



# Food Spending Declined and Food Insecurity Increased for Middle-Income and Low-Income Households From 2000 to 2007

Mark Nord



ITEM	PRICE
	4.50
BAKERY	3.25
CEREAL	1.95
OIL	6.59
DELI	.89
PRODUCE	2.29
PRODUCE	3.67
FRUIT	2.59
DRESSING	1.99
BOTTLED WATER	1.50
BATH	1.29
KITCHEN	2.85
PASTA	1.15
TOMATOES	2.59
EGGS	.99
APPLESAUCE	1.60
BUTTER	2.40
BREAD	1.30
RICE	2.75
CRACKERS	1.86
PRODUCE	1.00
YOGURT	1.59
BEANS	5.53
CHEESE	1.89
PUDDING	1.59
CHIPS	

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## National Agricultural Library Cataloging Record:

Nord, Mark

Food spending declined and food insecurity increased for middle-income and low-income households from 2000 to 2007.

(Economic information bulletin; no. 61)

1. Food security—United States.
2. Food consumption—United States—Statistics.
3. Cost and standard of living—United States.

I. United States. Dept. of Agriculture. Economic Research Service.

II. Title.

HD6983

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United States  
Department  
of Agriculture

Economic  
Information  
Bulletin  
Number 61

October 2009



A Report from the Economic Research Service

[www.ers.usda.gov](http://www.ers.usda.gov)

# Food Spending Declined and Food Insecurity Increased for Middle-Income and Low-Income Households From 2000 to 2007

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## Abstract

From 2000 to 2007, median spending on food by U.S. households declined by 12 percent relative to the (rising) cost of USDA's Thrifty Food Plan, and by 6 percent relative to the (rising) Consumer Price Index (CPI) for Food and Beverages. Over the same period, the national prevalence of very low food security increased by about one-third, from 3.1 percent of households in 2000 to 4.1 percent in 2007. The deterioration in food security was greatest in the second-lowest income quintile, in which the prevalence of very low food security increased by about half. These estimates, based on data from the nationally representative Current Population Survey Food Security Supplement, are corroborated by corresponding declines in food expenditures by middle- and low-income households in the U.S. Bureau of Labor Statistics' Consumer Expenditure Survey. The decline was largest in the second-lowest income quintile, in which average CPI-inflation-adjusted spending for food declined by 16 percent. The declines in food spending by middle- and low-income households were accompanied by increases in spending for housing and, in the two lowest income quintiles, by declines in income and total spending.

**Keywords:** Food spending, food expenditures, food security, food insecurity, consumer expenditure survey, current population survey food security supplement

## Acknowledgments

The author thanks the following individuals for their reviews of the report: Mark Prell and Ephraim Leibtag, USDA, Economic Research Service (ERS); Sofia Berto Villas-Boas, Department of Agricultural and Resource Economics, University of California, Berkeley; Parke Wilde, Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy, Tufts University; and Steven Carlson, USDA, Food and Nutrition Service. Also, thanks to John Weber and Wynnice Pointer-Napper of ERS for editing and design assistance.

# Contents

Summary . . . . . iii

Introduction . . . . . 1

Data Sources . . . . . 2

Economic Context . . . . . 4

Food Spending Declined for Households With Middle  
and Lower Incomes . . . . . 5

Food Security Deteriorated . . . . . 8

Declines in Food Spending and Food Security Were  
Not Concentrated in Specific Types of Households . . . . . 9

Households Spent More on Housing . . . . . 13

Conclusions . . . . . 15

References . . . . . 16

Appendix A—Relationship Between Food Spending  
and Food Security at the Household Level . . . . . 17

Appendix B—Comparison of Household Food Expenditure  
Estimates From the Current Population Survey Food Security  
Supplement and the Consumer Expenditure Survey . . . . . 18

**Recommended citation format for this publication:**  
Nord, Mark. *Food Spending Declined and Food Insecurity Increased for Middle-Income and Low-Income Households From 2000 to 2007*, EIB-61, U.S. Dept. of Agri., Econ. Res. Serv., October 2009.

## Summary

Food security, meaning consistent access by all people to adequate food for active, healthy living, is closely linked with the amount households spend for food. Annual ERS reports on household food security from 2000 to 2007 indicate that median food spending by U.S. households grew more slowly than food prices over that period, which means that food spending by middle- and low-income households actually declined after adjusting for inflation. This report provides more detailed information on the characteristics of the decline in inflation-adjusted food spending and examines associated changes in the food security of U.S. households.

### What Is the Issue?

The decline in inflation-adjusted food spending by middle- and low-income households over the past several years means that those households either reduced the quantity of food they purchased or that they purchased, on average, lower cost foods. Households with adequate resources may have reduced spending for “extras,” such as treats and convenience foods, with minimal impact on nutrition and health. However, reduced food spending by households whose food budgets were already stretched thin may have meant that some of those households could no longer purchase adequate food for active healthy lives for all household members. It is important for policy-makers to understand whether the decline in inflation-adjusted food spending over the last several years reflected a deterioration in the food security of U.S. households and, if so, why food spending declined.

### What Did the Study Find?

Data from two independent sources indicate that from 2000 to 2007, food spending by middle- and low-income households grew at a slower rate than food prices. Median food spending for all households declined by 12 percent relative to the rising cost of the Thrifty Food Plan and by 6 percent relative to the rising Consumer Price Index for Food and Beverages (CPIFB). Average CPIFB-inflation-adjusted food spending declined by 6 percent for households with incomes below the 20<sup>th</sup> percentile, 16 percent for households with incomes in the 20<sup>th</sup> to 40<sup>th</sup> percentile, and 9 percent for households with incomes in the 40<sup>th</sup> to 60<sup>th</sup> percentile. However, average spending by all households remained nearly unchanged because spending increased for households with incomes above the 60<sup>th</sup> percentile.

Over the same period, the national prevalence of very low food security—a severe range of food insecurity in which eating patterns of some household members are disrupted and their food intakes are reduced—increased from 3.1 percent of households in 2000 to 4.1 percent in 2007. As with the decrease in food spending, the deterioration in food security was greatest for households with incomes in the 20<sup>th</sup> to 40<sup>th</sup> percentile, for which the prevalence of very low food security increased by about 50 percent. The declines in food spending by middle- and low-income households were accompanied by increases in spending for housing and, for households with incomes below the 40<sup>th</sup> percentile, declines in total spending.

These changes occurred during a period generally characterized by economic growth, falling unemployment, and moderate food price inflation. In 2007, the latest year for which food security and food spending data are available, unemployment had just begun to rise and food price inflation had begun to accelerate, but the larger changes associated with the recession of 2008 and 2009 were yet to come.

## **How Was the Study Conducted?**

The study used data from two nationally representative surveys, the Current Population Survey Food Security Supplement (CPS-FSS) and the Consumer Expenditure Survey (CES). The CPS-FSS is an annual survey conducted by the U.S. Census Bureau as a supplement to the monthly Current Population Survey. USDA sponsors the survey, and USDA's Economic Research Service compiles and analyzes the responses. The CPS-FSS includes about 45,000 households each year and is representative of the U.S. noninstitutionalized civilian population. The survey asks one adult respondent in each household a series of questions about household food spending, use of Federal and community food and nutrition assistance programs, and experiences and behaviors that indicate food insecurity.

