

*the magazine • of food economics*

# FoodReview

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**New Directions  
for Food Assistance**

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# ...Upfront

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## New Directions for National Food-Assistance Efforts

There's a new name in the credits on the left. *FoodReview* is being published by the Food and Consumer Economics Division of USDA's Economic Research Service (ERS). This new Division reflects USDA's commitment to providing private and public decisionmakers with economic intelligence on the rapidly evolving U.S. food system. The Division builds on longstanding research on Americans' changing eating habits, food spending, food marketing costs and performance, global food trade, and food-safety issues. You can contact specialists in those topic areas directly—see the list at the end of this issue.

This issue of *FoodReview* provides an example of ERS' contribution to a pressing concern facing the Nation—welfare reform. USDA's food-assistance programs are being reassessed as part of an overall effort to reduce Government-funded welfare programs. In 1995, USDA will spend about \$38.8 billion providing food assistance through a variety of programs to 45 million Americans.

Yet, food-assistance reform is more than just a budgetary issue. Reductions in program funding or changes in how benefits are provided will affect recipients' food and nonfood spending. These changes will in turn affect food retailers and manufacturers, farmers, and the U.S. economy. "Economic Effects of Refocusing National Food-Assistance Efforts" shows that restructuring food assistance, such as providing cash benefits in place of food stamps or vouchers, produces larger effects on national spending than would cutting food-assistance expenditures alone. The ultimate effects on the economy will depend on whether the program savings are used to reduce the Federal budget or to cut taxes.

Critical to this type of analysis is an understanding of the food spending patterns of low-income households. "Limited Financial Resources Constrain Food Choices" compares food spending of low-income households with that of the national average. Low-income households bought less of some foods, particularly fresh fruits, soft drinks, and bakery products (other than bread), and they spent less for most foods.

Reliable monitoring of the extent of domestic hunger will help policymakers identify national hunger trends as well as high-risk groups and locations needing supplemental assistance. "Improving Federal Efforts To Assess Hunger and Food Insecurity" describes a new USDA-sponsored survey designed to gain a better understanding of the extent of hunger in the United States.

Food-assistance needs are not confined to the United States. "Food Shortages in Developing Countries Continuing" describes how drought, land scarcity, lack of modern inputs and infrastructures, civil strife, and/or restrictive government policies are contributing to insufficient food production for growing populations in many developing countries. About a third of Sub-Saharan Africa's population are undernourished—unchanged since the 1970's. The area is expected to face severe food shortages in the next decade, unless production practices and population growth change radically.

Future issues of *FoodReview* will share ERS' research on how the U.S. food industry responds to changing consumer demand and report annual data on food consumption and spending trends, developments in the food marketing system, food-assistance program expenditures, and costs of selected foodborne illnesses.

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# Economic Effects of Refocusing National Food-Assistance Efforts

David M. Smallwood, Betsey Kuhn, Kenneth Hanson, Stephen Vogel, and James R. Blaylock

In an era of budgetary and deficit pressures, food-assistance programs are headed for change as part of an overall effort to scale back on Government-funded welfare programs.

Most agree that the U.S. welfare system needs reform to reduce costs, improve the effectiveness of the programs, reduce dependency, and provide incentives for recipients. Proposals from the Executive and Legislative branches, as well as the States, offer modifications to current programs, including those providing food assistance. There is much discussion on how to make the programs more efficient while continuing to assist the needy.

The major proposals would reduce funding and eligibility for some Federal programs and transfer control of others to the States under a block grant with a fixed spending limit.

Impacts of changes in the Nation's food and nutrition assistance programs will extend beyond the programs' 45 million recipients to

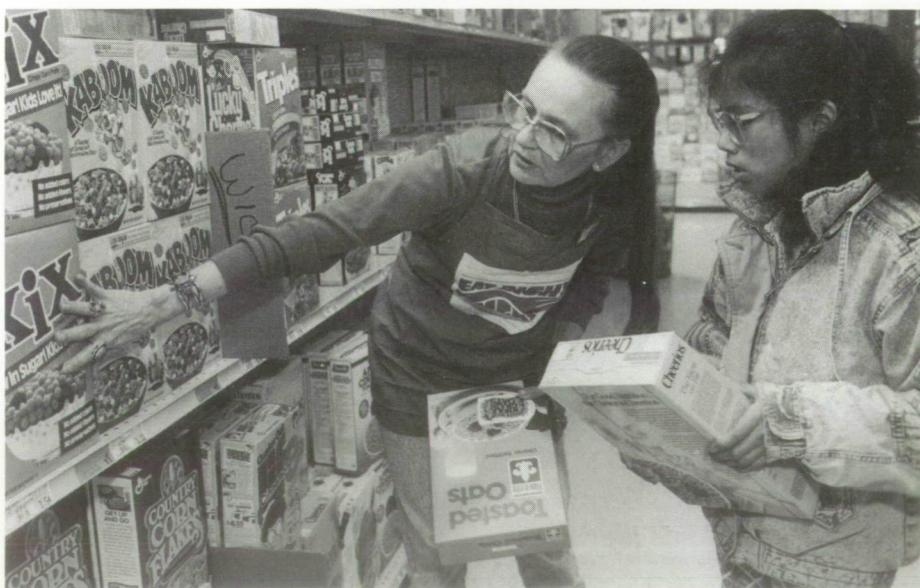
the rest of the food sector and the larger economy. With reductions in food assistance, national food spending would decrease, as would the demand for agricultural commodities (particularly meats), commodity prices, and farm income. Nonfood sectors would also be affected.

The extent of these changes depends on the size of the program cuts, the form of the new programs, and whether the savings are used to

reduce the Federal budget deficit or to cut taxes.

## Food-Assistance Programs Are Important

Food assistance is an important nutritional component of the support provided to low-income Americans. In fiscal 1995, Federal outlays on food-assistance programs will constitute about 20 percent of the \$216 billion spent on welfare



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*Since the late 1960's, food-assistance outlays have grown rapidly with the startup of the Food Stamp Program and with the expanded focus on alleviating hunger and improving the well-being of low-income people. Most recently, a renewed emphasis has been placed on nutrition improvement and education.*

## USDA Administers 14 Domestic Food-Assistance Programs

USDA's Food and Consumer Service (FCS, formerly the Food and Nutrition Service) administers 14 domestic food-assistance programs. FCS works in partnership with the States in all its programs. States determine most administrative details regarding distribution of food benefits and eligibility of participants, and FCS provides funding to cover most of the States' administrative costs. State and local agencies administer the programs.

- The **Food Stamp Program** is the cornerstone of USDA's food-assistance programs, serving an average of 27 million people each month in 1994. The program issues monthly benefits through coupons or Electronic Benefits Transfer (recipients receive a plastic card much like a credit card). Benefits are redeemable at retail foodstores.
- The **Food Distribution Program on Indian Reservations and the Trust Territories** provides monthly food packages for Native Americans who live on or near Indian reservations and for Pacific Islanders who choose not to participate in the Food Stamp Program. In 1994, about 115,000 people participated in the program each month.
- The **Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)** improves the health of low-income pregnant, breastfeeding, and postpartum women and their infants and children up to 5 years old. WIC served a monthly average of 6.4 million women, infants, and children in 1994.
- The **WIC Farmers Market Nutrition Program** provides WIC participants with increased access to fresh produce. WIC participants are given coupons to purchase fresh fruits and vegetables at authorized local farmers markets. Eleven States and about half a million people participated in this program in 1994.
- The **Commodity Supplemental Food Program** is a direct food-distribution program with a target population similar to WIC, and it also serves the elderly. In 1994, about 360,000 participated.
- The **National School Lunch Program** serves lunches to about 25 million students every school day in 93,000 schools. More than half of these children receive the meal free or at a reduced price.
- Some 5.8 million children participated in the **School Breakfast Program** in 1994. Over 60 percent of schools participating in the school lunch program offer breakfast to eligible schoolchildren. About 83 percent of school breakfasts are served free.
- The **Special Milk Program** provides milk for children in schools, summer camps, and childcare institutions that have no federally supported meal program.
- The **Child and Adult Care Food Program** provides cash and commodities for meals served in child and adult daycare centers, and family and group daycare homes for children. In 1994, over 2 million children and adults participated in this program.
- In 1994, about 2.3 million low-income children received free meals during school vacation periods through the **Summer Food Service Program**.
- The **Nutrition Program for the Elderly** provides cash and commodities for meals served to senior citizens. In 1994, some 924,000 meals were served each day under this program.
- Another FCS program provides **Food Distribution to Charitable Institutions, Soup Kitchens, and Food Banks**. Foods donated to institutions come from agricultural surpluses acquired by USDA as part of its price stabilization and surplus removal activities. The kinds and quantities of foods donated vary, depending on crop and market conditions.
- **Alternative Nutrition Assistance Programs** for Puerto Rico and the Northern Marianas provide benefits through a block grant program. These two territories now provide to participants cash and coupons rather than food stamps or food distribution.
- In 1994, the **Emergency Food Assistance Program (TEFAP)** provided States with \$40 million in administrative funds to distribute \$80 million worth of USDA commodities—plus commodities donated by the private sector—to the needy.

Table 1  
**Food-Assistance Programs Constitute About 20 Percent of the Amount Spent for Welfare Programs**

Selected welfare programs	Fiscal year budget outlays					
	1990	1991	1992	1993	1994	1995
	<i>Billion dollars</i>					
Food assistance	23.9	28.4	32.5	35.0	36.7	38.8
Food stamps (included in above total)	15.9	19.7	22.8	24.6	25.4	26.6
Cash aid	33.3	39.1	44.8	50.1	57.9	64.2
AFDC (included in above total)	12.3	13.5	15.1	15.6	16.5	17.3
Medicaid	41.1	52.5	67.8	75.8	82.0	88.4
Housing assistance	15.9	17.2	18.9	20.9	22.5	24.5
Total welfare	114.2	137.2	164.0	181.8	199.0	215.9

Note: Data may not sum to totals due to rounding. Source: "Table 11.3—Outlays for Payments to Individuals by Category and Major Program: 1940-2000," *Historical Tables, Budget of the United States Government Fiscal Year 1996*, Office of Management and Budget.

programs (table 1). (Other major assistance programs include Medicaid, housing assistance, and Aid to Families with Dependent Children.)

The U.S. Department of Agriculture (USDA) administers most of the Nation's domestic food-assistance programs. Initiated in the Great Depression during the early 1930's, food-assistance programs were developed to help feed the poor and stabilize commodity prices and farmers' incomes.

Since the late 1960's, food-assistance outlays have grown rapidly with the startup of the Food Stamp Program and the expanded focus on alleviating hunger and improving the well-being of low-income people (fig. 1). Most recently, a renewed emphasis has been placed on nutrition improvement and education. For example, USDA's School Meal

Initiatives for Healthy Children are working to improve the nutritive composition of federally subsidized school breakfasts and lunches.

In 1969, USDA spent \$1.1 billion on food assistance. Fiscal 1995 food-assistance outlays will total an estimated \$39 billion, about 60 percent of total USDA expenditures. Although the programs have grown markedly, they will account for less than 3 percent of the Federal Government's \$1.5 trillion budget in fiscal 1995.

A few programs account for over 90 percent of USDA's food-assistance budget: the Food Stamp Program; child nutrition programs, including the National School Lunch and School Breakfast Programs; and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (table 2). The other 10 percent goes to fund

a variety of smaller programs (see box on USDA's food-assistance programs).

Designed as a safety net to help meet basic nutritional needs of eligible low-income people, USDA's food-assistance programs take a variety of forms. The Food Stamp Program is the cornerstone of USDA's food-assistance programs, providing basic assistance to people falling below income thresholds by guaranteeing a minimum level of benefits. Other programs provide assistance to specific groups of low-income people in special situations (such as pregnant women, infants, school-age children, or the elderly). People may participate in more than one assistance program.

Under entitlement programs—such as the Food Stamp Program, the National School Lunch Program, and the School Breakfast Program—people meeting the eligibility requirements are automatically entitled to assistance. Total program expenditures rise or fall to meet the number in need (fig. 1). The rest of the assistance programs, such as WIC, operate under annual appropriations that limit the amount of assistance provided.

### Food Stamps

Dominating domestic food-assistance efforts, the Food Stamp Program accounts for about two of every three dollars spent on nutrition-assistance programs. An average of 27.5 million people participated each month in fiscal 1994, at a cost of \$24.5 billion. In fiscal 1994, approximately one-half of food stamp beneficiaries were children, and over a quarter of the beneficiaries lived in households where at least one member earned income from working (fig. 2). Another 7 percent of recipients were elderly. Recipient households are given a monthly allotment of food coupons that can be exchanged for food at over 200,000 authorized foodstores.

Benefits per person averaged \$69 a month in fiscal 1994. The actual benefits increase with household size and decrease with household income.

To be eligible for food stamps, households must meet income guidelines, asset limitations, and certain work requirements. Those with net monthly incomes below the poverty level (\$14,808 annually for a household of four) and fewer than \$2,000 in countable assets (\$3,000 for elderly households) are eligible.

**Child Nutrition**

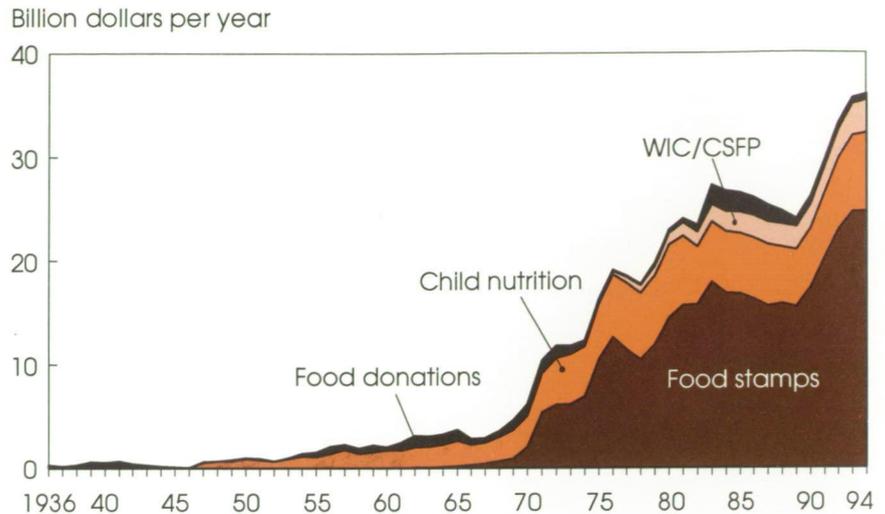
The National School Lunch Program is the oldest and largest of USDA's child-nutrition programs. It was initiated in the 1930's, primarily as a result of agricultural policies which placed emphasis on the disposal of surplus commodities. By the mid-1940's, the program took on an increased nutrition emphasis. In 1995, USDA finalized standards for the School Meal Initiatives for Healthy Children, which require subsidized school breakfasts and lunches to meet the nutritional guidelines set forth in the Dietary Guidelines for Americans. USDA Team Nutrition is providing new recipes, technical assistance, and training to implement the new nutrition standards.

The National School Lunch Program provided lunches to 25 million school children each day, at an annual cost of about \$5 billion, in 1994. Over half (55 percent) of the meals were provided free or at substantially reduced prices to economically eligible students. The rest paid full price, although even full-price meals included a 17-cent cash subsidy and a 14.5-cent commodity subsidy.

The program remains the largest domestic food-assistance outlet for surplus agricultural commodities.

In fiscal 1994, 6 million low-income children received free or reduced-price breakfasts under the

Figure 1  
**Trends in Food-Assistance Programs Mirror Economic Times**



Note: 1994 dollars.

School Breakfast Program, at a cost of \$959 million. Nearly two-thirds of the schools that offer the School Lunch Program also offer a school breakfast.

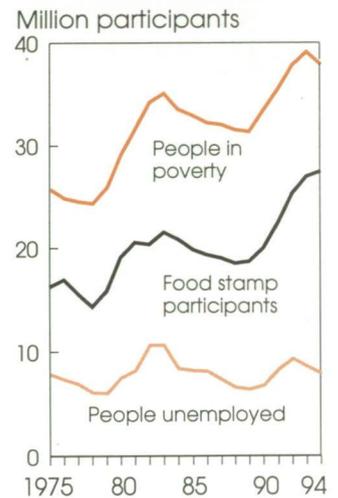
USDA operates other nutrition programs for children and the elderly: the Special Milk, the Child and Adult Care, and the Summer Food Service programs.

**WIC**

WIC was authorized by Congress in 1972 to improve the nutrition and health of low-income pregnant, breastfeeding, and postpartum women and their infants and children up to age 5, who are determined by health or medical professionals to be at nutritional risk.

About 6 million women, infants, and children participated each month in this program in 1994 at a cost of \$3.2 billion, up from 3 million people totaling \$1.4 billion in expenditures in 1984.

The program provides a monthly allotment of foods designed to supplement the participant's diet with low-cost sources of nutrients generally lacking in the diets of low-income individuals: iron, calcium, protein, and vitamins A and C. The foods provided include milk,



cheese, eggs, infant formula, cereal, fruits, juice, dried peas and beans, and peanut butter. (Most States provide vouchers for redemption at foodstores, but some provide commodities directly.)

The program also provides recipients with nutrition education and health-care referrals.

**Programs May Be Cut or Transferred**

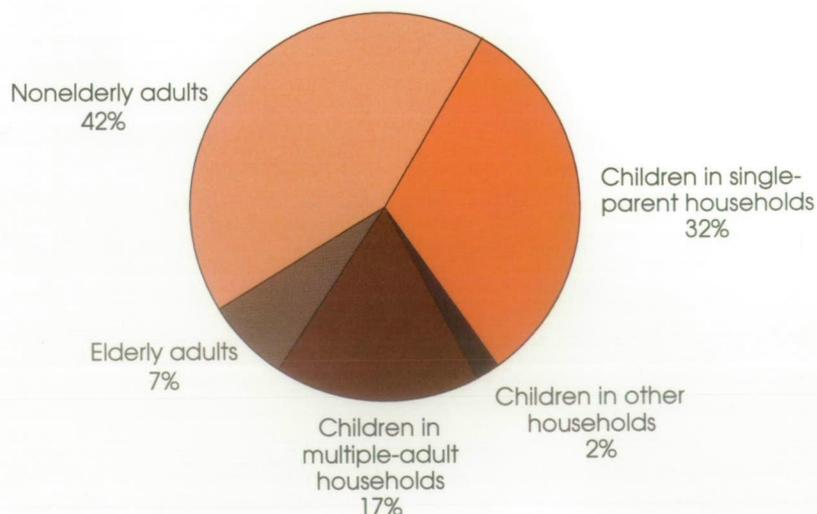
Various reforms to nutrition-assistance programs have been offered, including reducing benefits, capping the growth in total food-assistance

Table 2  
**Costs and Participation in Food-Assistance Programs Have Grown in the Last Decade**

Selected food-assistance programs	Total costs		Participation	
	1984	1994	1984	1994
	<i>Million dollars</i>		<i>Millions</i>	
<b>Entitlement programs:</b>				
Food Stamps	11,601	24,491	21 <sup>1</sup>	27 <sup>1</sup>
National School Lunch	3,335	4,873	23 <sup>2</sup>	25 <sup>2</sup>
School Breakfast	364	959	3 <sup>2</sup>	6 <sup>2</sup>
Child and Adult Care Food Program <sup>3</sup>	394	1,356	1 <sup>2</sup>	2 <sup>2</sup>
<b>Fixed spending limits:</b>				
WIC	1,386	3,165	3 <sup>1</sup>	6 <sup>1</sup>
The Emergency Food Assistance Program	1,075	201	NA	NA
Commodity donations <sup>4</sup>	565	199	NA	NA
Commodity Supplemental Food Program <sup>5</sup>	34	87	.150 <sup>1</sup>	.363 <sup>1</sup>
Food Distribution Program on Indian Reservations	43	64	.114 <sup>1</sup>	.116 <sup>1</sup>
Nutrition Program for the Elderly	120	151	.818 <sup>2</sup>	.936 <sup>2</sup>

Notes: Total costs reflect program levels. NA = Not available. <sup>1</sup>Average number of people per month. <sup>2</sup>Average number of people per day. <sup>3</sup>No adult component in 1984. <sup>4</sup>Includes bonus commodities for child nutrition programs, Commodity Supplemental Food Program, Food Distribution Program on Indian Reservations, summer camps, charitable institutions, soup kitchens, and food banks, as well as appropriated purchases for soup kitchens and food banks. Excludes The Emergency Food Assistance Program. <sup>5</sup>Includes pilot programs for the elderly in 1984. Source: USDA, FCS Program Information Reports, Sept. 1985 and April 1995.

Figure 2  
**Children Account for Over One-Half of Food Stamp Beneficiaries**



Note: Summer 1993 data.

expenditures, replacing some Federal programs with block grants to the States, ending the entitlement status of many of the programs, restricting eligibility, limiting the length of time on the programs, adding work requirements, and giving States flexibility to combine various welfare programs.

Our analysis covers two of the proposed major changes: cutting Federal outlays (reduced funding) and changing the form of program delivery (block grants).

Reducing Federal expenditures for food-assistance programs would cut their size, in turn reducing their contribution to the Federal deficit. Previous attempts at cost containment may have cut the growth somewhat, but not the size.

Replacing Federal programs with block grants to each State would allow States to customize the design of a program (or set of programs) and to set eligibility criteria to meet the specific needs of their residents. This would provide flexibility in responding to changing circumstances and needs and perhaps improve program delivery.

(The present food-assistance system provides uniform national standards for eligibility and benefits, with exceptions for Alaska and Hawaii. Participants are eligible for the same level of benefits, based on national income standards rather than geographic location.)

