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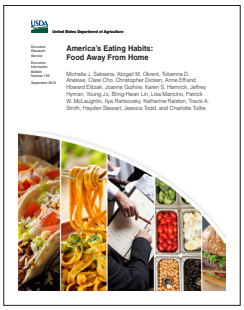

America's Eating Habits: Food Away From Home

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What Is the Issue?

Over the past several decades, Americans have grown to rely on the convenience of foods prepared outside of the home. Unfortunately, food away from home (FAFH) often contains fewer fruits and vegetables and have more calories, fat, and sodium than food prepared at home (FAH), and consuming FAFH is associated with obesity. Recently passed labeling legislation aims to help consumers make healthier FAFH choices and to encourage FAFH suppliers to produce more healthful options. To explore Americans' eating away from home behavior, this report presents research on three broad FAFH topics: (1) food choices and availability; (2) nutrition and diet quality; and (3) food policies, including menu labeling and food assistance programs.

What Did the Study Find?

Food choices and availability of FAFH. Over the past 30 years, FAFH's share of U.S. households' food budgets and total food spending grew steadily. FAFH options also became more widely available as growing numbers and types of businesses—including grocery stores—served prepared foods. Apart from the Great Recession (2007-09), these trends continued uninterrupted from 1987 to 2017, but the changes were not uniform across socioeconomic groups or business types.

- Spending on FAFH surpassed spending on FAH for the first time in 2010, increasing its share of total food spending from 44 percent (30 years prior) in 1987 to 50.2 percent in 2010.
- Higher income households spent more on FAFH and bought it more frequently than lower income households. Households with incomes greater than 300 percent of the Federal poverty guidelines obtained FAFH on 5.5 occasions per week, while households whose incomes were less than or equal to Federal poverty guidelines obtained FAFH on 4.2 occasions per week.
- For households with an elderly individual (over 64 years old), the share of household food spending on FAFH was 8 percent lower than for other households. Also, Americans who were 35–44 years old consumed FAFH more often than other Americans.

- In 2000–15, quick-service restaurants (QSRs), also referred to as fast-food and limited-service restaurants, drove the industry's growth both in sales and number of outlets. The fastest-growing segment of the QSRs was fast casuals—e.g., Chipotle Mexican Grill and Panera Bread—which combines counter service with the perceived ambiance and product quality of full-service restaurants (FSRs).
- Much of the growth in foodservice establishments occurred in urban U.S. counties, consistent with patterns of urban and rural migration. As rural populations declined, FSRs in rural areas were particularly hard hit, leaving QSRs to dominate.
- Spending on FAFH declined during the Great Recession, by $47 billion (18 percent) in real dollars from 2006 to 2010, and rebounded thereafter.
- During the Great Recession, households replaced spending at FSRs with unprepared foods purchased at retail stores (like grocery stores), but households' share of spending for QSRs stayed constant. In 2014, household expenditures on FAFH had yet to rebound to pre-Recession levels.
- Despite the downturn in household spending on FAFH during the Great Recession, the number of chain QSRs grew, and consumers spent a greater share of their FAFH dollars at these restaurants.

Nutritional composition and diet quality. The nutritional composition of FAFH across all income levels and all FAFH types (except school foods) was consistently lower quality and more caloric than that of FAH. Though FAFH is known to have lower diet quality, access to FAFH did not seem to affect FAFH consumption and did not correlate with diminished overall diet quality.

- FAFH's share of total average daily energy intake increased from 17 percent in 1977–78 to 34 percent in 2011–12, and consumption of QSR foods was the largest source of this growth.
- On the whole, FAFH contained more saturated fats and sodium, and less calcium, iron, and fiber than FAH—however, the nutritional composition of FAFH varied across outlet types. For example, in 2009–12, the fat content of school lunches (a type of FAFH) was almost identical to that of FAH (33 percent) while the fat content of QSR foods averaged 39 percent.
- Although frequent QSR customers purchased less vegetables, fish, and nuts, their overall diet quality was no worse than that of QSR nonconsumers.

Policies that affect FAFH. FAFH consumption is influenced by public policy mainly on two fronts. First, current food assistance programs with in-kind food benefits affect food choices and diet quality of participating low-income households. For example, new requirements that improve nutrition of school meals directly affect children's diet quality. Second, new menu labeling regulations may help consumers make more informed food choices at restaurants.