The CES consists of two components—a quarterly interview survey and a diary survey—that provide information on expenditures, income, and demographic characteristics of U.S. consumers. The U.S. Census Bureau conducts the survey for the U.S. Bureau of Labor Statistics (BLS). Data from the two surveys are integrated to provide estimates of expenditures in over 80 subcategories of goods and services, aggregated into 14 major categories. This study used estimates published by BLS of food expenditures by pre-tax income percentiles from 2000 to 2007.

## Introduction

Median spending for food by U.S. households grew more slowly than food prices from 2000 to 2007. Thus, median food spending actually declined after adjusting for food-price inflation. Some households may have reduced food spending for “extras,” such as convenience foods and special treats, with minimal impact on nutrition and health. However, if households that were already struggling to put adequate food on the table reduced their food spending, they may no longer have been able to purchase the food needed to provide healthful, nutritious diets.

A household’s food security, meaning its consistent access to adequate food for active healthy living for all household members, is expected to be closely linked with the amount the household spends for 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. Households with adequate resources may spend considerably more for food than the minimum that would provide healthful, nutritious diets. On the other hand, if households with limited resources reduce food spending below some minimum level, various aspects of food insecurity, such as disrupted eating patterns and reduced food intake, may result. The amount a household spends for food, therefore, can provide insights into the degree to which the household is meeting its food needs.

Previous research has documented the expected relationship between food spending and food security at the household level. ERS food security reports have consistently shown that, on average, food-secure households spend more for food than food-insecure households. In 2007, for example, the typical (i.e., median) food-secure household spent 35 percent more on food than the typical food-insecure household of the same size and age/sex makeup (Nord et al., 2008; see also appendix A for a more detailed description of this relationship and how it was analyzed). This report describes the relationship between national-level measures of food spending and food security over the period 2000-07.

## Data Sources

ERS monitors food spending by U.S. households using several data sources. This study uses two such sources to help ensure confidence in main trend estimates and to examine associations that are unique to each data source.

The annual Current Population Survey Food Security Supplement (CPS-FSS) (see box, “Finding Out How Much Households Spend for Food”) provides data on household food expenditures and household food security. These data are used to describe changes in food spending and food security from 2000 to 2007 at the national level and for subpopulations differing in income, demographic characteristics, and geographic locations.

Household expenditure statistics compiled by the U.S. Bureau of Labor Statistics (BLS) using data from the Consumer Expenditure Survey (CES) (see box) provide information on household spending for food and for 13 other categories of goods and services.<sup>1</sup> These statistics provide insights into declining food expenditures by identifying categories of expenditures for which spending by low-income households increased and by quantifying changes in total spending by households. This information enables researchers to begin to answer the question of why food spending declined.

<sup>1</sup>Appendix B in this report compares food spending estimates based on the Current Population Survey Food Security Supplement with those based on the Consumer Expenditure Survey. The estimates are generally similar at the national level—within 3 percent from 2000 to 2006 and within 5 percent in 2007.



## Finding Out How Much Households Spend for Food

Information on household food spending in this study comes from two data sources with complementary strengths. The Current Population Survey Food Security Supplement (CPS-FSS) collects food spending data from the same households for which data on food security are collected. The Consumer Expenditure Survey (CES) collects information on spending for a wide range of goods and services, including food, and collects data using expenditure diaries as well as interviews to improve respondent recall. Annual national-level estimates of food spending based on the two surveys agree to within 5 percent (see appendix B).

**The CPS-FSS** is an annual survey conducted by the U.S. Census Bureau as a supplement to the monthly Current Population Survey. USDA sponsors the survey, and ERS compiles and analyzes the responses. The CPS-FSS includes about 45,000 households each year and is a representative sample of the U.S. civilian population. The food security survey asks one adult respondent in each household a series of questions about household food spending, use of Federal and community food and nutrition assistance programs, and experiences and behaviors that indicate food insecurity.

Each respondent reports the amount his or her household *usually* spends for food each week after first reporting details of the household's actual food spending during the week prior to the interview. Respondents are asked about amounts spent for food (including any purchases made with food stamps) at:

- Supermarkets and grocery stores
- Other places people buy food, such as meat markets, produce stands, bakeries, warehouse clubs, and convenience stores
- Restaurants, fast food places, cafeterias, and vending machines
- Any other kind of place

Total spending for food, based on responses to this series of questions, is verified with the respondent, and the respondent is then asked how much the household *usually* spends on food during a week. When the data are analyzed,

the reported usual food spending is divided by the cost of the Thrifty Food Plan for that household (for the month in which the data were collected) to adjust for different food needs of households of different size and composition.

**The CES** consists of two surveys—a quarterly interview survey and a diary survey—that provide information on expenditures, income, and demographic characteristics of U.S. consumers. The survey data are collected for the Bureau of Labor Statistics by the U.S. Census Bureau.

The interview survey is designed to obtain data on the types of expenditures respondents can recall for a period of 3 months or longer. These include relatively large expenditures, such as those for property, automobiles, and major durable goods, and those that occur on a regular basis, such as rent or utilities. Each consumer unit is interviewed every 3 months over five calendar quarters. In the initial interview, information is collected on demographic and family characteristics and on the consumer unit's inventory of major durable goods. Expenditure information is collected in the second through the fifth interviews, and income and employment information is collected in the second and fifth interviews. In the fifth interview, a supplemental section is administered to account for changes in assets and liabilities over a 1-year period.

The diary survey is designed to obtain data on frequently purchased smaller items, including food and beverages, both at home and in food establishments; housekeeping supplies; tobacco; nonprescription drugs; and personal care products and services. Respondents are asked to keep track of all their purchases made each day for two consecutive 1-week periods. Participants receive each weekly diary during a separate visit by a Census Bureau interviewer.

Data from the two surveys are integrated to provide estimates of expenditures in over 80 subcategories of goods and services, aggregated into 14 major categories. When data are available from both survey sources, the more reliable of the two, as determined by statistical methods, is selected. CES-based statistics in this report are from the Bureau of Labor Statistics' tables of current expenditures by quintiles of income before taxes.

## Economic Context

This report covers the period from 2000 through 2007, the most recent year for which food security and food spending data are available. The U.S. economy grew throughout this period except for a two-quarter recession in 2001. The national unemployment rate stood at 4 percent during 2000, rose to 6 percent in 2001, remained near 6 percent in 2002 and 2003, and then fell gradually over the following 3 years to about 4.5 percent in late 2006. Unemployment rose to 4.9 percent by late 2007, but the sharp increase associated with the recession of 2008 and 2009 occurred after the period covered by this report. The national poverty rate, which had declined from 15 percent in 1993 to 11.3 percent in 2000, increased to 12.7 percent in 2004, then fluctuated around 12.5 percent in 2005-07.