Proposals to replace Federal programs with block grants to each State also set fixed spending limits. These fixed spending limits, coupled with the elimination of national standards of eligibility, would end the entitlement status of some food-assistance programs. One of the most important elements of entitlement programs has been their ability to meet the increased needs of individuals, communities, States, and regions resulting from economic downturns. Historically, the Food Stamp Program and school feeding programs have automatically expanded or contracted to suit the changing economy as well as local conditions. Food stamp benefits automatically flow to communities that face rising unemployment or poverty, cushioning the effects of economic downturns and stimulating weakened economies.

Replacing the entitlement status of major food-assistance programs with an appropriations cap would limit the Government's timely response to recessions. Increased demand for food assistance during recessions would not be met automatically. Instead, Congress, individual States, or communities would have to come up with additional funds. Otherwise, some eligible people may not receive benefits or benefits may be reduced for all.

Eliminating national standards applies to other issues as well. For example, nutrition guidelines mandated for some assistance programs, as in the National School Lunch Program, could be curtailed.

### Tradeoff Between Delivery Costs and Targeting Benefits

Many reform proposals emphasize reduced Federal administrative costs and control in favor of less costly and less targeted programs. Cash benefits are the least costly to deliver, but they have the least direct impact on increasing food consumption and improving nutrition.

The more targeted the form of assistance, the more expensive the delivery costs. For example, it costs 8 cents to deliver \$1 of food stamp benefits, but there are 36 cents of delivery costs associated with \$1 of WIC food benefits. A substantial portion of WIC's administrative costs arise from providing nutrition education, counseling, and health-care referrals to WIC participants. Some would argue that these provisions are some of the principal benefits of the program that contribute to its effectiveness and are not administrative costs. While we cannot disentangle the relative contribution of the benefits from the administration costs, the difference in administrative costs between food stamps and WIC would persist even after subtracting the cost of nutrition education, counseling, and health-care referrals because of the increased targeting of the program to mothers and their children at nutritional risk.

The more targeted the form of benefit, the greater its impact on food spending. When given assistance in the form of coupons, such as food stamps, people spend more on food than when given assistance in cash because they are likely to use some of the cash to buy nonfood

### Food Stamps Increase Food Spending

Food assistance increases recipients' total spending on food, but the increase is usually less than the amount of the benefit. The form of the benefit affects the size of the increase—the more targeted the benefit, the greater the increase in food spending. Our best knowledge about the size of these effects comes from extensive research on the Food Stamp Program.

When given assistance in the form of food stamps, people spend more on food than when given cash because they are likely to use more of the cash assistance to buy nonfood items.

Say, for example, that a household spends \$100 for food. When it receives \$100 of food stamps, food spending increases \$20-\$45 for a total of \$120-\$145. This is known as the supplementation effect—the extent to which retail food spending increases with every dollar of food assistance received (or decreases with every dollar in reduced benefits). While all of the food stamps are devoted to food, \$55-\$80 of the household's cash previously spent on food is reallocated to nonfood items, such as rent and clothing. The magnitude of the supplementation effect varies among other forms of food assistance.

In the same example, if the household receives \$100 of food assistance in the form of cash, food spending increases \$15-\$30 (rather than the \$20- to \$45-increase when provided as food stamps) for a total of \$115-\$130. This reduction is known as the slippage effect, the extent to which retail food spending decreases as the form of assistance is modified. More of the cash food assistance is used for nonfood purchases.

items (see box for more details on how food stamps increase food spending).

Food stamps are more targeted at increasing food spending than is cash, commodity donation programs are more targeted at consumption of specific foods than are food stamps, and WIC is highly targeted at nutrition and health.

### Reduced, or Even Less Targeted, Assistance Lowers Food Spending

Benefit recipients reallocate their resources among food and nonfood purchases in reaction to reduced benefits and/or changes in the form of benefits.

Government and academic research suggests that a \$1 reduction in food-assistance benefits (all non-cash programs, including food stamps, WIC, and others) lowers a recipient's food spending between 15 and 35 cents. Food spending does not fall by the full amount of the reduction, as the recipient uses some of the household's budget previously spent on nonfood items, such as clothing, rent, and medical care, to supplement, or replace, a portion of the lost assistance. This is known as a supplementation effect—the extent to which retail food spending increases with every dollar of food assistance received or, in this case, decreases with every dollar in reduced benefits. For example, when a household receives \$100 less in food-assistance benefits, total food spending declines \$15-\$35. Between \$85 and \$65 in cash previously spent on nonfood items is reallocated to food.

When that same amount of food assistance is replaced with less targeted benefits, such as cash, food spending falls. This is known as a slippage effect. With reduced restrictions on the form or use of benefits, less is spent on food. For example, when cash replaces in-kind food

assistance (all noncash programs, including food stamps, WIC, and others), recipients allocate some of the cash to other uses. In the same example above, if the household receives \$100 in cash in place of \$100 worth of noncash food assistance, spending on food falls, or "slips," \$10-\$25 from the level when more targeted food assistance was given.

Switching to less targeted programs will have a larger impact on food spending and nutrition than would funding reductions alone. This results because the supplementation effect occurs with only the reduction in benefits, whereas the slippage effect occurs with the conversion of all the remaining benefits to a less targeted form, such as cash.

If food-assistance benefits are reduced, recipients will spend less on a variety of foods—particularly meats. For example, food stamp recipients allocate the largest share of their food dollars, 33.8 percent, to meats, fish, and eggs (fig. 3). Because of this large budget share going to meats and the relatively large share of retail meat prices

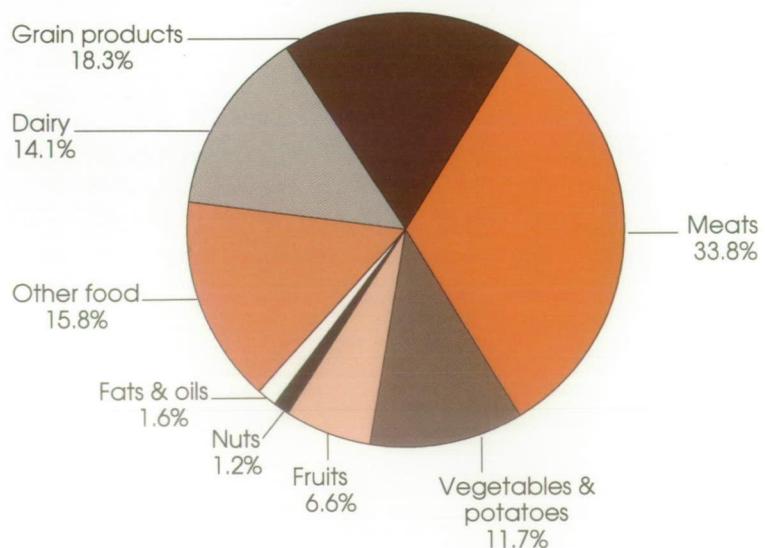
going to producers (due to meats receiving less processing than most retail foods), a decrease in recipients' food spending affects meat producers more than other producers.

### Effects of Cuts or Changes Ripple Throughout the Economy

Cutting Federal outlays on food assistance and/or changing the form of assistance affects both food and nonfood spending by recipients, which in turn affects national levels of output and employment. Impacts will depend on the type of program modifications, how recipients' spending responds to the change, and how the savings in Government expenditures are used.

We used an economywide model previously developed at USDA's Economic Research Service to explore possible outcomes of a \$5-billion reduction in Federal outlays for food assistance per year from the anticipated program level of \$45 billion. Three scenarios are reported

Figure 3  
**Meats Account for the Largest Share of Food Stamp Households' Food Budgets**



here to reflect a range of outcomes. The low-impact scenario presents an estimate of what could happen if program funding is reduced \$5 billion per year and the form of assistance does not change.

Two other scenarios—the middle- and high-impact scenarios—show what could occur with that same cut in funding along with program restructuring, such as could occur if cash benefits replace more targeted assistance like food stamps, WIC vouchers, and the like. The difference between these last two scenarios is the participant response to the changing form of benefits: with the

reduced targeting of assistance, food spending out of the benefits “slips” by 10 percent under the middle-impact scenario and by 25 percent under the high-impact scenario.

**Lower Food Spending**

At the lower end of the spectrum, if food-assistance funding is reduced by \$5 billion per year and the form of assistance does not change (low-impact scenario), U.S. food spending drops \$750 million. That is equivalent to a 0.1-percent reduction

from the \$642 billion spent on food in 1994.

If program reforms that reduce targeting are added to that \$5 billion per year reduction in food assistance with modest slippage (middle-impact scenario), food spending falls by \$4.2 billion, or 0.7 percent. But the cut in food assistance combined with these program reforms could result in sharper reductions in food spending under the high-impact scenario, by \$10.5 billion, or 1.6 percent of total food expenditures.

Under the range of these three scenarios, recipients lower their

Table 3  
**Food-Assistance Reform Lowers Food Spending in All Three Scenarios**

Food group	Food budget share	Change in spending		
		Low-impact scenario	Middle-impact scenario	High-impact scenario
	Percent	Million dollars		
Total spending	NA	-5,000	-5,000	-5,000
Nonfood spending	NA	-4,250	-750	+5,501
Food spending	100	-750	-4,250	-10,501
Dairy products	14	-106	-600	-1,482
Fluid milk	6	-47	-265	-654
Cheese	4	-28	-159	-394
Butter	1	-8	-44	-110
Other	3	-23	-132	-325
Grain products	15	-115	-649	-1,604
Meat, poultry, and seafood	34	-253	-1,436	-3,548
Beef	14	-103	-583	-1,439
Pork	9	-64	-362	-894
Other	1	-7	-41	-100
Poultry	7	-49	-278	-687
Fish and seafood	4	-31	-173	-427
Eggs	2	-12	-66	-162
Sugars and sweets	4	-30	-171	-422
Potatoes	2	-18	-99	-245
Vegetables	9	-70	-399	-987
Fruits	7	-49	-277	-683
Nuts	1	-9	-49	-121
Fats and oils	2	-12	-68	-168
Other foods	10	-77	-437	-1,079

Notes: Data may not total due to rounding. NA = Not applicable.

spending on a national scale by \$106 million (low-impact scenario) to \$1.5 billion (high-impact scenario) on dairy products; \$253 million to \$3.5 billion on meat, poultry, and seafood; and between \$115 million and \$1.6 billion on grain products (table 3).

**Reduction in Farm Income**

The lower food spending due to a reduction in food assistance with and without program changes cuts total farm income between \$201 million (low-impact scenario) and \$2.7 billion (high-impact scenario), or 0.1 percent to 1.3 percent of gross farm income, respectively.

Beef producers would take the biggest hit, seeing their gross farm income fall 0.3 percent to 3.5 percent, or between \$58 million (low-impact scenario) and \$808 million (high-impact scenario). Dairy farmers would lose between \$25 million (0.1 percent) and \$315 million (1.5 percent), pork producers \$24 million (0.2 percent) to \$331 million (3.3 percent), and vegetable and potato farmers between \$28 million (0.3

percent) and \$402 million (3.6 percent).

**Shortrun Job Losses in All Sectors**

A fall in food spending from a reduction in food assistance directly affects farmers and food processors and distributors (wholesaling, transportation, retailing, and food service). Nonfood sectors are also directly affected, because food-assistance recipients reallocate some of their limited budgets away from clothing, housing, and other nonfood goods and services to pay for food.

Each of these sectors uses goods and services from other sectors. Lower spending in these sectors reduces demand for farm commodities and nonfood goods and services, such as feed, seed, energy, paper products, and chemical products.

Reducing food and nonfood expenditures lowers demand for goods and services used in their production. This lower demand reduces output and in turn the need for labor, generating shortrun

(within 6 months to 1 year) reductions in jobs throughout the economy. (The reduction in labor is expressed as “job losses,” but it also could occur through cutting back on hours employed.)

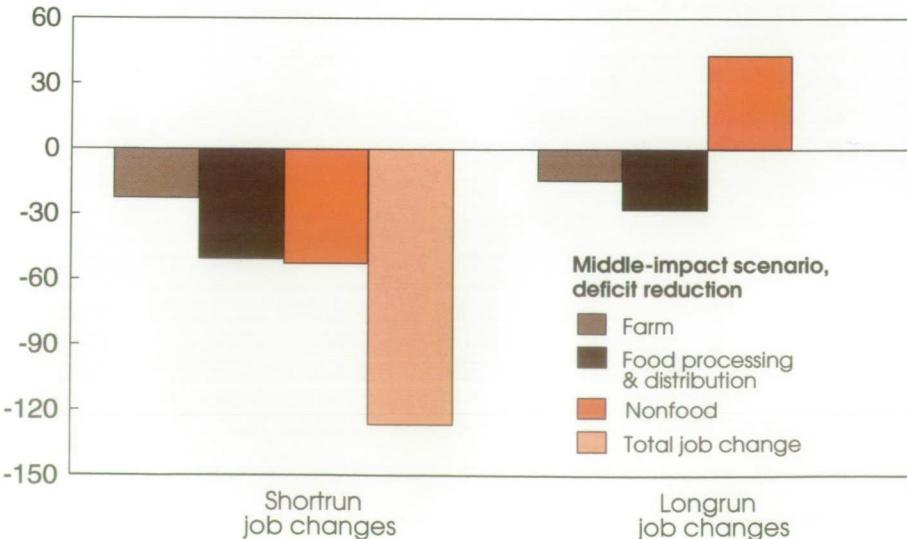
In the short run, cutting food assistance with no change in benefit form under the low-impact scenario eliminates 3,600 farm jobs, 14,000 food processing and distribution jobs, and 103,000 nonfood jobs.

Combining the cut in funding with a reduction in targeting resulting in modest slippage in food spending (middle-impact scenario) eliminates 23,000 farm jobs, 50,000 jobs in food processing and distribution, and 53,000 nonfood jobs (see fig. 4). A reduction in targeting resulting in higher slippage in food spending (high-impact scenario) eliminates 56,000 farm jobs and 120,000 food processing and distribution jobs, but increases nonfood jobs by 38,000. Under the high-impact scenario’s larger slippage, nonfood purchases increase at the expense of food purchases (table 3), and so do production and jobs in the nonfood sector. Total job changes also increase with slippage. Even under the high-impact scenario, however, the total job loss would raise the U.S. unemployment rate by only 0.1 percent.

Figure 4

**Cuts in Food Assistance and Less Targeting Produce Short-Term Job Losses, but the Jobs Shift to the Nonfood Sector in the Long Run**

Thousand jobs



**Recycling Program Savings Lessens Impacts on Economy**

The full shortrun impacts will likely never fully materialize. Other, longer run, effects (occurring fully in roughly 2-4 years) arise in our analysis as the Government expenditures on food assistance are reduced and the money is injected back into the economy—applied to either deficit reduction or a tax cut.

While both alternatives cause similar losses in employment in food production (about 40,000 jobs under



some empirical evidence on work incentives; however, the issue is beyond the scope of this analysis.

## Impacts Depend on Final Reforms

Designed as a safety net to help meet the basic nutritional needs of low-income people, food assistance is a mix of Federal programs. One of the most important elements of the programs has been their ability to meet the increasing needs of individuals, States, and communities in economic downturns. Food-assistance programs also provide a targeted stimulus to the economy during a downturn in economic activity when it is most needed. While not a longrun solution to unemployment, food assistance provides a quick stimulus to the economy. Our analysis suggests an additional \$1 billion in food assistance supports 25,000 jobs in a slack economy.

Impacts of changes in the Nation's food and nutrition assistance programs will extend beyond the program recipients to the rest of the economy. The potential economic impacts of food-assistance reform

on the food sector and the general economy depend on the size of reduction in benefits and the form of the new program.

The period of adjustment affects these impacts. Some impacts will be mitigated as the savings from the reduced Government expenditures are injected back into the economy, through either a tax cut or deficit reduction. The long-term effect of either use of the savings will be a shift of jobs out of food and into nonfood production, with disproportionate losses being felt in rural areas.

Other reforms are also being proposed, such as modernizing benefit delivery by switching from coupons to electronic benefits, cutting back on fraud, strengthening work and training requirements to eliminate a person's need for the benefits, imposing time limits for some categories of recipients, and augmenting State administrative flexibility.

Regardless of the shape of the final reforms, any large reduction or change imposed will involve trade-offs—program benefits will need to be balanced against costs. The key is to reduce costs and improve efficiency while ensuring that the poor have access to a nutritious diet.

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# Limited Financial Resources Constrain Food Choices

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**P**ersonal income is a key factor affecting not only the amount Americans spend for food, but also the types of food they buy. For low-income Americans, food choices run counter to most national trends. They typically spend less for food and eat less than does the general population.

In 1987-88, food spending by low-income households was about 82 percent of the national average. Low-income households bought \$1,076 worth of food per person per year, whereas the population as a whole bought about \$1,348 per person (fig. 1). Differences were even more pronounced for some specific food groups. Low-income households spent about 74 percent of the national average for fresh fruits and only 65 percent for beverages other than fluid milk (fig. 2). Eggs were the only major food item on which low-income households spent more.

Although households with limited financial resources spent and consumed less per person for almost every major food group, they paid less per unit of food—due partially to buying lower cost brands or foods, buying in bulk, and eating at home more often. The few products low-income households bought

more of included mainly lower priced red meats, and staple items, such as eggs and sugar, that are often used to make meals from scratch.

This article presents results from an analysis of USDA's 1987-88 Nationwide Food Consumption Survey (NFCS), the latest data available on household food consumption for the population as a whole and for low-income U.S. households (see box). Although somewhat dated, these data are the most recent

survey information on the use and value of foods at the household level. And since a portion of the survey is targeted at low-income households, the data provide further knowledge about this group of Americans.

## Dairy Products

The population as a whole consumed about 10 percent more dairy products per capita than did low-income households, 451 pounds



*Low-income households spent about 82 percent of the national average on food (\$1,076 per person per year compared with \$1,348). Differences were even more pronounced for some specific food groups, particularly fresh fruits and beverages.*

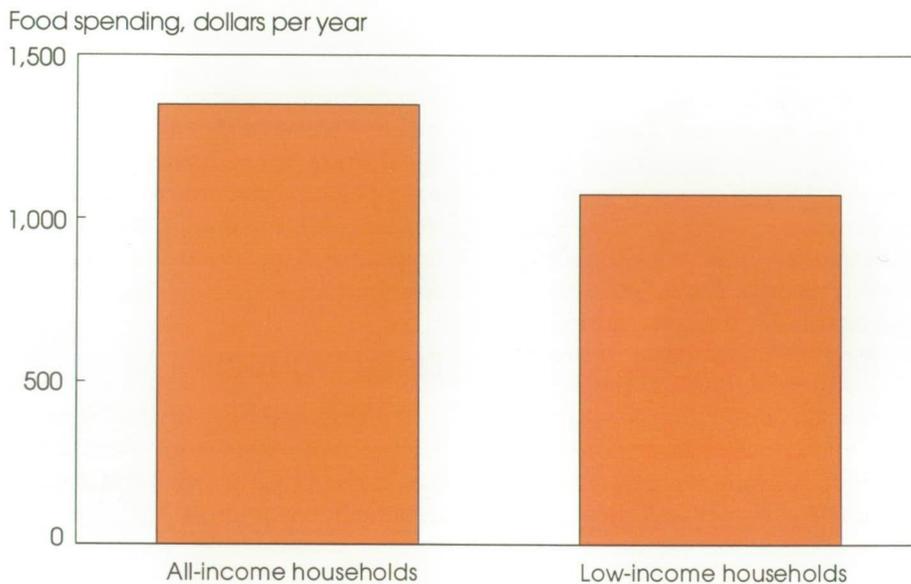
The authors are agricultural economists with the Food and Consumer Economics Division, Economic Research Service, USDA.

compared with 396 pounds (fig. 3). However, low-income households used about 9 more pounds (on a fresh-equivalent basis) of processed milk products, such as infant formula and other dried and canned milk products. The number of children in the home and participation in food-assistance programs may

partially explain this difference. According to the survey data, low-income households contained more children (an average of 0.98) than did the overall population (0.73). In addition, being less expensive per unit than fresh milk, dried milk products stretch the value of the food dollar.

In fact, while low-income households consumed about 10 percent fewer dairy products, they spent about 14 percent less than did the average household, suggesting that they tend to look for bargains or less expensive products.

Figure 1  
Higher Incomes Result in Higher Per Person Food Spending

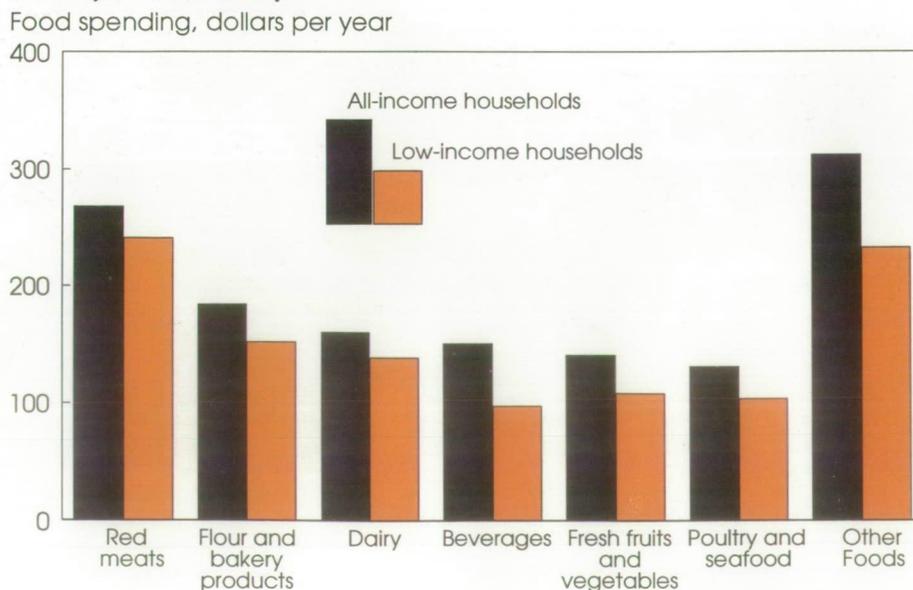


## Red Meats, Poultry, and Seafood

Low-income households consumed about 3 percent more red meats than did the population as a whole, but they paid about 10 percent less for the products. These results suggest not only that lower income households may prefer red meats more than do most households, but also that these purchasing decisions seem to be based more heavily on relative prices—leading them to shop for bargains and lower cost cuts of meats. The survey data indicate that, on average, low-income households paid about \$1.64 per pound (in 1988 dollars) for red meats, while the overall population paid about \$1.88 (fig. 4).