- The average household Healthy Eating Index (HEI-2010) for FAFH was lower than for FAH, regardless of SNAP participation or income.
- School meals provided by the National School Lunch Program and School Breakfast Program contained higher levels of calcium than both FAH and other sources of FAFH and adhered better to USDA's *Dietary Guidelines for Americans* than other sources of FAFH.

How Was the Study Conducted?

This report uses a variety of data sources and techniques to examine FAFH trends. The analysis was done primarily using descriptive statistics (e.g., means, differences, and correlations) and literature review. The main data sources were the National Health and Nutrition Examination Survey (NHANES), USDA ERS's Food Expenditure Series, the National Household Food Acquisition and Purchase Survey (FoodAPS), the Consumer Expenditure Survey, U.S. Census Bureau's Monthly Retail Trade and Foodservices series, NPD ReCount, and Euromonitor Passport. These data sources include self-reported information and measurable individual characteristics collected by household survey, establishment information, and proprietary industry data.

Chapter 7: Impacts on Nutrient Intakes From Increased Food-Away-From-Home Consumption

Joanne Guthrie, Biing-Hwan Lin, and Travis A. Smith

This chapter examines the growth in consumption of foods prepared away from home (FAFH), the nutritional differences in foods consumed by source, and the implications for Federal efforts to improve the diets of Americans. The analysis finds that, on the whole, FAFH contained more saturated fats and sodium and less calcium, iron, and fiber than FAH, but nutrient composition varied across source of FAFH and over time.

The shift in consumer preferences toward FAFH is driven by numerous factors, including socioeconomic and lifestyle changes (see chapters 3 and 4) and increased availability of FAFH options (see chapters 6 and 8). This chapter examines the nutritional implications of this shift using national data from Federal surveys of Americans' dietary intakes. National food consumption survey data collected from 1977-78 to 2014 are used to compare intakes of selected nutrients by sources to examine the shift in food consumption from food prepared at home and away from home over time.

Observed changes in dietary patterns over time may come from a variety of sources, including an aging U.S. population, the changing racial and ethnic makeup of the U.S. population, and other socioeconomic factors (e.g., single-parent households) that may influence food consumption decisions. The report compares mean dietary patterns over time without statistically testing the differences across survey years or adjusting for changing age, racial, and ethnic composition. Further research would be needed to identify the role of such factors. Despite these limitations, the findings provide information on the role of FAFH in the U.S. diet and the nutritional implications.

The analysis in this chapter finds that the nutritional composition of FAFH across all income levels and all FAFH types (except school food) was consistently lower quality and more caloric than that of FAH. With the exception of school meals and other foods obtained at school (a type of FAFH), FAFH generally contained more saturated fats and sodium, and less calcium, iron, and fiber than FAH. In 2009-12, the fat content of school meals was almost identical to that of FAH (33 percent) while the fat content of fast foods averaged 39 percent. The FAFH share of total average daily energy intake increased from 17 percent in 1977-78 to 34 percent in 2011-12, and consumption of QSR (Quick Service Brand) foods was the largest source of this growth. Consistent with FAFH expenditure patterns discussed in chapters 3 and 4, calories from FAFH sources declined in the most recent economic downturn in 2007-10, but by 2011-12, consumption of FAFH had rebounded. While food from FAFH sources is less healthy compared to most FAH sources, it is not clear whether FAFH consumption is correlated with diminished overall diet quality of Americans. Chapters 8 and 9 discuss in more detail how FAFH consumption contributes to diet quality.

Data and Methods

This analysis uses several federally collected national surveys to track nutrient consumption by source:[56]

- USDA Nationwide Food Consumption Survey (NFCS) 1977-78,
- USDA Continuing Survey of Food Intakes by Individuals (CSFII) 1989-91 and 1994-98, and

[56]Information on USDA surveys can be found at USDA's Agricultural Research Service website. Information on NHANES can be found at the website for the Centers for Disease Control and Prevention.

- The National Health and Nutrition Examination Survey (NHANES) 2003-04, 2005-06, 2007-08, 2009-10, 2011-12, and 2013-14.

These surveys collected information on the types and amounts of foods eaten by respondents, as well as information on where the food was obtained. In keeping with most analyses using national food consumption survey data, respondents under age 2 were excluded. Using this information in conjunction with its nutrient databases, USDA estimated amounts of food energy (calories) and nutrients consumed by individuals.[57] Each survey employed a complex design with stratified sampling to efficiently obtain a large national sample of Americans. Sample weights were calculated to adjust for variable probability of selection and survey nonresponse to yield nationally representative estimates. However, since participation was voluntary, there may have been self-selection bias that was not perfectly corrected by weighting.

