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# Can Low-Income Americans Afford a Healthy Diet?

**Elise Golan**

[egolan@ers.usda.gov](mailto:egolan@ers.usda.gov)

**Hayden Stewart**

[hstewart@ers.usda.gov](mailto:hstewart@ers.usda.gov)

**Fred Kuchler**

[fkuchler@ers.usda.gov](mailto:fkuchler@ers.usda.gov)

**Diansheng Dong**

[ddong@ers.usda.gov](mailto:ddong@ers.usda.gov)



- Low-income households that receive maximum benefits from the Supplemental Nutrition Assistance Program usually have the purchasing power necessary to afford healthy diets; others may not.
- Relative to other households, low-income households must allocate a higher share of both their income and time budgets to food if they wish to consume palatable, nutritious meals.
- For many American households, achieving an affordable healthy diet will require reducing their expenditures on less nutritious foods and moving nutrient-dense foods, such as fruit and vegetables, to the center of their plates and budgets.





Elise Golan, USDA/ERS (food); Jupiterimages (place setting)

Low-income households tend to eat less nutritious diets than other households. On average, they do not meet Federal recommendations for consumption of fruit, vegetables, whole grains, and low-fat dairy products, and they consume fewer servings of these nutritious foods than other households. The difference between low-income households' food choices and those of other households raises concerns about the affordability of healthy foods. Do low-income households have unhealthy

diets because they cannot afford more healthy ones?

Affordability, defined as the ability to bear a cost, is a surprisingly complex concept to measure. If someone does not have the money or other resources to acquire an item, it is clearly unaffordable. If they have the money, but other things take priority in their budget, the item may also be unaffordable. If they decide the item is too expensive, it may also be unaffordable to them. Economists have long struggled with

the different aspects of affordability—absolute, relative, and subjective—in developing measures of affordability and consumer well-being.

Absolute, relative, and subjective aspects likewise complicate the question of whether a healthy diet is affordable. Individually, each aspect highlights important but limited information on food choice and budget decisions. Together, they illuminate actual consumer behavior and well-being.



## The First Complication: Determining Composition and Cost of a Healthy Diet

To determine whether healthy diets are affordable one first needs some notion of what a healthy diet costs. This seemingly straightforward question is quickly complicated by both the enormous variety of foods that could make up a healthy diet and the range of prices consumers pay for those foods.

USDA has wrestled with defining the composition and cost of a healthy diet since 1894, when it published its first food plan. The plan identified quantities of reasonably priced foods needed to meet the nutritional requirements of the average American male undertaking moderate physical work.

The current USDA food plans, calculated by USDA's Center for Nutrition Policy and Promotion (CNPP), include the Thrifty, Low-Cost, Moderate-Cost, and Liberal Food Plan. These plans specify the types and quantities of commonly consumed foods that people could purchase and prepare at home to obtain a nutritious, palatable diet at four cost levels. Even the lowest cost plan—the Thrifty

Food Plan—is not a minimum cost diet of pease porridge.

To construct each plan, CNPP starts with data on how American households at different income levels actually eat and then uses a mathematical optimization model to identify a diet that takes account of existing consumption patterns while maintaining a specified cost level and meeting current Federal nutrition guidelines. The cost of each plan is calculated using national-average price estimates. In June 2008, the cost of the USDA food plans for a family of two adults and two elementary school-age children ranged from \$588.30 per month for the Thrifty Food Plan to \$1,151.40 per month for the Liberal Food Plan.

## A Healthy Diet Is Affordable for Most Households...

For most U.S. households, these meal plans, particularly the Thrifty Food Plan, are affordable. In 2006, the cost of the Thrifty Food Plan corresponded to about 8 percent of median income for a four-person household, while the more expensive Low-Cost Food Plan totaled about 11 percent. Eleven percent of income is close to the 10-percent share that the average American household devotes to food each year. The fact that the average American household spends about 10 percent of its income on food implies that these healthy diets are affordable, or at least as affordable as the diets Americans are currently consuming.