Similarly, while low-income households ate about the same amount of poultry, fish, and shellfish as the rest of the population, they spent about 21 percent less (an average of \$0.33 less per pound) for these products.

Figure 2  
Low-Income Households Spend Less Per Person for Major Food Groups



## Eggs

Low-income households buy more eggs than the national average. They spent 14 percent more and consumed 14 percent more. Such higher levels suggest that low-income households may tend to prepare more foods from scratch to economize on their food budget. Eggs are a relatively inexpensive source of protein and can be used in a variety of low-cost homemade recipes, such as egg salad.

## Fats and Oils

Low-income households used about 5 percent less of packaged fats and oils (as opposed to fats and oils already contained in prepared foods) than did the population as a whole, and they spent about 18 percent less. Low-income households may be using less expensive products or they may be saving money by buying large bulk containers.

The NFCS data for fats and oils use are probably not a very good indication of actual consumption. Many of the foods containing fats and oils (such as dinner mixtures) are not recorded in the fats and oils category. Also, our assumption that foods eaten away from home are consumed in the same relative amounts as foods at home (see box) may lead to inaccuracies for some food groups—particularly fats and oils. For example, if many people eat more fried foods at restaurants and fast-food establishments than they do at home, the fats and oils used in frying would not be captured by our adjustment to the data. Nonetheless, the information does contain useful comparison between low-income households and the national average (also called all-income households).

## Flours, Cereals, and Bakery Products

The survey data on consumption and expenditures on flours, cereals, and bakery products again suggest that low-income households tend to prepare meals from scratch. Low-income households used about 11 percent more flours and cereals than did households overall. Despite their greater use, low-income households spent about 7 percent less for flour and cereals than did most households.

Low-income households used about 12 percent less bakery products, and spent about 24 percent less, than did the population as a whole. Since the amount of store-bought bread, which is included in bakery products, was nearly the same between low-income households and the national average,

other, higher priced items are the source of the difference in bakery products. This suggests that low-income households tend to use far less of the higher priced bakery products, such as pre-made cakes or bakery snacks—instead purchasing lower priced products or bulk packages.

Figure 3  
**Food Consumption Per Person Is Generally Lower in Low-Income Households**

Food consumption, pounds per year

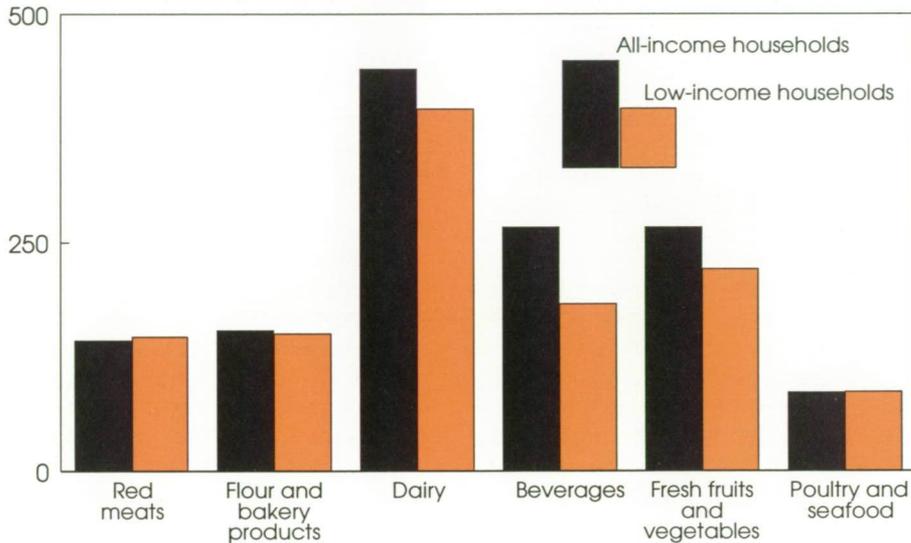
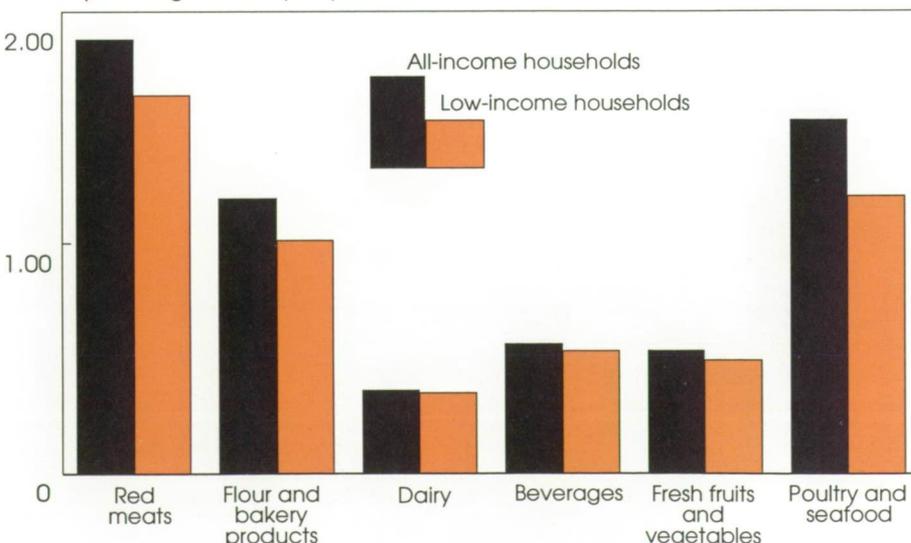


Figure 4  
**Low-Income Households Usually Spend Less Per Pound of Food**

Food spending, dollars per pound



## USDA's Nationwide Food Consumption Survey

The results presented in this article are based on data collected in the 1987-88 Nationwide Food Consumption Survey (NFCS) conducted by the former Human Nutrition Information Service (HNIS), now a part of USDA's Agricultural Research Service (ARS). The NFCS, collected about every 10 years since the mid-1950's, is USDA's most comprehensive survey of food consumption by American households.

The 1987-88 NFCS consisted of two samples: one from low-income households and one from the general population (sometimes referred to as the basic, or all-income, sample). Both portions sampled private households in the 48 contiguous States. The low-income sample consisted of households that met certain income criteria, adjusted for household size (see table 1). All households, regardless of income, were eligible for the basic sample.

Detailed survey information was collected regarding the value, type, and quantity of foods used from household food supplies during a week as well as socioeconomic and demographic characteristics of the households.

The data have some limitations, which may affect generalizing these findings into wholesale trends on food consumption. The survey only measures food bought for preparation/consumption at home. Without capturing purchases of food in restaurants, fast-food establishments, sandwich shops, and other outlets away from home, some of the data may not adequately measure consumption patterns. The NFCS data include food purchased at foodservice establishments, but only if it is carried home for consumption.

We adjusted the data to account for differences in the number of meals eaten away from home, household members, and guests. The adjustment assumes that household members would consume foods

away from home in the same relative proportions as they did at home. This may be a valid assumption for many foods, but not so for others. For example, with the dramatic increase in the number of salad bars in restaurants and fast-food establishments over the last decade, people may be eating relatively more fresh vegetables away from home than at home. Therefore, it is difficult to measure actual food consumption using only data on foods eaten at home.

Also, since consumption data are not collected in the same manner as for traditional agricultural commodities, one cannot extrapolate these conclusions to estimate the impacts on agricultural markets. There has been a considerable shift from consuming individual food items to foods in mixtures (such as pizza, frozen entrees, and salads). Households participating in the survey can report these foods as mixtures rather than as each individual food. This would tend to underestimate the consumption of certain agricultural commodities. For example, the pork sausage used on pizza is reported as pizza, not pork—underestimating red meat consumption.

Another drawback is the relatively low response rate. The response rate for the all-income portion of the survey was about 37 percent and about 42 percent for the low-income portion. A number of households selected for the samples chose not to participate in the survey. This may cause statistical bias problems if many households chose not to participate and if there was a systematic difference in their consumption behavior from those who did participate.

For example, if a large proportion of single-person households chose not to participate and those households also ate more frozen dinners and fewer fresh vegetables than did the single-person households that did participate, frozen dinner consumption would be underestimated and fresh vegetable consumption would be overestimated. The lower the participation rate, the greater is the potential of nonparticipation bias. We weighted the samples to adjust for nonparticipation.

To determine the impact of nonresponse on the NFCS's representation of the U.S. population, HNIS compared descriptive statistics of the 1987-88 survey to several other surveys. Also, a panel of experts evaluated the impact of the response rate on the accuracy of the data. The U.S. General Accounting Office examined the reliability of the data.

All three groups concluded that it is not possible to determine if those not responding differed systematically from those who did. But, the evaluators were concerned about estimates based on small subgroups of people.

This article compares the entire samples—4,495 households in the all-income sample and 2,508 households in the low-income sample. For this reason, we believe nonresponse bias has a minimal effect on the estimates in this article.

Table 1  
**Low-Income Thresholds Adjusted for Household Size**

Household size	Monthly before-tax income <sup>1</sup>
Number	Dollars
1	595
2	800
3	1,010
4	1,215
5	1,420
6	1,625
7	1,830
8	2,035

Note: <sup>1</sup>Excludes benefits from the Food Stamp Program and the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC).

## Fruits and Vegetables

According to the survey, low-income households consumed considerably less of fresh fruits (21 percent) and fresh vegetables other than potatoes (13 percent) than the national average. On the other hand, they used about 9 percent more fresh potatoes, which are generally less expensive than other types of vegetables.

Low-income households spent 25 percent less on fresh fruits and 30 percent less on fresh vegetables than the national average. They also paid less per pound, suggesting they may buy lower cost produce items.

The numbers for fresh fruits and vegetables do not account for total consumption, since canned and frozen items are a separate category and since some fruits and vegetables may be in mixtures, such as frozen dinners. Low-income households used about 11 percent more canned fruits and vegetables and 25 percent less of frozen fruits and vegetables than did households overall. This is probably due to the relatively lower price of canned items.

## Sugars and Sweets

Sugars and sweets was one of the few food groups of which low-income households ate more (12 percent) than did the population as a whole. (These consumption figures do not count sugars used as ingredients in processed foods, such as soft drinks or presweetened breakfast cereals.) Still, low-income households spent about 10 percent less for sugars and sweets. Most of

the higher consumption can be explained by a larger use of sugar, again supporting the view that low-income households tend to make more meals and snacks from scratch instead of buying more expensive prepackaged foods.

## Beverages

The population as a whole drank about 31 percent more beverages (mainly soft drinks) and 16 percent more fruit and vegetable juices than did low-income households. Low-income households spent slightly less per pound for soft drinks and slightly more per pound for fruit and vegetable juices. The lower use of beverages by low-income households is probably due to their higher relative price.

## Income Affects Food Spending and Choices

Although eating less and spending fewer dollars does not itself imply diminished dietary quality, the Federation of American Societies for Experimental Biology identified low-income households as a group having a higher risk of developing nutrition-related health disorders. It is clear from our analysis that low-income households eat different foods than the general population, which tends to support the Federation's claim.

Households with limited financial resources probably place a higher priority on relative food prices and other living expenses, such as rent, than does the general population. Since they tend to buy lower priced foods in search of bargains, they may also have a tendency to buy lower quality foods, such as high-fat meats. While low-income households appear to economize their

food dollar very effectively, there is some danger that the nutritional quality of their diets may suffer from buying few highly nutritious foods, such as fresh fruits and vegetables.

Knowledge of the differences and similarities between national averages and averages for low-income Americans is critical in making effective farm and nutrition program decisions, such as in assessing costs and benefits of welfare reform proposals on agricultural producers and needy families.

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# Improving Federal Efforts To Assess Hunger and Food Insecurity

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**T**he current debate about welfare reform has often hinged on the impact of welfare policies on the poor. Reliable monitoring of the effects of such reform, including changes in the prevalence of domestic hunger, will be an important aspect of future policy-making. The most recent USDA surveys, based on data from the late 1980's and early 1990's, indicate that about 2 to 4 percent of households in the United States report not getting enough to eat. Yet other studies show hunger to range from 11 to 13 percent for the same time period. Such discrepancies have given rise to recent efforts to improve the way hunger in this country is defined and monitored (see box). A new national survey will help assess the nature and extent of hunger in America and provide detailed information on how people cope with it.

But is there really hunger in America? For those who don't live it, or face it, the phrase "hunger in America" must sound like an oxymoron. The United States, after all,

has the world's largest economy and historically has given away more food than any other country. Hunger should be something associated with nations on the receiving end of this food aid—certainly not with the world's largest donor.

To the average person, doubt about the existence of hunger in

America surely stems from more than just aggregate commodity flows. We are a nation of dieters, constantly reminded that an overweight condition is unhealthy and undesirable—and now, more common than ever. A recent national survey estimated that one-third of Americans are overweight, up from



*A new national survey will help assess the nature and extent of hunger in America and provide detailed information on how people cope with it. The survey questions focus on various aspects of hunger, including food expenditures, participation in Government food-assistance programs, food scarcity, and coping mechanisms.*

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one-fourth in the late 1970's. Surveys indicate that over 61 percent of adult women and 48 percent of adult men are currently trying to lose or maintain weight. How could

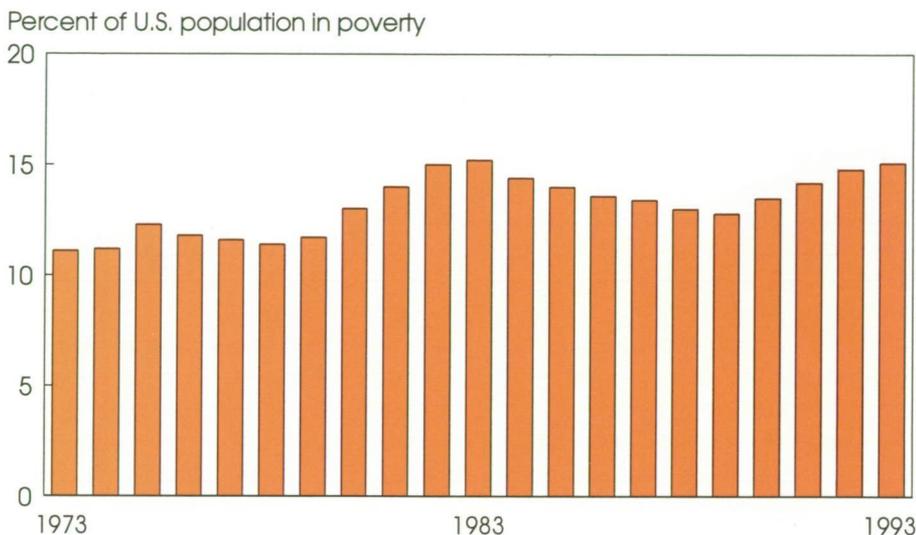
there be hunger in a nation so obsessed with being overweight?

The short answer is that "hunger" in America is often hidden. The strength of the U.S. economy belies

the inequality of income distribution, which has grown since the 1970's. About 39 million Americans, 15.1 percent of the population, lived in poverty (annual income under \$14,763 for a family of four) in 1993, up by almost a quarter from 12.3 percent in 1975 (fig. 1). Households with the lowest incomes spend a higher proportion of their income on shelter than does the average U.S. household, leaving less money for food and other needs. And, the poor are often limited to jobs paying the minimum wage, which has not kept pace with the rising cost of food (fig. 2). Given these circumstances, it is not surprising that for some people, getting adequate meals can be a daily challenge.

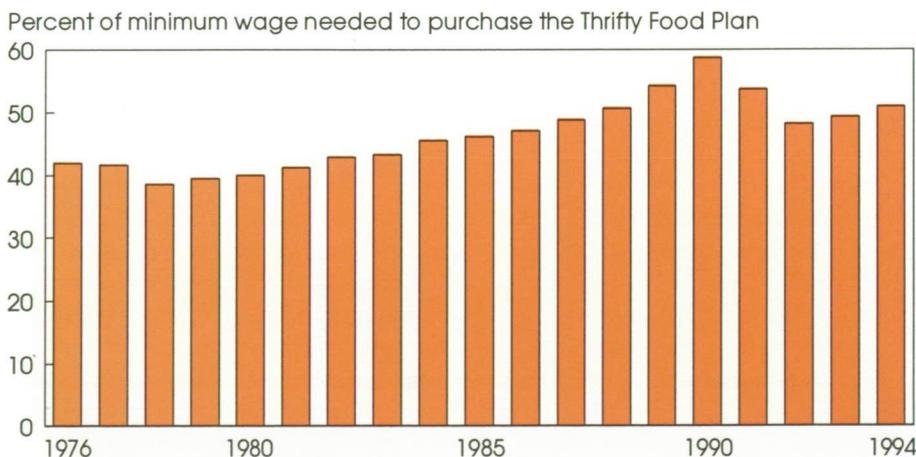
Hunger in America is also hidden because those who experience it may not show the obvious symptoms associated with severe malnutrition. Hunger is often periodic, taking the form of some days without food, or it can be prolonged but low level, including, for example, the chronic skipping of meals. Hunger can also involve poor adaptations, such as reliance on low-quality diets that have little variety and may be lacking in nutrients.

Figure 1  
**Poverty Rate Has Increased Since the 1970's**



Note: Households with incomes below specific thresholds determined by the Bureau of the Census are considered to be in poverty. The thresholds vary by family size, age of household head, and number and age of children and are updated annually to reflect inflation. In 1993, for example, the average poverty threshold for a family of four was \$14,763.

Figure 2  
**A Low-Cost Food Plan Now Costs Over Half of the Minimum Wage**



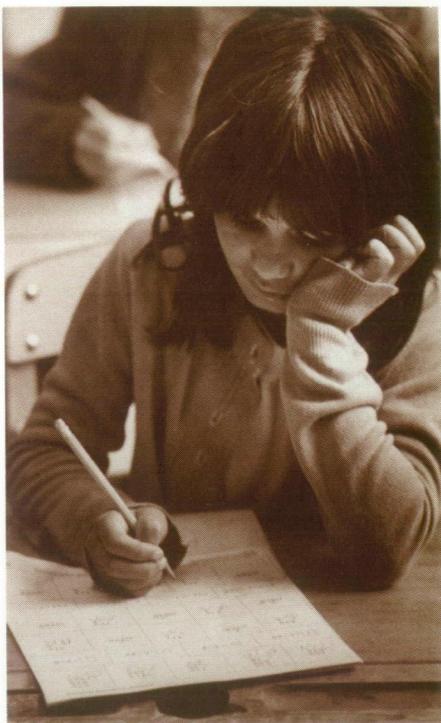
Note: The Thrifty Food Plan is USDA's lowest cost basket of food that meets most nutrient needs. Weekly costs of the plan are for a family of four. Weekly minimum wage earnings are based on one full-time worker per family. Minimum wage and food cost data are from January of each year.

## A Profile of Those Who Do Not Get Enough To Eat

In the past, Government-sponsored surveys have not been designed to measure the extent of hunger in the United States. The most recent USDA evidence on this topic comes from answers gleaned from one specific question asked in USDA's 1989-91 Continuing Survey of Food Intakes by Individuals (CSFII), which shows that at least 2.5 percent of U.S. households sometimes or often do not get enough to eat. The survey asked a nationally representative sample of 6,718 households which statement best described the food eaten in their household: (1) "Enough of the kinds of food we want to eat," (2)

"Enough, but not always what we want to eat," (3) "Sometimes not enough to eat," or (4) "Often not enough to eat."

Researchers have called households in the last two categories "food insufficient," a term which has served as a proxy measure for hunger. Ideally, in order to identify the complex phenomenon of hunger, one would have more information than that which comes from just a single question. However, when respondents indicate the insufficiency of household food supplies, it is reasonable to expect that these households are experiencing "hunger," since at least some household members are not getting enough to eat.



*Hunger in America is often hidden because those who experience it may not show the obvious symptoms associated with malnutrition. The chronic skipping of meals, for example, may not be detected in clinical exams, but it can affect the functioning of children in school.*

The above question in the CSFII, which has come to be known as the food sufficiency question, has been asked on various nationally representative USDA food consumption surveys since the late 1970's, and in a modified form in the third National Health and Nutrition Examination Survey (NHANES III), conducted by the Department of Health and Human Services in 1988-94. Responses to the USDA surveys have shown a relatively narrow range of estimates since the late 1970's: between 2 and 4 percent of U.S. households sometimes or often do not get enough to eat.

One of the advantages of the CSFII's food sufficiency question over many of the questions asked in other hunger surveys is that it does not lead respondents to report hunger, per se, but rather allows them to choose among various descriptions of their food situations. Also, research studies have shown that this question correlates with food spending, nutrient intake, and a battery of measures of hunger. For example, a 1985-86 national survey of women aged 19 to 50 years found that those reporting that they did not get enough to eat consumed lower levels of over 10 different nutrients.