Food prices, as measured by the Consumer Price Index for Food and Beverages (CPIFB), increased by 4 percent from 2006 to 2007. During the previous 6 years, food price inflation averaged 2.6 percent annually, nearly the same rate as that for the overall Consumer Price Index (CPI) inflation (2.7 percent). Higher-than-average food-price inflation continued in 2008 (5.5 percent), but that, too, occurred after the period covered by this report.

## Food Spending Declined for Households With Middle and Lower Incomes

Inflation-adjusted expenditures for food by the typical U.S. household declined from 2000 to 2007.<sup>2</sup> Median food spending by U.S. households, expressed as a ratio to the cost of the Thrifty Food Plan,<sup>3</sup> declined from 1.36 in 2000 to 1.20 in 2007, a decline of 12 percent (fig. 1). To derive these statistics, the amount each household usually spent for food (which is based on CPS-FSS data) was divided by the cost of the Thrifty Food Plan for that household to adjust for differences in household size and composition. Food spending expressed as a ratio to the cost of the Thrifty Food Plan also accounts for inflation in the prices of the foods that make up the food plan because the cost of the food plan is updated each month for changes in food prices.<sup>4</sup>

Food spending by lower income households—those with incomes less than 185 percent of the Federal poverty line—declined from 1.06 times the cost of the Thrifty Food Plan in 2000 to 0.95 in 2007, a decline of 10 percent. This decline may be of particular concern with respect to food security because the level fell from above to below the cost of the Thrifty Food Plan. Food budgets may already be stretched thin for households with spending near the cost of the Thrifty Food Plan. Reductions below that level are likely to result in lower quality and variety of diets for many households.

The decline in inflation-adjusted food spending means that households reduced the quantity of food purchased or that they purchased, on average, lower cost food. Lower cost could reflect lower dietary quality, less desirable taste, or less convenience, or it could reflect more time and effort to find lower priced products. The extent of the decline depends not only on the change in expenditures in current dollars but also on the mix of foods households typically purchased because prices changed at different rates for different types of food. Inflation adjustments calculated from the cost of the Thrifty Food Plan and from the CPIFB are based on different assumptions about those

<sup>2</sup>The earliest published food spending statistics using Current Population Survey Food Security Supplement data were based on the 2000 survey (Nord et al., 2002). BLS statistics based on the Consumer Expenditure Survey indicate that, prior to the period covered by this study, food spending by households in the second and middle income quintiles fluctuated with little overall change from 1990 to 1998, and then peaked in 2000. The 2000 peak coincided with the lowest poverty rate since the 1970s.

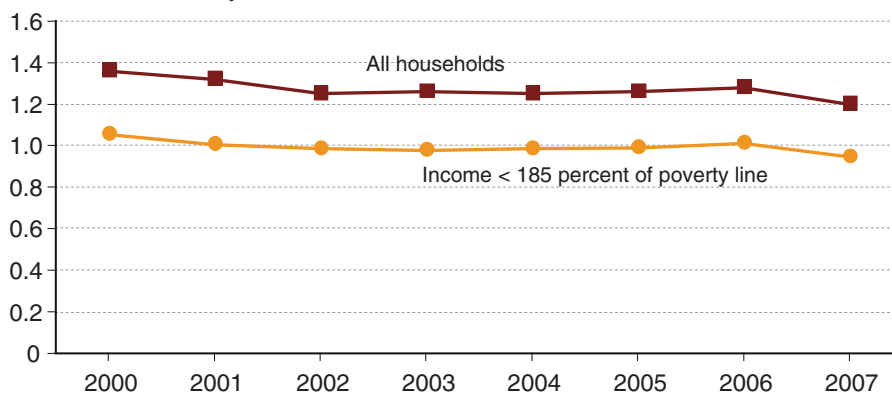
<sup>3</sup>The Thrifty Food Plan, developed by USDA, serves as a national standard for a nutritious, low-cost diet. It represents a set of “market baskets” of food that people in specific age and gender categories could consume at home to maintain a healthful diet that meets current dietary standards, taking into account the food consumption patterns of U.S. households. USDA calculates the cost of the Thrifty Food Plan for each age-gender category at average national prices and updates the costs each month to account for inflation in food prices.

<sup>4</sup>The cost of the Thrifty Food Plan is adjusted for inflation based on price changes in selected food components of the Consumer Price Index that approximate the makeup of the Thrifty Food Plan.

Figure 1

### Median usual food spending as a ratio to the cost of the Thrifty Food Plan, 2000-07

Ratio to cost of Thrifty Food Plan

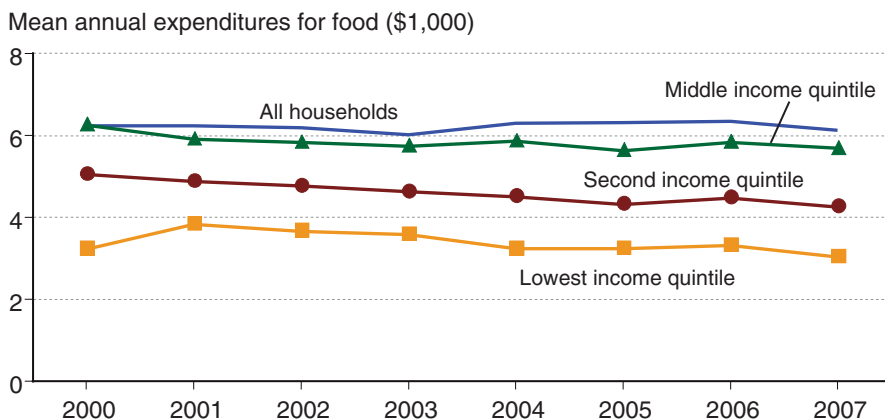


Source: Prepared by USDA, Economic Research Service using Current Population Survey Food Security Supplement data.

food-purchasing patterns (see box, “How Much Did Food Prices—and Other Prices—Increase?”). The median food spending statistics published annually by ERS and described earlier were adjusted for inflation in the cost of the Thrifty Food Plan, which is a “market basket” of foods that meets dietary standards for nutritious meals at low cost. The CPIFB represents changes in food prices of the average food basket purchased by all U.S. households. During the study period, prices rose more sharply for the foods that make up the Thrifty Food Plan than for other foods. From 2000 to 2007, inflation in the cost of the Thrifty Food Plan was 28 percent, compared with 20 percent in the CPIFB. If median food spending by U.S. households, as reported in the CPS-FSS, is adjusted by the inflation in the CPIFB rather than the cost of the Thrifty Food Plan, then the decline from 2000 to 2007 was 6 percent rather than 12 percent for all households and 5 percent rather than 10 percent for households with incomes less than 185 percent of the poverty line. Households attempting to provide healthy meals that meet dietary guidelines at a low cost would likely have been affected by the sharper price increases represented by the change in the cost of the Thrifty Food Plan.