For low-income households that receive the maximum benefit amount from the Supplemental Nutrition Assistance Program, or SNAP (see box, "SNAP—Food Stamp Program Gets a New Name"), the cost of a nutritious diet modeled on the Thrifty Food Plan is also affordable since the maximum benefit

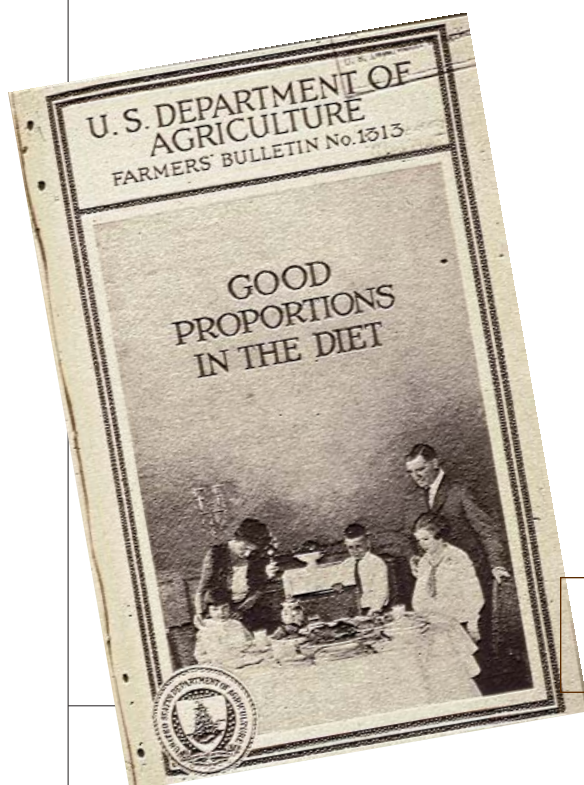
## SNAP—Food Stamp Program Gets a New Name

On October 1, 2008, low-income families began using SNAP benefits instead of "food stamps" to supplement their food spending. Under the 2008 Farm Act, the Federal name of USDA's largest food and nutrition assistance program—the Food Stamp Program—was changed to the Supplemental Nutrition Assistance Program (SNAP). States retain the option to independently name their programs. Some will use SNAP; others may choose alternative names. The Farm Act also formalized the program's existing nutrition education efforts.

In recent years, State agencies and USDA appealed to Congress to change the program's name to reflect the shift in how benefits are issued, emphasize the nutrition element of the program, and eliminate any possible stigmas associated with the term "food stamps." Since 2004, all food stamp participants have received electronic benefits transfer (EBT) cards instead of coupons. Recipients use their EBT cards like debit cards to access their program benefits at authorized food outlets. Studies have documented recipients' satisfaction with EBT and their preferences for EBT over coupons, even among the elderly and disabled.

The new name also reflects the program's intent to supplement household resources. The Food Stamp Program was never intended to fully meet the nutrition needs of households with income. Rather, these households were (and still are) expected to spend about 30 percent of their own resources on food. A household's monthly benefit allotment is determined by subtracting 30 percent of its monthly income (net of some expenses and allowable deductions) from the maximum allotment allowable for a household of that size. Maximum allotments are provided for households with no net income, which comprised about 31 percent of all households receiving benefits in fiscal year 2006.

John A. Kirlin, [jkirlin@ers.usda.gov](mailto:jkirlin@ers.usda.gov)



USDA efforts to define the composition and cost of a healthy diet, such as this 1923 food plan, date to the 1890s.

amount is equal to the cost of that Food Plan. For the nearly one out of three participating households that receive the maximum benefit, SNAP benefits alone are sufficient to purchase a healthy diet.

However, if these households pay higher food prices than those used in the cost estimates for the Thrifty Food Plan, their SNAP benefits may fall short. To help reduce this possibility, in 2007, CNPP began basing its Thrifty Food Plan cost estimates exclusively on what *low-income* households pay for food. Nielsen, a market research firm, provided data. Households participating in Nielsen's

"Homescan" panel report their food purchases, and Nielsen matches them with prices charged. Because households also report their income and other characteristics, CNPP is able to use average prices paid by low-income households to estimate the cost of the Thrifty Food Plan. The cost of the plan therefore, better represents average prices in the locations and types of stores typically patronized by households receiving SNAP benefits.