Each survey was conducted using the best methodology available at the time. Although each survey drew on the methodology of the previous survey, they were not completely consistent in all measures. The authors have recoded data using consistent food source definitions to better investigate longrun trends in consumption of food prepared away from home (Guthrie et al., 2016).

It should be noted that changes in survey methods—particularly as they pertain to collection methods of food intake data from survey participants—create difficulties in comparing statistical results across time. In particular, earlier surveys (1977-78 and 1989-91) collected 3 consecutive days of dietary intake data—the first day employing the 24-hour recall methodology and the latter days obtaining data from food records kept by respondents. Later surveys employed only the 24-hour recall method and collected data over 2 nonconsecutive days.

To minimize differences that could be attributed to these changes in methodology, only day 1 intake data were used from each survey, which in all cases was collected via 24-hour recall. Other changes, however, may also have had an impact on the data. Most notably, a five-step Automated Multiple-Pass Method (AMPM) designed to improve the completeness of data collection has been employed in NHANES but not in NFCS or CSFII (Raper et al., 2004). Adopting AMPM may have reduced underreporting, resulting in an increase in reported food intake, but the extent of its contribution is unknown.

This analysis examines changes in share of intake from FAH and FAFH sources and changes in nutrient densities associated with those changes over time, rather than changes in absolute amounts, which may mitigate differences that are an artifact of more complete reporting. However, improvements in reporting may have affected some categories of intake or nutrients more than others—for example, probing may result in survey respondents remembering small items like spreads and condiments that could be disproportionately high in sodium or fat. Therefore, the potential impact of underreporting may have been present in the estimates but no attempt was made to adjust for it.

Trends in food energy intake by food source (see box, "Definitions of Food Sources")—FAH and FAFH, with FAFH further disaggregated into restaurant, fast food, school/day care, and other—were estimated using the mean proportion approach (Krebs-Smith et al., 1989). Shares of food energy intake by food source were calculated for each respondent, and then the sample weights were used to calculate the weighted average shares of food energy intake by food source for the U.S. population and for population subgroups, such as children and youth (age 2 to 19) versus adults

[57]USDA nutrient databases are regularly updated to include the best available information on foods consumed. Nevertheless, there may be limitations. For example, some schools serve products (e.g., frozen pizzas) specially formulated for sale to school foodservices that may differ somewhat from standard products.

(age 20 and older) or low income (at or below 185 percent of the Federal poverty level) versus high income (above 185 percent). The mean proportion approach generated the weighted average shares by food source for a representative respondent in the population in question.

This report used the population proportion approach, the recommended method for this analysis, to calculating and comparing nutrient density, defined as nutrients per 1,000 kilocalories, by food source for two periods—1977-78 and 2011-14 (Freedman et al., 2008). Following this method, the weighted total intakes for a given nutrient and kilocalories were calculated for a food source (e.g., FAH, FAFH) among the total population as well as population subgroups. The nutrient densities for total diet, FAH, FAFH, and the four subcategories of FAFH—for the total population as well as for population subgroups—were expressed per 1,000 kilocalories, except for total fat and saturated fat, which were expressed as percent of calories, following the convention of the *Dietary Guidelines for Americans* (USDHHS and USDA, 2015).

To demonstrate, the population proportion approach can be applied in calculating the calcium density of foods obtained at school cafeterias among children. Using the mean proportion method, the weighted sums of calcium and calorie intakes obtained at school cafeterias among children are first calculated; second, the calcium density is calculated as the ratio of total calcium to total calories. The mean proportion method is chosen because, on a given day, some individuals may obtain foods exclusively from either FAH or FAFH. As a result, the mean proportion method (i.e., calculating nutrient density based on the intake of each individual and then averaging intake densities) may generate nutrient density values for the total diet that fall outside the densities for FAH and FAFH. This seemingly counterintuitive result can be prevented by using the population proportion approach (Freedman et al., 2008; Lin et al., 2016).

30-Year Rise in Food Prepared Away From Home Briefly Reversed in 2007-10 and Then Rebounded

The share of calories obtained from FAFH rose from 17.8 percent in 1977-78 to 33.7 percent in 2005-06 (figure 7.1). Increased consumption of fast food had the strongest influence on this trend, with the share of calories obtained from fast food increasing from 5.7 percent in 1977-78 to 15.6 percent in 2005-06. The increase in share of calories from full-service restaurant food, the second-highest source of FAFH, was from 3.2 percent to 9.9 percent.