Food spending statistics based on the CES data, and adjusted for inflation by the CPIFB, corroborate the decline in median food spending seen in the CPS-FSS. Average food spending by households in the middle income quintile declined by about 9 percent from 2000 to 2007, after adjusting for inflation (fig. 2).<sup>5</sup> Average food spending by households in the second-lowest income quintile declined by about 16 percent. In the lowest income quintile, food spending increased from 2000 to 2001, and then declined to about 6 percent below the 2000 level by 2007. (In 2007, annual average pretax income was \$10,531 in the lowest income quintile, \$27,674 in the second income quintile, and \$46,213 in the middle income quintile.) Average food spending by all U.S. households remained relatively constant from 2000 to 2007 because increased spending by higher income households offset the declines in the lower three income quintiles.<sup>6</sup> Thus, the steadiness in national average food spending masks different trends in food spending by lower and higher income households.

Figure 2  
**Mean annual expenditures for food by pre-tax income quintile, 2000-07**  
 (Adjusted to 2007 dollars by the Consumer Price Index for Food and Beverages)



Source: Prepared by USDA, Economic Research Service using expenditure statistics calculated by the U.S. Bureau of Labor Statistics from Consumer Expenditure Survey data.

<sup>5</sup>These statistics were adjusted for inflation by the Consumer Price Index for Food and Beverages. The Consumer Expenditure Survey-based statistics are means (arithmetic averages) for households within each income quintile. The change for the middle-income quintile might be considered to represent the typical U.S. household, as does the median food spending for the entire population—the statistic reported from the Current Population Survey Food Security Supplement data.

<sup>6</sup>A third ERS statistical series on food expenditures, based on commerce surveys, indicates that per capita expenditures on food increased by 7.3 percent, in constant dollars, from 2000 to 2007 (USDA, ERS, 2009). That series includes food purchased by the military, businesses, school lunch programs, and institutions. Thus, it is not directly comparable with the Consumer Expenditure Survey and Current Population Survey Food Security Supplement statistics based on purchases by households.

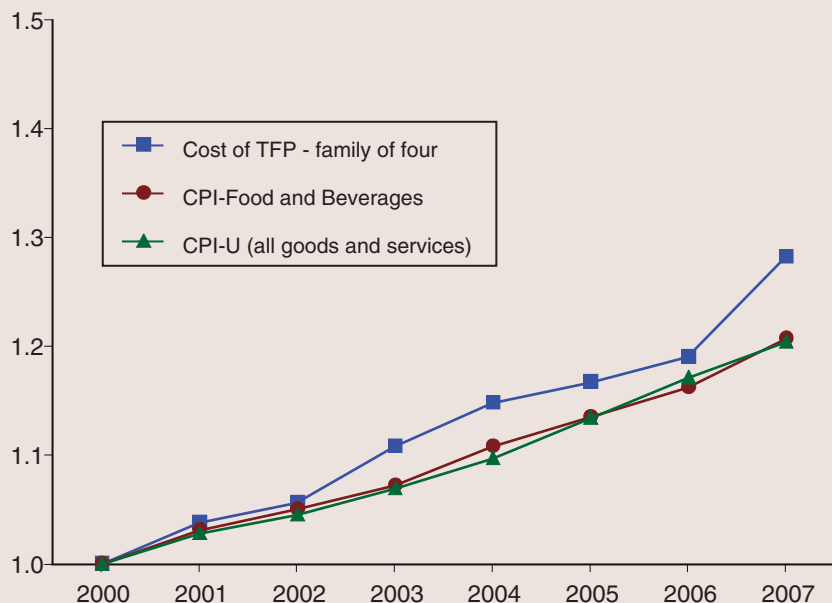
## How Much Did Food Prices— and Other Prices—Increase?

Measures of price inflation depend on the mix of goods and services considered, since prices of different goods and services may change at different rates. Three measures of price inflation are used in this report to make household spending statistics comparable across years. The Consumer Price Index for Food and Beverages (CPIFB) represents the average “market basket” of foods and beverages purchased by U.S. households and was used in this study to adjust Consumer Expenditure Survey-based average food spending statistics. The Consumer Price Index for all goods and services (CPI-U) was used to adjust spending in all sectors (food and nonfood) to make comparisons across sectors. The CPIFB and CPI-U showed essentially identical inflation from 2000 to 2007.

The prices of foods that make up the Thrifty Food Plan increased more rapidly than prices of other foods during the study period. 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 in specific age and sex categories could consume at home to maintain a healthful diet that meets current dietary standards, taking into account the food consumption patterns of U.S. households. The Thrifty Food Plan comprises, on average, more basic, less highly processed foods than those consumed by the average U.S. household. Households that were attempting to consume healthy, nutritious diets at low cost would likely have seen their average food prices increase by the larger increments registered by the cost of the Thrifty Food Plan.

### Comparison of inflation from 2000 to 2007 as measured by the cost of the Thrifty Food Plan (TFP) for a family of four, the Consumer Price Index (CPI) for Food and Beverages, and the CPI for all goods and services (each series indexed to 2000)

Ratio to value in 2000



Source: Prepared by USDA, Economic Research Service using data from USDA, Center for Nutrition Policy and Promotion and the U.S. Bureau of Labor Statistics.

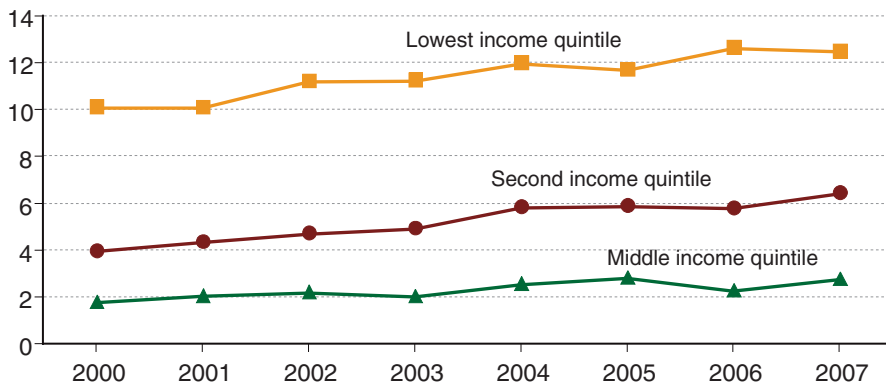
## Food Security Deteriorated

The recent declines in food spending by middle- and lower income households mirrored increased prevalence rates of food insecurity and very low food security. The prevalence of food insecurity increased from 10.5 percent of households in 2000 to 11.1 percent in 2007. The prevalence of very low food security—a severe range of food insecurity characterized by reduced food intake and disrupted eating patterns of some household members—increased from 3.1 percent of households in 2000 to 4.1 percent in 2007.

Most higher income households can reduce food spending somewhat and still provide adequate diets for all household members. But for households with food budgets already stretched thin, reducing food expenditures often means compromising diet quality and variety and, in some cases, adequate food intake. The prevalence of very low food security in the lowest income quintile increased from 10.1 percent in 2000 and 2001 to 12.6 percent in 2007 (fig. 3). In the second lowest income quintile, the prevalence of very low food security increased by about half, from 3.9 percent in 2000 to 5.8 percent in 2007. Households in the middle income quintile were more nearly able to maintain adequate food access even with reductions in food spending, and registered only a small increase in the prevalence of very low food security.