If they live in especially high-cost areas, some low-income households may still face higher prices than other low-income households. Average food prices

are rarely what any particular household is likely to pay for food. Prices vary regionally and locally across the United States. For example, households may need more money for food if they live in New York City, as opposed to South Bend, IN.

The maximum SNAP benefit amount may also not cover the full costs of the Thrifty Food Plan in periods of high food price inflation. Like most other government assistance programs, SNAP adjusts benefits for inflation to protect participants from losses in real benefits. However, benefit amounts currently are adjusted at the beginning of the fiscal year

### Food costs vary across the United States<sup>1</sup>

	Half-gallon, whole milk	Head, iceberg lettuce	29 oz can of peaches
Ames, IA	\$1.71	\$0.92	\$1.55
Asheville, NC	\$1.99	\$1.52	\$1.61
Atlanta, GA	\$1.75	\$1.24	\$1.63
Baltimore, MD	\$1.85	\$1.49	\$1.65
Boise, ID	\$1.74	\$1.09	\$1.48
Boston, MA	\$2.51	\$1.59	\$2.05
Bowling Green, KY	\$2.07	\$0.99	\$1.55
Charleston, WV	\$2.09	\$0.95	\$1.74
Chicago, IL	\$2.49	\$1.20	\$2.02
Cincinnati, OH	\$1.90	\$1.02	\$1.69
Grand Rapids, MI	\$1.93	\$0.99	\$1.74
Hartford, CT	\$2.23	\$1.41	\$2.27
Jackson, MS	\$1.98	\$0.90	\$1.57
Las Vegas, NV	\$1.91	\$1.14	\$1.52
Los Angeles-Long Beach, CA	\$2.34	\$1.28	\$2.24
Memphis, TN	\$1.71	\$0.95	\$1.36
Miami-Dade County, FL	\$2.09	\$1.36	\$1.84
New York (Manhattan), NY	\$2.12	\$1.83	\$2.17
Phoenix, AZ	\$1.71	\$1.24	\$1.86
Pittsburgh, PA	\$1.45	\$1.19	\$1.85
San Antonio, TX	\$1.88	\$0.99	\$1.39
San Francisco, CA	\$2.33	\$1.47	\$2.47
Seattle, WA	\$2.21	\$1.44	\$1.85
South Bend, IN	\$1.64	\$1.01	\$1.41
Springfield, MO	\$1.86	\$0.97	\$1.93
Washington-Arlington-Alexandria, DC-VA	\$2.13	\$1.79	\$1.83

<sup>1</sup>All prices were collected in the first quarter of 2005.

Source: USDA, Economic Research Service using data from Council for Community and Economic Research.

according to the costs of the previous June, which may introduce a gap between SNAP benefits and food prices that grows throughout the year. During FY 2008, the loss in purchasing power for a family of four grew from \$12 at the beginning of the year to \$56 by July.

### **...Though Low-Income Households That Earn Income May Face Challenges**

Relative affordability of food becomes an issue for low-income households that do not receive SNAP benefits or that receive less than the maximum benefit amount. SNAP benefits are typically reduced as a household's income increases. Households receive the maximum benefit for their household size less 30 percent of their income adjusted for a number of deductions. How quickly SNAP benefits actually decrease with income varies because of these deductions. Nonetheless, the basic 30-percent deduction for income reflects the assumption embedded in the calculation of U.S. poverty thresholds that 30 percent of income is a reasonable share

to spend on food. But is it? If not, SNAP households that receive less than the maximum benefit amount and households that earn just enough to be ineligible for benefits may have difficulty affording healthy diets. For these households, the affordability of the Thrifty Food Plan depends on whether they can allocate up to 30 percent of their income to food.