Between 2007 and 2010, the share of calories obtained away from home briefly dipped to 29.1 percent in 2009-10, while calories obtained from fast food, the leading FAFH source, dropped to 13.2 percent. This period roughly corresponds to the 2007-09 recession in the United States—the most severe recession since the 1930s—where the share of household food expenditures on FAFH declined for the first time in several decades (chapters 3 and 4).[58] These findings demonstrate that Americans economized by eating less FAFH. The larger decline in consumption at full-service restaurants (on a percentage basis) than at fast-food establishments indicates some economizing within FAFH options, consistent with expenditure patterns discussed in chapter 4. But, by 2011-12, FAFH rose again to 34 percent of calories and fast food grew to 15.8 percent of calories, and this resurgence continued through 2013-14 with total FAFH at 33.7 percent and fast food at 15.9 percent of calories, respectively. This quick rebound suggests that FAFH is now an ingrained preference that Americans quickly return to when economic conditions permit.

[58]The National Bureau of Economic Research's Business Cycle Dating Committee determined that the recession began in December 2007 and ended in June 2009.

Definitions of Food Sources

Across all surveys, food sources are classified into two main categories, defined by where the food was purchased. Food from supermarkets, smaller grocery stores, supercenters, or other retailers is defined as food prepared at home (FAH) although it could include prepared or semi-prepared items such as rotisserie chicken or bagged salad. Food prepared away from home (FAFH) includes foods obtained from full-service restaurants with wait staff, fast-food establishments with no wait staff, food obtained at school or day care, and a catchall "other" subcategory that includes vending machines, common coffee pot/snack tray, Meals on Wheels, from someone else, street vendor, etc.

The food source coding scheme differs between USDA's Nationwide Food Consumption Survey (NFCS), Continuing Survey of Food Intakes by Individuals (CSFII), and What We Eat in America (WWEIA)/National Health and Nutrition Examination Survey, but many sources are common in all surveys, such as grocery store, restaurant with waiter/waitress service, fast food, and school cafeteria. In this report, food sources are aggregated into two broad categories—FAH and FAFH—and FAFH is further disaggregated into restaurant, fast food, school, and other FAFH.

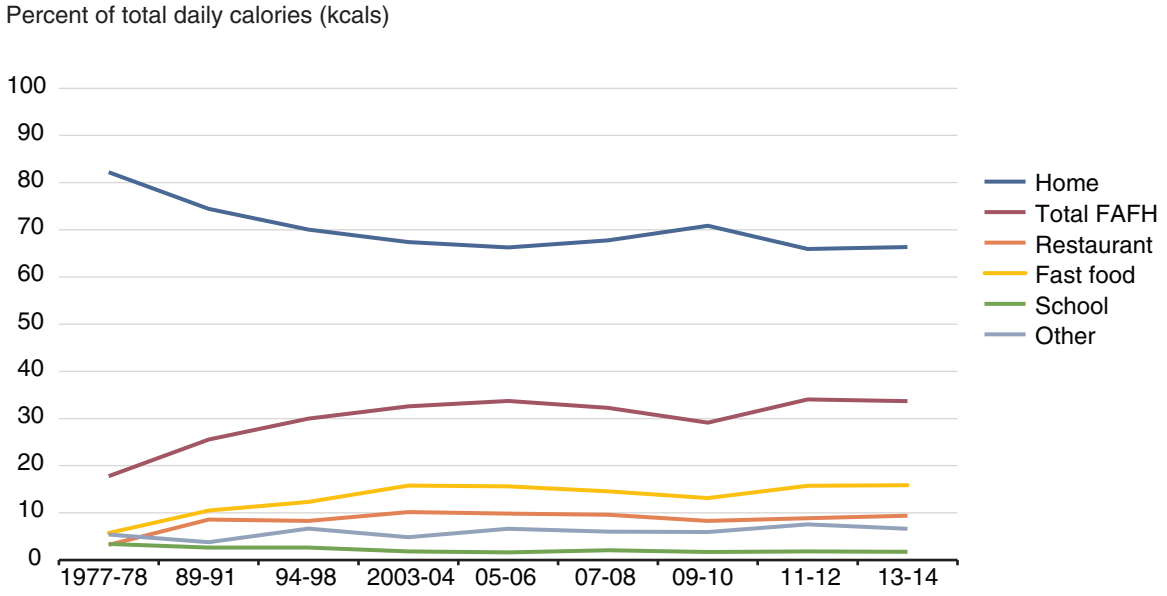
The definitions of FAH and FAFH are anchored on where the food was obtained. FAH food can be eaten away from home and FAFH food can be eaten at home. For example, FAH includes breads and peanut butter purchased at grocery stores and eaten as a peanut butter sandwich at home, school, or work. Meanwhile, home delivery or takeout from a pizza parlor is classified as FAFH even if it is eaten at home.