It is difficult to make claims about national trends of food insufficiency from responses to this question, however, because surveys have been taken infrequently and methods have varied from one survey to the next. For example, the apparent decline in the overall rate from 3.6 percent to 2.5 percent from the 1987-88 to the 1989-91 surveys (table 1) is as likely to be a result of differences in survey methods or sampling error as it is to be a real change. Unlike poverty statistics, which are compiled annually, nationally representative data on food insufficiency have been collected infrequently and thus preclude estimating reliable trends. However, there is much to learn about the factors that un-

derlie food insufficiency by reviewing the data on this questionnaire item at specific points in time.

Not surprisingly, food insufficiency is more prevalent among low-income households (table 1). About 9 percent of low-income households (income at or below 130 percent of the poverty threshold) reported that they sometimes or often did not get enough to eat, compared with less than 1 percent of other households.

Homeownership has been consistently associated with lower rates of food insufficiency—about one-fifth as many households that own their homes reported not getting enough to eat as those that rent. And, households headed by a single person reported food insufficiency rates 2 to 3 times that of households headed by two persons. Historically, the problem of food insufficiency has been worse in central cities and in the South, although recent evidence seems to indicate the problem may now be no worse in the South than elsewhere.

Rates of food insufficiency are also higher in larger households, in those with less education, and among minorities. Households with six or more persons reported they did not get enough to eat almost 4 times more often than did 2-person households. The rate of food insufficiency was over 6 percent for households headed by someone with fewer than 9 years of schooling and only about 1 percent for those with some college education. About 6 percent of households headed by Blacks or Hispanics reported they did not get enough to eat, compared with less than 2 percent of households headed by Whites. It should be noted that these rates are descriptive in nature and do not control for underlying factors such as income. For example, households headed by Blacks or Hispanics, on average, have lower incomes, which may largely explain the higher food insufficiency rates.

Table 1  
**Household Food Insecurity Varies with Income, Education,  
 and Other Demographic Characteristics<sup>1</sup>**

Demographic characteristic	Households reporting food insufficiency		
	1977-78	1987-88	1989-91
	Percent		
<b>All households</b>	<b>3.1</b>	<b>3.6</b>	<b>2.5</b>
<b>Region:</b>			
Northeast	3.3	3.6	2.6
Midwest	2.1	2.2	2.2
South	4.4	4.2	2.6
West	2.2	4.3	2.6
<b>Urbanization:</b>			
Central cities	5.3	5.0	3.8
Suburban	2.0	2.8	1.8
Nonmetropolitan	2.3	3.2	2.1
<b>Income (percent of poverty level<sup>2</sup>):</b>			
130 percent and under	11.5	11.0	9.4
131-350 percent	1.6	2.7	1.7
Over 350 percent	.2	.7	.3
<b>Tenancy:</b>			
Owns home	1.3	1.7	1.0
Rents home	7.0	7.2	5.2
<b>Education years completed:</b>			
Fewer than 9	7.6	9.6	6.4
9-11	6.2	6.8	5.4
12	1.8	3.3	2.3
More than 12	1.0	1.7	1.2
<b>Household type:</b>			
Two-headed household	1.6	2.5	1.5
Female head only	6.8	5.1	3.7
Male head only	5.5	5.0	4.6
<b>Household size:</b>			
1	4.6	4.4	2.8
2	2.0	2.2	1.7
3-5	2.9	3.6	2.5
6 or more	5.7	9.7	6.6
<b>Race/ethnicity<sup>3</sup>:</b>			
White	1.7	2.8	1.6
Black	11.1	6.6	6.5
Hispanic	8.7	9.4	5.5
Other	2.6	10.2	3.8

Notes: <sup>1</sup>Based on data from the Nationwide Food Consumption Surveys (1977-78, 1987-88) and the Continuing Survey of Food Intake by Individuals (1989-91). <sup>2</sup>Households with incomes below specific thresholds determined by the Bureau of Census are considered to be in poverty. The thresholds vary by family size, age of the household head, and number of children under 18 years of age, and are updated annually to reflect inflation. In 1993, for example, the average poverty threshold for a family of four was \$14,763. <sup>3</sup>This category combines both race and ethnicity. Hispanics are those who indicated that their ethnic origin was Mexican, Puerto Rican, Central or South American, or some other Hispanic origin and could be of any race. Non-Hispanic Whites and non-Hispanic Blacks are counted separately. "Other" includes Asians, American Indians, and other groups with sample sizes too small to analyze separately.

## Hunger Estimates Vary Widely

Estimates of the number of people hungry in America have varied widely over the years, especially in recent times. From 1989 to 1991, for example, various studies have yielded estimates ranging from 2 million to 32 million people. This range is due to differences in the way researchers assess and define hunger, select samples, and extrapolate survey results to the general population.

The Food Research and Action Center (FRAC), a public-advocacy group, studied child hunger among 2,335 low-income households in seven locations across the United States in 1989 and 1990. According to that study, about 5.5 million low-income children under age 12 in the United States went hungry sometime during each year. Based on data from the FRAC study, the Tufts University Center on Hunger, Poverty, and Nutrition Policy estimated that about 31.6 million people went hungry sometime in 1991. In calculations using national data from the Census Bureau and USDA, Tufts estimated the number of hungry at about 28.1 million people in 1991.

In USDA's 1989-91 CSFII, 2.5 percent of the respondents reported food insufficiency; that is, their households sometimes or often did not get enough to eat. If extrapolated to the entire population, that estimate implies that about 2.4 million to 6.2 million people did not get enough to eat. The lower end of this range assumes just one person per household was affected, while the upper estimate assumes this for all people in the household.

In 1988-91, the Department of Health and Human Services' (DHHS) National Center for Health Statistics (NCHS) conducted the first phase of NHANES III. Based on a survey question similar to the CSFII's, preliminary estimates from

## Food Insecurity and Hunger: A Defining Moment

Much of the discrepancy over the magnitude of the hunger problem in the United States stems from differences in its definition. Part of the difficulty comes from the fact that "hunger" occupies an awkward place in our lexicon. Hunger can be used to evoke the powerful and moving images of deprivation furnished by television footage of famine conditions in Rwanda, Somalia, and Ethiopia. At the other extreme, it can roll off our tongues on a daily basis without even a thought, as in "I'm hungry; let's go eat."

The hunger of the severely malnourished is easily identified; for famine situations, the definition itself is a minor issue in addressing the problem. Although the wasting and stunting characteristic of severe malnutrition are mostly absent in this country, for many people, the "let's go eat" solution to the sensation of hunger often does not exist.

The President's Task Force on Food Assistance, convened in 1983 to study whether hunger was increasing, recognized that there were both medical and commonly used definitions of hunger. A medical definition relates to measures of longstanding malnutrition, such as wasting, stunting, or anemia.

But a definition that requires clinical signs measures hunger only after it has existed for an extended period of time—long after it may have affected the functioning of young children at school, for example. The Task Force also offered commonly used definitions of hunger, as "a situation in which someone cannot obtain an adequate amount of food, even if the shortage is not prolonged enough to cause health problems," and as "the

experience of being unsatisfied, of not getting enough to eat."

Since then, various researchers broadened the focus to include aspects of the poverty-related hunger experience beyond the physiological sensation of hunger itself and tested questionnaires to measure its existence. The Food Research and Action Center (FRAC) defined hunger as "the mental and physical condition that comes from not eating enough food due to insufficient economic, family, or community resources." The FRAC survey asked respondents whether they or their children skipped meals, reduced portion sizes, or ate less than they thought they should because there was not enough money to buy food. The survey also asked whether respondents relied on a limited number of foods to feed their children or whether any of their children went to bed hungry because there was not enough money for food.

Cornell University researchers developed a broader definition, based on results from open-ended interviews with low-income women in upstate New York, as "the inability to acquire or consume an adequate quality or sufficient quantity of food in socially acceptable ways, or the uncertainty that one will be able to do so." The Cornell work reflects the shift of emphasis from medically-based to socially-based definitions of hunger by including anxiety about the household food supply and acquisition of food in socially unacceptable ways, such as begging, scavenging, or stealing.

But hunger and worrying about being hungry are clearly not the same thing. In order to preserve the basic interpretation of hunger as not

getting enough to eat, and yet incorporate the related problems of food procurement and management under poverty conditions, the term "food security" has found increasing usage. Previously, the term had been used in the development economics literature to describe the stability of countrywide food stocks over time.

The American Institute of Nutrition defines food security as:

...access by all people at all times to enough food for an active, healthy life and includes at a minimum: (a) the ready availability of nutritionally adequate and safe foods, and (b) the assured ability to acquire acceptable foods in socially acceptable ways...

Food insecurity exists whenever these conditions are limited or uncertain. Hunger and malnutrition are potential, although not necessary, consequences of food insecurity.

Consensus has grown on using this definition of food security as it relates to hunger, which represents a severe level of food insecurity. Less severe food insecurity can be seen as an early-warning signal: a sign of problems indicating a higher risk of hunger in the future. Along with this clarification has come a better understanding of the kind of hunger that represents a public-health and public-policy concern—households caught in circumstances in which at least some members simply do not get enough to eat as a result of insufficient resources. A measure of hunger as defined by insufficient resources is a key element of the new national survey.

NCHS show that about 4 percent of individuals, or about 9 million people, lived in families that reported sometimes or often not getting enough to eat.

Yet these data do not tell the whole story. FRAC's surveys did not use a nationally representative sample; estimates based on their work could be overstated if the groups

surveyed were worse off than the national norm. Although based on national samples, the NCHS and USDA surveys did not include American Indians living on reserva-

tions, the homeless, or those living in institutions. Also, USDA sample design did not include Hawaii or Alaska. The Government estimates cited above could be understated if hunger rates are higher among these population groups.

In addition to concerns about sampling, many have expressed concerns about accepting a self-reported answer to a single question about household food supplies as evidence of hunger. This concern has motivated researchers to develop a battery of questions to assess the complex and interrelated issues of hunger and food insecurity, which is loosely defined as the uncertain ability to acquire enough food that is nutritionally adequate, safe, and acceptable (see box).

## New Monitoring Tool To Get Better Estimates

Researchers have included questions about many of the facets of hunger and food insecurity in localized surveys. But until recently, there has been no attempt to address more than a few of the dimensions of hunger and food insecurity in a nationally representative survey.

In April 1995, the Census Bureau, under contract with USDA's Food and Consumer Service (FCS, formerly the Food and Nutrition Service), included a series of questions on hunger and food insecurity as a supplement to the nationally representative Current Population Survey. (The monthly survey polls approximately 57,000 households, primarily to obtain labor-force participation data.) These questions focused on various aspects of hunger, including food expenditures, participation in Government food-assistance programs, food

scarcity, coping mechanisms, and other related issues. People most likely to experience food insecurity were asked not only about their own behaviors, but also whether and how often other adults and children in the household had to skip meals, cut back on the size of meals, or go for days without eating because they could not afford enough food. There are also a number of questions about borrowing money for food, sending children to a friend's house to eat, receiving emergency food aid, or eating at soup kitchens.

This new survey effort is the result of a collaboration of researchers, program administrators, and others from a wide variety of institutions, including various Federal agencies, universities, and public-advocacy groups.

Determining the extent of hunger and food insecurity in the United States is part of a larger Government effort to monitor the Nation's nutritional status. The work undertaken by USDA and DHHS is part of the Ten-Year Comprehensive Plan of activities sanctioned by the National Nutrition Monitoring and Related Research Act of 1990. One of the main goals is to provide ongoing and timely information that is useful for policymakers.

The use of a standard hunger and food insecurity questionnaire will allow researchers to identify national hunger trends and high-risk groups and locations that may need expanded or improved food-assistance or nutrition-intervention programs.

The wealth of information that will be collected in the new FCS-sponsored survey presents an opportunity to obtain a much better understanding of the extent of hunger and food insecurity in the United States. This will be an important step in improving public policymaking to coordinate an effective response to alleviating hunger in this country.

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# Food Shortages in Developing Countries Continuing

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**T**he world can produce enough food for its population for at least the next few decades.

Food supplies have increased faster than population growth, especially in higher income developing countries.

But food supplies are uneven. Poorer countries—many in Africa—are expected to face severe food shortages in the next decade unless their prolonged and rapid population growth is accompanied by increased agricultural production and/or growth in purchasing power. If not, then chronic food shortages will develop because such countries cannot produce or import enough food to feed their people.

## Undernourishment Remains a Problem...

Uneven food supplies in the world mean unequal food consumption—and nutritional problems—in poor countries. While the share of the developing world's population that is chronically undernourished has dropped from 36 percent in 1970 to 20 percent in 1990, that figure

represents almost 800 million people (table 1). Chronically undernourished people are those whose food supplies provide fewer than 2,300 calories per day. The countries with the highest rates of undernutrition lack the financial resources to provide government-funded food-assistance programs, such as those in the

United States (see "Economic Effects of Refocusing National Food-Assistance Efforts," elsewhere in this issue).

In 1990, many developed countries—including most European countries, Japan, Australia, New Zealand, and the United States—had enough food to provide their



*Poorer countries—many in Africa—are expected to face severe food shortages in the next decade unless their prolonged and rapid population growth is accompanied by increased agricultural production and/or growth in purchasing power.*

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Table 1  
**Chronic Undernutrition Affects a Large Share of People  
 in Developing Countries**

Region and time period <sup>1</sup>	Total population	Chronically undernourished people	
	Million	Number Million	Proportion of population Percent
<b>Africa:</b>			
1970	288	101	35
1980	384	128	33
1990	505	168	33
<b>Far East:</b>			
1970	1,880	751	40
1980	2,311	645	28
1990	2,731	528	19
<b>Latin America and the Caribbean:</b>			
1970	281	54	19
1980	357	47	13
1990	433	59	13
<b>Near East:</b>			
1970	160	35	22
1980	210	24	12
1990	269	31	12
<b>All developing regions:</b>			
1970	2,609	941	36
1980	3,262	844	26
1990	3,938	786	20

Note: <sup>1</sup>1970 is the 3-year average for 1969-71, 1980 is the 3-year average for 1979-81, and 1990 is the 3-year average for 1988-90. Source: United Nations Food and Agriculture Organization. *International Conference on Nutrition*, Rome, Italy, 1992.

populations with 3,400 calories per person per day. This amount is more calories than the minimum daily requirement of 2,300 to 3,000 calories for an active adult (although some of the excess calorie supply is wasted or used for nonfood purposes.) In comparison, the lowest income countries—such as Angola, Chad, Mozambique, and Somalia—had an average daily supply of fewer than 1,800 calories per person.

While Asia has the largest number of chronically undernourished people (over 500 million), in many Asian countries, such as China and Indonesia, the share of the population that is undernourished declined

as incomes rose more rapidly than food prices over the last two decades. Increased food supplies were achieved mainly by using modern technologies and by reducing population growth through family planning programs. According to the Food and Agriculture Organization (FAO) of the United Nations, the share of the population in Asia that was chronically undernourished declined by half in the last 20 years—from 40 percent in 1970 to 19 percent in 1990.

Latin America and the Near East (see box for regional descriptions) have also increased their food supplies, but the rate of nutritional

improvement has slowed in the last decade. The share of the population that was chronically undernourished in Latin America had dropped from 19 percent in 1970 to 13 percent in 1980, where it has remained. Because of population growth, however, the chronically undernourished population increased from 47 million in 1980 to 59 million in 1990. In the Near East, the share of the population that was chronically undernourished fell from 22 percent to 12 percent during 1970-80. But the nutritional situation of the population failed to improve in the 1980's.

### ... Especially in Many African Countries

Sub-Saharan Africa is the only region in the world with growing chronic nutritional problems. Food supplies provide an average of only 2,100 calories per person per day—about 90 percent of the minimum calories required. The proportion of Sub-Saharan Africa's population that is chronically undernourished has remained practically unchanged at one-third since the 1970's. But with high population growth (3 percent per year), the number of chronically undernourished people increased from 101 million to 168 million between 1970 and 1990.

Extreme low-weight status is one of the first, and most visible, signs of chronic undernutrition in young children. Young children who do not eat enough fail to grow at the proper rate and are much more likely to contract and die from illnesses, such as diarrhea or measles, than are healthy children. Undernutrition also affects the development of motor functions, and the intellectual development, learning capacity, and school performance of children.

In North America, only 2 percent of children are considered severely underweight, falling below the range for the proper weight for age

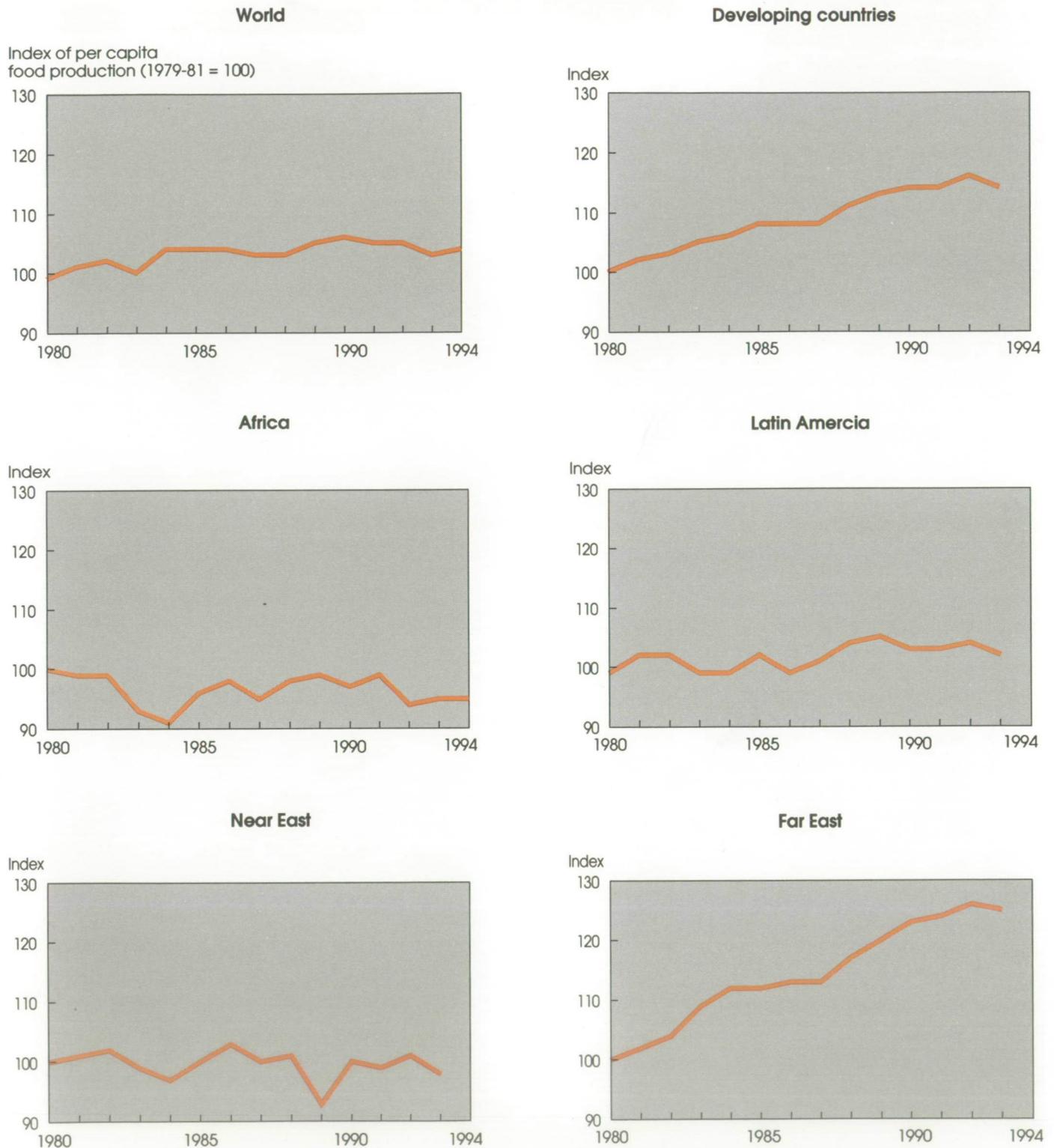
## Developing Countries by Region

Africa	Far East	Latin America and the Caribbean	Near East
<b>North Africa</b>	<b>East Asia</b>	<b>Caribbean</b>	Afghanistan
Algeria	Brunei	Anguilla	Bahrain
Egypt	Cambodia	Antigua and Barbuda	Cyprus
Libya	China	Aruba	Gaza Strip
Morocco	East Timor	Bahamas	Iran
Tunisia	Indonesia	Barbados	Iraq
<b>Sub-Saharan Africa</b>	DPR Korea	British Virgin Islands	Jordan
Angola	Republic of Korea	Cayman Islands	Kuwait
Benin	Laos	Cuba	Lebanon
Burkina Faso	Malaysia	Dominica	Libya
Burundi	Mongolia	Dominican Republic	Oman
Cameroon	Myanmar	Grenada	Qatar
Cape Verde	Philippines	Guadeloupe	Saudi Arabia
Central African Republic	Thailand	Haiti	Syria
Chad	Vietnam	Jamaica	Turkey
Comoros	<b>South Asia</b>	Martinique	United Arab
the Congo	Bangladesh	Montserrat	Emirates
Cote d'Ivoire	Bhutan	Netherlands Antilles	Yemen
Djibouti	India	Saint Kitts and Nevis	
Equatorial Guinea	Maldives	Saint Lucia	
Ethiopia	Nepal	Saint Vincent and the Grenadines	
Gabon	Pakistan	Trinidad and Tobago	
The Gambia	Sri Lanka	Turks and Caicos Islands	
Ghana		<b>Latin America</b>	
Guinea		Argentina	
Guinea-Bissau		Belize	
Kenya		Bolivia	
Lesotho		Brazil	
Liberia		Chile	
Madagascar		Colombia	
Malawi		Costa Rica	
Mali		Ecuador	
Mauritania		El Salvador	
Mauritius		Falkland Islands	
Mozambique		French Guiana	
Niger		Guatemala	
Nigeria		Guyana	
Reunion		Honduras	
Rwanda		Mexico	
Saint Helena		Nicaragua	
Sao Tome and Principe		Panama	
Senegal		Paraguay	
Seychelles		Peru	
Sierra Leone		Suriname	
Somalia		Uruguay	
the Sudan		Venezuela	
Swaziland			
Tanzania			
Togo			
Uganda			
Western Sahara			
Zaire			
Zambia			
Zimbabwe			

Source: United Nations Food and Agriculture Organization. *Production Yearbook*. Rome, Italy, 1993.