Figure 3  
**Prevalence of very low food security by pre-tax household income quintile, 2000-07**

Prevalence of very low food security (Percent of households)



Source: Prepared by USDA, Economic Research Service using Current Population Survey Food Security Supplement data.

## **Declines in Food Spending and Food Security Were Not Concentrated in Specific Types of Households**

Both reduced spending for food and increased prevalence of very low food security were seen in households with a variety of demographic and economic characteristics and in all regions of the country (table 1, fig. 4, and fig. 5). Food spending declined in all categories analyzed. Declines ranged from 10 to 16 percent in all but three categories, and the decline was remarkably lower only for elderly living alone (5.4 percent).

The percentage of households with very low food security increased in all categories analyzed. The increases were greatest for households with incomes below the poverty line (2.2 percentage points) and between the poverty line and 185 percent of the poverty line (3.6 percentage points). Aside from the association with income, the increased prevalence of food insecurity was not heavily concentrated in any subpopulation. Increases were, however, somewhat above the national average (1.0 percentage point) for Hispanic households (1.8 percentage points) and for households in the Midwest (1.6 percentage points).

Table 1

**Changes in food spending and very low food security, 2000-07**

Characteristic	Food spending			Very low food security		
	Median usual food spending to cost of Thrifty Food Plan		Change, 2000-07	Prevalence		Change, 2000-07
	2000	2007		2000	2007	
	<i>Ratio</i>		<i>Percent</i>	<i>Percent of households</i>	<i>Percentage points</i>	
<b>All households</b>	1.36	1.20	-11.8	3.1	4.1	1.0
<b>Household composition:</b>						
Married couples with children	1.25	1.09	-12.8	1.9	2.7	0.8
Single women with children	1.11	0.98	-11.7	9.0	10.3	1.3
Single men with children	1.19	1.00	-16.0	3.9	5.2	1.3
More than one adult, no child	1.41	1.23	-12.8	1.9	2.7	0.8
Women living alone	1.46	1.27	-13.0	4.0	5.3	1.3
Men living alone	1.74	1.47	-15.5	4.2	5.1	0.9
With elderly	1.27	1.13	-11.0	1.5	2.4	0.9
Elderly living alone	1.30	1.23	-5.4	1.9	2.8	0.9
<b>Race/ethnicity of households:</b>						
White non-Hispanic	1.42	1.27	-10.6	2.4	3.1	0.7
Black non-Hispanic	1.16	1.02	-12.1	6.5	7.7	1.2
Hispanic <sup>1</sup>	1.20	1.01	-15.8	4.8	6.6	1.8
Other non-Hispanic	1.32	1.11	-15.9	2.8	3.7	0.9
<b>Household income-to-poverty ratio:</b>						
Under 1.00	0.98	0.90	-8.2	12.7	14.9	2.2
1.00 to 1.85	1.11	0.97	-12.6	4.9	8.5	3.6
1.85 and over	1.52	1.31	-13.8	1.2	1.9	0.7
<b>Area of residence relative to metropolitan statistical area (MSA):<sup>2</sup></b>						
In principal city of MSA	1.43	1.23	-14.0	4.3	5.0	0.7
In suburbs or outlying areas of MSA	1.45	1.26	-13.1	2.3	3.1	0.8
Not in MSA (i.e., nonmetropolitan)	1.17	1.02	-12.8	3.4	4.3	0.9
<b>Census geographic region:</b>						
Northeast	1.41	1.23	-12.8	2.7	3.5	0.8
Midwest	1.32	1.12	-15.2	2.6	4.2	1.6
South	1.32	1.20	-9.1	3.4	4.3	0.9
West	1.47	1.25	-15.0	3.5	4.1	0.6

<sup>1</sup>Hispanics may be of any race.

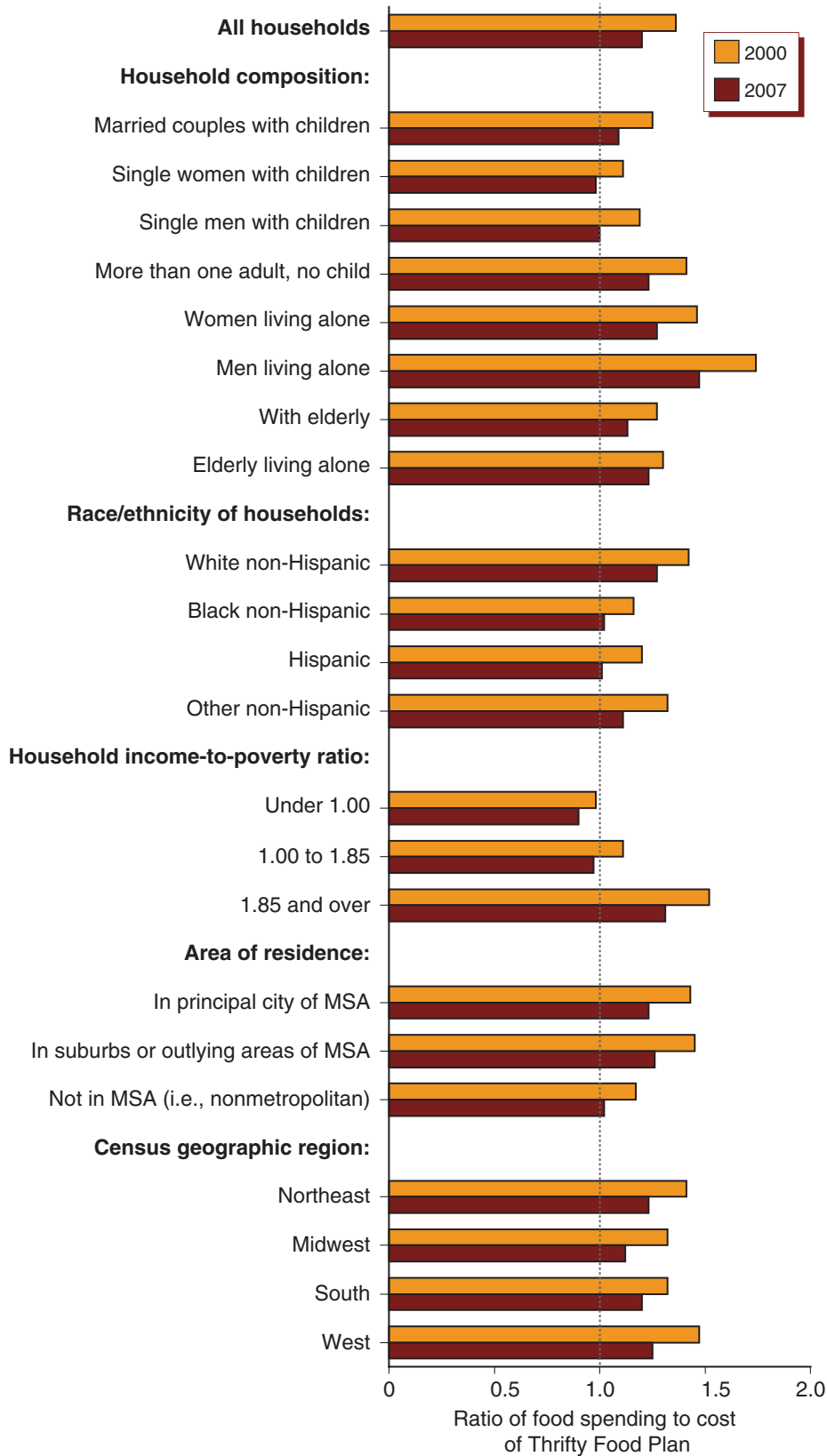
<sup>2</sup>Metropolitan Statistical Areas are defined by the U.S. Office of Management and Budget. Definitions changed somewhat between 2000 and 2007, so statistics based on MSA residence are only approximately comparable. The category "In principal city of MSA" refers generally to households within the incorporated areas of the largest city or cities in an MSA. The category "in suburbs or outlying areas of MSA" refers to households outside of the principal city but in surrounding counties (or towns in New England) that are densely populated and linked to the principal city by substantial daily commuting.

