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Research  
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Food Assistance  
and Nutrition  
Research Report  
Number 42



*Measuring Food Security in the United States*

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# Household Food Security in the United States, 2003

Mark Nord  
Margaret Andrews  
Steven Carlson



*Food Assistance & Nutrition  
Research Program*

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# Household Food Security in the United States, 2003

**Mark Nord, Margaret Andrews,  
and Steven Carlson**

## Abstract

Eighty-nine percent of American households were food secure throughout the entire year in 2003, 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, 11.2 percent of households, was not statistically different from the 11.1 percent observed in 2002. The prevalence of food insecurity with hunger was unchanged at 3.5 percent. This report, based on data from the December 2003 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 34 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.

**Keywords:** Food security, food insecurity, hunger, food pantry, 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 2003, and the prevalence of food security was unchanged from the previous year. The most recent nationally representative food security survey reveals that 88.8 percent of U.S. households were food secure throughout the entire year in 2003, meaning that they had access, at all times, to enough food for an active, healthy life for all household members. The remaining 11.2 percent of U.S. households (12.6 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. The prevalence of food insecurity was not statistically different from the 11.1 percent observed in 2002.

About one-third of food-insecure households (3.9 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 or emergency kitchens. The prevalence of food insecurity with hunger was unchanged from the previous year. Children were hungry at times during the year in 207,000 households (0.5 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 mid-November to mid-December 2003, 2.6 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 0.4 to 0.6 percent of households (490,000 to 698,000 households).

The U.S. Department of Agriculture (USDA) monitors food security in the Nation's households through an annual, nationally representative survey conducted by the U.S. Census Bureau. The survey also collects information on households' food expenditures and their use of Federal and community food assistance programs.

The amount households spend for food is an indicator of how adequately they are meeting their food needs. In 2003, the typical (median) U.S. household spent \$38.00 per person for food each week. Weekly food spending by the typical household was about 26 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-insecure household spent 4 percent less than the cost of the Thrifty Food Plan, while the typical food-secure household spent 29 percent more than the cost of the Thrifty Food Plan, or 34 percent more than the typical food-insecure household.

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:

- 56.0 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;
- 19.7 percent obtained emergency food from a food pantry, church, or food bank during the 12 months prior to the survey; and
- 2.0 percent had members who ate at an emergency kitchen sometime during the 12 months prior to the survey.

Some 3.5 million households—3.1 percent of all U.S. households—reported getting emergency food from food pantries, churches, or food banks one or more times during 2003.





## 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 2002. (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 during 2003, 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 2003 food security survey. The report also includes information on the prevalence and frequency (number of days) of food insecurity with hunger during the 30-day period prior to the survey—from mid-November to mid-December 2003.

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

<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., 2002b; 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 2003 food security survey—the ninth 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 1995-2003. 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 47,000 households completed the food security section of the survey in December 2003; 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 food security statistics presented in this report are based on a measure 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 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, “Questions Used to Assess the Food Security of Households in the CPS Food Security Survey”). 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, and food insecure with hunger—based on the number of food-insecure conditions and behaviors the household reports.<sup>5</sup> 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

<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 corrects, to some extent, biases that could result from nonresponse to the Supplement by households that completed only the labor force part of the survey.

<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).

<sup>5</sup> To reduce the burden on higher-income respondents, households with incomes higher than 185 percent of the Federal Poverty line and who give no indication of food-access problems on either of two preliminary screening questions are deemed to be food secure and are not asked the questions in the food security assessment series. The preliminary screening questions are as follows:

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

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 5 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.

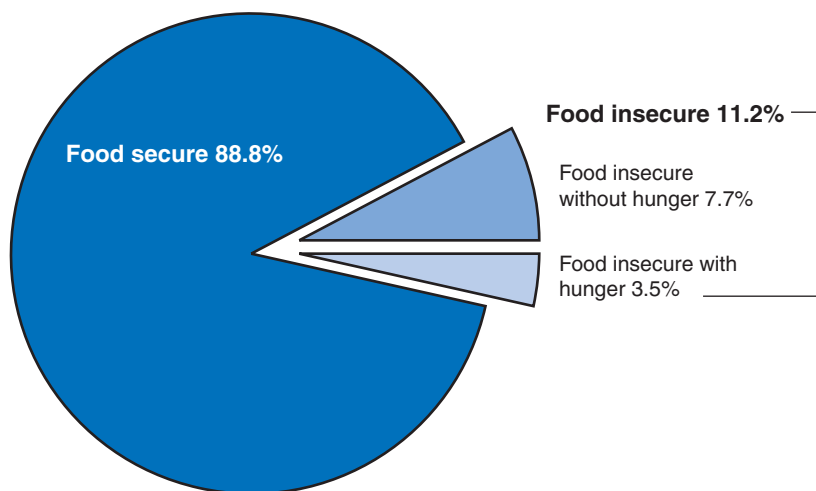
## Prevalences of Food Insecurity and Food Insecurity With Hunger—National Conditions and Trends

Eighty-nine percent of U.S. households were food secure throughout the entire year 2003 (fig. 1). “Food secure” means that all household members had access at all times to enough food for an active, healthy life.<sup>6</sup> The remaining 12.6 million U.S. households (11.2 percent of all households) were food insecure at some time during the year. That is, they were, at times, 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 3.9 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.

<sup>6</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, 2003



Source: Calculated by ERS using data from the December 2003 Current Population Survey Food Security Supplement.

## **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 under 18 years old)**

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)

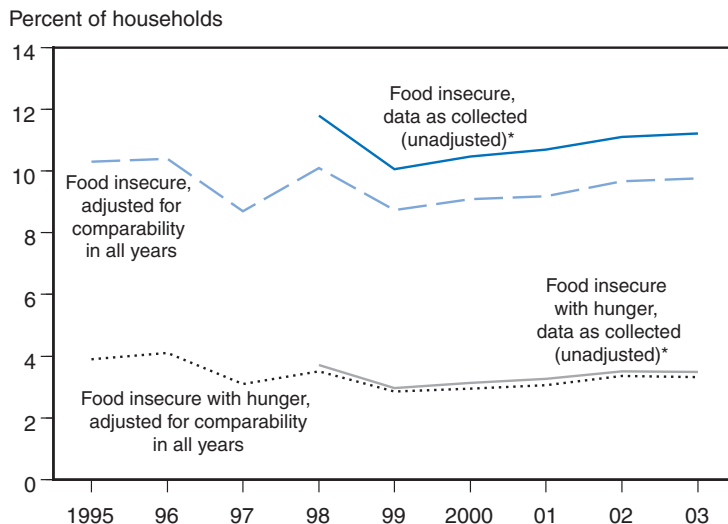
In most households, children were protected from substantial reductions in food intake and ensuing hunger. However in some 207,000 households (0.5 percent of households with children) food insecurity was sufficiently severe that one or more children in each household were also hungry on one or more days during the year because the household lacked money for enough food. In some households with more than one child, not all the children experienced hunger. Younger children, in particular, may have been protected from hunger.

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 mid-November to mid-December 2003 is estimated to have been about 12 to 18 percent of the annual rate (see box, page 7), or 0.4 to 0.6 percent of households (490,000 to 698,000 households).

The prevalence rates of food insecurity and food insecurity with hunger were statistically unchanged from 2002 to 2003, and remained below the levels at which they were first measured in 1995 (fig. 2 and table 1).<sup>7</sup> The year-to-year deviations from a consistent downward trend from 1995-2000 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.

<sup>7</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 1998-2003. Figure 2 presents statistics for the years 1995-2003, adjusted to be comparable across all years, as well as statistics for 1998-2003 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 food insecurity with hunger in U.S. households, 1995-2003**



\*Data as collected in 1995-97 are not directly comparable with data collected in 1998-2003.

Source: Calculated by ERS based on Current Population Survey Food Security Supplement data.

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

Unit	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	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		
2003	112,214	99,631	88.8	12,583	11.2	8,663	7.7	3,920	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		
2003	286,410	250,155	87.3	36,255	12.7	26,622	9.3	9,633	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		
2003	213,441	190,451	89.2	22,990	10.8	16,358	7.7	6,632	3.1		
<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		
2003	40,286	33,575	83.3	6,711	16.7	6,504	16.1	207	.5		
<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		
2003	72,969	59,704	81.8	13,265	18.2	12,845	17.6	420	.6		

<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 2003, these represented 381,000 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, December 2002, and December 2003 Current Population Survey Food Security Supplements.

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

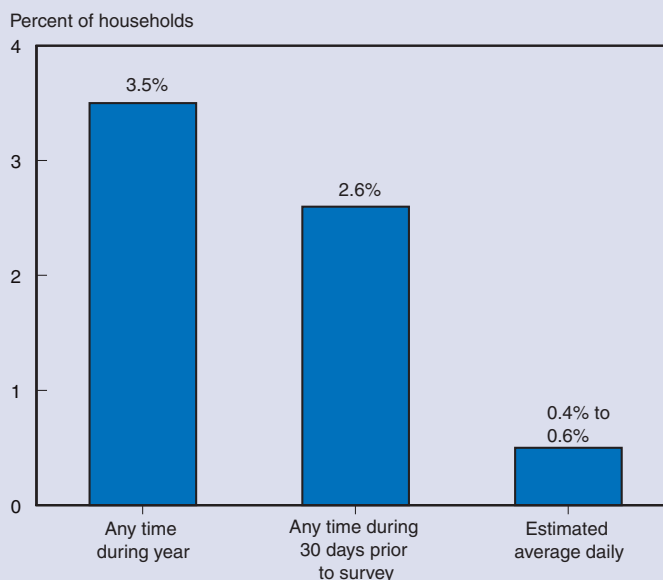
When food insecurity with hunger occurs in the United States, it is, in most cases, occasional or episodic, not chronic. The food security measurement approach used in this report is designed to register occasional or episodic occurrences. Most questions used to assess households' food security status 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 in 2003:

- About one-third of the households that were food insecure with hunger at any time during the year experienced the condition rarely or occasionally—in only 1 or 2 months of the year. For two-thirds, the condition was recurring, experienced in 3 or more months of the year.
- For about one-fifth of households classified as food insecure and 30 percent 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 mid-December 2003, 2.6 percent of U.S. households were food insecure with hunger—about 74 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 mid-December 2003 was probably between 490,000 and 698,000 households (0.4 to 0.6 percent of all households)—about 12 to 18 percent of the annual prevalence.
- The daily prevalence of food insecurity with hunger among children during the 30-day period ending in mid-December 2003 was probably between 33,000 and 37,000 households (0.08 to 0.09 percent of households with children)—about 16 to 18 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 2003 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 2003 Current Population Survey Food Security Supplement.