Figure 1

**Per Capita Food Production in Developing Countries Rose 1 Percent A Year Since 1980, But Performance Among Regions Far From Even**



Source: United Nations Food and Agriculture Organization. *Quarterly Bulletin of Statistics*. Rome, Italy, 1994.

established by the World Health Organization (WHO). Worldwide, the share of severely underweight children has declined from 48 percent in 1975 to 41 percent in 1990—but the absolute number has declined only slightly. About 44 percent of children are severely underweight in Asia, as are 26 percent of children in Sub-Saharan Africa, according to FAO/WHO.

Undernutrition is prevalent among several identifiable groups. While the urban poor is one such group, the chronically undernourished are mainly in rural areas. The most susceptible include landless rural laborers and small or marginally subsistence farming households, which are often headed by women. Many such farmers do not produce enough food to meet the minimum nutritional needs of their families in normal years. And when production is lowered further because of drought or war, food relief must be provided to prevent famine.

### Scarcity of Suitable Land Limits Food Production

Food production is a very important determinant of the nutritional status of developing countries, because domestic production provides the bulk of food supplies. A country's domestic food production becomes less important as it improves its financial ability to import.

In developing countries, per capita food production as a whole has risen 1 percent per year since 1980. However, the performance of each region varies considerably (fig. 1).

In Malaysia, China, and Indonesia, for example, food production has outpaced population growth, resulting in gains in per capita food production. Other countries have not been so successful. In fact, per capita food production has declined over the 1980-94 period in 40 developing countries (table 2). This decline is caused by a combination of

Table 2  
**Forty Developing Countries Have Experienced Declining Per Capita Food Production Since 1980**

Country	Decline in per capita food production, 1980-94
	Percent
Decline of less than 10 percent:	
Bangladesh	0.4
Guatemala	1.5
Zaire	6.7
El Salvador	6.8
Cote d'Ivoire	8.6
Mali	8.7
Honduras	9.0
Peru	9.3
Decline of 10-20 percent:	
Philippines	10.4
Zambia	13.3
Panama	13.5
Sri Lanka	14.1
Zimbabwe	16.4
Mauritania	16.9
the Sudan	17.2
Kenya	17.5
Lesotho	18.5
Ethiopia	19.7
Sierra Leone	20.0
Niger	20.4
Decline of 21-30 percent:	
Gabon	20.5
Cameroon	21.0
Madagascar	21.3
Swaziland	21.3
the Congo	22.2
Namibia	22.5
Tanzania	23.5
Mozambique	23.6
Burundi	29.5
The Gambia	30.3
Decline of 31-40 percent:	
Botswana	32.1
Afghanistan	33.8
Haiti	33.9
Cuba	35.0
Rwanda	36.3
Nicaragua	37.3
Decline of more than 40 percent:	
Angola	40.5
Liberia	46.1
Malawi	47.1
Somalia	53.1

Source: United Nations Food and Agriculture Organization. *Quarterly Bulletin of Statistics*. Rome, Italy, 1994.

factors: unfavorable climates, limited natural resources, restrictive government policies, underdeveloped infrastructure, lack of modern inputs, and civil strife.

Large areas of Africa are plagued by drought, since rainfall is highly variable and limited to a few months each year. Drought presents chronic problems for farmers. Most African soils are low in organic matter, which limits their moisture-retention capabilities and further reduces the supply of water to plants. Droughts reduce food production in the short term and tree crops and livestock over the long term.

Irrigation could moderate food-production variation, but water resources in many parts of the world are limited and irrigation is costly. Worldwide, about 18 percent of cropland is irrigated (10 percent in the United States). In Sub-Saharan Africa, less than 3 percent of cropland is irrigated. In Latin America, 8 percent of cropland is irrigated, 26 percent in North Africa and Near East, and 30 percent in Asia.

Land scarcity is a major constraint to increasing food output, particularly in densely populated developing countries, such as India and Bangladesh. Bangladesh contains only 0.1 hectare (0.2 acre) of cropland per person. The average farm size there is only 0.9 hectares (2.2 acres), and 95 percent of farms are smaller than 3 hectares (7.4 acres).

In North Africa and the Near East, almost all of the rainfed land suitable for growing crops is being farmed. Egypt, with only 3 percent of total land area suitable for growing crops, has been forced to expand cultivation by reclaiming desert land at high costs.

Countries with abundant land face different problems. For example, the lack of yield-increasing inputs, such as fertilizer and hybrid seeds, in Sub-Saharan Africa and Latin America exerts pressure to expand the cultivated area in order to boost output. Many farmers have converted vast tracts of forest and

grassland to crop production, a practice sustainable at a low level of population density. But with high population growth, the consequence has often been soil degradation and productivity declines. The destruction of forests and grasslands will intensify problems of soil erosion and will contribute to global climate change.

Exploitation of land through shortened or abandoned fallow periods (during which the soil recovers its fertility) is common in many developing regions, lowering the amount of minerals and organic matter in the soils. Almost 11 percent of the earth's vegetated area has undergone moderate (or worse) soil degradation. Erosion is one of the key components of soil degradation. Poor, land-hungry farmers eking out a living on the highland slopes of Ecuador, Nepal, and Indonesia are hard pressed to keep their crops from washing away with the hillsides during heavy rains.

### **Limited Use of Modern Inputs Constrains Production**

The use of improved agricultural inputs in developing countries, especially in Asia, has significantly increased food production. However, farmers in other regions, particularly in Africa, cannot afford high-yielding crop varieties and fertilizers. High-yielding varieties, for example, are imported and expensive. Use of these is a high-risk proposition, particularly in areas with unreliable rainfall.

Fertilizers also are expensive, and sparse rainfall lowers their effectiveness. Among developing regions, Sub-Saharan Africa has the lowest fertilizer use, 14 kilos of plant nutrient per hectare (12 pounds per acre). Use is almost 50 kilos per hectare (45 pounds per acre) in Latin America, and 75 kilos (67 pounds per acre) in South Asia.

Low levels of fertilizer use in some cases seriously threaten pros-

pects for future production. Crop production "mines" the soil of its nutrients unless they are replaced. Reduction in soil nutrients reduces yields and, if untreated, will lead to serious soil degradation.

### **Inadequate Infrastructure Also Reduces Food Supplies**

Weak market infrastructure also constrains food production. Market infrastructure is needed to facilitate distribution of seeds, fertilizer, and tools and the marketing of crops.

Poor roads that slow the movement of goods and accelerate wear and tear on vehicles raise transportation costs, thus lowering returns to producers and increasing costs to consumers. Adequate marketing and distribution facilities allow farmers to sell their surplus at a reasonable price, resulting in profitable sales encouraging them to expand production. Families with food markets within reach have steadier access to cheaper foods and more diverse diets than do families relying largely on their own production.

### **Government Policies Have Aggravated Food Shortages**

Until the early 1980's, agriculture was viewed in many developing countries primarily as a support sector that provided raw materials and a tax base to generate capital for industrial investment. To satisfy politically influential urban consumers, governments in many developing countries set retail food prices artificially low. Low food prices induced many farmers to cut back on production. These countries then relied on imports to alleviate short-term shortages in domestic food supplies.

During the last decade, growing budget deficits in many developing countries forced the governments to reassess their policies. Many coun-

tries liberalized agricultural markets and eliminated production and marketing controls in an effort to stimulate production. Elimination of retail price controls has pushed up prices for domestically grown food. Devaluations of exchange rates have made imported foods more expensive, further pressuring prices for domestically grown foods upward. Thus far, these higher prices have not been enough to overcome other factors limiting agricultural production in most poorer countries.

These policy changes made food less affordable for many—increasing the nutritional vulnerability of the people in these areas. Rising food prices in many developing countries have not been matched by an increase in purchasing power of their citizens. For example, per capita income declined by 2.7 percent per year in North Africa and the Near East during 1980-92 and by 1.1 percent per year in Sub-Saharan Africa. Per capita income growth in Latin America remained flat during that period. Asia was the only region with impressive performance. Per capita income grew 3.3 percent per year in South Asia and 6.2 percent per year in East Asia.

Declining per capita incomes are not unique to developing countries—developed countries also go through recessions. What raises concern about the performance in developing countries is their low income base and the toll such declines take from those low bases. In 1992, about 140 million people in the world earned less than 50 cents a day, and about 1.4 billion earned less than \$1 a day.

### **Imports Needed, But Funds Limited**

If a country cannot grow enough food, imports are necessary to make up the shortfall. Low food production, along with high population growth, means more imports—commercially obtained and/or food

aid—are needed to prevent consumption declines.

Although food imports have expanded in many developing countries, imports' contribution to total consumption remains low. Developing countries depend on food imports for an average of 12 percent of their food supplies.

Better off developing countries, such as the North African countries of Morocco, Tunisia, and Algeria, are able to pay for imports. But this is not the situation in many of the lower income countries. The poor countries of Africa, such as Ethiopia, cannot buy enough food imports to meet consumption needs because they lack foreign exchange. Prices of the primary commodities—coffee, cocoa, tea, and cotton—these countries sell to earn foreign exchange have been declining for the last two decades. The World Bank estimated that the loss of foreign-exchange earnings by developing countries due to declining commodity prices was about \$100 billion a year from 1980 to 1993.

### **Assistance May Decline in the Future**

Foreign aid in the form of money or food is used to increase food supplies in many developing countries. Financial aid to developing countries more than doubled during the last decade, while food aid declined from 9 percent to 5 percent of the total aid. In 1992, total aid was valued at \$60 billion. Since 1984, food aid provided an average of 5 percent of grain supplies for 60 developing countries—ranging from a high of almost 50 percent in Mozambique to a low of no food aid in Nigeria.

The United States is the world's largest provider of food aid, supplying two-thirds of total food aid shipments in 1993/94. The Public Law 480 budget for U.S. food aid rose to a record \$1.7 billion in 1994, but declined to \$1.3 billion in 1995. The

United States has also donated surplus Government commodities to countries in need. While 200,000 tons of commodities were donated in 1994, no shipments are expected in 1995 because of smaller commodity surpluses.

World food aid is also used to respond to emergency situations. For example, food aid to Somalia contributed more than 30 percent of Somali food consumption during the 1983-85 drought and about 70 percent of consumption during the 1992-93 civil war.

Assistance, both food and money, may not be as forthcoming as it was in the 1980's. The financial constraints of donors are likely to reduce assistance in spite of the rising number of needy countries.

### **Population Control, Economic Growth, and Investment in Agriculture Critical**

Unless food production and income levels increase in developing countries, continued population growth will increase chronic food shortages. The already inadequate food supplies will have to stretch even further and feed even more mouths, falling even shorter in providing adequate nutrition. Where incomes are low and food production barely keeps pace with population growth, people cannot buy the food they need. This situation is exacerbated by drought, war, or disease.

Even if food consumption is adequate for survival, undernutrition reduces labor productivity, a primary factor behind slow agricultural growth. Agriculture is the most effective lead sector for overall economic growth for low-income countries, because it stimulates growth in nonagricultural sectors through the employment generated by processing and marketing of agricultural commodities. The chal-

lenge is to reduce population growth, increase production, and/or stimulate income.

Countries in Sub-Saharan Africa, South Asia (mainly Bangladesh and Nepal), and the Caribbean are expected to remain the most vulnerable.

For the lowest income countries with the most critical needs, the immediate task is to adopt family planning programs and increase incentives to promote agricultural production. The reduction in family size, however, will not happen automatically or easily. In the lowest income countries, labor is the main factor in producing food, and a large family is seen as essential for survival. Use of inputs, such as fertilizer, tools, and hybrid seeds, and improved rural infrastructure can reduce labor requirements while expanding production.

Governments of the lowest income countries can provide support to farmers through market-driven prices and public services, such as roads and agricultural extension programs. In many cases, removal of government controls is the first step in improving incentives for farmers. More food could be produced and marketed in developing countries, but poor marketing systems and incentive structures limit their ability to capture the opportunities.

Sub-Saharan Africa, in particular, is expected to face severe food shortages in the next decade. According to the World Bank, Sub-Saharan Africa is projected to face rapid population growth and slow income growth. The World Bank and the United Nations Food and Agriculture Organization project that even at the present low calorie intake level, total food import requirements for Africa will increase to nearly 20 million tons by the year 2010 from 10 million tons in 1990. Without a radical change in production policies or practices, food production will be inadequate to satisfy this need, increasing Africa's depen-

dence on food imports. However, the forecasted ability for many of these countries to generate enough export earnings to support increased imports is not encouraging, meaning a growing reliance on food aid and/or a cutback in food consumption from their already low levels.

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# Food Prices Rose Modestly

Annette Clauson  
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**F**ood prices, as measured by the Consumer Price Index (CPI), rose 2.4 percent in 1994, slightly higher than 1993's 2.2-percent rise. These increases followed 1992's 25-year record low of 1.2 percent, but were moderate compared with the almost 6-percent rise in 1990.

Retail prices for some products, however, increased considerably—fish and seafood up 4.5 percent, fresh fruits 6.5 percent, canned and frozen vegetables 4.4 percent, cereals and bakery products 4.1 percent, and nonalcoholic beverages 7.5 percent. But record-high corn and soybean harvests, combined with a record-large meat supply in 1994, helped hold down overall food prices.

And, the forecast for food-price increases remains moderate. U.S. food prices in 1995 are projected to increase about the same as the overall CPI (fig. 1). The overall consumer-price inflation rate is projected at about 3.0 percent in 1995, up from 2.6 percent in 1994. Overall food prices are forecast to rise 2.5-3.5 percent in 1995, slightly above the last 4 years. The general economy will likely expand more slowly than in 1994, and employment will

rise only slightly. Slow growth in the economy translates into small rises in disposable income. The resulting moderate consumer demand adds little upward pressure on food prices.

## Overall Retail Food Prices Held Down

In 1994, prices for food purchased in grocery stores (food at home) rose 2.9 percent (table 1). These prices are forecast to rise 3-4 percent in 1995.

Over 70 percent of retail food costs goes to pay for processing and distributing. These marketing costs include labor, packaging, transportation, energy, and other inputs (for more information on these costs, see "Food Marketing Costs Rose Modestly in 1993" in the September-December 1994 issue of *FoodReview*).

While food marketing costs are expected to rise modestly again in 1995, they may not be completely passed on to consumers, because of



*Given the low prices received for many vegetables in 1994 and weather-reduced planting and harvesting in California, fresh vegetable prices are expected to rise 10-12 percent in 1995.*

The author is an economist with the Food and Consumer Economics Division, Economic Research Service, USDA.

expected slow growth in consumer demand and aggressive competition among retailers to hold down prices. Farm-level prices of some commodities, depressed because of large supplies, will also be a factor limiting retail-price increases for many major food categories, especially meats and poultry.

### Meats, Poultry, and Fish

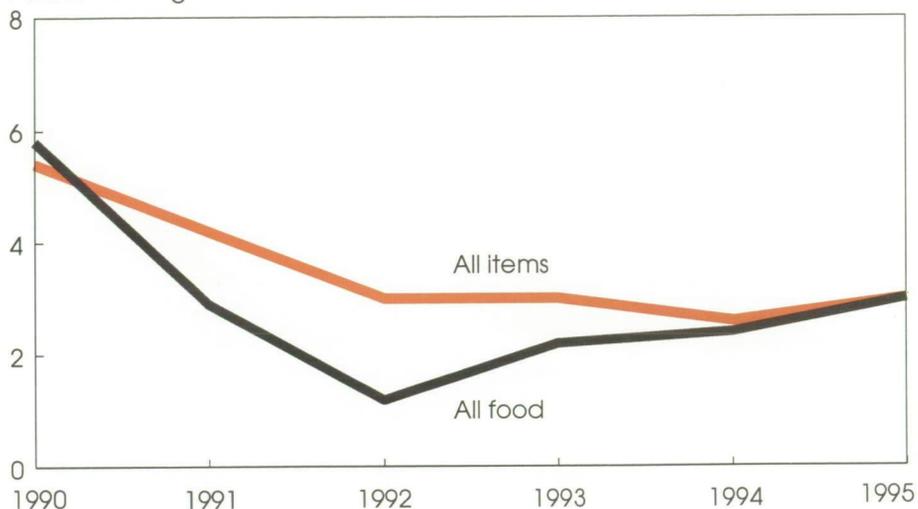
Record supplies held retail price increases for meats—beef, pork, veal, and other meats (frankfurters, bologna, and lamb and mutton)—to just 0.6 percent in 1994. Price changes for beef, pork, veal, and other meats significantly affect the picture for overall food-price changes because these meats account for over 12 percent of the CPI for all food.

Beef prices fell 0.9 percent in 1994 from 1993. Pork prices rose an estimated 1.8 percent from their relatively low levels of early 1993. After record supplies in 1994, beef and pork production is expected to increase only slightly in 1995, limiting any increase in the CPI for beef and pork.

The CPI for chicken, turkey, and other poultry products rose 3.4 percent in 1994, mostly due to higher demand, notably a 40-percent growth in exports and a 3-percent increase in domestic poultry consumption. However, production increases needed to meet the increasing demand will likely lower poultry prices (and producer returns) in 1995. In fact, poultry prices started to weaken in the last quarter of 1994. Broiler production is expected to increase about 6 percent in 1995. Turkey growers will also expand production an estimated 5 percent in 1995. Although domestic and foreign demand for poultry is expected to remain strong in 1995, the CPI for poultry, which accounts for 2.7 percent of the CPI for all food, is expected to stay in the range of -1 to 1 percent because

Figure 1  
**U.S. Food-Price Increases Are Expected To Remain Lower Than Overall Inflation**

Percent change in Consumer Price Index



Note: 1995 forecast.

of large supplies and increased price competition from beef and pork producers.

The CPI for fish and seafood, which contributed 2.4 percent to the all-food CPI, increased 4.5 percent in 1994. Most of this increase stems from higher prices for imported shrimp, which, on a dollar-value basis, makes up about 50 percent of U.S. fish and seafood imports. Shrimp accounted for about 17 percent of the fish and seafood available for consumption in 1994. Dampening the overall increase in retail prices for fish and seafood was a 2.2-percent price increase for canned fish and seafood, due in part to large domestic wild harvests of pink salmon.

### Eggs

After rising 8.1 percent in 1993—the largest gain among all food categories that year—egg prices declined an estimated 2.6 percent in 1994 because of large supplies. Egg exports grew over 16 percent, while domestic consumption increased 1-1/2 percent to 237 eggs per capita in

1994. Eggs accounted for 1 percent of the all-food CPI in 1994.

Egg prices are forecast to be flat or slightly higher in 1995, as production is expected to rise just 1-2 percent after the 2.4-percent decrease in 1994, and domestic consumption and exports are expected to remain at 1994 levels.

### Dairy Products

Accounting for 7.4 percent of the all-food CPI, dairy products posted a modest 1.8-percent price increase in 1994. Retail prices for fresh fluid milk and cream increased almost 3 percent in 1994. Prices for processed dairy products (except butter) also increased, by 1 percent. Cheese prices increased almost 1 percent, while butter prices fell 4.5 percent. In 1994, strong demand for butter, cheese, and nonfat dry milk absorbed a 2-percent expansion in milk production and boosted prices slightly for some products.

Although demand for milk and most other dairy products is projected to continue to be strong in 1995, expanded milk production is expected to outpace fluid milk sales

and use in commercial dairy products, resulting in about 6 percent lower milk prices for dairy farmers in 1995. The CPI for dairy products should increase modestly by 0-1 percent in 1995.

**Fats and Oils**

The CPI for fats and oils—margarine, vegetable oils, shortening, and peanut butter—increased 2.7 percent in 1994, much higher than the 0.2-percent rise in 1993. Fats and oils contributed 1.6 percent to the all-food CPI in 1994. Weather conditions in 1993, including the flood in the Midwest and drought in the Southeast, damaged the soybean

and peanut crops, reducing oil production and contributing to price increases for fats and oils. Despite larger supplies projected in 1995, growing demand and higher processing costs will hold the increase in the CPI for fats and oils in the 2.5- to 3.5-percent range.

**Fresh and Processed Fruits**

Fresh fruit prices are expected to rise 9-10 percent in 1995, up from a 6.5-percent increase in 1994. The CPI for processed fruits, which rose 0.6 percent in 1994, should show a larger increase in 1995, at around 3-4 percent. Smaller crops of California summer fruits explain

these increases. The CPI for fresh fruits accounts for 4.5 percent of the all-food CPI, while processed fruits contribute only 2.1 percent.