The restaurant category includes restaurants with waiter service. Fast-food establishments include restaurants without waiter service, fast food, pizza, and cafeterias at work or residential facilities. Several eating places—including bar, tavern, lounge, sport, recreation, and entertainment facilities—are in categories separated from "restaurant with waiter service" in all surveys, but not identified in the 1977-78 NFCS. There is no cut-and-dried rule as to whether they should be included in restaurant or fast food; in this study, these eating places (as well as vending machines) are included in the fast-food category. The school category includes school cafeterias (meals and a la carte), daycare, and summer camp.

The FAH category includes foods purchased from grocery and other stores (e.g., convenience and drug stores), mail order, and foods grown or caught by the respondent or someone else. Foods obtained at a soup kitchen, food pantry, or community feeding program are classified as either FAH (if eaten at home) or other FAFH (if eaten away from home).

Figure 7.1

Share of mean daily energy intake from food prepared at home and away from home, U.S. population age 2 and older



Note: FAFH = food away from home.
Source: USDA, Economic Research Service using data from the USDA Nationwide Food Consumption Survey (NFCS), 1977-78; USDA Continuing Survey of Food Intakes by Individuals (CSFII), 1989-91 and 1994-98; and the National Health and Nutrition Examination Survey (NHANES), 2003-04, 2005-06, 2007-08, 2009-10, 2011-12, 2013-14.

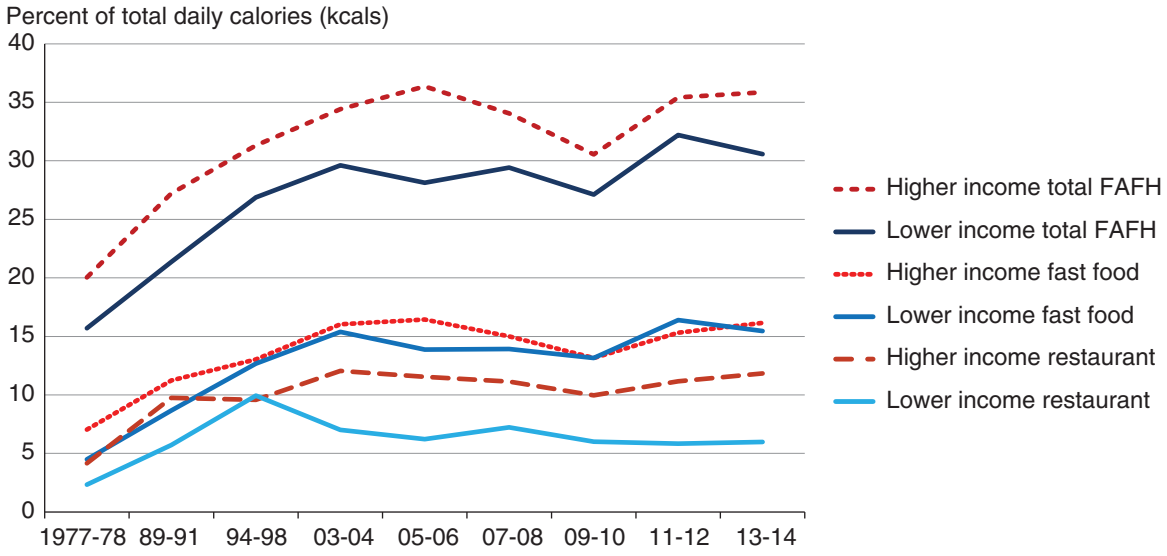
The shift to more FAFH was broad-based, although the extent of change varied across income and age groups, as did the importance of specific FAFH sources (Guthrie et al., 2016). Comparing individuals living in higher income households (above 185 percent of the Federal poverty level[59]) with those in lower income households (at or below 185 percent), lower income individuals participated in the trend toward consuming more FAFH, but to a lesser extent (figure 7.2). Choices within the FAFH sectors also varied: both higher and lower income individuals increased fast-food consumption, but consuming food from restaurants with wait staff was less common for lower income individuals, which is not surprising given its typically higher price.