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 effects in interpreting annual changes.<sup>8</sup>

## Prevalences of Food Insecurity and Food Insecurity With 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 11.2 percent for households with more than one adult and no children (6.6 percent) and for households with elderly persons (6.0 percent).<sup>9</sup> Rates of food insecurity substantially higher than the national average were registered by the following groups:

- Households with incomes below the official poverty line (35.1 percent),<sup>10</sup>
- Households with children, headed by a single woman (31.7 percent) or a single man (21.7 percent),
- Black households (22.1 percent), and
- Hispanic households (22.3 percent).

Overall, households with children reported food insecurity at more than double the rate for households without children (16.7 vs. 8.2 percent).<sup>11</sup> Among households with children, those with married-couple families showed the lowest rate of food insecurity (10.8 percent).

The prevalence rates of food insecurity for households located in central cities (14.8 percent) and nonmetropolitan areas (11.6 percent) substantially exceeded the rate for households in suburbs and other metropolitan areas outside central cities (9.0 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 (9.6 and 9.9 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 (1.7 percent). Rates of food insecurity with hunger were higher than the 3.5 percent national average among families with children headed by single women (8.7 percent), Black and Hispanic households (6.8 and 5.4 percent, respectively), households with incomes below the poverty line (12.6 percent), and households living in metropolitan central city areas (4.7 percent).

Households showing the lowest rates of hunger among children were married-couple families, White non-Hispanic households, 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.

<sup>8</sup> A smaller food security survey was also 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 suggests that seasonal effects in early December were similar to those in April (Nord et al., 2002a).

<sup>9</sup> "Elderly" in this report refers to persons age 65 and older.

<sup>10</sup> The Federal poverty line was \$18,660 for a family of four in 2003.

<sup>11</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.

**Table 2—Prevalence of food security, food insecurity, and food insecurity with hunger, by selected household characteristics, 2003**

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	1,000	Percent
All households	112,214	99,631	88.8	12,583	11.2	8,663	7.7	3,920	3.5		
Household composition:											
With children < 18	40,286	33,575	83.3	6,711	16.7	5,165	12.8	1,546	3.8		
With children < 6	18,110	14,933	82.5	3,177	17.5	2,516	13.9	661	3.6		
Married-couple families	27,484	24,503	89.2	2,981	10.8	2,446	8.9	535	1.9		
Female head, no spouse	9,623	6,572	68.3	3,051	31.7	2,210	23.0	841	8.7		
Male head, no spouse	2,475	1,937	78.3	538	21.7	401	16.2	137	5.5		
Other household with child <sup>2</sup>	704	563	80.0	141	20.0	108	15.3	33	4.7		
With no children < 18	71,928	66,057	91.8	5,871	8.2	3,498	4.9	2,373	3.3		
More than one adult	42,553	39,753	93.4	2,800	6.6	1,840	4.3	960	2.3		
Women living alone	16,724	15,032	89.9	1,692	10.1	964	5.8	728	4.4		
Men living alone	12,651	11,271	89.1	1,380	10.9	694	5.5	686	5.4		
With elderly	25,946	24,391	94.0	1,555	6.0	1,105	4.3	450	1.7		
Elderly living alone	10,574	9,921	93.8	653	6.2	430	4.1	223	2.1		
Race/ethnicity of households:											
White non-Hispanic	81,080	74,733	92.2	6,347	7.8	4,169	5.1	2,178	2.7		
Black non-Hispanic	13,156	10,251	77.9	2,905	22.1	2,010	15.3	895	6.8		
Hispanic <sup>3</sup>	12,034	9,347	77.7	2,687	22.3	2,034	16.9	653	5.4		
Other non-Hispanic	5,944	5,301	89.2	643	10.8	450	7.6	193	3.2		
Household income-to-poverty ratio:											
Under 1.00	12,739	8,266	64.9	4,473	35.1	2,863	22.5	1,610	12.6		
Under 1.30	18,143	12,245	67.5	5,898	32.5	3,845	21.2	2,053	11.3		
Under 1.85	27,104	19,357	71.4	7,747	28.6	5,107	18.8	2,640	9.7		
1.85 and over	62,145	59,116	95.1	3,029	4.9	2,274	3.7	755	1.2		
Income unknown	22,965	21,160	92.1	1,805	7.9	1,281	5.6	524	2.3		
Area of residence:											
Inside metropolitan area	90,708	80,611	88.9	10,097	11.1	6,903	7.6	3,194	3.5		
In central city <sup>4</sup>	27,682	23,581	85.2	4,101	14.8	2,804	10.1	1,297	4.7		
Not in central city <sup>4</sup>	47,243	42,996	91.0	4,247	9.0	2,879	6.1	1,368	2.9		
Outside metropolitan area	21,505	19,020	88.4	2,485	11.6	1,760	8.2	725	3.4		
Census geographic region:											
Northeast	21,306	19,267	90.4	2,039	9.6	1,343	6.3	696	3.3		
Midwest	25,941	23,360	90.1	2,581	9.9	1,752	6.8	829	3.2		
South	40,554	35,541	87.6	5,013	12.4	3,472	8.6	1,541	3.8		
West	24,412	21,463	87.9	2,949	12.1	2,096	8.6	853	3.5		

<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 2003, these represented 381,000 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 2003 Current Population Survey Food Security Supplement.

**Table 3—Prevalence of food security, food insecurity, and food insecurity with hunger in households with children, by selected household characteristics, 2003**

Category	Total <sup>1</sup>	Food secure		Food insecure					
		1,000	1,000	Percent	All		Without hunger among children		With hunger among children
				1,000	Percent	1,000	Percent	1,000	Percent
All households with children	40,286	33,575	83.3	6,711	16.7	6,504	16.1	207	0.5
Household composition:									
With children < 6	18,110	14,934	82.5	3,176	17.5	3,109	17.2	67	.4
Married-couple families	27,484	24,502	89.2	2,982	10.8	2,929	10.7	53	.2
Female head, no spouse	9,623	6,571	68.3	3,052	31.7	2,917	30.3	135	1.4
Male head, no spouse	2,475	1,937	78.3	538	21.7	519	21.0	19	.8
Other household with child <sup>2</sup>	704	563	80.0	141	20.0	140	19.9	1	.1
Race/ethnicity of households:									
White non-Hispanic	25,419	22,539	88.7	2,880	11.3	2,817	11.1	63	.2
Black non-Hispanic	5,591	3,999	71.5	1,592	28.5	1,542	27.6	50	.9
Hispanic <sup>3</sup>	6,816	4,902	71.9	1,914	28.1	1,823	26.7	91	1.3
Other non-Hispanic	2,460	2,134	86.7	326	13.3	322	13.1	4	.2
Household income-to-poverty ratio:									
Under 1.00	5,865	3,278	55.9	2,587	44.1	2,474	42.2	113	1.9
Under 1.30	8,099	4,689	57.9	3,410	42.1	3,280	40.5	130	1.6
Under 1.85	11,897	7,498	63.0	4,399	37.0	4,242	35.7	157	1.3
1.85 and over	21,833	20,359	93.2	1,474	6.8	1,439	6.6	35	.2
Income unknown	6,556	5,718	87.2	838	12.8	823	12.6	15	.2
Area of residence:									
Inside metropolitan area	33,050	27,612	83.5	5,438	16.5	5,256	15.9	182	.6
In central city <sup>4</sup>	9,388	7,200	76.7	2,188	23.3	2,098	22.3	90	1.0
Not in central city <sup>4</sup>	18,001	15,710	87.3	2,291	12.7	2,214	12.3	77	.4
Outside metropolitan area	7,236	5,963	82.4	1,273	17.6	1,248	17.2	25	.3
Census geographic region:									
Northeast	7,319	6,212	84.9	1,107	15.1	1,078	14.7	29	.4
Midwest	9,073	7,722	85.1	1,351	14.9	1,322	14.6	29	.3
South	14,602	12,001	82.2	2,601	17.8	2,499	17.1	102	.7
West	9,292	7,638	82.2	1,654	17.8	1,606	17.3	48	.5
Individuals in households with children:									
All individuals in households with children	158,945	132,481	83.4	26,464	16.6	25,643	16.1	821	.5
Adults in households with children	85,976	72,778	84.6	13,198	15.4	12,797	14.9	401	.5
Children	72,969	59,704	81.8	13,265	18.2	12,845	17.6	420	.6

<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 2003, these represented 167,000 households with children (0.4 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.

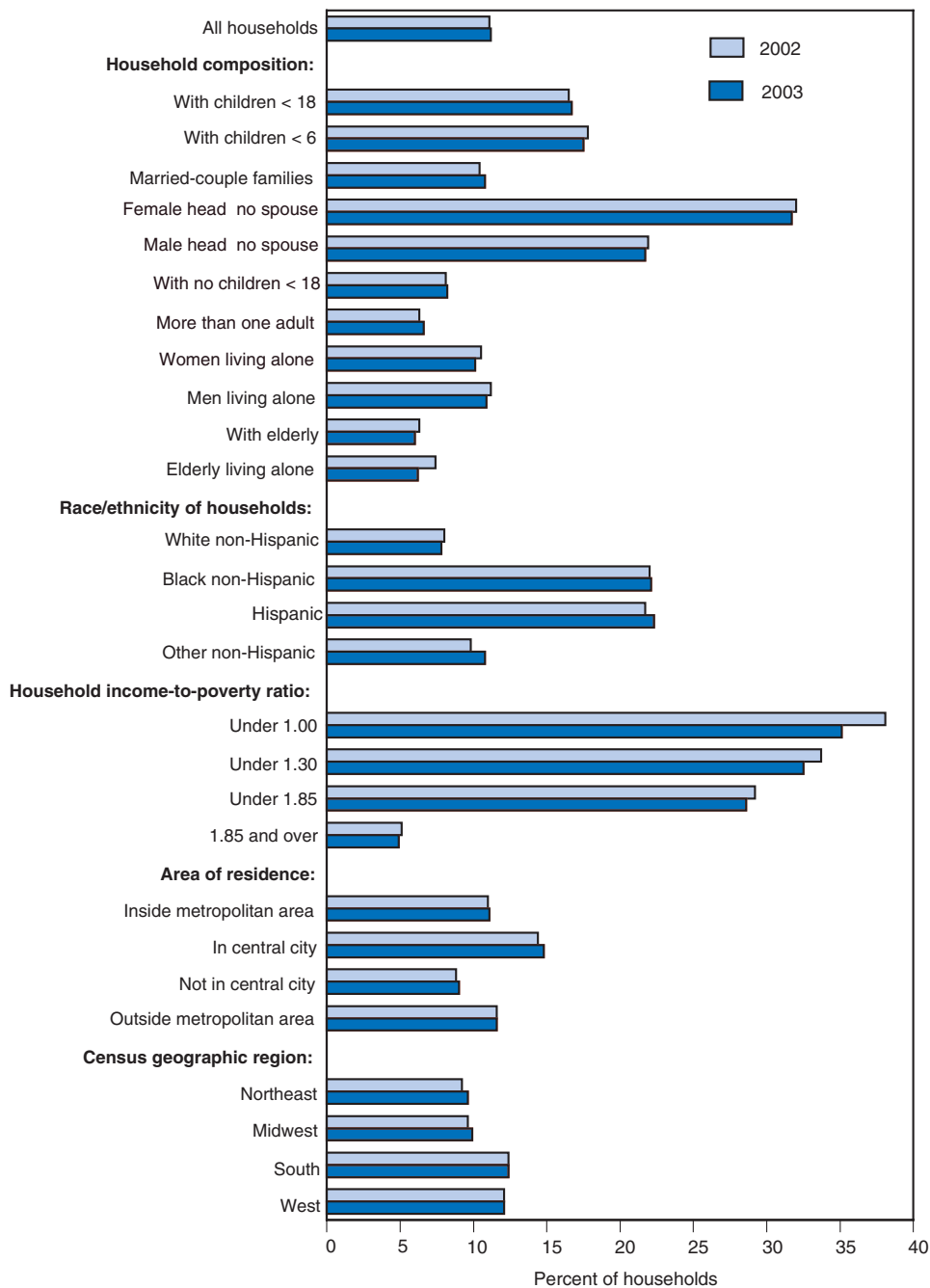
<sup>4</sup>Metropolitan area subtotals do not add to metropolitan area totals because central-city residence is not identified for about 17 percent of households in metropolitan statistical areas.