Source: Prepared by USDA, Economic Research Service using Current Population Survey Food Security Supplement data.



Figure 4

**Median usual household food expenditures relative to the cost of the Thrifty Food Plan, 2000 and 2007**

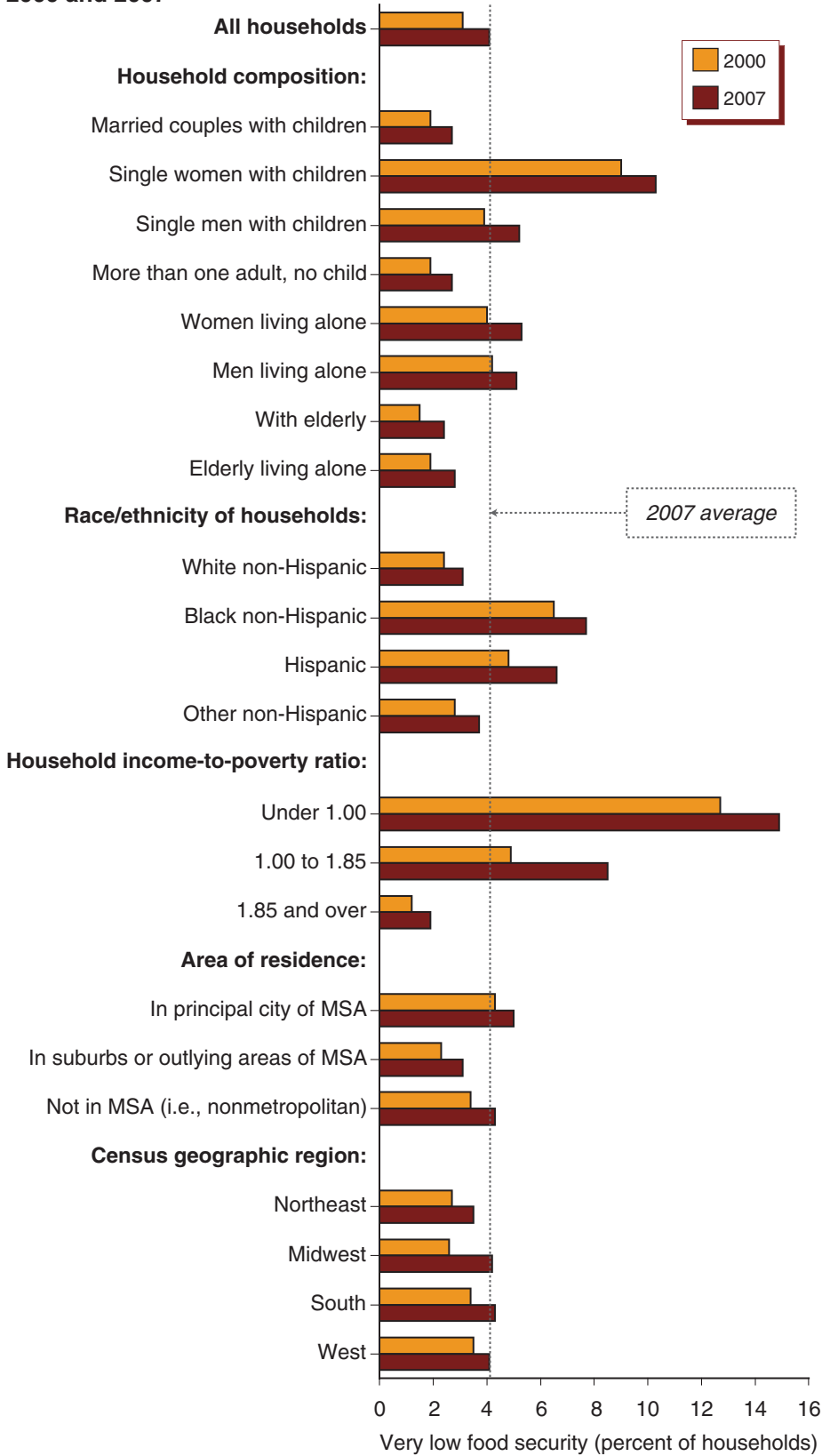


MSA = Metropolitan Statistical Area.

Source: Prepared by USDA, Economic Research Service using Current Population Survey Food Security Supplement data.

Figure 5

**Prevalence of very low food security by household characteristics, 2000 and 2007**



MSA = Metropolitan Statistical Area.

Source: Prepared by USDA, Economic Research Service using Current Population Survey Food Security Supplement data.

## Households Spent More on Housing

The amount households spend for food depends on their total disposable income (and to some extent on their ability to borrow or to draw down assets) and on competing demands for spending on other goods and services. Thus, changes in food spending can reflect changes in prices of, or demand for, other goods and services as well as changes in food prices and income. To compare changes in spending for food with changes in spending for other categories of goods and services, expenditures were adjusted for inflation by the Consumer Price Index for all categories of goods and services (CPI-U). This results in only a slight difference from the statistics adjusted by the CPIFB because the two series show almost identical total inflation from 2000 to 2007 (see box on page 7).

The decline in food spending from 2000 to 2007 by middle- and low-income households was accompanied by increased spending for housing and, for households in the lowest two income quintiles, by declines in overall expenditures. In the lowest income quintile, food spending (adjusted for inflation) declined by 5.7 percent from 2000 to 2007 (table 2). Over the same period, spending for housing increased by 5.7 percent, spending in all other categories declined, and total spending declined by 5.2 percent.