The 30-percent food share used in setting the poverty thresholds incorporates many relative notions of affordability that may no longer be valid. Use of the one-third standard originated with the 1963 poverty thresholds calculated by Mollie Orshansky for the Social Security Administration. Orshansky used data from the 1955 Household Food Consumption Survey to estimate the share of income spent on food. She found that for all households of two or more persons (not just low-income households), average food expenditures accounted for one-third of after-tax income. Public opinion surveys at the time concurred. Orshansky reasoned that this budgeting

norm should apply to low-income household budgets as well.

Since the 1960s, changes in living standards and relative prices have reduced the average share of income spent on food from 30 percent to around 10 percent. Expenditures on many goods such as housing, utilities, medical care, transportation, and child care have been growing. Basic needs other than food are taking up larger shares of household budgets. Low-income households faced with allocating 30 percent of their income to the purchase of healthy diets would have to forgo many of the items on which other households currently spend almost 90 percent of their income.

In reality, most low-income households do not allocate their budget shares in the same proportions as households in the 1950s. Research conducted by ERS and USDA's Food and Nutrition Service (FNS) found that in 2006, the typical household with income below 130 percent of the poverty line spent about 5 percent less on food than the cost of the Thrifty Food Plan.

In low-income households, as in other households, budgets are clearly pulled in many directions. The extent of this pull is further illustrated by numerous empirical studies on the impact of additional resources on household food purchases. Results show that an additional dollar of income increases low-income household food expenditures by 5 to 10 cents. This suggests that when budget constraints are relaxed, households give priority to spending on other basic needs, not food. Even when households are given a dollar's worth of SNAP benefits, they increase spending on food by only 17 to 47 cents. Even though they spend all SNAP benefits on food, these households simultaneously shift some of their previous cash expenditures on food to alternative uses.

Since the average household spends 10 percent of its budget on food, the one-

**Mollie Orshansky's research on household budget shares underpins poverty threshold measures.**







The average American household today spends almost 90 percent of its income on nonfood goods and services.

third share for food established in the 1960s may no longer reflect the current distribution of basic budgetary needs. But does this divergence render healthy diets unaffordable for low-income households?

This is not a question of whether low-income households should be able to afford exactly the same diets or luxury items as upper income households. Following Adam Smith's lead, it is a question of whether this divergence in presumed food budget share signifies a reduction in low-income households' ability to participate fully in society.

In his critique of notions of absolute poverty, Smith argued that the affordability of linen shirts became an issue only when a linen shirt became a prerequisite to entering the workforce. Likewise, the affordability of a diet requiring 30 percent of income becomes questionable if it means a household must cut back on child care, transportation, medical care, or other prerequisites for work. For low-income families today, a one-third budget share for food may be unaffordable.

### Time May Be a Challenge, Too

Another area in which the requirements of the Thrifty Food Plan may diverge from social norms and create an affordabil-

ity problem is with respect to time allocation. The most recent Thrifty Food Plan includes a variety of convenience foods (see box, "Convenience and the Thrifty Food Plan"). However, meals in the plan may still involve more preparation time than typical American meals because they do not include hot ready-to-eat meals from grocery stores or "food away from home" (food sold for immediate consumption at dine-in or carryout restaurants). This could

put a strain on low-income households' ability to budget the time to prepare these meals, particularly when adults in the households are employed.

ERS researchers, using data from the 2003-04 American Time Use Survey, found that many low-income households—those with two adults or those headed by a single parent who worked less than 35 hours a week—did allocate enough time for the food preparation required by the Thrifty Food Plan. However, these same researchers also found that low-income women who worked full-time spent just over 40 minutes per day on meal preparation, which may not be enough time to prepare the meals specified by the Thrifty Food Plan.

When the Thrifty Food Plan was first created in 1975, most families had a non-working adult in the home who was likely to prepare meals from scratch. However, social norms have changed and an increasing number of households, including low-income households, have either a single working parent or two working parents. These low-income households may not have the time to prepare all their meals at

### Convenience and the Thrifty Food Plan

The Thrifty Food Plan shows how a nutritious diet may be achieved with limited resources. To further help households put the plan into practice, USDA provides recipes online through the Food Stamp Nutrition Recipe Finder. The recipe finder currently contains baked lemon chicken, chicken soup, oatmeal raisin muffins, tuna quesadillas, and several hundred other recipes.