Source: Calculated by ERS using data from the December 2003 Current Population Survey Food Security Supplement.

Changes from 2002 to 2003 in the prevalence rates of food insecurity and hunger were small and statistically insignificant with one exception. Prevalence rates of both food insecurity and food insecurity with hunger declined among households with incomes below the poverty line (figs. 3 and 4). Changes in all other categories are within a range that could have resulted from sampling variation.

Figure 3

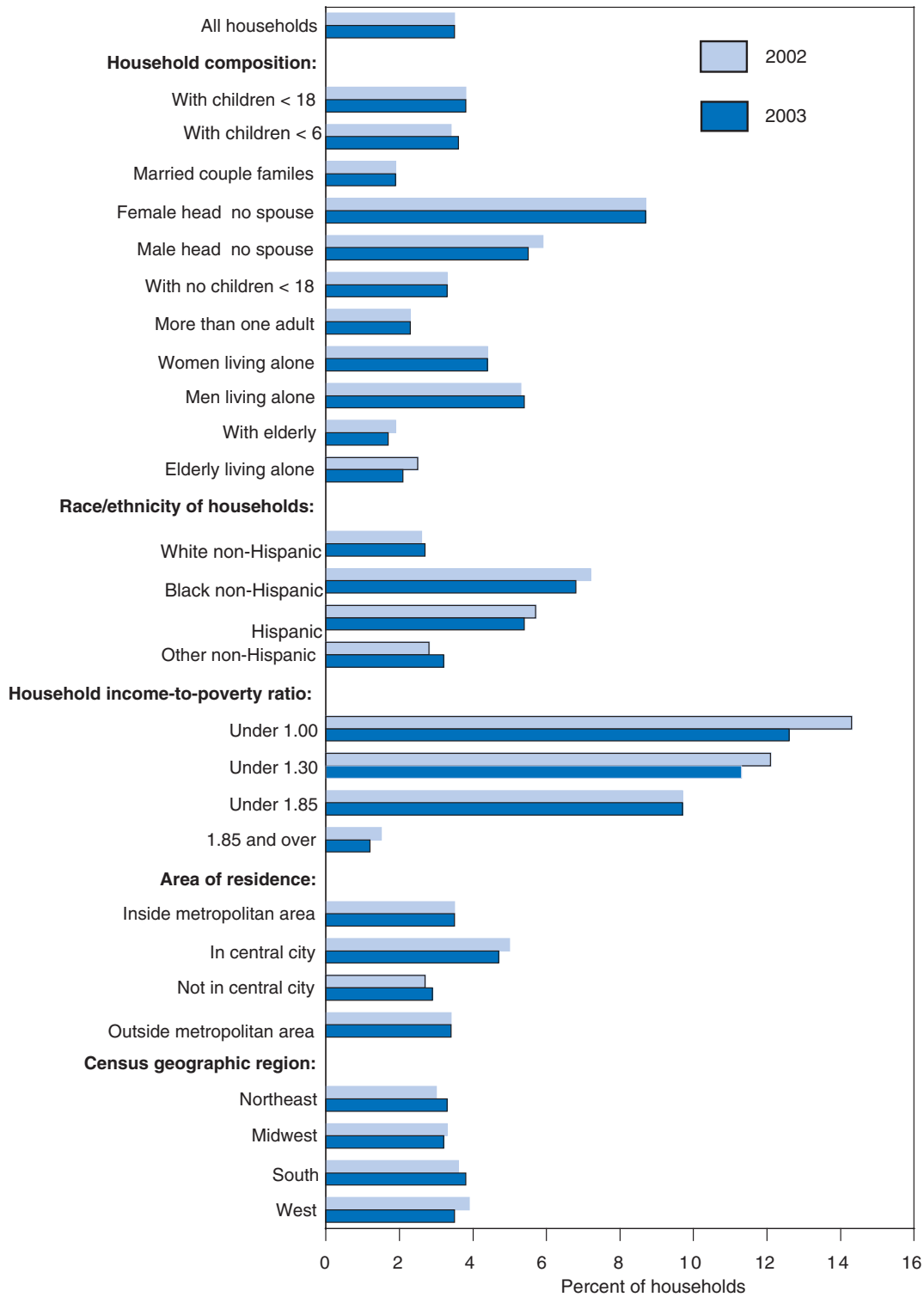
**Prevalence of food insecurity, 2002 and 2003**



Source: Calculated by ERS based on Current Population Survey Food Security Supplement data, December 2002 and December 2003.

Figure 4

**Prevalence of food insecurity with hunger, 2002 and 2003**



Source: Calculated by ERS based on Current Population Survey Food Security Supplement data, December 2002 and December 2003.

## Food Insecurity and Food Insecurity With 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 2003, food insecurity was nearly six times as prevalent in households with annual incomes below 185 percent of the poverty line as in households with incomes 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 incomes below the official poverty line) were food secure.

Table 4 presents food security and hunger statistics for households with annual incomes below 130 percent of the poverty line.<sup>12</sup> One in three of these low-income households was food insecure, and in 11.3 percent, household members were hungry at times during the year. Low-income households with children were more affected by food insecurity than low-income households without children (42.1 percent vs. 24.8 percent), although the prevalence of hunger was about the same in the two groups. Low-income single mothers with children were especially vulnerable to both food insecurity and hunger; 47.2 percent of these households were food insecure, including 14.0 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.

<sup>12</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 food insecurity with hunger in households with income below 130 percent of the poverty line, by selected household characteristics, 2003**

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	1,000	Percent
All low-income households	18,143	12,245	67.5	5,898	32.5	3,845	21.2	2,053	11.3		
Household composition:											
With children < 18	8,099	4,688	57.9	3,411	42.1	2,490	30.7	921	11.4		
With children < 6	4,474	2,703	60.4	1,771	39.6	1,323	29.6	448	10.0		
Married-couple families	3,483	2,218	63.7	1,265	36.3	978	28.1	287	8.2		
Female head, no spouse	3,839	2,027	52.8	1,812	47.2	1,274	33.2	538	14.0		
Male head, no spouse	645	356	55.2	289	44.8	203	31.5	86	13.3		
Other household with child <sup>2</sup>	132	87	65.9	45	34.1	35	26.5	10	7.6		
With no children < 18	10,043	7,556	75.2	2,487	24.8	1,355	13.5	1,132	11.3		
More than one adult	3,705	2,790	75.3	915	24.7	554	15.0	361	9.7		
Women living alone	3,986	3,112	78.1	874	21.9	460	11.5	414	10.4		
Men living alone	2,352	1,653	70.3	699	29.7	342	14.5	357	15.2		
With elderly	4,915	4,126	83.9	789	16.1	520	10.6	269	5.5		
Elderly living alone	3,048	2,639	86.6	409	13.4	242	7.9	167	5.5		
Race/ethnicity of households:											
White non-Hispanic	9,414	6,866	72.9	2,548	27.1	1,507	16.0	1,041	11.1		
Black non-Hispanic	3,848	2,281	59.3	1,567	40.7	1,053	27.4	514	13.4		
Hispanic <sup>3</sup>	3,833	2,334	60.9	1,499	39.1	1,097	28.6	402	10.5		
Other non-Hispanic	1,047	762	72.8	285	27.2	189	18.1	96	9.2		
Area of residence:											
Inside metropolitan area	13,621	9,028	66.3	4,593	33.7	2,980	21.9	1,613	11.8		
In central city <sup>4</sup>	5,755	3,643	63.3	2,112	36.7	1,344	23.4	768	13.3		
Not in central city <sup>4</sup>	5,009	3,399	67.9	1,610	32.1	1,059	21.1	551	11.0		
Outside metropolitan area	4,522	3,216	71.1	1,306	28.9	865	19.1	441	9.8		
Census geographic region:											
Northeast	2,750	1,912	69.5	838	30.5	514	18.7	324	11.8		
Midwest	3,726	2,530	67.9	1,196	32.1	763	20.5	433	11.6		
South	7,813	5,309	68.0	2,504	32.0	1,682	21.5	822	10.5		
West	3,853	2,493	64.7	1,360	35.3	886	23.0	474	12.3		
Individuals in low-income households (by food security status of household):											
All individuals in low-income households	47,853	30,313	63.3	17,540	36.7	12,275	25.7	5,265	11.0		
Adults in low-income households	31,032	20,720	66.8	10,312	33.2	6,955	22.4	3,357	10.8		
Children in low-income households	16,821	9,592	57.0	7,229	43.0	5,321	31.6	1,908	11.3		

<sup>1</sup>Totals exclude households whose income was not reported (about 21 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 (0.7 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 2003 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 necessarily food insecure. Similarly, 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 2003, 36.3 million people lived in food-insecure households (table 1). They constituted 12.7 percent of the U.S. population and included 23.0 million adults and 13.3 million children. Of these individuals, 6.6 million adults and 3.0 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 420,000 (0.6 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, 2003**