Record or near-record crops of oranges, grapefruit, apples, and pears in 1994 kept down price increases in early 1995. However, unfavorable spring weather in California, which reduced harvests, along with strong export demand for fruits, especially apples and oranges, raised retail prices by summer 1995. Citrus production in marketing year 1994/95 is estimated to rise 9 percent from the last season. The 1994 U.S. apple crop was 6 percent higher, a record production level. Washington State, the leading

Table 1  
**Retail Food Prices Rose 2.4 Percent in 1994**

Consumer Price Indexes	Relative importance in all-food CPI	1993	1994	Forecast, 1995
		Percent change from previous year		
All items	N/A	3.0	2.6	2.5 to 3.5
All food	100.0	2.2	2.4	2.5 to 3.5
Food away from home	37.3	1.8	1.7	2 to 2.5
Food at home	62.7	2.4	2.9	3 to 4
Meats, poultry, and fish	17.3	3.3	1.5	0 to 1
Meats	12.2	3.0	.6	-1 to 1
Beef and veal	6.2	3.6	-.9	-2 to 0
Pork	3.4	3.1	1.8	-1 to 1
Other meats	2.5	1.6	2.5	-1 to 1
Poultry	2.7	4.2	3.4	-1 to 1
Fish and seafood	2.4	3.2	4.5	4.5 to 5.5
Eggs	1.0	8.1	-2.4	1 to 2
Dairy products	7.4	.7	1.8	0 to 1
Fats and oils	1.6	.2	2.7	2.5 to 3.5
Fresh fruits and vegetables	8.9	4.4	3.4	9 to 11
Fresh fruits	4.5	2.5	6.5	9 to 10
Fresh vegetables	4.5	6.6	2.3	10 to 12
Processed fruits and vegetables	3.8	-1.6	2.2	2.5 to 3.5
Processed fruits	2.1	-3.9	.6	3 to 4
Processed vegetables	1.6	1.6	4.4	2 to 3
Sugar and sweets	2.1	.2	1.4	1 to 2
Cereals and bakery products	9.2	3.4	4.1	2.5 to 4
Nonalcoholic beverages	5.0	.3	7.5	7.5 to 8.5
Other prepared food	6.5	2.6	2.7	2 to 3

Note: N/A = Not applicable. Sources: Relative importance and 1993-94 historical data are from the Bureau of Labor Statistics, U.S. Department of Commerce; 1995 forecasts are by the Economic Research Service, USDA.

apple production area, harvested 10 percent more than in 1993, offsetting smaller crops in the East. A 6-percent larger Bartlett pear crop also pulled down processed and fresh prices.

### *Fresh and Processed Vegetables*

Fresh vegetable prices, which account for 4.5 percent of the all-food CPI, rose 2.3 percent in 1994, although retail prices for some items dropped in 1994. During the fall, Tropical Storm Gordon in Florida and rain in California reduced supplies and boosted prices for some vegetables, which carried into early 1995. Unfavorable spring weather in California in early 1995 reduced the State's spring and early summer vegetable crops. Given the low prices received for many vegetables in 1994 and weather-reduced planting and harvesting in California, fresh vegetable prices are expected to rise 10-12 percent in 1995.

Retail prices for canned and frozen vegetables, contributing 1.6 percent to the all-food CPI, increased 4.4 percent in 1994. Price increases were due to limited supplies for processing following adverse weather in 1993. Producer prices for processed vegetables will likely increase in 1995 as smaller supplies for the fresh market may lead to shortages of some items in the processing market. Contract production of the four major vegetables for processing—tomatoes, sweet corn, snap beans, and green peas—increased 24 percent in 1994,

after adverse weather reduced production in 1993. With these rebuilt inventories and reduced wholesale prices for the major canning and freezing crops, the 1995 CPI for processed vegetables is expected to increase, with the annual change ranging between 2 and 3 percent.

### *Sugar and Sweets*

The CPI for sugar and sweets, which accounts for 2.1 percent of the all-food CPI, increased 1.4 percent in 1994. This compared with a modest 0.2-percent rise in 1993. The CPI for sugar and sweets charts changes in retail prices for white and brown sugar, artificial sweeteners, jams and jellies, honey, syrup, chewing gum, and candy.

Retail prices for sugar and sweets are also influenced

by the amount of sugar, high-fructose corn syrup (HFCS), and other sweeteners used in

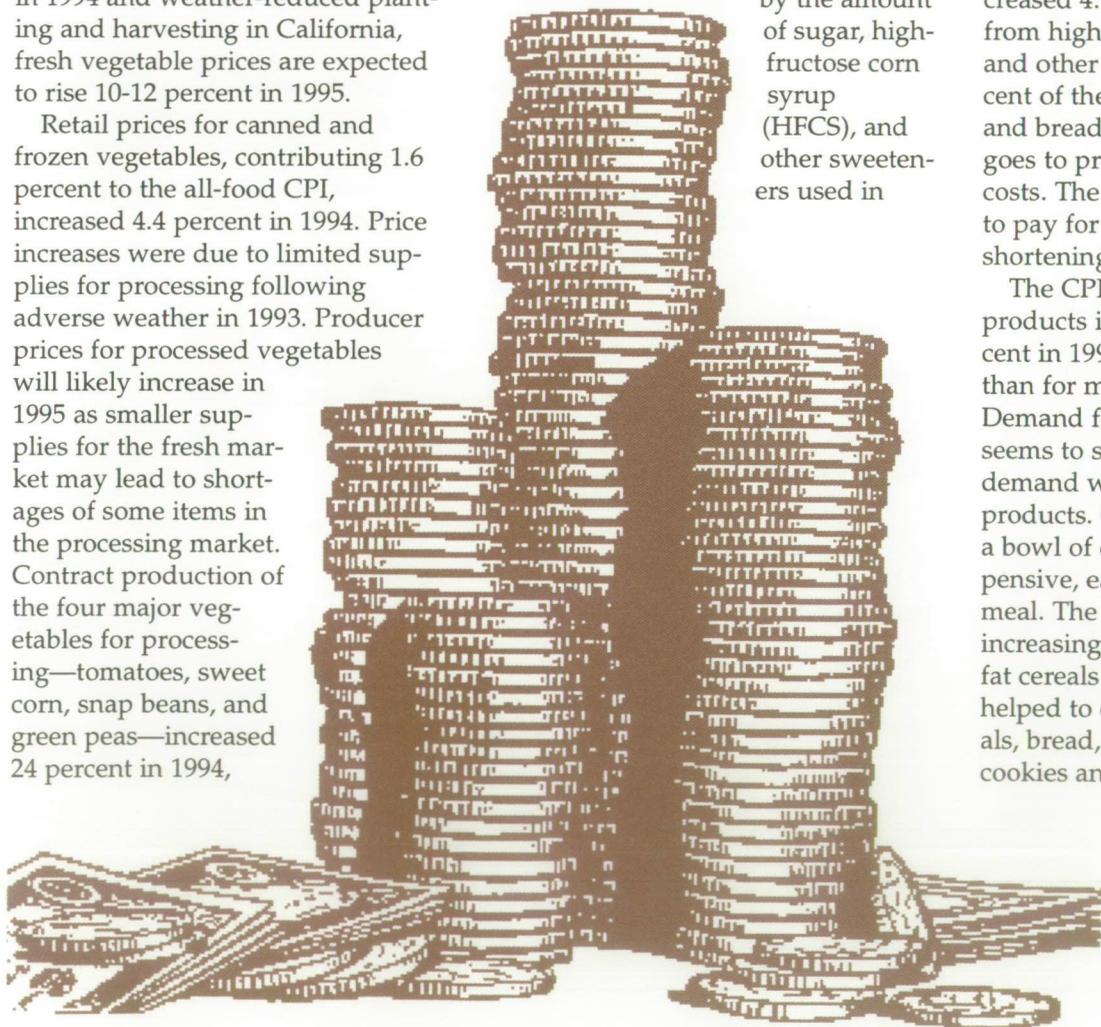
food and beverage manufacturing. U.S. consumption of total caloric sweeteners rose 2.3 percent between 1993 and 1994. Consumption of products sweetened with HFCS grew 3.9 percent from 1993 to 1994, while consumption of refined sugar (for both home use and that contained in processed foods and beverages) grew about 1 percent.

Strong demand for traditional carbonated beverages, rapidly growing demand for fruit-type beverages, and the continuing popularity of processed foods are expected to foster a 1- to 2-percent increase in retail prices for sugar and sweets in 1995.

### *Cereals and Bakery Products*

The CPI for cereals and bakery products (which accounts for 9.2 percent of the all-food CPI) increased 4.1 percent in 1994, mostly from higher costs of labor, energy, and other inputs. More than 90 percent of the cost of breakfast cereals and bread products, for example, goes to processing and marketing costs. The remaining 10 percent goes to pay for the grains, flours, sugar, shortening, and other ingredients.

The CPI for cereals and bakery products is forecast to rise 2.5-4 percent in 1995, a slightly higher rate than for most other food categories. Demand for cereals and bread seems to strengthen, even when demand weakens for most other products. Consumers may perceive a bowl of cereal as a relatively inexpensive, easy to fix, and healthful meal. The recent success, and increasing availability, of reduced-fat cereals and bakery products have helped to expand markets for cereals, bread, and cakes as well as cookies and frozen bakery products.



### Nonalcoholic Beverages

Prices for nonalcoholic beverages increased 7.5 percent in 1994—the largest increase of any category. Coffee, which accounts for 27 percent of the CPI for nonalcoholic beverages, was responsible for most of the price increase. Since nonalcoholic beverages account for 5 percent of the CPI for all food, the 22-percent jump in retail coffee prices was a significant factor behind the 2.4-percent increase in the all-food CPI in 1994.

Retail coffee prices surged 22 percent in August 1994 after major frosts hit Brazilian coffee crops in late June and early July. Coffee prices stabilized in September 1994, but rose about 1 percent in October and 0.3 percent in November before decreasing 1.1 percent in December.

Brazil accounts for approximately one-quarter of global coffee production. Reports by the Brazilian Government and an April 1995 report from USDA indicate that frost damage, followed by subsequent droughts in Brazil's major coffee producing areas, will reduce its 1995-96 coffee production by 30 to 35 percent.

However, world coffee production in marketing year 1994/95 is forecast to rise 1 percent. Larger crops are expected from Colombia, El Salvador, Ethiopia, Cote d'Ivoire, Uganda, and Vietnam.

The CPI for carbonated drinks, which constitute 54 percent of the CPI for nonalcoholic beverages, fell 1 percent in 1994.

The CPI for noncarbonated drinks other than coffee (such as fruit juices and bottled water) increased 1 percent. Total sales of ready-to-drink teas, fruit drinks, and bottled water grew about 10 percent in 1994 and should continue to be popular alternatives to soft drinks in 1995.

The CPI for nonalcoholic beverages is forecast to rise 7.5-8.5 percent in 1995, a higher rate than for most other food categories. Although retail coffee prices have fallen since the

initial price increases in August 1994, coffee prices in 1995 are expected to remain above early 1994 levels.

### Other Prepared Food

The CPI for other prepared food, which accounts for 6.5 percent of the all-food CPI, rose 2.7 percent in 1994 and is expected to average 2-3 percent above 1994 levels in 1995. Other prepared food items include: canned and packaged soup; frozen prepared food; snacks; seasonings, condiments, sauces, and spices; and miscellaneous prepared foods, such as baby food. Price increases for this group are largely influenced by costs of processing and marketing.

### Menu Prices Away From Home Continue To Rise

The share of money spent on food away from home, primarily in restaurants and fast-food establishments, has risen every year since the 1990-91 recession. These eating establishments accounted for 34.6 percent of total food dollars in 1994, up from 33.9 percent in 1991. Away-from-home food sales grew 6.0 per-

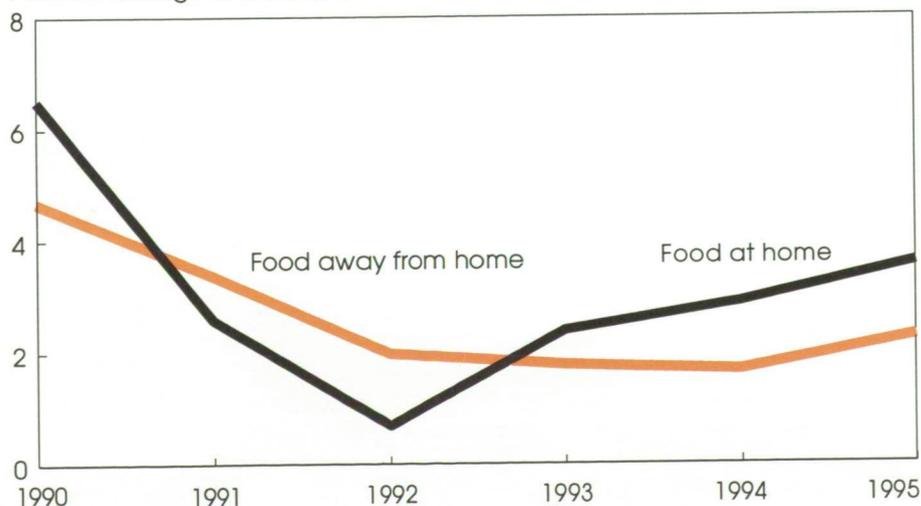
cent in 1994, while sales of food from retail grocery stores (food at home) grew 3.4 percent.

Despite strong growth in away-from-home food sales during 1994, competition held increases in the CPI for this item to 1.7 percent, less than the 2.9-percent increase for food at home. During the last 2-3 years, price competition has been fierce among fast-food establishments, with firms offering more and more reduced price, special-value meals. This competition has spilled over into other foodservice sectors, moderating overall menu prices.

Prices for food away from home are expected to increase 2-2.5 percent in 1995, and prices for food at home are expected to rise 3-4 percent (fig. 2). Lower meat and poultry prices will likely be offset by higher prices for fresh fruits and vegetables and nonalcoholic beverages, especially for purchases of food at home. Although lower meat and poultry prices should also dampen the increase in the CPI for food away from home, potentially higher costs for labor, paper, and plastic goods would put upward pressure on menu prices. ■

Figure 2  
In Recent Years, Prices for Food at Home Have Outpaced Food Away From Home

Percent change in Consumer Price Index



Note: 1995 forecast.

# Almost Half of the Food Budget Is Spent Eating Out

Jesus C. Dumagan and John W. Hackett  
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**T**he continued growing popularity of eating away from home has brought Americans on the verge of spending as much on food away from home as they spend on food prepared at home. In 1970, Americans spent 34 percent of their food dollars away from home. Today, that figure is about 46 percent. With the growing number of women in the workforce and the increasing number of households with two incomes, eating out has become more convenient and affordable.

A forthcoming report from USDA's Economic Research Service looks at America's away-from-home food habits (see box for more details). In addition to examining general trends on spending in restaurants and other commercial eating places from 1982 to 1989, the report is the first USDA publication to offer detailed statistics on the types of eating places frequented, the kinds of foods consumed, and whether the food constituted a snack or a meal.

The data are based on information from quarterly surveys of U.S. households conducted by the National Purchase Diary Group Inc., a private research company, in 1982-89. The data from these surveys track the trends in household purchases of ready-to-eat meals and snacks prepared by commercial eat-

ing places, including foods and beverages eaten in the establishment, taken out, or delivered.

Commercial foodservice establishments include restaurants; foodservice operations in hotels and motels; fast food and carryout places; delicatessens; refreshment stands; coffee, donut, and ice cream shops; and



*When it came to growth in consumer spending in commercial foodservice establishments, pizza places were the hottest—with an annual rate of spending growth of 12.0 percent in current dollars, or 7.6 percent once adjusted for inflation.*

Formerly with the Food and Consumer Economics Division, Economic Research Service, USDA. Dumagan is an economist with the Office of Business and Industrial Analysis, Economics and Statistics Administration, U.S. Department of Commerce. Hackett is a computer analyst with the Information Services Division, Economic Research Service, USDA.

eating places in retail stores. Non-commercial or nonprofit foodservice operations, such as in schools, prisons, and hospitals, and food provided by company cafeterias or by private catering, are not included in the data.

### About the Survey

The National Purchase Diary Group, Inc.'s survey of restaurant consumers provides comprehensive information on purchasing patterns in commercial foodservice establishments, as well as economic and demographic characteristics of the survey participants.

The survey detailed about 150 foods and beverages classified into 22 groups, 6 market sizes, 6 meal or snack occasions, and 7 types of foodservice establishments.

This study covered 32 quarters, from the first quarter of 1982 (winter—December through February) up to the fourth quarter of 1989 (fall—September through November).

Data included expenditures for commercially prepared meals and snacks by approximately 12,800 households. They were a representative sample of the 93 million U.S. households in the contiguous 48 States in terms of region of residence and urbanization; household income, size, and composition; and other member characteristics.

Each household kept a diary for 2 weeks every quarter to record their purchases from commercial foodservice establishments. The diaries generated 50,000 observations on commercial foodservice transactions every quarter, including type of establishment, eating occasion, foods purchased, total expenditures, and number in party.

## Expenditures in Commercial Eating Places Rose

Total U.S. household spending (including tips) on meals and snacks prepared by commercial eating places rose from \$84.4 billion in 1982 to \$118.7 billion in 1989 in current (not adjusted for inflation) dollars, a 5-percent per year increase. Total expenditures rose 0.8 percent per year during 1982-89 in real dollars (adjusted for inflation).

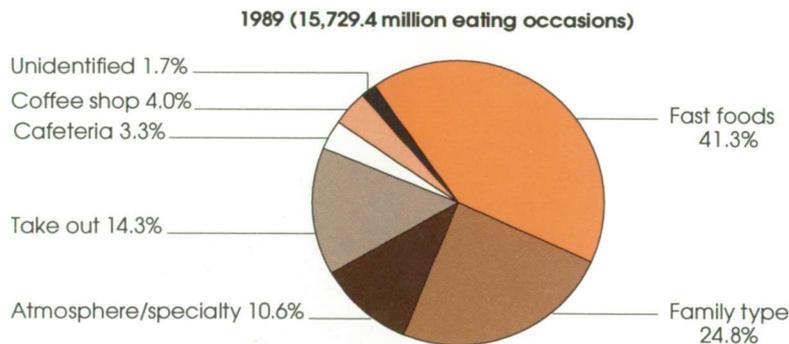
On a per household basis, spending on commercially prepared meals and snacks from 1982 to 1989 rose 3.4 percent per year in current dollars and fell 0.8 percent per year in real dollars.

More households bought meals and snacks from commercial foodservice establishments between 1982 and 1989. However, the proportion of U.S. households that bought food away from home declined from 79 percent (65.4 million out of 82.8 million households) in 1982 to 76.8 percent (71.0 million of 92.4 million households) in 1989.

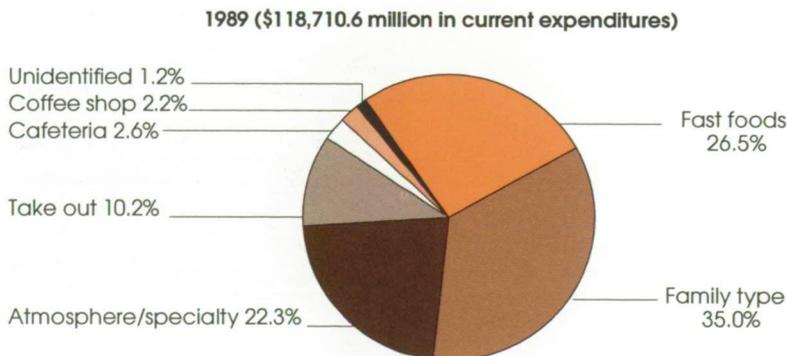
## Regular Meals Favored Over Snacks

The share of total eating occasions away from home (visits to commercial eating places) going for morning and evening snacks fell consistently every year during 1982-89, while that for dinners rose. Eating out occurs most often for lunch,

Figure 1  
Eating Out Occurred Most Often in Fast Food/Drive-In Places ...



## ... But Family-Type Restaurants Captured the Largest Share of Expenditures



which had the largest share (42.8 percent) of total eating occasions during 1982-89 (compared with dinner's average share of 32.9 percent). Breakfast's proportion of eating occasions increased from 9.2 percent in 1982 to 10.7 percent in 1986, but decreased to an average of 10.1 percent in 1989, although it remained higher than in 1982.

Dinner took the largest share of total expenditures—53.7 percent on average for 1982-89. Lunch followed with an average of 33.7 percent of total expenditures.

### Fast Food/Drive-ins and Take Outs Rise in Popularity

Fast food establishments, drive-ins, and take-out places took expanding shares of total eating occasions, meals and snacks served, and expenditures during 1982-89. The shares fell for atmosphere/specialty restaurants, cafeterias, and coffee shops.

By 1989, fast food/drive-in places overtook atmosphere/specialty restaurants in their shares of total expenditures and became second only to family-type restaurants (fig. 1). Fast food/drive-in places had the largest shares in both total meals and snacks served and in total eating occasions (about 41 percent in both categories) in 1989. Family-type restaurants had the second-largest shares in meals and snacks and in eating occasions during 1982-89.

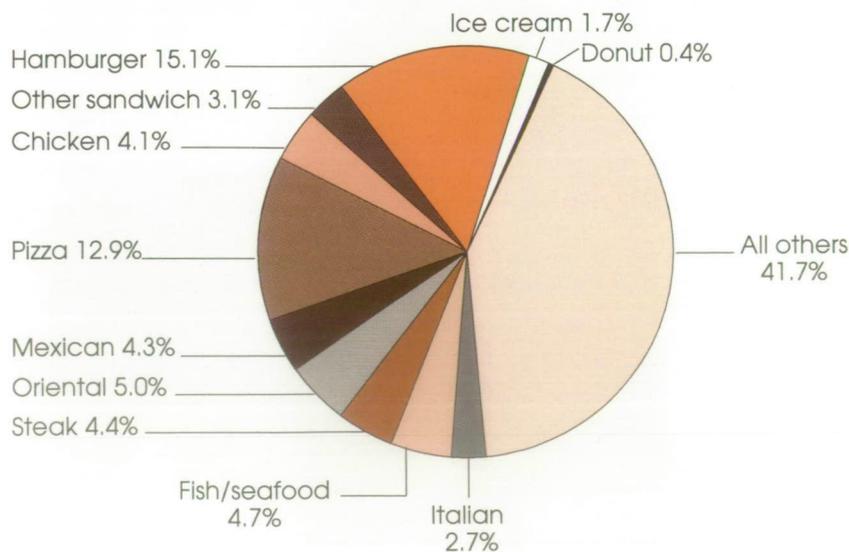
### Hamburger Sales Large and Growing, But Pizza Sales Growing the Fastest

America has a sustained appetite for hamburgers. While preferences for other types of food places have shifted around, hamburger places have held strong and have been growing steadily. In 1989, 15 cents of every dollar spent in commercial foodservice establishments went to places specializing in hamburgers (fig. 2). Likewise, one out of four

meals or snacks served and one of four visits to commercial eating places was at a place that sells hamburgers.