The impact of these changes on total household spending is represented by expressing the change in each expenditure category as a percent of total spending (for all goods and services) in the base year, 2000. Expressed thus, the individual category changes add to the total change in expenditures. For example, the 5.7-percent decline in food spending by households in the lowest income quintile represented a decline in total spending of 0.8 percent. The increase in spending

Table 2

### Changes in expenditures by category and income from 2000 to 2007 (adjusted for inflation)<sup>1</sup>

Category	Change from 2000 to 2007 as a percentage of spending in the category in 2000			Change from 2000 to 2007 as a percentage of total spending in all categories in 2000		
	Lowest income quintile	Second income quintile	Middle income quintile	Lowest income quintile	Second income quintile	Middle income quintile
Food	-5.7	-15.3	-9.0	-0.8	-2.4	-1.3
Food at home	-8.8	-17.7	-10.2	-.9	-1.8	-.9
Food away from home	+0.9	-10.7	-7.2	0.0	-.6	-.4
Housing	+5.7	+11.5	+10.1	+2.1	+3.7	+3.1
Shelter	+10.0	+18.0	+12.0	+2.1	+3.2	+2.2
Utilities	+6.1	+11.1	+16.2	+.6	+.9	+1.1
Other housing <sup>2</sup>	-8.9	-6.5	-2.2	-.6	-.4	-.1
Apparel and services	-24.7	-33.5	-14.9	-1.2	-1.6	-.7
Transportation	-16.2	-5.8	-6.3	-2.9	-1.1	-1.3
Health care	-16.7	+2.3	+19.5	-1.4	+2	+1.1
Entertainment	-8.1	+9.0	+11.0	-.4	+4	+5
Other	-4.8	-9.8	+6	-.6	-1.6	+1
Combined (all categories)	-5.2	-2.6	+1.5	-5.2	-2.6	+1.5
Pre-tax income	-5.5	-3.6	-1.7	-5.5	-3.6	-1.7

<sup>1</sup>Changes were adjusted for inflation based on the Consumer Price Index (CPI-U) for "all items."

<sup>2</sup>Other housing includes personal services, housekeeping supplies, and household furnishings and equipment.

Source: Prepared by USDA, Economic Research Service based on expenditure statistics calculated from Consumer Expenditure Survey data by the U.S. Bureau of Labor Statistics, and income statistics from the U.S. Census Bureau (DeNavas-Walt et al., 2008).

for housing, which was also 5.7 percent, represented a larger percentage increase in total spending (2.1 percent) because housing is a larger share of total spending than food. For households in the lowest income quintile, transportation registered the sharpest decline as a share of spending in 2000 (2.9 percent).

In the second and middle income quintiles, declines in food spending and increases in spending for housing were larger than in the lowest income quintile. Food spending declined by 15.3 percent in the second income quintile and by 9.0 percent in the middle income quintile, representing declines of 2.4 and 1.3 percent, respectively, in total spending. Increases in housing expenditures more than offset the declines in food spending, increasing by 3.7 and 3.1 percent of total spending in the second and middle income quintiles, respectively. In the second income quintile, spending in all other categories either declined or increased by only small amounts, and total spending declined by 2.6 percent. In the middle income quintile, total spending increased by 1.5 percent; the largest absolute changes, along with food and housing, were a decline in transportation and an increase in health care.

The declines in overall expenditures in the two lowest income quintiles are consistent with declines in income as reported in the Annual Social and Economic Supplement to the Current Population Survey, the Nation's premier source of data on income and poverty. From 2000 to 2007, pretax income declined by 5.5 percent in the lowest income quintile and by 3.6 percent in the second income quintile (DeNavas-Walt et al., 2008). Income in the middle income quintile also declined slightly (1.7 percent), although total expenditures increased by 1.5 percent.

A large majority of the increased spending for housing was for the shelter component (essentially rental and mortgage payments). Spending for utilities also increased, accounting for one-quarter to one-third of the increases in total spending for housing. Further disaggregation (not shown) indicates that the increase in the shelter subcategory represented primarily an increase in rent in the lowest income quintile and increases in mortgage costs in the second and middle income quintiles. The increase in mortgage costs probably reflects, in part, increases in home prices and the increasing availability of housing-related credit during the study period. Home values more than doubled in nominal terms from 2000 to 2007 (Standard and Poor, 2009), and housing expenditures, as reported by BLS, include interest on mortgages, home equity loans, and lines of credit secured by the home.

## Conclusions

The combined evidence of declining food spending and increasing food insecurity in middle- and low-income households from 2000 to 2007 points to an increasing number of U.S. households struggling to put adequate food on the table during that period. This occurred during years generally characterized by economic growth. Food-access difficulties are likely to have been exacerbated by the economic downturn that began in 2008.

Two main factors may account for the declines in food spending by middle- and low-income households. Spending for housing increased substantially in all three of the lowest income quintiles. And, in the two lowest income quintiles, income and total spending declined.

Changes in both food spending and very low food security were greatest in the second-lowest income quintile, in which spending for food declined by 16 percent and the prevalence of very low food security increased by about half. Most households in this income range can be characterized as working households with low income. Incomes of almost all households in the second income quintile are above the poverty line, and one or more adults are employed full time in a large majority of the households. Few households in this income range are eligible for food and nutrition assistance programs.

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## Appendix A—Relationship Between Food Spending and Food Security at the Household Level

Underlying the population-level trends over time described in this report is the household-level relationship between food spending and food security. ERS food security reports have consistently shown that, on average, food-secure households spend more for food than food-insecure households (Nord et al., 2008). Analysis of the food security of households relative to their food spending sheds light on this relationship. Households surveyed in the Current Population Survey Food Security Supplement from 2000 to 2007 were grouped into narrow ranges of food spending relative to the cost of the Thrifty Food Plan, and within each range, the prevalence of food insecurity and very low food security and the mean food spending relative to the cost of the Thrifty Food Plan were calculated.

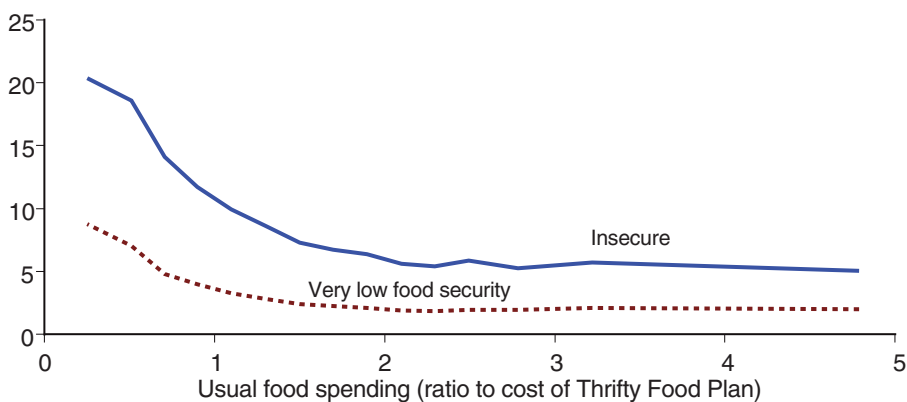
Food insecurity fell from around 20 percent of households with food spending in the lowest range to about 5 percent for households that spent twice the cost of the Thrifty Food Plan, then changed little as food spending increased further (fig. A-1). Very low food security also fell until the point at which households were spending about twice the cost of the Thrifty Food Plan, then leveled off at around 2 percent as food spending increased further.