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	1,000	Percent
All individuals in households	286,410	250,155	87.3	36,255	12.7	26,622	9.3	9,633	3.4		
Household composition:											
With children < 18	158,945	132,481	83.4	26,464	16.6	20,588	13.0	5,876	3.7		
With children < 6	74,272	60,749	81.8	13,523	18.2	10,772	14.5	2,751	3.7		
Married-couple families	115,922	102,355	88.3	13,567	11.7	11,137	9.6	2,430	2.1		
Female head, no spouse	32,096	21,745	67.7	10,351	32.3	7,484	23.3	2,867	8.9		
Male head, no spouse	8,428	6,436	76.4	1,992	23.6	1,545	18.3	447	5.3		
Other household with child <sup>2</sup>	2,499	1,945	77.8	554	22.2	422	16.9	132	5.3		
With no children < 18	127,465	117,674	92.3	9,791	7.7	6,034	4.7	3,757	2.9		
More than one adult	98,090	91,370	93.1	6,720	6.9	4,376	4.5	2,344	2.4		
Women living alone	16,724	15,032	89.9	1,692	10.1	964	5.8	728	4.4		
Men living alone	12,651	11,271	89.1	1,380	10.9	694	5.5	686	5.4		
With elderly	48,708	45,277	93.0	3,431	7.0	2,476	5.1	955	2.0		
Elderly living alone	10,574	9,921	93.8	653	6.2	430	4.1	223	2.1		
Race/ethnicity of households:											
White non-Hispanic	196,848	180,352	91.6	16,496	8.4	11,620	5.9	4,876	2.5		
Black non-Hispanic	34,397	26,138	76.0	8,259	24.0	6,060	17.6	2,199	6.4		
Hispanic <sup>3</sup>	38,792	29,131	75.1	9,661	24.9	7,552	19.5	2,109	5.4		
Other non-Hispanic	16,372	14,532	88.8	1,840	11.2	1,391	8.5	449	2.7		
Household income-to-poverty ratio:											
Under 1.00	33,246	20,204	60.8	13,042	39.2	8,976	27.0	4,066	12.2		
Under 1.30	47,853	30,313	63.3	17,540	36.7	12,275	25.7	5,265	11.0		
Under 1.85	71,891	48,996	68.2	22,895	31.8	16,226	22.6	6,669	9.3		
1.85 and over	159,130	150,857	94.8	8,273	5.2	6,586	4.1	1,687	1.1		
Income unknown	55,389	50,301	90.8	5,088	9.2	3,810	6.9	1,278	2.3		
Area of residence:											
Inside metropolitan area	233,664	204,306	87.4	29,358	12.6	21,462	9.2	7,896	3.4		
In central city <sup>4</sup>	67,762	55,885	82.5	11,877	17.5	8,760	12.9	3,117	4.6		
Not in central city <sup>4</sup>	126,089	113,457	90.0	12,632	10.0	9,074	7.2	3,558	2.8		
Outside metropolitan area	52,745	45,848	86.9	6,897	13.1	5,159	9.8	1,738	3.3		
Census geographic region:											
Northeast	54,103	48,329	89.3	5,774	10.7	4,095	7.6	1,679	3.1		
Midwest	64,940	57,756	88.9	7,184	11.1	5,196	8.0	1,988	3.1		
South	101,611	87,569	86.2	14,042	13.8	10,337	10.2	3,705	3.6		
West	65,757	56,503	85.9	9,254	14.1	6,993	10.6	2,261	3.4		

<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 2003, these represented 1 million individuals (0.4 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 2003 Current Population Survey Food Security Supplement.

**Table 6—Number of children, by food security status of households and selected household characteristics, 2003**

Category	Total <sup>1</sup>	Food secure		Food insecure					
		1,000	1,000	Percent	All		Without hunger among children		With hunger among children
				1,000	Percent	1,000	Percent	1,000	Percent
All children	72,969	59,704	81.8	13,265	18.2	12,845	17.6	420	0.6
Household composition:									
With children < 6	35,896	28,860	80.4	7,036	19.6	6,904	19.2	132	.4
Married-couple families	51,423	45,103	87.7	6,320	12.3	6,221	12.1	99	.2
Female head, no spouse	16,763	10,987	65.5	5,776	34.5	5,482	32.7	294	1.8
Male head, no spouse	3,815	2,888	75.7	927	24.3	902	23.6	25	.7
Other household with child <sup>2</sup>	968	726	75.0	242	25.0	240	24.8	2	.2
Race/ethnicity of households:									
White non-Hispanic	45,356	39,925	88.0	5,431	12.0	5,340	11.8	91	.2
Black non-Hispanic	10,864	7,514	69.2	3,350	30.8	3,239	29.8	111	1.0
Hispanic <sup>3</sup>	12,603	8,719	69.2	3,884	30.8	3,678	29.2	206	1.6
Other non-Hispanic	4,146	3,545	85.5	601	14.5	588	14.2	13	.3
Household income-to-poverty ratio:									
Under 1.00	12,006	6,580	54.8	5,426	45.2	5,183	43.2	243	2.0
Under 1.30	16,821	9,592	57.0	7,229	43.0	6,943	41.3	286	1.7
Under 1.85	24,135	15,003	62.2	9,132	37.8	8,783	36.4	349	1.4
1.85 and over	37,253	34,752	93.3	2,501	6.7	2,456	6.6	45	.1
Income unknown	11,581	9,949	85.9	1,632	14.1	1,606	13.9	26	.2
Area of residence:									
Inside metropolitan area	59,926	49,094	81.9	10,832	18.1	10,441	17.4	391	.7
In central city <sup>4</sup>	17,082	12,604	73.8	4,478	26.2	4,290	25.1	188	1.1
Not in central city <sup>4</sup>	32,864	28,323	86.2	4,541	13.8	4,367	13.3	174	.5
Outside metropolitan area	13,042	10,609	81.3	2,433	18.7	2,404	18.4	29	.2
Census geographic region:									
Northeast	12,943	10,887	84.1	2,056	15.9	1,993	15.4	63	.5
Midwest	16,510	13,793	83.5	2,717	16.5	2,660	16.1	57	.3
South	25,953	20,946	80.7	5,007	19.3	4,820	18.6	187	.7
West	17,563	14,077	80.2	3,486	19.8	3,372	19.2	114	.6

<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 2003, these represented 338,000 children (0.5 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 2003 Current Population Survey Food Security Supplement.

## Prevalences of Food Insecurity and Food Insecurity With Hunger by State, Average 2001-03

Prevalence rates of food insecurity and food insecurity with hunger varied considerably from State to State. Data for 3 years, 2001-03, 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 6.2 percent in Massachusetts to 15.5 percent in Arkansas; measured prevalence rates of food insecurity with hunger ranged from 1.8 percent in Delaware to 5.2 percent in Oklahoma.

The margins of error for the State prevalence rates should be taken into consideration when interpreting these statistics and 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 Arkansas was 15.5 percent, plus or minus 1.75 percentage points. Considering the margin of error, it is not certain (statistically significant) that the rate of food insecurity was higher in Arkansas than in 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 15 States and lower than the national average in 21 States and the District of Columbia. In the remaining 14 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 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 2001-2003.

**Table 7—Prevalence of food insecurity and food insecurity with hunger, by State, average 2001-03<sup>1</sup>**

State	Number of households		Food insecure (with or without hunger)		Food insecure with hunger	
	Average 2001-03 <sup>2</sup>	Interviewed	Prevalence	Margin of error <sup>3</sup>	Prevalence	Margin of error <sup>3</sup>
	Number		Percent	Percentage points	Percent	Percentage points
U.S. total	109,546,000	144,686	11.0	0.23	3.4	0.11
AK	232,000	1,967	11.5	1.67	4.1	.79
AL	1,805,000	2,161	12.5*	1.23	3.2	.68
AR	1,062,000	1,730	15.5*	1.75	4.7*	1.21
AZ	1,958,000	1,932	12.3	1.36	3.8	.65
CA	12,617,000	9,165	12.2*	.64	3.6	.38
CO	1,717,000	2,916	9.7*	.77	3.0	.42
CT	1,287,000	2,492	8.0*	.73	3.0	.50
DC	264,000	1,782	9.0*	1.19	2.4*	.58
DE	306,000	1,827	6.7*	1.08	1.8*	.69
FL	6,532,000	6,253	11.7	.73	3.7	.47
GA	3,233,000	1,949	12.9*	1.48	3.6	.70
HI	411,000	1,595	9.9	1.40	3.3	.86
IA	1,169,000	2,593	9.5*	1.02	3.0	.71
ID	503,000	1,952	13.7*	1.45	3.9	.74
IL	4,784,000	5,046	7.9*	.68	2.5*	.44
IN	2,413,000	2,834	9.9	1.08	3.4	.65
KS	1,061,000	2,583	11.7	1.28	4.4*	.62
KY	1,638,000	2,073	11.2	1.41	3.3	.66
LA	1,689,000	1,546	12.3*	1.24	2.6*	.70
MA	2,533,000	2,857	6.2*	1.21	2.3*	.55
MD	2,096,000	2,403	7.7*	1.17	2.9	.65
ME	536,000	2,695	9.2*	1.08	2.9	.54
MI	3,965,000	3,982	10.1*	.68	3.4	.55
MN	1,918,000	2,792	7.1*	.99	2.2*	.61
MO	2,241,000	2,288	10.4	1.45	3.6	.70
MS	1,076,000	1,469	14.9*	1.43	4.0	.79
MT	376,000	1,763	12.5*	1.19	4.0	.85
NC	3,184,000	3,011	13.7*	1.26	4.5*	.59
ND	263,000	2,416	6.9*	1.07	2.0*	.54
NE	667,000	2,375	10.4	1.29	3.0	.56
NH	496,000	2,515	6.4*	.79	2.1*	.45
NJ	3,168,000	3,329	8.6*	.93	3.1	.65
NM	700,000	1,599	14.8*	1.46	4.4*	.92
NV	767,000	2,746	9.2*	.96	3.4	.64
NY	7,190,000	6,990	10.0*	.50	3.1	.45
OH	4,475,000	4,611	10.9	.90	3.6	.55
OK	1,386,000	1,983	14.1*	1.38	5.2*	.76
OR	1,388,000	2,354	12.9*	1.16	4.3*	.62
PA	4,755,000	5,302	9.5*	.70	2.6*	.47
RI	404,000	2,549	11.1	1.31	3.6	.52
SC	1,583,000	1,821	13.5*	1.23	4.9*	.93
SD	296,000	2,454	8.9*	1.09	2.4*	.50
TN	2,291,000	1,738	10.9	1.25	3.3	.70
TX	7,808,000	5,693	14.9*	.88	4.1*	.47
UT	737,000	1,811	14.6*	1.73	4.4*	.89
VA	2,835,000	2,301	8.4*	.82	2.2*	.45
VT	254,000	2,271	8.9*	.98	3.0	.62
WA	2,379,000	2,671	11.6	1.23	3.9	.67
WI	2,143,000	3,100	9.0*	.97	3.2	.51
WV	750,000	2,296	8.9*	.80	2.7*	.50
WY	205,000	2,105	10.1	1.25	4.2	.90

\*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 Sept. 2000, Dec. 2001, Dec. 2002, and Dec. 2003 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 2003 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>13</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>14</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>15</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 in December 2003.