But when it came to growth in consumer spending in commercial foodservice establishments, pizza places were the hottest—with an annual rate of spending growth of 12.0 percent in current dollars, or 7.6 percent once adjusted for inflation. Other top performers were places specializing in oriental food (9.6 percent) and Italian food (9.5 percent). Weaker performers were places specializing in donuts (0.9 percent) and steak (3.5 percent). Moreover, spending in real dollars fell 3.1 percent in donut shops and 0.6 percent in steak and fish/seafood restaurants. ■

Figure 2  
**Fifteen Percent of Expenditures in Commercial Eating Places Went to Hamburger Places**



### More Details Available

For more information, see *U.S. Trends in Eating Away From Home, 1982-89: A Survey of Commercially Prepared Meals and Snacks by Eating Occasion, Type of Foodservice Establishment, and Kind of Food*, a forthcoming statistical bulletin by USDA's Economic Research Service.

This bulletin presents expenditure trends for commercially prepared meals and snacks. Comprehensive statistics cover costs per meal or snack by type of eating place (with and without tips), total eating occasions, eating party size per occasion, total number of meals and snacks, and expenditures for meals or snacks (total and per household).

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# The U.S. Food Supply Provides More of Most Nutrients

Claire Zizza and Shirley Gerrior  
(202) 208-2331

**A** greater variety of foods, advances in food production and technology, changing consumer preferences, and revised Federal standards for enrichment are affecting the type and amounts of nutrients available in the U.S. food supply.

Americans have available to them more carbohydrates, protein, and fat—and this means more calories. Sources of fat are shifting from animal products to plant sources. Levels of most vitamins in the food supply increased—especially thiamin, niacin, folate, and vitamin E (although two vitamins, A and B12, had lower levels)—from 1970 to 1990. The amount of most minerals also rose, especially calcium, phosphorus, magnesium, iron, and potassium.

For most individuals, the nutrient levels present in the food supply are adequate in preventing deficiency diseases.

These findings are taken from the most recent estimates of nutrients available from the U.S. food supply.

Changes in foods and nutrients are monitored with disappearance

data and reported on a per capita basis (see box for more details). These data measure U.S. supplies available for human consumption—not what Americans actually eat. Nonetheless, food and nutrient per capita values are useful for tracking the relative magnitude of changes in the American diet over time.

## More Calories in the Food Supply

The level of food energy available for consumption increased from 3,300 calories per capita per day in 1970 to 3,700 calories in 1990 (table 1). There are more of all three of the energy-yielding nutrients—fat, car-



*All but two nutrients in the food supply increased between 1970 and 1990. Values for vitamins A and B12 were lower than earlier levels, but they still exceeded the recommended allowances for a healthful diet by a generous margin.*

Zizza and Gerrior are nutritionists with the Center for Nutrition Policy and Promotion, Food and Consumer Service, USDA.

Table 1  
The U.S. Food Supply Contains More Nutrients

Nutrient	Unit	1970	1990
Food energy	Kcal	3,300	3,700
Carbohydrates	g	383	452
Protein	g	99	105
Total fat	g	159	165
Saturated fatty acids	g	61	59
Monounsaturated fatty acids	g	66	67
Polyunsaturated fatty acids	g	27	32
Cholesterol	mg	490	410
Vitamin A	RE	1,500	1,420
Carotenes	RE	500	620
Vitamin E	mg	13.4	15.7
Vitamin C	mg	108	110
Thiamin	mg	2.0	2.5
Riboflavin	mg	2.4	2.6
Niacin	mg	23	28
Vitamin B6	mg	2.1	2.2
Folate	mcg	280	296
Vitamin B12	mcg	10.4	8.7
Calcium	mg	870	920
Phosphorus	mg	1,470	1,600
Magnesium	mg	320	350
Iron	mg	15.5	19.3
Zinc	mg	12.6	12.7
Copper	mg	1.6	1.7
Potassium	mg	3,510	3,540

Note: Per capita, per day basis.

bohydrates, and protein—in the food supply, although carbohydrates showed the biggest jump.

Carbohydrates increased considerably from 383 grams per capita per day in 1970 to 452 grams in 1990, reflecting greater consumption of corn-syrup sweeteners and grain products—particularly wheat, corn, and rice.

Protein and fat levels each rose 6 grams per capita per day between 1970 and 1990. The increase in protein was due mostly to higher consumption of poultry and, to a lesser extent, grain products, cheeses, and lowfat milks. However, the increase in fat provided more energy than the increase in protein, since fat contributes more calories per gram than

any other nutrient (1 gram of fat provides 9 calories, while 1 gram of protein and carbohydrates each provides 4 calories).

Animal products contributed the largest proportion of fat, but their share declined from 63 percent in 1970 to 52 percent in 1990. Offsetting the lower animal sources was a higher proportion of fat from vegetable sources—rising from 37 to 48 percent—due to the increased use of vegetable oils and shortening.

The switch from animal to vegetable sources of fat is reflected in changes in levels of fatty acids. Fats are a large group of compounds made up primarily of fatty acids. There are three basic types of fatty acids—saturated fatty acids found

mostly in animal fats, such as lard and butter, and monounsaturated and polyunsaturated fatty acids found mostly in plant sources.

The fatty acid levels in the food supply include those from foods which are almost pure fat, such as shortening and cooking oils, and from other foods which contain fat, such as chocolate and whole milk.

Polyunsaturated fats in the food supply increased 19 percent, while saturated and monounsaturated fats decreased 3 and 2 percent, respectively.

Cholesterol (found only in animal products) declined 16 percent from 490 to 410 milligrams per person per day because of lower consumption of eggs, red meat, and fluid whole milk. Cholesterol is a member of the lipid family but it is not related to fatty acids. It is chemically a sterol.

## Getting More of Most Vitamins

Levels of thiamin, niacin, folate, and vitamin E were higher in 1990 than in 1970. Thiamin and niacin levels rose primarily because of an increase in the amounts added to flour called for by revised Federal enrichment standards. Greater consumption of grain products pushed up folate levels, and greater use of vegetable oils generated higher levels of vitamin E. Riboflavin and vitamins C and B6 remained about the same in 1970 and 1990.

Vitamins A and B12 dropped by 5 and 16 percent, respectively, because of lower red meat (particularly organ meat) and egg consumption. However, the drop in vitamin A masks some changes in the compounds providing it. A person can get vitamin A from two families of compounds: retinoids and carotenoids. Only foods of animal origin, such as liver and milk, contain retinoids—supplies of which decreased with the lower consumption of red meats and eggs. Carotenoids, found in vegetables, fruits, and to a lesser

extent in animal products, can be changed by the body into retinoids, but this "conversion" is not a one-for-one deal. It is generally recognized that 6 micrograms of beta-carotene is nutritionally equivalent to 1 microgram of retinol, a type of retinoid. Beta-carotene is a carotene, which is a member of the carotenoid family. Carotenes increased in the food supply because of the development of varieties of deep-yellow vegetables, which contain more carotene than previous varieties. But

since the increase in carotenes did not offset the drop in retinol, there was a net decrease in total vitamin A.

While 1990 values for vitamins A and B12 were lower than earlier levels, they still exceeded the recommended allowances for a healthful diet by a generous margin. To meet the nutritional needs of the U.S. population, nutrient levels in the food supply should exceed the recommended allowances because the estimates reflect the amount available before losses from trimming,

cooking, waste, and spoilage (see box). In addition, per capita values are calculated as averages, which do not account for the higher nutritional needs of some people. Pregnant and lactating women, for example, generally have difficulty meeting their nutritional requirements because their requirements are so high. Teenagers also may not meet their nutritional requirements, because their needs are high and changing to support their growth spurt. Dieting by restricting food intake further pressures nutrient use, especially for teenagers. The elderly also have difficulty meeting their requirements because they tend to eat less than they used to.

## About the Data

USDA's Center for Nutrition Policy and Promotion uses data on the amount of food available for consumption from USDA's Economic Research Service (ERS) and information on the nutrient composition of foods from USDA's Agricultural Research Service (ARS) to calculate the nutrients available in the food supply.

The amount of food available for consumption is measured by subtracting quantities of food reported for exports, yearend inventories, and nonfood uses from production, imports, and beginning-of-the-year inventories.

The estimates reflect amounts available prior to moving through marketing channels—not the amounts actually consumed. Therefore, the supplies include amounts that may be discarded during processing or marketing, lost in spoilage, or thrown away at home. For example, the food estimates may overstate fats and oils, since large amounts are used for frying by fast food restaurants and are later discarded.

The data on foods available for consumption are converted into nutrients available, using nutrient composition data from USDA's National Nutrient Data Bank System.

Basically, the nutrient estimates are calculated by multiplying the per capita amount of each food by the nutrient composition of that food. The results from all the foods are then totaled for each nutrient and presented on a per day basis.

As with the food supply estimates, the resulting nutrient estimates do not account for losses during processing, marketing, or home use. For example, vegetables generally lose nutrients, particularly water-soluble nutrients like vitamin C and thiamin, when cooked in water.

Nutrients not included in these values are those from vitamin and mineral supplements, alcoholic beverages (or the grains and sugar used to make alcoholic beverages), baking powder, yeast, and certain vitamins and minerals used for functional or flavoring agents in foods. Nutrients added through enrichment of flour and cereal products and through fortification of other foods are included in the nutrient values.

For more information on the nutrients available in the food supply, see *Nutrient Content of the U.S. Food Supply, 1909-90*, Home Economics Research Report No. 52, by Shirley Gerrior and Claire Zizza, U.S. Department of Agriculture, Agricultural Research Service, 1994.

## More Minerals Available

Minerals are essential for adequate body structure, functioning, and maintenance. The amount needed depends on the mineral. Some are required in large amounts, such as calcium, phosphorus, and magnesium—known as macrominerals. Others are needed in small amounts, such as iron, potassium, copper, and zinc—called trace elements.

The U.S. food supply furnished more calcium, phosphorus, magnesium, iron, and potassium in 1990 than in 1970. The amount of dietary copper and zinc remained about the same.

### Calcium

As the most abundant mineral in the human body, calcium is used to build bones and teeth and to maintain bone strength. Calcium is also necessary for muscle contraction, blood clotting, and the maintenance of cell membranes.

Inadequate intake of calcium may increase the risk of osteoporosis, a condition in which decreased bone mass weakens bones (although sev-

eral other factors, including age, sex, body weight, estrogen status, and physical activity, also influence its development). Sufferers are more susceptible to bone fractures, low backaches, and shortening of stature. The National Osteoporosis Foundation estimates that some 25 million Americans suffer from osteoporosis-related fractures each year, at an annual cost of between \$10 billion and \$18 billion in medical charges. Using data from the third National Health and Nutrition Examination Survey, the National Center for Health Statistics estimates that 6 million to 7 million women over the age of 50 are afflicted with osteoporosis of the hip.

The amount of calcium available in the food supply increased from 870 milligrams per capita per day in 1970 to 920 milligrams in 1990. Dairy products have always been the dominant source, contributing three-quarters of the calcium in the food supply. But the types of dairy foods providing calcium have shifted somewhat (fig. 1). With declining consumption of whole milk, the share of calcium contributed by whole milk had fallen to 15 percent in 1990 from 37 percent in 1970. An increase in lowfat milk and cheese consumption offset this drop, however. The share of calcium from cheese products rose from 12 percent to 23 percent and that from

lowfat milks increased from 9 percent to 22 percent.

### Phosphorus

Phosphorus aids calcium in building bones and teeth. It is also involved in the release of energy from fat, protein, and carbohydrates in the body and it aids in the formation of genetic materials and cell membranes. Because practically all foods contain phosphorus, dietary deficiencies of this nutrient generally do not develop.

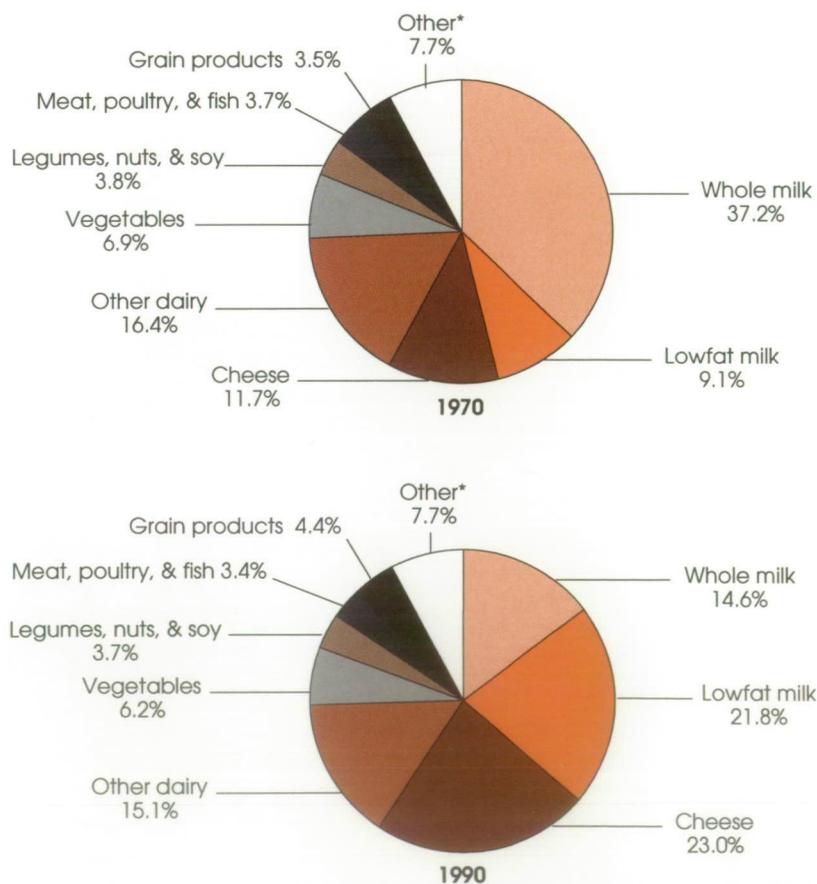
Phosphorus levels increased from 1,470 to 1,600 milligrams per capita per day between 1970 and 1990. Dairy products have been the leading source of phosphorus, contributing around 35 percent in both periods. Meat, poultry, and fish together contributed 30 percent of the phosphorus to the food supply in 1970 and 27 percent in 1990. Grain products are the third largest—and fastest growing—source, providing 13 percent in 1970 and 19 percent in 1990.

### Magnesium

More than half the magnesium present in the human body is found in bones, and most of the rest is found in muscles. The body uses magnesium to build bones, synthesize protein, and release energy from muscles, as well as to regulate body temperature and blood pressure. While Americans do not experience magnesium deficiency caused by an inadequate diet, particular diseases may deplete magnesium for some people.

Magnesium in the food supply increased slightly from 320 milligrams per capita per day in 1970 to 350 milligrams in 1990. With increasing consumption of grain

Figure 1  
Calcium Sources Shift Among the Dairy Group



Notes: Numbers may not total 100 due to rounding. \*The "other" group includes eggs, fruits, sugars and sweeteners, cocoa, coffees, spices, and teas.

products, grains have replaced dairy products as the leading source of magnesium (see figure 2). Vegetables are another important source.

**Potassium**

Potassium aids in muscle contraction and in maintaining fluid and electrolyte balance in body cells. Potassium is also used in sending nerve impulses, as well as in releasing energy from protein, fat, and carbohydrates in the body. People do not normally develop a potassium deficiency. But with recent reported beneficial effects on hypertension and a protective effect against vascular damage and stroke, the National Academy of Sciences has recommended increasing fruit

and vegetable consumption in order to increase potassium intakes.

The level of potassium in the food supply increased from 3,510 to 3,540 milligrams per capita per day between 1970 and 1990. Increased consumption of grain products and noncitrus fruits pushed up the level of potassium enough to offset lower amounts from lower consumption of fluid milk, red meat, and eggs.

**Iron**

Iron is found in all body cells. As part of hemoglobin in the blood and of myoglobin in the muscles, iron carries oxygen. Iron-deficiency anemia, a condition in which the oxygen-carrying function of the blood is impaired due to reduced size and

number of red blood cells, is the most common problem resulting from poor iron status. In fact, iron-deficiency anemia is the most common nutritional deficiency in the United States. Infants, adolescents, and women of childbearing years are the most at risk of developing anemia. Their greater needs, due to rapid growth or excessive blood loss during menstruation, usually cannot be compensated by dietary intake alone. Anemia impairs body-temperature regulation, impedes behavioral and intellectual performance, and increases susceptibility to infections and lead poisoning.

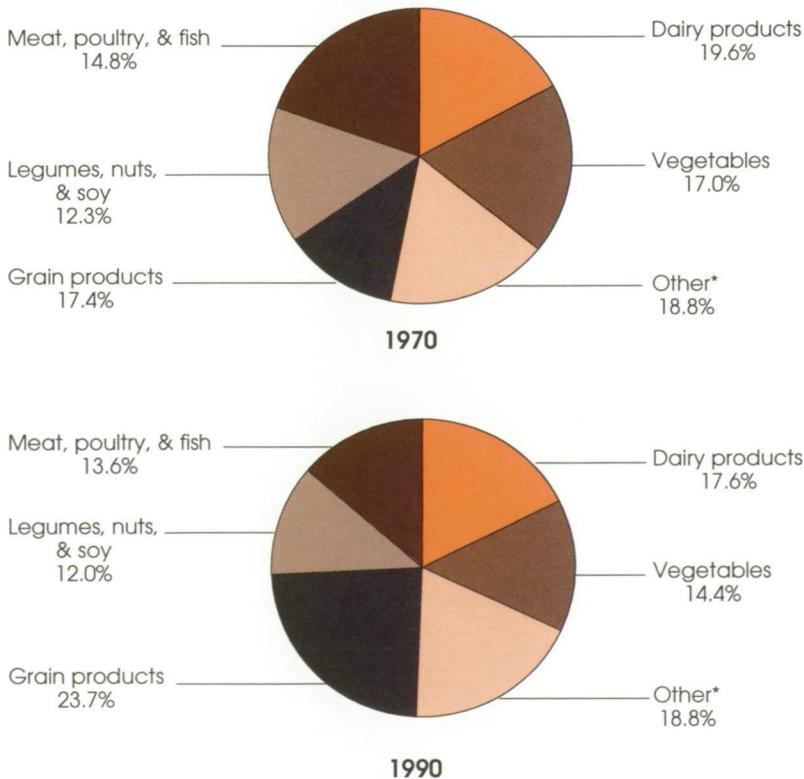
Even though many more people experience iron deficiency, there are some people with a genetic defect that increases the iron they absorb from food. This increase in iron absorption can lead to toxic amounts of iron in the body. The symptoms of excessive iron are weakness and fatigue and are more often seen in men.

The amount of iron present in the food supply increased 25 percent, from 15.5 milligrams per capita per day in 1970 to 19.3 milligrams in 1990. Increased amounts of iron added to flour called for by revised Federal enrichment standards and higher grain consumption spurred this higher level. Grains contributed 35 percent of the iron in 1970 and 49 percent by 1990. Although the meat, poultry, and fish group was the second-largest source of iron in both years, the group's contribution declined from 26 to 19 percent between 1970 and 1990. Vegetables ranked third, but their importance declined from 14 to 11 percent due to lower consumption of white potatoes.

**Copper**

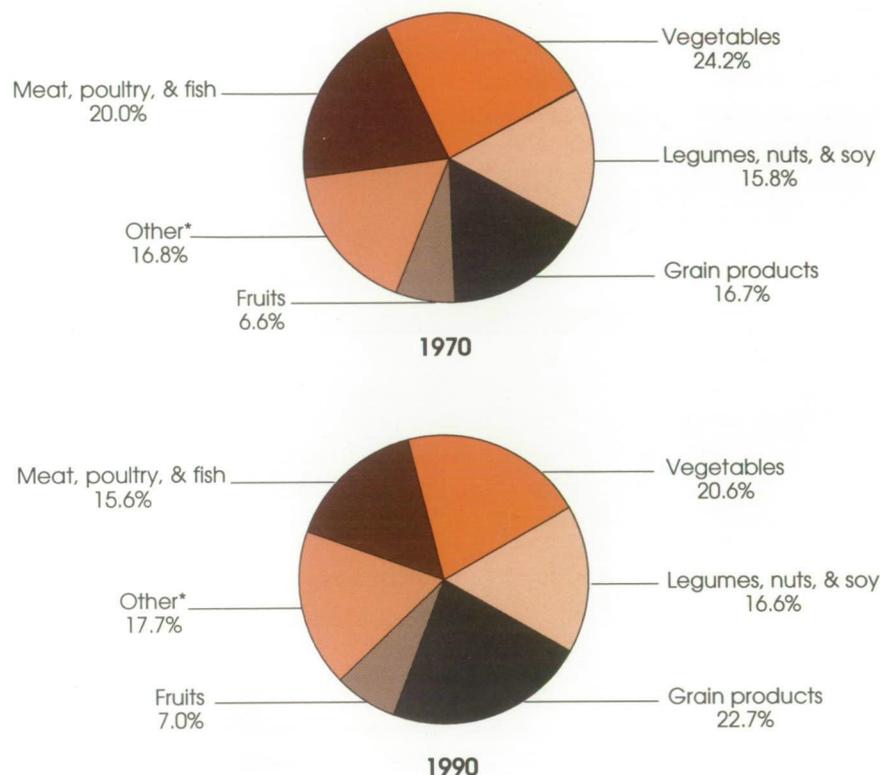
Copper works with iron in the formation of hemoglobin (the oxygen-carrying portion of red blood cells). Copper also helps maintain

Figure 2  
**Grain Products Replace the Dairy Group as the Major Source of Magnesium**



Notes: Numbers may not total 100 due to rounding. \*The "other" group includes eggs, fruits, sugars and sweeteners, cocoa, coffees, spices, and teas.