Several factors may account for food insecurity not falling further with increased food spending beyond twice the cost of the Thrifty Food Plan. For example, income and employment change through the year for some households. Reported food spending may reflect recent or usual conditions, whereas the food security measure is designed to register even brief spells of food insecurity that may have occurred rarely or earlier in the year. This hypothesis is supported by the low prevalence of food insecurity and near-zero prevalence of very low food security for higher income households (annual incomes higher than three times the poverty line) with food spending higher than twice the cost of the Thrifty Food Plan (analysis not shown).

Figure A-1

### Prevalence of food insecurity and very low food security by food spending relative to the cost of the Thrifty Food Plan, 2000-07

Percent of households



Source: Prepared by USDA, Economic Research Service using Current Population Survey Food Security Supplement data.

## Appendix B—Comparison of Household Food Expenditure Estimates From the Current Population Survey Food Security Supplement and the Consumer Expenditure Survey

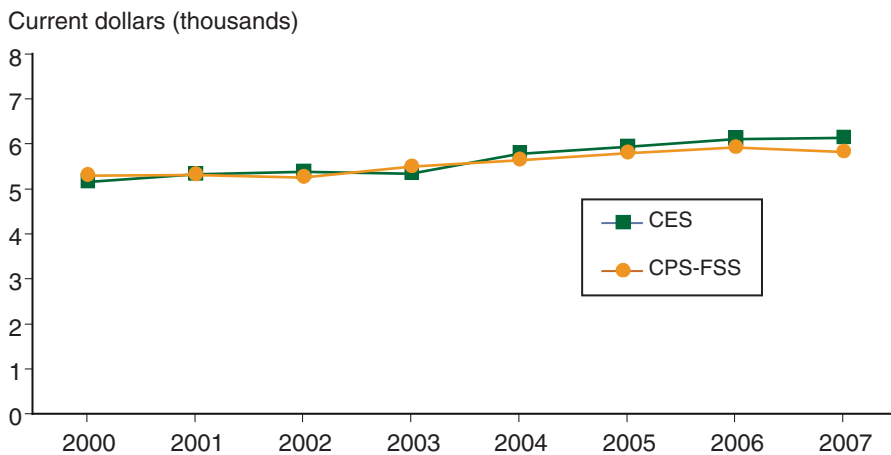
The two surveys that provided data used in this report use different methods to collect information on how much households spend for food. The CPS-FSS uses a somewhat simplified method adapted from the CES and collects information on spending only for food. The CES collects information on spending for all goods and services, using a series of five quarterly surveys supplemented with weekly expenditure diaries for 2 consecutive weeks.

Food expenditure estimates from the initial CPS-FSS, conducted in 1995, were found to be consistent with estimates based on CES data (Oliveira and Rose, 1996). In this appendix, estimates from the two surveys are compared for the period 2000-07.

In each year through 2006, CPS-FSS-based estimates of mean expenditures for food by all households were within 3 percent of CES-based estimates (fig. B-1). On average, CPS-FSS annual estimates were 0.7 percent lower than the corresponding CES estimates. The CPS-FSS understatement relative to CES was somewhat larger (5 percent) in 2007.

Estimates by income quintile, however, indicate that, relative to the CES, CPS-FSS understates food spending by higher income households and overstates food spending by lower income households (fig. B-2). Estimates for the middle income quintile differed only slightly between the two surveys. Differences in how food spending is reported and differences in the accuracy of income reporting could contribute to these discrepancies. A comparison of mean household-income estimates across income quintiles (analysis not

Figure B-1  
**CPS-FSS and CES mean annual expenditures for food by all households, 2000-07**



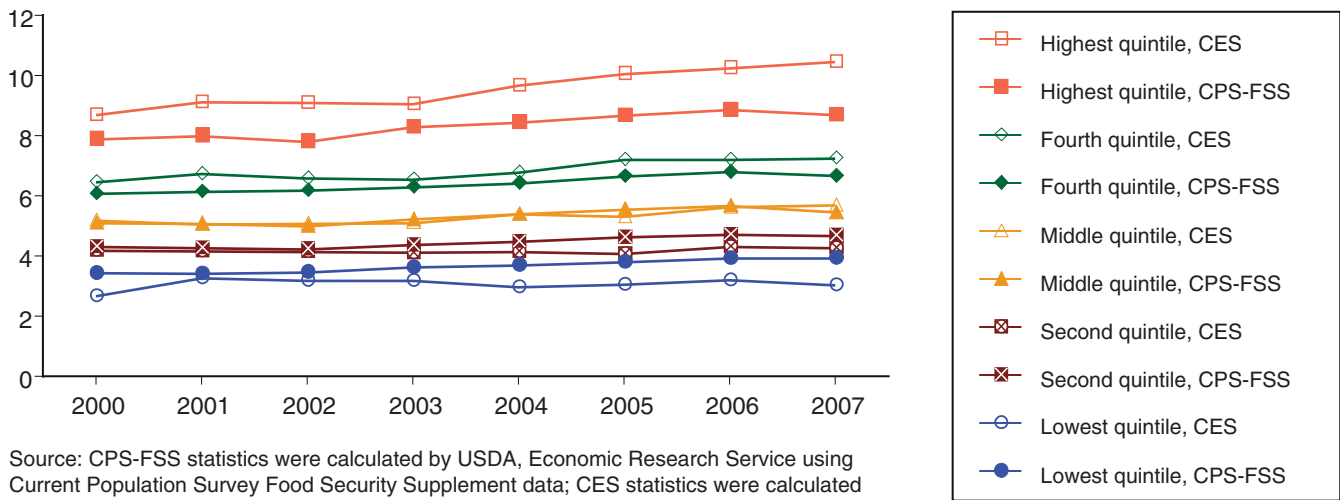
Source: CPS-FSS statistics were calculated by USDA, Economic Research Service using Current Population Survey Food Security Supplement data; CES statistics were calculated by the U.S. Bureau of Labor Statistics using Consumer Expenditure Survey data.



Figure B-2

**CPS-FSS and CES mean annual expenditures for food by all households, by quintile of pretax income, 2000-07**

Current dollars (thousands)



Source: CPS-FSS statistics were calculated by USDA, Economic Research Service using Current Population Survey Food Security Supplement data; CES statistics were calculated by the U.S. Bureau of Labor Statistics using Consumer Expenditure Survey data.

shown) suggests that about half of the discrepancy could result from less precise income information in the CPS-FSS, which results in less accurate classification by income quintile. The remainder of the discrepancy likely reflects differences in how food spending is reported or differences in sampling between the two surveys (see box on page 3). ERS use of medians rather than means to summarize food spending data from the CPS-FSS would tend to reduce distortions due to less accurate reporting by households with spending much higher or lower than the true median.