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

<sup>13</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>14</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>15</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.

food consumption patterns of U.S. households.<sup>16</sup> Each household's reported usual weekly food spending 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 table C-1).<sup>17</sup>

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 2003, the typical U.S. household spent \$38.00 per person each week for food (table 8). Median household food spending relative to the cost of the Thrifty Food Plan was 1.26. That is, the typical household usually spent 26 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 12 percent more than the cost of the Thrifty Food Plan, while the typical household with no children spent 34 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 (1.02) and for single males with children (1.07) than for married couples with children (1.16). Median food expenditures relative to the Thrifty Food Plan were highest for men living alone (1.56).

Median food expenditures relative to the Thrifty Food Plan were lower for Black households (1.08) and Hispanic households (1.08) than for non-Hispanic White households (1.31). 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>18</sup> The typical household with income below the poverty line spent about 8 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.

<sup>16</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.)

<sup>17</sup> Thrifty Food Plan costs are estimated separately for Alaska and Hawaii. USDA estimates of Thrifty Food Plan costs for Alaska and Hawaii for the second half of 2003 were used to adjust food spending for household size and composition in those States.

<sup>18</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.

**Table 8—Weekly household food spending per person and relative to the cost of the Thrifty Food Plan (TFP), 2003**

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	104,924	38.00	1.26
Household composition:			
With children < 18	38,287	31.25	1.12
At least one child < 6	17,328	28.00	1.13
Married-couple families	26,191	32.00	1.16
Female head, no spouse	9,063	28.00	1.02
Male head, no spouse	2,344	30.00	1.07
Other household with child <sup>2</sup>	689	30.00	1.07
With no children < 18	66,637	45.00	1.34
More than one adult	39,579	40.00	1.27
Women living alone	15,273	50.00	1.43
Men living alone	11,785	55.00	1.56
With elderly	23,466	37.50	1.17
Elderly living alone	9,410	40.00	1.17
Race/ethnicity of households:			
White non-Hispanic	76,000	40.00	1.31
Black non-Hispanic	12,059	33.33	1.08
Hispanic <sup>3</sup>	11,357	31.25	1.08
Other non-Hispanic	5,507	37.50	1.21
Household income-to-poverty ratio:			
Under 1.00	12,101	27.67	.92
Under 1.30	17,265	28.33	.93
Under 1.85	25,823	30.00	.96
1.85 and over	59,724	43.33	1.41
Income unknown	19,377	37.50	1.20
Area of residence:			
Inside metropolitan area	84,590	40.00	1.30
In central city <sup>4</sup>	25,724	40.00	1.28
Not in central city <sup>4</sup>	44,104	40.00	1.33
Outside metropolitan area	20,334	33.33	1.08
Census geographic region:			
Northeast	19,669	40.00	1.29
Midwest	24,320	36.67	1.17
South	38,062	38.00	1.26
West	22,872	40.00	1.31

<sup>1</sup>Totals exclude households that did not answer the questions about spending on food. These represented 6.5 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 2003 Current Population Survey Food Security Supplement.

Median relative food spending of households outside metropolitan areas was 1.08, compared with 1.30 for households inside metropolitan areas. Median spending on food by households in the Midwest (1.17) was slightly lower than that for households in the other Census regions.

At the national level, median spending for food relative to the cost of the Thrifty Food Plan was statistically unchanged from 2002 to 2003. However, median food spending declined slightly in metropolitan statistical areas and in the Northeast, Midwest, and West regions.

## 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 1.29 among food-secure households, compared with 0.96 among all food-insecure households, 0.99 among households classified as food insecure without hunger and 0.91 among households classified as food insecure with hunger (table 9). Thus, the typical food-secure household spent 34 percent more for food than the typical household of the same size and composition that was food insecure and 42 percent more than the typical household of the same size and composition that was food insecure with hunger.

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 0.87 for food-insecure households

**Table 9—Weekly household food spending per person and relative to the cost of the Thrifty Food Plan (TFP) by food security status, 2003**

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	104,924	38.00	1.26
Food security status:			
Food secure	92,717	40.00	1.29
Food insecure	12,014	29.33	.96
Without hunger	8,243	30.00	.99
With hunger	3,771	28.57	.91

<sup>1</sup>Totals for all households exclude households that did not answer the questions about spending on food. These represented 6.5 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 2003 Current Population Survey Food Security Supplement.



compared with 0.95 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. Nonelderly food-insecure individuals living alone 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>19</sup>

<sup>19</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 10—Median weekly household food spending relative to the cost of the Thrifty Food Plan, by food security status and selected household characteristics, 2003**

Category	Food secure	Food insecure
	<i>Ratio<sup>1</sup></i>	
All households	1.29	0.96
Household composition:		
With children < 18	1.17	.92
At least one child < 6	1.18	.95
Married couple families	1.20	.94
Female head, no spouse	1.09	.90
Male head, no spouse	1.12	.93
Other household with child <sup>2</sup>	1.16	NA
With no children < 18	1.41	1.03
More than one adult	1.33	.94
Women living alone	1.44	1.15
Men living alone	1.57	1.14
With elderly	1.17	.91
Elderly living alone	1.17	1.02
Race/ethnicity of households:		
White non-Hispanic	1.33	.98
Black non-Hispanic	1.12	.95
Hispanic <sup>3</sup>	1.12	.94
Other non-Hispanic	1.26	.97
Household income-to-poverty ratio:		
Under 1.00	.95	.87
Under 1.30	.96	.88
Under 1.85	1.00	.90
1.85 and over	1.42	1.17
Income unknown	1.26	.99
Area of residence:		
Inside metropolitan area	1.33	1.00
In central city	1.33	.99
Not in central city	1.38	1.04
Outside metropolitan area	1.10	.86
Census geographic region:		
Northeast	1.31	1.05
Midwest	1.19	.94
South	1.30	.91
West	1.37	1.01

<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 6.7 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.

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

Source: Calculated by ERS using data from the December 2003 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 assistance programs and the two most common community food assistance programs. (See box, “Federal and Community Food Assistance Programs.”) 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>20</sup>

### Methods

The December 2003 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 (listed in footnote 5). The questions analyzed in this final 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 3 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 between the ages of 5 and 18 were asked this question.)
- “During the past 30 days, did any women or children in this household get food through the WIC program?” (Only households with a child age 0-5 or a woman age 15-45 were asked this question.)

<sup>20</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).

## 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 benefits 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 2003, the FSP provided benefits to 21.3 million people in the United States, totaling over \$21 billion for the year. The average benefit was about \$84 per person per month.
- The National School Lunch Program operates in more than 100,000 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 2003, 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 nonbreastfeeding 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 2003, WIC served an average 7.5 million participants per month with an average monthly benefit of about \$35 per person.

### Community 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 2003, TEFAP supplied 519 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 (the last year for which nationally representative statistics are available) 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.

- “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 section 3 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 the ranges specified for the comparison groups.<sup>21</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, and the proportions of households in selected categories that used food pantries were calculated. To reduce the burden on survey respondents, 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 (listed in footnote 5) 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 on the estimated numbers of households that used these facilities.

Estimates of the proportion of households using emergency kitchens based on 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 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. These two factors—exclusion of the homeless and underrepresentation of those who are tenuously housed—bias estimates of emergency kitchen use downward, especially among certain subgroups of

<sup>21</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 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>22</sup> Therefore, detailed analyses in section 3 focus primarily on the use of food pantries.

Finally, proportions were calculated of households participating in the three largest Federal food programs that 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.

## 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>23</sup> More than half of food stamp households were food insecure, as were nearly half of the households that received free or reduced-cost school lunches and 41 percent of those that received WIC (table 11).

The prevalence rate of food insecurity with 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 nearly one-third were food insecure with hunger. For those who ate meals at emergency kitchens, rates of food insecurity and hunger were even higher.

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 and 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.

<sup>22</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 3 percent of food pantry users (America's Second Harvest, 2001, p. 87). 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).

<sup>23</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).

Households that received food assistance also spent less for food than nonrecipient households (table 12).<sup>24</sup> Typical (median) food expenditures of households that received food stamps or free or reduced-price school lunches were 87 percent of the cost of the Thrifty Food Plan.<sup>25</sup> The corresponding statistics were 89 percent for households receiving WIC, and 84 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>24</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>25</sup> The maximum benefit for food stamp households is equal to the cost of the Thrifty Food Plan. About 24 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 food insecurity with hunger, by participation in selected Federal and community food assistance programs, 2003**

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	49.0	51.0	32.7	18.3
Did not receive food stamps previous 30 days	73.3	26.7	17.6	9.1
Income less than 185 percent of poverty line; school-age children in household:				
Received free or reduced-price school lunch previous 30 days	51.2	48.8	35.8	13.0
Did not receive free or reduced-price school lunch previous 30 days	76.3	23.7	17.6	6.2
Income less than 185 percent of poverty line; children under age 5 in household:				
Received WIC previous 30 days	58.5	41.5	31.4	10.1
Did not receive WIC previous 30 days	68.6	31.4	24.4	7.0
Income less than 185 percent of poverty line:				
Received emergency food from food pantry previous 12 months	30.2	69.8	37.1	32.7
Did not receive emergency food from food pantry previous 12 months	76.2	23.8	16.7	7.1
Ate meal at emergency kitchen previous 12 months	24.4	75.6	30.1	45.5
Did not eat meal at emergency kitchen previous 12 months	72.0	28.0	18.7	9.3

Source: Calculated by ERS using data from the December 2003 Current Population Survey Food Security Supplement.

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

Somewhat more than half (56.0 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 2003 food security survey (table 13). The largest share of food-insecure households was reached by the National School Lunch Program (37.3 percent), followed by the Food Stamp Program (30.8 percent) and the WIC program (13.4 percent).<sup>26</sup> The proportion of food-insecure households that received food stamps increased by 2.8 percentage points from 2002 to 2003 and by a total of 5.7 percentage points from 2001 to 2003. The proportion that received free or reduced-price school lunch also increased over the 2001-03 period (by 3.9 percentage points), although the change from 2002-03 (0.9 percentage points) was not statistically significant. The proportion of food-insecure households that received WIC was unchanged from 2001 to 2003. The pattern of program participation by households classified as food insecure with hunger was similar to that of all food-insecure households, with 50.3 percent of these more severely food-insecure households participating in one or more of the three largest Federal food assistance programs.