Figure 3  
Leading Sources of Copper Change



Notes: Numbers may not total 100 due to rounding. \*The "other" group includes dairy products, eggs, fats and oils, sugars and sweeteners, cocoa, coffee, spices and teas.

healthy bones, blood vessels, and nerves. Unlike with iron, however, copper deficiency is rare. The level of copper present in the food supply did not vary greatly, from 1.6 milligrams per capita per day in 1970 to 1.7 milligrams in 1990. Plant foods are by far the largest contributors of dietary copper—supplying over three-quarters of the amount in both 1970 and 1990. Even though the level of copper has been stable, the

relative contributions of some food groups have changed (see figure 3). In 1970, the top three sources of copper were vegetables; meat, poultry, and fish; and grain products (accounting for 24, 20, and 17 percent, respectively). By 1990, grain products had become the leading source of copper (contributing 23 percent), followed by vegetables (21 percent), and legumes, nuts, and soy (17 percent).

## Zinc

Zinc plays an important role in the formation of protein in the body, assisting in wound healing, blood formation, and general growth and maintenance of all tissues. Severe zinc deficiency is uncommon in the United States. However, mild or moderate deficiency has been found in older adults, the physically active, and some people afflicted with certain diseases. The level of zinc was roughly the same in 1970 as in 1990, and the sources have also remained rather stable. Animal products provided the bulk of the zinc, 66 percent in 1970 and 72 percent in 1990. Even though consumption of red meat has dropped, these foods were still the dominant sources of zinc in both 1970 and 1990. Dairy and grain products followed in contributions of zinc.

## More Changes Expected

Between 1970 and 1990, most nutrients in the food supply increased. The exceptions were vitamins A and B12, lower levels of which followed decreased consumption of red meat. These lower vitamin A and B12 levels, however, are still adequate for most Americans.

Americans can expect food and nutrient availability to continue changing in the future as producers and manufacturers respond to changing food preferences, new Federal regulations, and new technologies. ■

# Dialing the Experts

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*Need information on trends or historical data on food consumption, spending, and other consumer economics topics? The Food and Consumer Economics Division of USDA's Economic Research Service has economists, social scientists, and other specialists who can help. Use this list as your guide. All telephone numbers can be reached by dialing area code 202.*



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# Reports of Interest

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**T**he Economic Research Service has issued the following reports on food-related issues, including prices, expenditures, consumption, food assistance, and farm and trade policies. To order copies, call the toll-free number above (weekdays, 8:30am-5:00pm ET). Customers outside the United States or Canada, please dial (703) 834-0125.

Charge your purchase to VISA or MasterCard. Or, order by mail from ERS-NASS, 341 Victory Drive, Herndon, VA 22070.

## Food Industry

### Food Marketing Review, 1992-93

Profits from operations for food manufacturers and retailers rose in 1992 and 1993, due to continued wage and producer price stability, a weaker dollar, and lower interest rates. Aggressive competition for market shares resulted in record new-product introductions, intensive couponing, strong private-label sales, and price weakening. This annual report tells how new plant and equipment, as well as research and development expenditures, reached new highs.

—By Anthony Gallo  
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### The Food Marketing System in 1994

Sales in the food marketing systems rose 4.2 percent to nearly \$800 billion because of U.S. economic growth in 1994. Retail food-price increases were moderate. Competition for scarce shelf space, heavy couponing, and record new products were indicators of aggressive competition. This report analyzes and assesses yearly developments in the Nation's food marketing system, including industry growth, structure, conduct, and performance of food processors, wholesalers, retailers, and foodservice firms.

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### Food Consumption and Costs

#### The American Diet: Health and Economic Consequences

Four of the 10 leading causes of death in the United States are linked to diet. Heart disease, cancer, stroke, and diabetes account for more than 1.4 million deaths each year, nearly two-thirds of the U.S. total. This report provides information on the incidence, prevalence, and costs associated with these and other health conditions commonly associated with poor diets and inadequate activity.

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**Changes in Food Consumption and Expenditures in Low-Income American Households During the 1980's**

Annual per person consumption of dairy products, poultry, fish and shellfish, and fresh fruits and vegetables rose in low-income households during the 1980's. However, annual per person spending, when adjusted for inflation, declined for almost all major food groups. This report presents information on the quantity and dollar value of food consumption in 65 major food groups in low-income American households for 1977-78, 1979-80, and 1987-88. Trends are reviewed by selected socioeconomic and demographic characteristics.

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**Consumer Concerns About Nutrition: Opportunities for the Food Sector**

The growing evidence of the link between diet and health has not been lost among consumers in the United States. Although there is still considerable room for improvement in meeting Federal food guidelines, nutrition concerns have become an important factor in food choices. This report offers a brief look at the shift in food consumption patterns over the past 20 years and how both the food sector and the Federal Government have responded to consumer concerns about nutrition.

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**Dietary Fiber: Effects of Socioeconomic Characteristics and Knowledge**

The main meal planners in American households consume about 10-13 grams of fiber per day—about half the recommended amount. This report uses data from the 1989-90 USDA Continuing Survey of Food Intakes of Individuals and the Diet Health Knowledge Survey to present an initial investi-

gation into the relationships between knowledge, attitudes, awareness, and fiber intake.

—By *Noel Blisard and others*  
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**Food Consumption, Prices, and Expenditures, 1970-93**

In 1993, Americans consumed an average of 61 pounds more of commercially grown vegetables than in 1970 and 48 pounds more of fruit. Away-from-home meals and snacks captured 46 percent of the U.S. food dollar in 1993, up from 39 percent in 1980 and 34 percent in 1970. This annual report presents historical data on food consumption, prices, and expenditures, as well as U.S. income and population. (Limited quantities; please call the order desk to verify availability.)

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**Food Costs...From Farm to Retail in 1993**

Retail food prices in 1993, as measured by the Consumer Price Index (CPI), averaged 2.2 percent above those in 1992. This increase, following 1992's 15-year record-low rise of 1.2 percent, was modest compared with the 3-percent advance in the CPI for all goods and services in 1993. More than three-quarters of 1993's expenditures on food from U.S. farms consisted of marketing charges. This bulletin analyzes food cost changes and explores how consumers' food dollars are distributed among farmers, food processors, and marketers.

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**Food Cost Review, 1993**

Food prices increased 2.2 percent in 1993, less than the overall increase in the CPI for the third consecutive year. However, some items rose sharply, with egg prices increasing 8.1 percent and fresh vegetable prices rising 6.6 percent. This

annual report presents USDA's findings on the 1993 farm-to-retail price spread.

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**Food Spending by Female-Headed Households**

Female-headed households spend less for food than do similar two-parent households. The presence of a male head influences food expenditures less than does household income or education level of the female head. This study analyzes the influence of household type on food-expenditure patterns, after controlling for income and other socioeconomic characteristics.

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**Food Spending in American Households, 1980-92**

Average annual food expenditures in urban households rose 59 percent from \$985 per person in 1980 to \$1,567 in 1992, while per person income rose 94 percent from \$6,916 to \$13,398 during the same period. This report presents information on trends in household food expenditures for major food groups by selected demographic factors for 1980-92.

—By *David Smallwood and others*  
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**How Did Household Characteristics Affect Food Spending in 1980-88?**

Total food spending rose sharply for 1-person households from 1980 to 1988, while that for households with more than 6 people showed a steep decline over the same period. This report looks at trends in U.S. per capita consumption of total food, food at home, and food away from home using the latest data from annual surveys of urban household food spending for 1980 to 1988.

—By *James Blaylock and others*  
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## Data Also Available on Disk

Listed below are recent electronic data products issued by USDA's Economic Research Service.

For further information on the data included in these products, please contact the subject-area specialist identified for each product. Data products are available on DOS-compatible 3.5" 1.44MB diskettes and are Lotus-1-2-3 files (.WK1) unless otherwise specified. Dates in parentheses reflect the last update of the database available.

Sorry, but data products are not returnable.

### Agricultural Trade Policies— Western Hemisphere

An overview of agricultural policies in 25 Western Hemisphere countries. Describes current and pending policies emphasizing prices, trade, and inputs. Also provides a brief overview of forces shaping economic policies in Latin America since World War II.

—*Donna Roberts or Dave Skully, ERS (202) 219-0670 [one 3.5" disk], (2/95).*  
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### Changes in Food Consumption and Expenditures

Reports average annual household food use and related expenditures data for major foods and food groups, 1977/78 and 1987/88. Data are summarized by household size and type, income quintile, race, region, and urbanization.

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### Food, Beverages, and Tobacco Expenditures

Expenditures on food, beverages, and tobacco products in the United States and in 46 other countries during 1970-88. Also includes gross domestic product, disposable personal income, consumption expenditures, and net savings.

—*Larry Traub, ERS (202) 219-0819 [two 3.5" disks], (4/91).*  
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### Food Consumption

Per capita food consumption by commodity and commodity group, 1966-92; supply and use by commodity and commodity group, 1966-92; and food expenditures, 1869-1992.

—*Jane Allshouse, ERS (202) 219-0901 [two 3.5" disks in stock #89015B; stock #95PK01 offers the two diskettes plus the research report!], (12/94).*  
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### Food Spending in American Households, 1980-88

Detailed data on household food expenditures by major food groups and by household demographic characteristics. Includes data on food-price trends and percent of households purchasing selected food items in a week.

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Annual data on total expenditures for food and alcoholic beverages in 1869-1989. Also includes expenditures for food away from home and at retail stores and other establishments, and by type of income.

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### U.S. Historical Budget Outlays, 1962-99

Contains Federal budget outlay data for programs administered by USDA. Includes program function/subfunction codes, account codes and titles, and Bureau codes and titles. Data are for fiscal 1962-99.

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**Rearranging the Economic Landscape: The Food Marketing Revolution, 1959-91**

Changes in the makeup of the population, lifestyles, and incomes, and attitudes on food safety, health, and convenience have significantly changed the U.S. food marketing system since World War II. Food manufacturers and distributors have made vigorous efforts to meet changing consumer wants. This report examines changes in the marketing of farm and food products since the 1950's and the factors causing such change. (Limited quantities; please call the order desk to verify availability.)

—Alden Manchester

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**U.S. Demand for Food: Household Expenditures, Demographics, and Projections for 1990-2010**

Higher income households spend more per person on most food groups than do poorer households, especially food away from home, fish, cheese, other dairy products, and fresh and processed fruits. However, some regional variation occurs, with the Northeast and the West spending the most on total food. This report examines present U.S. expenditures for food and projects likely expenditures in 1990-2010. Markets for various foods are shown by demographic grouping as gaining or losing market share.

—By Noel Blisard and James Blaylock

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**U.S. Food Spending and Income: Changes Through the Years**

Higher income households spend more money on food, but use a smaller share of income, than do lower income households. This study analyzes the influence of household type on food-expenditure patterns, after controlling for income and other socioeconomic characteristics.

—By Alden Manchester

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**Food Assistance, At Home and Abroad**

**Comparing the Emergency Food Assistance Program and the Food Stamp Program: Recipient Characteristics, Market Effects, and Benefit/Cost Ratios**

The Emergency Food Assistance Program (TEFAP), a commodity-based program, and the coupon-based Food Stamp Program can, for a given level of expenditure, serve more needy households than either program can serve alone. This report shows that although TEFAP expenditures are small compared with those of the Food Stamp Program, a program such as TEFAP can complement food stamps by distributing food to households unwilling to apply for food stamps.

—By William Levedahl and others

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**The Effect of Food Stamps and Income on Household Food Expenditures**

The decline in food expenditures caused by converting food stamp benefits to cash assistance may not be as great as previously thought. This technical bulletin re-examines past estimates of the effect of income and food stamp benefits on food expenditures.

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**Food Aid: Motivation and Allocation Criteria**

The food and financial situations of recipient countries, as well as political considerations, influence donor countries to provide food aid. This report evaluates these and other motivating factors that affect food-aid policies and distribution. Food aid from the United States, the European Community, and Canada is also reviewed.

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**International Agriculture and Trade Report: Food Aid Needs Assessment**

Sixty developing countries would need 12 million tons of food aid in 1994/95 to maintain per capita grain consumption at the average of the last 5 years (status quo target). The estimates are down from a year earlier, when 14 million tons were needed. Nutritional needs, which continue to be much higher than status quo needs, increased slightly. To meet a United Nations' minimum nutritional standard (nutrition-based target), the 60 countries would require 25 million tons, slightly higher than in 1993/94. South Asia and Sub-Saharan Africa have the greatest needs. This report reviews food-aid needs of countries with past or continuing food deficits.

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**Strategies for Food Security and Structural Adjustment in Sub-Saharan Africa**

Mounting debt and a continuing inability to feed their populations have led countries of Sub-Saharan Africa to undertake reform programs to make their economies more market oriented. Case studies of Kenya, Tanzania, and Zimbabwe represent a common dilemma: how to adhere to long-term economic reform while protecting vulnerable consumer groups from market inefficiencies and price shocks. This report reviews the economic environment, agricultural production, and food consumption issues and shows that market liberalization alone is not sufficient to stimulate production to keep pace with population growth.

—By Shahla Shapouri and others

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**U.S. Domestic Food Assistance Programs: Lessons From the Past**

Domestic food-assistance programs improved the nutrition of

low-income Americans and cost \$14.2 billion (not adjusted for inflation) in fiscal 1980 and \$21.2 billion in fiscal 1988. This report describes current domestic food-assistance programs, their relationships to each other, effects on food production and marketing sectors, and costs.

—By William Levedahl

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## Farm Policy and Trade

### Global Review of Agricultural Policies: Western Hemisphere

This report describes policies that affect the agricultural sector in 25 countries in the Western Hemisphere, including those affecting commodity and input prices. The activities of government-owned companies and the integration of economies in the Western Hemisphere are also reviewed. To facilitate understanding of the policy choice made in each country, this bulletin also presents data on each country's economy, trade flows, and resource base.

—By Donna Roberts and David Skully

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### Issues for the 1990's

Food and agriculture now more than ever operate globally, with producers and agribusiness competing head on with foreign interests. With this increasing integration of world financial markets, national and international monetary and fiscal policies directly affect U.S. agriculture. New and diverse groups, such as consumer and environmental interests, compete for policy agenda. A broader range of congressional

committees deal with issues affecting agriculture. And, a growing number of government agencies promulgates rules, regulations, standards, and programs involving agriculture and rural America. These rules and regulations are coming under increasing scrutiny by the food and agricultural sector. This report is a collection of front-burner policy issues focusing on America's food and agricultural industry and rural economy. The issues, assembled in 2-page factsheets, cover trade, conservation, commodity programs, marketing, food and nutrition, rural economy, environment, and technology.

—By various authors

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### NAFTA: Year One

Trade data for the first year of the North American Free Agreement (NAFTA) indicate that Canada, Mexico, and the United States all benefited from expanded intraregional agricultural trade. U.S. farm commodity exports to Mexico showing the largest increases since implementation of NAFTA include: corn, beef, pork, poultry, fresh and processed fruits, vegetables and preparations, oilseed products, and nuts. This report monitors the trade and economic impacts of the NAFTA on U.S. agriculture and rural America, focusing on the first full year of the agreement and prospects for 1995. Extensive trade flow data are included, and policy changes and trade issues are discussed.

—By John Link and others

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### Processed Food Trade Concordance

This handbook pairs processed food industries with their corresponding products. These pairings merge the domestic Standard Industrial Classifications System (SIC) for classifying industries and

the international Harmonized System for classifying imported and exported products. The result is a concise reference for use in analytical or statistical work that requires identification of the individual products that compose industries' aggregate processed food imports and exports.

—By Walter B. Epps and J. Michael Harris

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### The U.S. Presence in Mexico's Agribusiness

U.S. investment in Mexican agribusiness rose five-fold from the late 1980's to the early 1990's, topping \$2 billion. This report reviews U.S. investment in Mexico's agribusiness from 1987 to 1992 and evaluates its impact on the U.S. and Mexican economies. (Limited quantities; please call the order desk to verify availability.)

—By Christine Bolling and Constanza Valdes

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### World Agriculture: Trends and Indicators, 1970-91

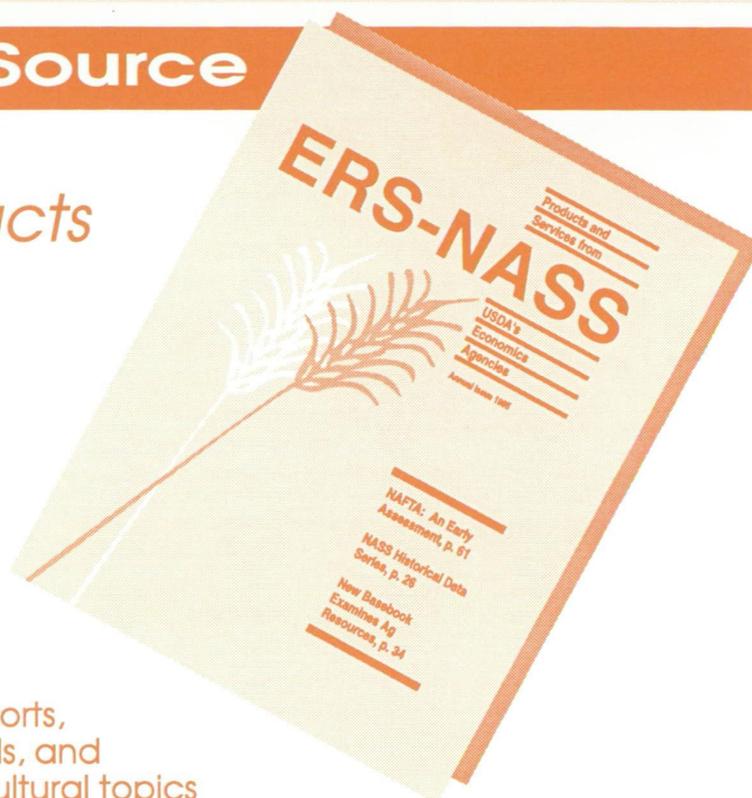
This statistical bulletin provides over 500 pages of data on aggregate economic and agricultural growth, performance, production, and trade indicators for the world, 14 geographic regions, the European Community, Central Europe, and 141 countries. The data cover population, macroeconomic indicators, food consumption, factors of production, commodity production, trade, and efficiency of resource use.

—By Francis Urban

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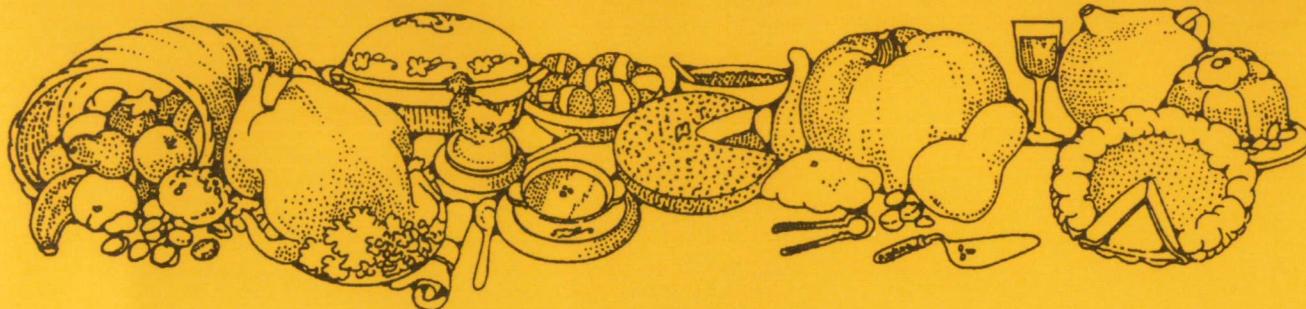
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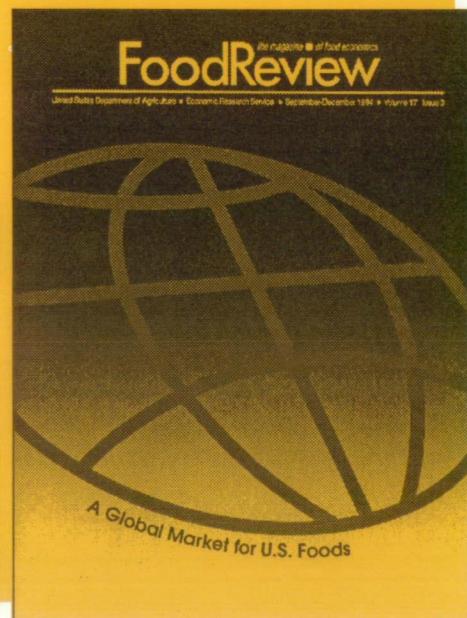
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