In 1977-78, FAFH made up 18.8 percent of the diets of children and youth ages 2-19. Over time, their intake of FAFH—particularly from fast food—grew in parallel to that of adults (figure 7.3). In 1977-78, fast food provided less than 4 percent of the mean daily energy intake of children and youth. Their intake of calories from fast food peaked at 16.5 percent of total calories in 2003-04, declined to 12.6 percent in 2009-10, and rose again to 16 percent in 2013-14. At the same time, the importance of school foods diminished. In 1977-78, school foods provided 8.9 percent of total calories, but just 6-7 percent of calories for those age 2-19 since 2003. Lower income children and youth ate more school foods at all time periods, probably because they are eligible for free or reduced-price USDA school meals (figure 7.4). In earlier time periods, lower income children and youth ate less fast food than their higher income counterparts. In 2011-12, their FAFH intakes were very similar—14.2

[59]The 185 percent of poverty threshold is the cutoff for income eligibility to such public food assistance as the Special Supplemental Program for Women, Infants, and Children (WIC) and reduced-price USDA school meals, and is therefore frequently used to group households by income.

Figure 7.2

Share of mean daily energy intake from food away from home sources, by income, U.S. population age 2 and older



Notes: FAFH = food away from home. Restaurant = full-service restaurant (with wait staff). Fast food = restaurant with counter service only. Higher income defined as household income above 185 percent of the Federal poverty level. Lower income defined as household income at or below 185 percent of the Federal poverty level.
Source: USDA, Economic Research Service using data from the USDA Nationwide Food Consumption Survey (NFCS), 1977-78; USDA Continuing Survey of Food Intakes by Individuals (CSFII), 1989-91 and 1994-98; and the National Health and Nutrition Examination Survey (NHANES), 2003-04, 2005-06, 2007-08, 2009-10, 2011-12, 2013-14.

percent of calories for lower income children and youth and 14.4 percent for higher income children and youth. However, in 2013-14, the disparity widened once more, with higher income children consuming 16.8 percent of calories from fast food, compared to lower-income children at 15.2 percent of calories.

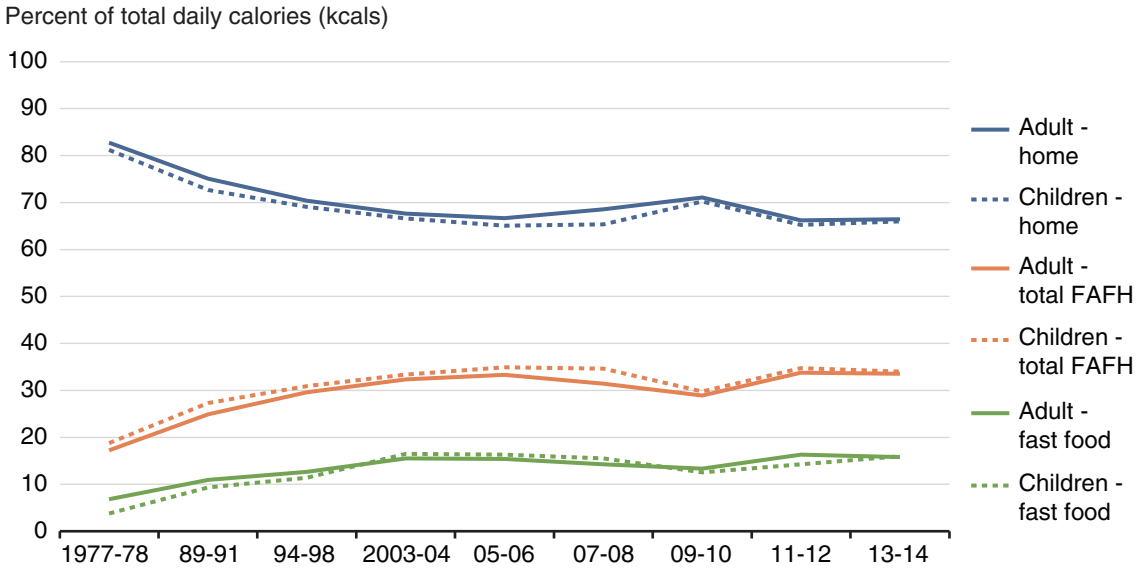
Nutrient Differences Between FAH and FAFH

In the 1990s, the nutritional quality of FAFH was inferior to FAH (Guthrie et al., 2002). In recent years, the nutritional quality of restaurant and fast-food meals has been subject to more scrutiny, with several major chains offering healthier options. At the same time, grocers and supermarkets are offering more prepared options. These changes may have narrowed the differences in caloric intake and nutritional density between FAH and FAFH.