<sup>26</sup> These statistics may be biased downward somewhat. It is known from comparisons between household survey data and administrative records that food program participation is underreported by household survey respondents, including those in the CPS. 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 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, 2003**

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	0.87
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	.87
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	.89
Did not receive WIC previous 30 days	.95
Income less than 185 percent of poverty line:	
Received emergency food from food pantry previous 12 months	.84
Did not receive emergency food from food pantry previous 12 months	.99

Source: Calculated by ERS using data from the December 2003 Current Population Survey Food Security Supplement.



## Use of Food Pantries and Emergency Kitchens

Some 3.5 million households (3.1 percent of all households) obtained emergency food from food pantries one or more times during the 12-month period ending in December 2003 (table 14). A much smaller number—347,000 households (0.3 percent)—had members who ate one or more meals at an emergency kitchen. Households that obtained food from food pantries included 6.2 million adults and 3.8 million children. Fifty percent of the 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; 22 percent reported that it had occurred in almost every month; and the remaining 28 percent reported that it had occurred in “some months, but not every month” (analysis not shown).

### 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 18 times more likely than food-secure households to have obtained food from a food pantry, and 20 times more likely than food-secure households to have eaten a meal at an emergency kitchen (table 14). Furthermore, among food-insecure households, those registering hunger were about twice as likely to have used a food pantry and more than twice as likely to have used an emergency kitchen as those that were food insecure without hunger.

A large majority (80 percent) of food-insecure households, and even 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

**Table 13—Participation of food-insecure households in selected Federal food assistance programs, 2003**

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	30.8	32.3
Free or reduced-price school lunch	37.3	29.0
WIC	13.4	9.9
Any of the three programs	56.0	50.3
None of the three programs	44.0	49.7

<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 2003 Current Population Survey Food Security Supplement.

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, 28 percent reported that there was no such resource in their community, and an additional 18 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 32 percent availed themselves of it.

About 30 percent of households that used food pantries and emergency kitchens were classified as food secure. Just over half (52 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—12 times as high for food pantry use and 6 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 nearly twice as likely as those without children to use food pantries (4.5 percent compared with 2.4 percent). Food pantry use was especially high among female-headed households with children (10.0 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 (2.1 percent).

**Table 14—Use of food pantries and emergency kitchens, 2003**

Category	Pantries			Kitchens		
	Total <sup>1</sup>	Users		Total <sup>1</sup>	Users	
	1,000	1,000	Percent	1,000	1,000	Percent
All households	111,929	3,511	3.1	112,007	347	0.31
All persons in households	285,555	9,985	3.5	285,788	811	.28
Adults in households	212,821	6,174	2.9	213,014	589	.28
Children in households	72,735	3,811	5.2	72,774	222	.31
Food security status:						
Food secure	99,433	1,065	1.1	99,458	96	.10
Food insecure	12,411	2,446	19.7	12,451	251	2.02
Without hunger	8,544	1,294	15.1	8,568	113	1.32
With hunger	3,867	1,152	29.8	3,883	138	3.55

<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 2003 Current Population Survey Food Security Supplement.

Use of food pantries was higher among Blacks (6.9 percent) and Hispanics (5.1 percent) than among non-Hispanic Whites (2.3 percent), consistent with the higher rates of poverty, food insecurity, and hunger of these minorities. In spite of their lower use rate, non-Hispanic Whites comprised a majority (52 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 0.6 percent of households with incomes above 185 percent of the poverty line.<sup>27</sup> Among households with incomes above the poverty line but below 185 percent of the poverty line, 878,000 (2,705,000-1,827,000) used food pantries in 2003, comprising 25 percent of all households using food pantries and 6.1 percent of households in that income range.

Use of food pantries was higher in central cities (4.2 percent) and in nonmetropolitan areas (3.7 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 somewhat more common in the Midwest (3.7 percent) and the West (3.4 percent).

<sup>27</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 (listed in footnote 5). 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, 2003**

Category	Total <sup>1</sup>	Pantry users	
	1,000	1,000	Percent
All households	111,929	3,511	3.1
Household composition:			
With children < 18	40,145	1,822	4.5
At least one child < 6	18,037	905	5.0
Married-couple families	27,422	676	2.5
Female head, no spouse	9,540	957	10.0
Male head, no spouse	2,481	143	5.8
Other household with child <sup>2</sup>	702	47	6.7
With no children < 18	71,784	1,689	2.4
More than one adult	42,462	737	1.7
Women living alone	16,685	577	3.5
Men living alone	12,637	375	3.0
With elderly	25,879	554	2.1
Elderly living alone	10,556	288	2.7
Race/ethnicity of households:			
White non-Hispanic	80,941	1,830	2.3
Black non-Hispanic	13,079	897	6.9
Hispanic <sup>3</sup>	11,970	613	5.1
Other non-Hispanic	5,939	171	2.9
Household income-to-poverty ratio:			
Under 1.00	12,627	1,827	14.5
Under 1.30	17,990	2,264	12.6
Under 1.85	26,919	2,705	10.0
1.85 and over	62,114	362	.6
Income unknown	22,896	444	1.9
Area of residence:			
Inside metropolitan area	90,482	2,719	3.0
In central city <sup>4</sup>	27,584	1,152	4.2
Not in central city <sup>4</sup>	47,140	1,002	2.1
Outside metropolitan area	21,447	792	3.7
Census geographic region:			
Northeast	21,246	609	2.9
Midwest	25,899	947	3.7
South	40,429	1,126	2.8
West	24,354	830	3.4

<sup>1</sup>Totals exclude households that did not answer the question about getting food from a food pantry. They represented 1.0 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 2003 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.

Somewhat more than one-fourth (27.1 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 46.8 percent of all households that reported using a food pantry, up from 42.3 percent in 2002 and from 38.8 percent in 2001. Food pantry use was somewhat less common among households that participated in the National School Lunch Program (16.6 percent) and the WIC Program (16.9 percent), reflecting the higher income-eligibility criteria of these programs. A sizeable majority of food pantry users (67.2 percent) received food from at least one of the three largest Federal food assistance programs. The remainder of food pantry users (32.8 percent) did not participate in any of these Federal programs.

Only small proportions (from 1.0 to 2.9 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 sizeable share of emergency kitchen users. Among households with incomes less than 185 percent of the poverty line who reported that someone in the household ate one or more meals at an emergency kitchen, 54.3 percent received food stamps (up from 33.6 percent in 2002 and 27.5 percent in 2001), 30.2 percent received free or reduced-cost meals in the National School Lunch Program, 9.6 percent received WIC benefits, and 63.4 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 assistance 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 assistance programs.

**Table 16—Combined use of Federal and community food assistance programs by low-income households, 2003<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	27.1	46.8	2.9	54.3
Received free or reduced-price school lunch previous 30 days	16.6	35.8	1.3	30.2
Received WIC previous 30 days	16.9	15.4	1.0	9.6
Participated in one or more of the three Federal programs	19.6	67.2	1.7	63.4
Did not participate in any of the three Federal programs	5.0	32.8	.5	36.6

<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 2003 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 condition described by the least severe question, *We worried whether our food would run out before we got money to buy more*, was reported by 15.7 percent of households in 2003 (table A-1). *Adults cutting the size of meals or skipping meals because there wasn't enough money for food* was reported by 6.2 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 4 for the complete wording of these questions.)

The two least severe questions refer to 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. Thus, all households with that classification affirmed at least one item indicating disruption of normal eating patterns or reduction in food intake, and most food-insecure households reported multiple indicators of these conditions (table A-2).

A large majority of food-secure households (73.2 percent of all households with children and 85.3 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 (10.2 percent of households with children and 6.6 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 to examine the characteristics and conditions of households that affirm just one or two food insecurity indicators.

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

Most of the questions used to calculate the food security scale also elicit information about how often the food-insecure behavior, experience, or condition occurred. The food security scale does not take all of this frequency-of-occurrence information into account, but analysis of these

**Table A-1—Responses to items in the food security scale, 2000-2003<sup>1</sup>**

Scale item <sup>2</sup>	Households affirming item <sup>3</sup>			
	2000	2001	2002	2003
	<i>Percent</i>			
Household items:				
Worried food would run out before (I/we) got money to buy more	15.1	15.3	15.6	15.7
Food bought didn't last and (I/we) didn't have money to get more	12.2	12.3	12.4	12.3
Couldn't afford to eat balanced meals	9.9	10.0	10.5	10.8
Adult items:				
Adult(s) cut size of meals or skipped meals	5.4	5.7	6.0	6.2
Respondent ate less than felt he/she should	5.2	5.7	5.9	5.9
Adult(s) cut size or skipped meals in 3 or more months	3.8	4.0	4.2	4.4
Respondent hungry but didn't eat because couldn't afford	2.4	2.4	2.7	2.7
Respondent lost weight	1.5	1.5	1.8	1.7
Adult(s) did not eat for whole day	1.0	1.1	1.2	1.2
Adult(s) did not eat for whole day in 3 or more months	.7	.8	.8	.9
Child items:				
Relied on few kinds of low-cost food to feed child(ren)	16.3	15.7	16.5	16.1
Couldn't feed child(ren) balanced meals	8.9	8.6	8.9	8.9
Child(ren) were not eating enough	4.7	4.1	4.3	4.7
Cut size of child(ren)'s meals	1.2	1.0	1.2	1.0
Child(ren) were hungry	.8	.7	.9	.7
Child(ren) skipped meals	.6	.4	.7	.4
Child(ren) skipped meals in 3 or more months	.4	.3	.5	.3
Child(ren) did not eat for whole day	.2	.1	.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 September 2000, December 2001, December 2002, and December 2003 Current Population Survey Food Security Supplements.

**Table A-2—Percentage of households by food security raw score, 2003**

<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	73.17	73.17	Food secure
1	5.90	79.07	
2	4.27	83.34	
3	3.50	86.84	Food insecure without hunger
4	3.01	89.85	
5	2.42	92.28	
6	2.46	94.74	
7	1.42	96.16	
8	1.00	97.16	Food insecure with hunger
9	.91	98.07	
10	.71	98.78	
11	.40	99.19	
12	.28	99.47	
13	.23	99.70	
14	.13	99.83	
15	.11	99.94	
16	.03	99.97	
17	.02	99.99	
18	.01	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	85.28	85.28	Food secure
1	3.84	89.12	
2	2.72	91.84	
3	2.59	94.43	Food insecure without hunger
4	1.19	95.62	
5	1.08	96.70	
6	1.08	97.78	Food insecure with hunger
7	.95	98.72	
8	.52	99.24	
9	.31	99.55	
10	.45	100.00	

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

Source: Calculated by ERS using data from the December 2003 Current Population Survey Food Security Supplement.

responses can provide 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,” on page 4):

- **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 2003 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 15 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 8.3 percent reported that this had occurred sometimes (but not often). Thus, a total of 10.8 percent of households reported that this had occurred at some time during the past 12 months, and, of those, 23.5 percent reported that it had occurred often.