Previous versions of the Thrifty Food Plan assumed that meals were largely made from scratch, raising concerns about how much time households needed for food preparation. Research conducted at Tulane University estimated that households needed to devote over 2 hours to food preparation per day to follow the 1999 Thrifty Food Plan. Researchers based at Virginia Polytechnic Institute and State University put the time cost of these same meals at 40 minutes each, or 80 minutes per day if two meals are served.

To more realistically reflect the time available for food preparation, especially with increased expectations that people receiving assistance be in the workforce, USDA's Center for Nutrition Policy and Promotion has allowed for more convenience in its newly revised Thrifty Food Plan. Foods such as boxed macaroni and cheese, frozen vegetables, ready-to-serve breads and cereals, and other commercially prepared foods are included. And the recipe finder includes meals that can be prepared in 30 minutes or less.

home. Like their upper income colleagues, who spend almost half their food budget on food away from home, these households may turn to prepared foods and restaurant meals to help manage their time budgets.

Over time, the types of healthy diets affordable to low-income households may have deviated from those chosen by other households. Relative to other households, low-income households must allocate a higher share of both their income and time budgets to food if they wish to consume nutritious meals as described by the Thrifty Food Plan. This suggests that the relative affordability of a healthy diet is less than it was in the 1950s and 1960s.

### **Subjective Notions of Affordability May Also Create Barriers to Healthy Eating**

Even if households are able to allocate enough time and money to afford the healthy diet described in the Thrifty Food Plan, subjective notions about affordability undermine some healthy food choices. Currently, many U.S. consumers seem to think that healthy foods such as fruit and vegetables are too expensive. In 2004, researchers from the University of Minnesota surveyed 796 people about the factors shaping their food choices. Thirty-nine percent indicated that the cost of a healthy diet limited what they ate.

Empirical research on overall diet costs has shown, however, that eating healthfully does not necessarily mean paying more. Researchers with the State

University of New York at Buffalo studied families participating in a program for overweight children. Each family was instructed to base their diets on low-calorie, high-nutrient foods. At the end of the program, not only had the health of family members improved, but they also had spent less on food. The researchers found that, as the families replaced snack foods with healthier foods like fruit and vegetables, costs went down.

The actual cost of nutrient-dense foods like fruit and vegetables support the conclusion that these foods need not break a household's budget. ERS researchers estimated that, in 2008, apples and field-grown tomatoes, for example, cost 37 and 70 cents per cup, respectively, meaning that nearly half the recommended daily intake for fruit and vegetables could be purchased for about a dollar (see box, "How Much Do Fruit and Vegetables Cost?"). And prices of many fruit and vegetables, have remained constant relative to those of processed snack foods. ERS researchers examined inflation-adjusted prices for 11 basic fresh fruit and vegetables and 4 common snack foods (chocolate chip cookies, cola, ice cream, and potato chips) and found that prices for basic, minimally processed fruit and vegetables have been falling at about the same rate as those for snack foods.

Empirical evidence on consumer sensitivity to food price changes also suggests that price may not be a large barrier to healthy eating. A review of the literature

finds that a 10-percent reduction in the price of vegetables is predicted to increase a low-income household's purchases of vegetables for at-home consumption from 1 cup to between 1.03 and 1.07 cups per day. For fruit, a 10-percent price reduction is predicted to increase purchases from 0.72 cups to between 0.74 and 0.77 cups per day.

Even in situations where the costs of healthy and less nutritious food options are equal, many consumers evidently feel that they get more value from the less nutritious food. Taste and convenience may lead consumers to prefer less nutritious foods and value them more highly than foods with better nutritional profiles. For some, 75 cents is too much to pay for an apple but not for a soda.

Traditional attitudes about what constitutes a "good" meal may contribute to attitudes that fruit and vegetables are unaffordable. For example, research sponsored by FNS has found that for many low-income families, meat signifies status and success and is considered an essential, central part of any dinner. And ERS research suggests that households with incomes less than 130 percent of the poverty line are likely to spend additional income on beef and frozen prepared foods, not fruit and vegetables.