However, changes in nutrient databases make it difficult to assess changes in the nutritional composition of FAH and FAFH over time. For perspective, the focus of this analysis is on changes in the fat composition of FAH and FAFH at two time points: 1977-78 and 2011-14. There are two reasons for focusing on fat. First, unlike some other nutritionally important components, such as saturated fat, dietary fat totals are available at both time points. Second, during the time period in question (1977-2014), reduction in the fat content of diets was a major focus of attention from both nutritionists and the general public. For example, the Nutrition Facts panel on packaged goods, as implemented in 1994, required information on both grams of fat in the product and calories from fat. (The most recent edition of the Federal *Dietary Guidelines for Americans* (USDHHS and USDA, 2015) shifted focus to the type of fat consumed, recommending replacing saturated fats with oils.)

Figure 7.3

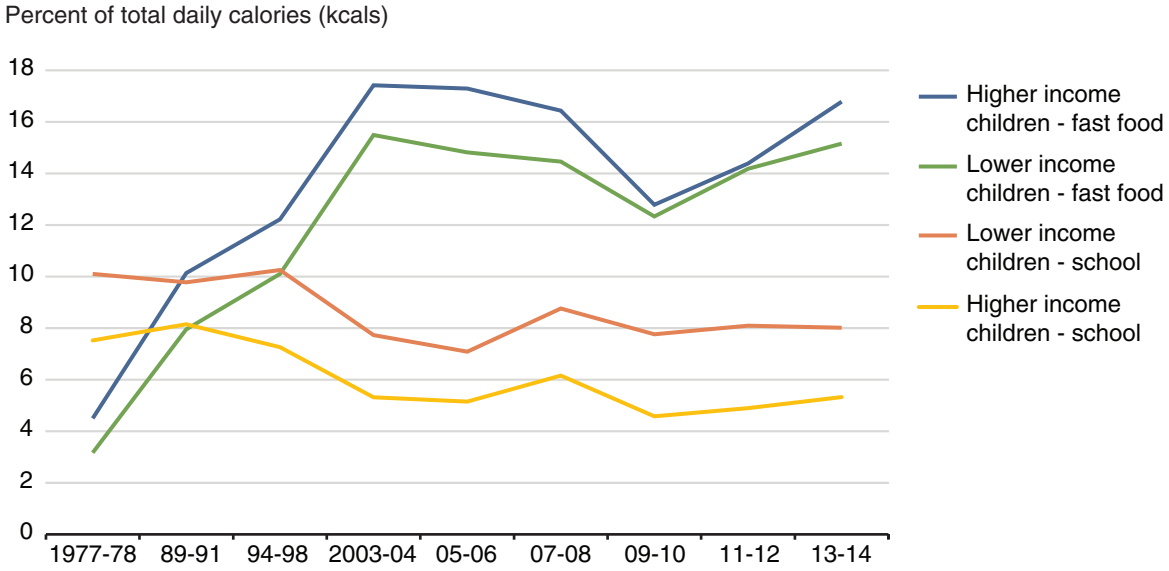
Share of mean daily energy intake from food at home, total food away from home, and FAFH-fast food, children ages 2-19 and adults



Notes: FAFH = food away from home.
Source: USDA, Economic Research Service using data from the USDA Nationwide Food Consumption Survey (NFCS), 1977-78; USDA Continuing Survey of Food Intakes by Individuals (CSFII), 1989-91 and 1994-98; and the National Health and Nutrition Examination Survey (NHANES), 2003-04, 2005-06, 2007-08, 2009-10, 2011-12, 2013-14.