In response to method 2 questions, 26 to 32 percent of households that responded “yes” to the base question reported that the behavior, experience, or condition occurred “in almost every month;” 41 to 52 percent reported that it occurred in “some months, but not every month;” and 21 to 30 percent reported that it occurred “in only 1 or 2 months.” For example, 6.2 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 follow-up question asking how often this happened, 1.8 percent said that it happened in almost every month (i.e., 29.6 percent of those who responded “yes” to the base question), 2.6 percent said it happened in some months but not every month (41.3 percent of those who responded “yes” to the base question), and 1.8 percent said it happened in only 1 or 2 months (29.1 percent of those who responded “yes” to the base question).

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 (either “often” or “sometimes”) to the first four questions—questions that are sensitive to less severe aspects of food insecurity—and 39 to 49 percent reported that these conditions occurred often during the past year. In response to method 2 questions, 31 to 42 percent of households that affirmed each base question reported that the condition occurred in “almost every month.”

**Table A-3—Frequency of occurrence of behaviors, experiences, and conditions indicating food insecurity and hunger, all U.S. households, 2003<sup>1</sup>**

Condition <sup>2</sup>	Frequency of occurrence						
	Often or Sometimes	Often	Sometimes	Often	Sometimes	Percent of "often" or "sometimes"	
	-----Percent of all households-----						
Worried food would run out before (I/we) got money to buy more	15.7	3.7	12.0	23.5	76.5		
Food bought didn't last and (I/we) didn't have money to get more	12.3	2.4	9.9	19.4	80.6		
Couldn't afford to eat balanced meals	10.8	2.5	8.3	23.1	76.9		
Relied on few kinds of low-cost food to feed child(ren)	16.1	3.6	12.6	22.1	77.9		
Couldn't feed child(ren) balanced meals	8.9	1.4	7.5	15.8	84.2		
Child(ren) were not eating enough	4.7	0.7	4.0	15.0	85.0		
	Frequency of occurrence						
	Ever during the year	Almost every month	Some months but not every month	In only 1 or 2 months	Almost every month	Some months but not every month	In only 1 or 2 months
	-----Percent of all households-----						
	Percent of "ever during the year"						
Adult(s) cut size of meals or skipped meals	6.2	1.8	2.6	1.8	29.6	41.3	29.1
Respondent ate less than felt he/she should	5.8	1.6	2.5	1.7	27.6	42.7	29.7
Respondent hungry but didn't eat because couldn't afford	2.7	0.8	1.2	0.7	30.4	43.0	26.6
Respondent lost weight	1.7	NA	NA	NA	NA	NA	NA
Adult(s) did not eat for whole day	1.2	0.4	0.5	0.3	30.3	43.8	25.8
Cut size of child(ren)'s meals	1.0	0.3	0.5	0.2	26.5	51.8	21.7
Child(ren) were hungry	0.7	0.2	0.4	0.2	28.4	50.2	21.4
Child(ren) skipped meals	0.4	0.1	0.2	0.1	31.8	42.7	25.5
Child(ren) did not eat for whole day	0.1	NA	NA	NA	NA	NA	NA

<sup>1</sup>Survey responses weighted to population totals. Households not responding to an item or not responding to the followup question about frequency of occurrence are excluded from the calculation of percentages for that item. Households without children are excluded from the calculation of percentages for child-referenced items.

<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."

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

Source: Calculated by ERS using data from the December 2003 Current Population Survey Food Security Supplement.

**Table A-4—Frequency of occurrence of behaviors, experiences, and conditions indicating food insecurity and hunger in households classified as food insecure with hunger, 2003<sup>1</sup>**

Condition <sup>2</sup>	Frequency of occurrence				
	Often or Sometimes	Often	Sometimes	Often	Sometimes
	<i>Percent of food-insecure-with-hunger households</i>			<i>Percent of "often" or "sometimes"</i>	
Worried food would run out before (I/we) got money to buy more	97.8	49.4	48.4	50.5	49.5
Food bought didn't last and (I/we) didn't have money to get more	97.1	39.4	57.6	40.6	59.4
Couldn't afford to eat balanced meals	94.7	40.4	54.4	42.6	57.4
Relied on few kinds of low-cost food to feed child(ren)	96.8	43.5	53.2	45.0	55.0
Couldn't feed child(ren) balanced meals	88.5	25.4	63.2	28.6	71.4
Child(ren) were not eating enough	61.9	13.6	48.3	22.0	78.0

	Frequency of occurrence						
	Ever during the year	Almost every month	Some months but not every month	In only 1 or 2 months	Almost every month	Some months but not every month	In only 1 or 2 months
	<i>Percent of food-insecure-with-hunger households</i>				<i>Percent of "ever during the year"</i>		
Adult(s) cut size of meals or skipped meals	97.0	41.3	46.2	9.5	42.5	47.7	9.8
Respondent ate less than felt he/she should	94.3	38.3	44.1	12.0	40.6	46.7	12.7
Respondent hungry but didn't eat because couldn't afford	60.4	21.7	26.6	12.1	36.0	44.0	20.0
Respondent lost weight	43.6	NA	NA	NA	NA	NA	NA
Adult(s) did not eat for whole day	31.2	10.0	14.3	6.8	32.2	46.0	21.8
Cut size of child(ren)'s meals	21.6	6.8	11.9	2.8	31.5	55.3	13.2
Child(ren) were hungry	17.0	5.3	8.8	3.0	31.0	51.5	17.5
Child(ren) skipped meals	9.9	3.1	4.5	2.3	31.3	45.1	23.6
Child(ren) did not eat for whole day	1.4	NA	NA	NA	NA	NA	NA

<sup>1</sup>Survey responses weighted to population totals. Households not responding to an item or not responding to the followup question about frequency of occurrence are excluded from the calculation of percentages for that item. Households without children are excluded from the calculation of percentages for child-referenced items.

<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."

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

Source: Calculated by ERS using data from the December 2003 Current Population Survey Food Security Supplement.



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 3.75 percent of households in which adults cut the size of meals or skipped meals during the previous 30 days because there wasn't enough money for food, 65.8 percent reported that this had occurred in 1 to 7 days, 14.4 percent reported that it had occurred in 8-14 days, and 19.8 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 8.3 days. The daily occurrence patterns were generally similar for all of the indicators of reduced food intake and hunger. Average days of occurrence (for those reporting occurrence at any time during the month) ranged from 6.2 days for *adult did not eat for whole day* to 9.6 days for *cut size of children's meals because there wasn't enough money for 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>28</sup> These daily prevalence rates ranged from 1.04 percent for *adult cut size of meals or skipped meals* to 0.07 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 12.5 to 17.8 percent of their prevalence at any time during the year (table A-3). The corresponding range for the child-referenced items was 15.7 percent to 18.0 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>28</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, 2003<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	3.75	65.8	14.4	19.8	8.3	1.04
Respondent ate less than felt he/she should	3.31	59.9	15.3	24.9	9.4	1.03
Respondent hungry but didn't eat because couldn't afford	1.58	60.2	16.4	23.5	9.0	.47
Respondent lost weight	1.01	NA	NA	NA	NA	NA
Adult(s) did not eat for whole day	.72	76.2	11.7	12.1	6.2	.15
Cut size of child(ren)'s meals	.56	62.0	7.7	30.3	9.6	.18
Child(ren) were hungry	.45	72.1	5.8	22.2	7.3	.11
Child(ren) skipped meals	.26	63.2	11.5	25.3	7.7	.07
Child(ren) did not eat for whole day	.03	NA	NA	NA	NA	NA

<sup>1</sup>Survey responses weighted to population totals. The 30-day and daily statistics refer to the 30-day period from mid-November to mid-December; the survey was conducted during the third week of December 2003.

<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.

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

Source: Calculated by ERS using data from the December 2003 Current Population Survey Food Security Supplement.

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

This report of household food security in 2003 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: Detailed Statistical Report* (Cohen et al., 2002b)
- *Household Food Security in the United States, 1998 and 1999: Technical Report* (Cohen et al., 2002a)
- *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)
- *Household Food Security in the United States, 2002* (Nord et al., 2003)

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), 2001 (Nord et al., 2002a), and 2002 (Nord

et al., 2003) 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>29</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).

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>30</sup> The CPS food security survey was repeated in September 1996, April 1997, August 1998, April 1999, September 2000, April 2001, December 2001, December 2002, and December 2003. 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

<sup>29</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.

<sup>30</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.

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>31</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 data sets. 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.
- 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

<sup>31</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 items vary in the severity of food insecurity to which they refer, and the overall score measures the severity of food insecurity recently experienced by household members.

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.<sup>32</sup> 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 of this report 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 households' calorie and nutrient requirements due to 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>33</sup>

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 2003—the month the 2003 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.<sup>34</sup>

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

<sup>32</sup> The costs of the Thrifty Food Plan for residents of Alaska and Hawaii are calculated based on State food prices rather than average national food prices.

<sup>33</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; USDA, 1999). 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).

<sup>34</sup> For residents in Alaska and Hawaii, the Thrifty Food Plan costs were adjusted upward by 14.6 percent and 43.7 percent, respectively, to reflect the higher cost of the Thrifty Food Plan in those States.

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 (\$31.90) and wife (\$29.00) and adjusting the total upward by 10 percent. The adjusted total (\$67.00) 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 2003**

Age-gender group <sup>1</sup>	Thrifty plan	Low-cost plan	Moderate-cost plan	Liberal plan
<i>Dollars</i>				
<b>Child:</b>				
1 year <sup>2</sup>	17.50	21.80	25.50	31.40
2 years	17.40	21.40	25.50	30.80
3-5 years	19.00	23.50	29.10	35.20
6-8 years	23.80	31.60	39.00	45.40
9-11 years	27.80	35.50	45.40	52.90
<b>Male:</b>				
12-14 years	28.90	40.00	49.60	58.50
15-19 years	29.80	41.20	51.60	60.10
20-50 years	31.90	41.30	51.60	63.00
51 years and over	29.30	39.60	48.70	58.60
<b>Female:</b>				
12-19 years	28.90	34.70	42.10	50.90
20-50 years	29.00	36.10	44.20	57.10
51 years and over	28.60	35.10	43.80	52.70
<b><i>Examples of families</i></b>				
1. Couple: 20-50 years	67.00	85.10	105.40	132.10
2. Couple, 20-50 years, with 2 children, ages 2 and 3-5 years	97.30	122.30	150.40	186.10

<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, [www.cnpp.usda.gov/using3.htm](http://www.cnpp.usda.gov/using3.htm).