Like other U.S. households, low-income households tend to consume more than the recommended amounts of added fats, refined grains, and added sugars and sweeteners and below the recommended amounts of fruit, vegetables, whole grains,





## How Much Do Fruit and Vegetables Cost?

Cost, like affordability, is an idea that admits many possibilities. Examining food prices highlights the range of possible ways to think about costs. Researchers at the University of Washington in Seattle and at research institutes in France have compared prices for fruit and vegetables with prices for other foods on both a per calorie and per nutrient basis. They found that fruit and vegetables are relatively expensive per calorie, but relatively inexpensive per nutrient.

In principle, food costs could be measured in terms of any of the needs consumers are trying to fill by purchasing particular foods. Sometimes their choices are made to fill caloric needs, sometimes to fill nutritional needs. But taste and convenience have to be satisfied, too. The many attributes that food manufacturers advertise indicate the numerous dimensions along which consumers make choices. If consumers were concerned only with calories or, for instance, calcium intake, their behavior would look very different than typical consumer behavior. With only one concern, consumers would specialize, choosing only the one food that is least expensive in terms of their single need.

Here, ERS examines prices for two fruit and three vegetables in terms of the cost to households to satisfy Federal dietary guidelines. Dietary guidelines recommend that a person who needs 2,000 calories per day consumes 2 cups of fruit and 2.5 cups of vegetables daily (2 cups of green leafy vegetables equals 1 cup of vegetables). According to the Bureau of Labor Statistics, in June 2008, a pound of apples cost \$1.36 while a pound of carrots cost \$0.87. ERS used conversion factors published by USDA's Food and Nutrition Service to estimate prices per cup. These conversions also account for the portion of the foods that is likely wasted, such as the core of a head of lettuce or the peel of a banana. The per cup cost of apples and carrots was found to be about 37 cents and 34 cents, respectively. A person needing 2,000 calories per day could meet the dietary recommendations for fruit and vegetables for under \$2.50 per day selecting among these five produce items.

	Price, per pound <sup>1</sup>	Price, per cup
Apples, red delicious	\$1.36	\$0.37
Bananas	\$0.63	\$0.36
Lettuce, iceberg	\$0.86	\$0.16
Tomatoes, field grown	\$1.81	\$0.70
Carrots, short trimmed and topped	\$0.87	\$0.34

<sup>1</sup>Source: USDA, Economic Research Service using Bureau of Labor Statistics U.S. city average price data, June 2008. Prices are national averages and may not reflect prices charged in particular communities.



Ken Hammond, USDA

and low-fat milk and milk products. These food choices are at odds with dietary advice about the centrality of fruit, vegetables, whole grains, and low-fat dairy in healthy diets: almost half of the expenditure outlined in the Thrifty Food Plan is for fruit and vegetables.

For consumers looking for the best nutritional value for their dollar, foods with a high nutrient-to-price ratio like fruit and vegetables rank high. To realign subjective attitudes about the value of such foods, however, many Americans may have to move foods traditionally considered "side dishes" to the center of the plate. Not only would this move make healthy diets more affordable, it would also improve health.  $\mathbb{W}$

### This article is drawn from ...

*Are Lower Income Households Willing and Able To Budget for Fruits and Vegetables?* by Hayden Stewart and Noel Blisard, ERR-54, USDA, Economic Research Service, January 2008, available at: [www.ers.usda.gov/publications/err54/](http://www.ers.usda.gov/publications/err54/)

*Price Trends Are Similar for Fruits, Vegetables, and Snack Foods*, by Fred Kuchler and Hayden Stewart, ERR-55, USDA, Economic Research Service, March 2008, available at: [www.ers.usda.gov/publications/err55/](http://www.ers.usda.gov/publications/err55/)

*Who Has Time To Cook? How Family Resources Influence Food Preparation*, by Lisa Mancino and Constance Newman, ERR-40, USDA, Economic Research Service, May 2007, available at: [www.ers.usda.gov/publications/err40/](http://www.ers.usda.gov/publications/err40/)

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