	7.2	74.0
1.85 and over	64,263	945	1.5	791	1.2	83.7
Income unknown	19,204	416	2.2	299	1.6	71.9
Area of residence:						
Inside metropolitan area	87,617	3,092	3.5	2,336	2.7	75.5
In central city <sup>5</sup>	26,922	1,358	5.0	1,041	3.9	76.7
Not in central city <sup>5</sup>	45,552	1,219	2.7	966	2.1	79.2
Outside metropolitan area	20,983	707	3.4	559	2.7	79.1
Census geographic region:						
Northeast	20,242	604	3.0	461	2.3	76.3
Midwest	25,180	823	3.3	658	2.6	80.0
South	39,195	1,428	3.6	1,025	2.6	71.8
West	23,984	944	3.9	750	3.1	79.4

<sup>1</sup>The 30-day prevalence rates refer to the 30-day period from early November to early December; the survey was conducted during the second week of December 2002.

<sup>2</sup>Totals exclude households in 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 2002, these represented 336,000 households (0.3 percent of all households.)

<sup>3</sup>Households with children in complex living arrangements—e.g., children of other relatives or unrelated roommate or boarder.

<sup>4</sup>Hispanics may be of any race.

<sup>5</sup>Metropolitan area subtotals do not add to metropolitan area totals because central-city residence is not identified for about 17 percent of households in metropolitan statistical areas.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.



**Table E-2—Prevalence rates of food insecurity with hunger during the 30 days prior to the food security survey, by participation in selected Federal and community food assistance programs, 2002<sup>1</sup>**

Category	Food insecure with hunger
	<i>Percent</i>
Income less than 130 percent of poverty line	
Received food stamps previous 30 days	14.4
Received food stamps previous 12 months but not previous 30 days (food stamp leavers)	14.5
Did not receive food stamps previous 12 months	6.9
Income less than 185 percent of poverty line; school-age children in household	
Received free or reduced-price school lunch previous 30 days	9.5
Did not receive free or reduced-price school lunch previous 30 days	3.6
Income less than 185 percent of poverty line; children under age 5 in household	
Received WIC previous 30 days	6.8
Did not receive WIC previous 30 days	5.0
Income less than 185 percent of poverty line:	
Received emergency food from food pantry previous 30 days	36.5
Did not receive emergency food from food pantry previous 30 days	5.8
Ate meal at emergency kitchen previous 30 days	56.0
Did not eat meal at emergency kitchen previous 30 days	6.9

<sup>1</sup>The 30-day prevalence rates refer to the 30-day period from early November to early December; the survey was conducted during the second week of December 2002.

Source: Calculated by ERS using data from the December 2002 Current Population Survey Food Security Supplement.