## Appendix D. Changes in Prevalence Rates of Food Insecurity and Food Insecurity With Hunger by State, 1996-98 (average) to 2001-03 (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>35</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 so as to be consistent with that collected under the most restrictive screening protocol used during that period—that of the 1997 survey.<sup>36</sup> Those rates cannot be compared directly with the prevalence rates for 2001-03 presented in section 1 of this report, 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 2003 based both on the unedited data for each year and on data edited to be comparable across all years.

To provide an appropriate baseline for assessing changes in State prevalence rates of food insecurity and food insecurity with hunger, statistics from the 1996-98 report for each State were adjusted upward to offset the estimated effects of the earlier screening procedures on that States' prevalence rates.<sup>37</sup> Table D-1 compares State-level prevalence rates for 2001-03 (repeated from table 7) with the adjusted 1996-1998 rates. Declines in prevalences of food insecurity were statistically significant in 9 States and the District of Columbia, while 10 States registered increases in food insecurity prevalence rates large enough to be statistically significant. Declines in prevalence rates of food insecurity with hunger were statistically significant in seven States and the District of Columbia. Only North Carolina registered a statistically significant increase in the prevalence of food insecurity with hunger.<sup>38</sup>

<sup>35</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>36</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>37</sup> The method used to calculate these adjustments was described in detail in *Household Food Security in the United States, 2001* (Nord et al., 2002), appendix D.

<sup>38</sup> Seasonal effects on food security measurement (discussed in section 1) probably bias prevalence rates for 1996-98 upward somewhat compared with 2001-2003. At the national level, this effect would raise the prevalence rate of food insecurity in 1996-98 by about 0.8 percentage points and the prevalence rate of food insecurity with hunger by about 0.4 percentage points. However, seasonal effects may vary from State to State.

**Table D-1—Changes in prevalence rates of food insecurity and food insecurity with hunger, by State, 1996-98 (average) to 2001-03 (average)<sup>1</sup>**

State	Food insecure (with or without hunger)			Food insecure with hunger		
	Average, 1996-98	Average, 2001-03	Change*	Average, 1996-98	Average, 2001-03	Change
	-----Percent-----		Percentage points	-----Percent-----		Percentage points
U.S. total	11.3	11.0	-0.3	3.7	3.4	-0.3*
AK	8.7	11.5	2.8*	3.6	4.1	.5
AL	12.5	12.5	0	3.3	3.2	-.1
AR	13.7	15.5	1.8*	4.8	4.7	-.1
AZ	14.6	12.3	-2.3	4.3	3.8	-.5
CA	13.3	12.2	-1.1*	4.3	3.6	-.7*
CO	10.8	9.7	-1.1	3.8	3.0	-.8
CT	11.0	8.0	-3.0*	4.1	3.0	-1.1
DC	13.7	9.0	-4.7*	4.7	2.4	-2.3*
DE	8.1	6.7	-1.4*	2.9	1.8	-1.1
FL	13.2	11.7	-1.5	4.5	3.7	-.8
GA	10.9	12.9	2.0	3.4	3.6	.2
HI	12.9	9.9	-3.0*	3.1	3.3	.2
IA	8.0	9.5	1.5*	2.6	3.0	.4
ID	11.3	13.7	2.4*	3.3	3.9	.6
IL	9.6	7.9	-1.7*	3.2	2.5	-.7*
IN	9.0	9.9	.9	2.9	3.4	.5
KS	11.5	11.7	.2	4.2	4.4	.2
KY	9.7	11.2	1.5*	3.4	3.3	-.1
LA	14.4	12.3	-2.1	4.4	2.6	-1.8*
MA	7.5	6.2	-1.3	2.1	2.3	.2
MD	8.7	7.7	-1.0	3.3	2.9	-.4
ME	9.8	9.2	-.6	4.0	2.9	-1.1
MI	9.6	10.1	.5	3.1	3.4	.3
MN	8.6	7.1	-1.5	3.1	2.2	-.9
MO	10.1	10.4	.3	3.0	3.6	.6
MS	14.6	14.9	.3	4.2	4.0	-.2
MT	11.2	12.5	1.3	3.0	4.0	1.0
NC	9.8	13.7	3.9*	2.7	4.5	1.8*
ND	5.5	6.9	1.4*	1.6	2.0	.4
NE	8.7	10.4	1.7	2.5	3.0	.5
NH	8.6	6.4	-2.2*	3.1	2.1	-1.0*
NJ	8.9	8.6	-.3	3.1	3.1	.0
NM	16.5	14.8	-1.7	4.8	4.4	-.4
NV	10.4	9.2	-1.2	4.0	3.4	-.6
NY	11.9	10.0	-1.9*	4.1	3.1	-1.0*
OH	9.7	10.9	1.2	3.5	3.6	.1
OK	13.1	14.1	1.0	4.2	5.2	1.0
OR	14.2	12.9	-1.3	6.0	4.3	-1.7*
PA	8.3	9.5	1.2*	2.6	2.6	.0
RI	10.2	11.1	.9	2.7	3.6	.9
SC	11.0	13.5	2.5*	3.5	4.9	1.4
SD	8.2	8.9	.7	2.2	2.4	.2
TN	11.8	10.9	-.9	4.4	3.3	-1.1
TX	15.2	14.9	-.3	5.5	4.1	-1.4*
UT	10.3	14.6	4.3*	3.1	4.4	1.3
VA	10.2	8.4	-1.8*	3.0	2.2	-.8
VT	8.8	8.9	.1	2.7	3.0	.3
WA	13.2	11.6	-1.6*	4.7	3.9	-.8
WI	8.5	9.0	.5	2.6	3.2	.6
WV	9.5	8.9	-.6	3.1	2.7	-.4
WY	9.9	10.1	.2	3.5	4.2	.7

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

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

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

## 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 about 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 (2.6 percent) were food insecure with hunger at some time during the 30-day period from mid-November to mid-December 2003 (table E-1).<sup>39</sup> The 30-day prevalence was just under three-fourths (74.2 percent) that for the entire 12 months prior to the survey, a proportion similar to that observed in November/December 2002 (76.2 percent). 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 food insecurity with hunger was lowest for married-couple families with children, households with two or more adults without children, households that included an elderly person, and households with incomes higher than 185 percent of the poverty line. Prevalences of food insecurity with hunger were highest for single women with children, Blacks, and households with incomes below the poverty line. Single women with children who were food insecure with hunger at any time during the year were more likely than other households to have been insecure with hunger during the previous 30 days (82 percent). The ratios of prevalence rates of hunger for the two reference periods ranged from 64.9 percent for households with elderly present to 82.3 percent for single women with children.<sup>40</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

<sup>39</sup> The food security survey was conducted in the third week of December in 2003.

<sup>40</sup> Only 13 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, 2003<sup>1</sup>**

Category	Total <sup>2</sup>	Food insecure with hunger				
		Previous 12 months		Previous 30 days		Previous 30 days as percentage of previous 12 months
	1,000	1,000	Percent	1,000	Percent	Percent
All households	112,214	3,920	3.5	2,907	2.6	74.2
Household composition:						
With children < 18	40,286	1,546	3.8	1,222	3.0	79.0
With children < 6	18,110	661	3.6	519	2.9	78.5
Married-couple families	27,484	535	1.9	415	1.5	77.6
Female head, no spouse	9,623	841	8.7	692	7.2	82.3
Male head, no spouse	2,475	137	5.5	95	3.8	69.3
Other household with child <sup>3</sup>	704	33	4.7	20	2.8	60.6
With no children < 18	71,928	2,373	3.3	1,685	2.3	71.0
More than one adult	42,553	960	2.3	687	1.6	71.6
Women living alone	16,724	728	4.4	504	3.0	69.2
Men living alone	12,651	686	5.4	494	3.9	72.0
With elderly	25,946	450	1.7	292	1.1	64.9
Elderly living alone	10,574	223	2.1	153	1.4	68.6
Race/ethnicity of households:						
White non-Hispanic	81,080	2,178	2.7	1,714	2.1	78.7
Black non-Hispanic	13,156	895	6.8	588	4.5	65.7
Hispanic <sup>4</sup>	12,034	653	5.4	449	3.7	68.8
Other non-Hispanic	5,944	193	3.2	156	2.6	80.8
Household income-to-poverty ratio:						
Under 1.00	12,739	1,610	12.6	1,115	8.8	69.3
Under 1.30	18,143	2,053	11.3	1,442	7.9	70.2
Under 1.85	27,104	2,640	9.7	1,900	7.0	72.0
1.85 and over	62,145	755	1.2	618	1.0	81.9
Income unknown	22,965	524	2.3	388	1.7	74.0
Area of residence:						
Inside metropolitan area	90,708	3,194	3.5	2,353	2.6	73.7
In central city <sup>5</sup>	27,682	1,297	4.7	903	3.3	69.6
Not in central city <sup>5</sup>	47,243	1,368	2.9	1,050	2.2	76.8
Outside metropolitan area	21,505	725	3.4	554	2.6	76.4
Census geographic region:						
Northeast	21,306	696	3.3	546	2.6	78.4
Midwest	25,941	829	3.2	625	2.4	75.4
South	40,554	1,541	3.8	1,065	2.6	69.1
West	24,412	853	3.5	671	2.7	78.7

<sup>1</sup>The 30-day prevalence rates refer to the 30-day period from mid-November to mid-December; the survey was conducted during the third week of December 2003.

<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 2003, these represented 381,000 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 2003 Current Population Survey Food Security Supplement.

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 (12.0 percent) was nearly twice that of households that did not receive food stamps at any time during the year (6.7 percent) and was about the same as that of households that received food stamps during the 30 days prior to the survey (11.5 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.

**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, 2003<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	11.5
Received food stamps previous 12 months but not previous 30 days (food stamp leavers)	12.0
Did not receive food stamps previous 12 months	6.7
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	4.2
Income less than 185 percent of poverty line; children under age 5 in household:	
Received WIC previous 30 days	7.1
Did not receive WIC previous 30 days	5.7
Income less than 185 percent of poverty line:	
Received emergency food from food pantry previous 30 days	28.6
Did not receive emergency food from food pantry previous 30 days	6.0
Ate meal at emergency kitchen previous 30 days	40.1
Did not eat meal at emergency kitchen previous 30 days	6.8

<sup>1</sup>The 30-day prevalence rates refer to the 30-day period from mid-November to mid-December; the survey was conducted during the third week of December 2003.

Source: Calculated by ERS using data from the December 2003 Current Population Survey Food Security Supplement.