Figure 7.4

Calorie intake by U.S. lower income households with children and youth ages 2-19 from consuming fast food versus school meals



Notes: Higher income defined as household income above 185 percent of the Federal poverty level. Lower income defined as household income at or below 185 percent of the Federal poverty level.
Source: USDA, Economic Research Service using data from the USDA Nationwide Food Consumption Survey (NFCS), 1977-78; USDA Continuing Survey of Food Intakes by Individuals (CSFII), 1989-91 and 1994-98; and the National Health and Nutrition Examination Survey (NHANES), 2003-04, 2005-06, 2007-08, 2009-10, 2011-12, 2013-14.

If FAH and FAFH changed in response to public interest in nutritional quality, change in the fat composition of these sources would be most likely to be apparent. These changes could occur because of different choices being made by consumers (e.g., choosing a lean grilled chicken sandwich instead of fried chicken), changes in product formulation (e.g., food manufacturers developing a lower fat lasagna), or both.

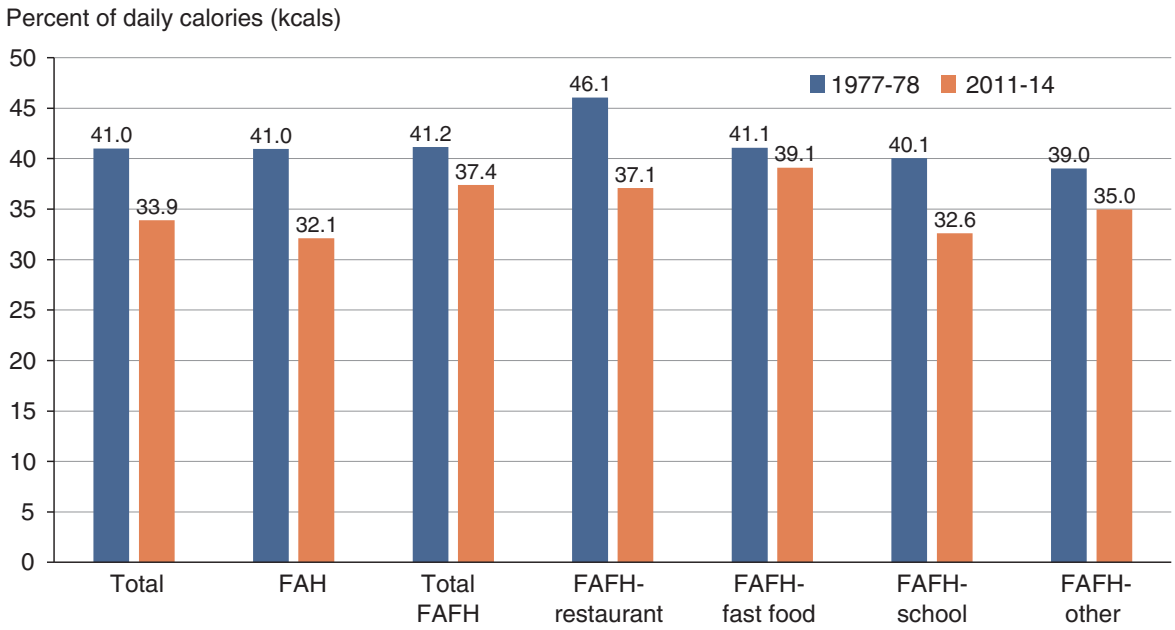
In addition to fat composition, the nutrient density of five additional dietary components is examined—saturated fat, sodium, calcium, iron, and dietary fiber—using 2011-12 data. For all components except dietary fat and saturated fat, density is defined as amount per 1,000 calories; for dietary fat and saturated fat, it is defined as percent of total calories.

Change in Fat Content of FAH and FAFH: 1977-78 and 2009-12

Total fat content of FAH and FAFH as a percent of total calories was essentially identical in 1977-78, at 41 and 41.2 percent of calories, respectively (figure 7.5). By 2011-14, the fat content of FAH was significantly lower than that of FAFH. Fat in FAH had dropped to 32.1 percent of calories, below the upper limit of 35 percent recommended by the Food and Nutrition Board of the National Academies of Sciences (FNB, 2002). For FAFH, the drop was less precipitous, going from 41.2 percent to 37.4 percent. Moreover, that drop masked considerable variation within FAFH categories. The fat content of school meals dropped almost as much as FAH, going from 40.1 percent to 32.6 percent of calories. The fat content of fast food, on the other hand, changed very little, going from 41.1 percent in 1977-78 to 39.1 percent in 2011-14.

Figure 7.5

Fat density of all food sources, food at home and food away from home



Notes: FAH = food at home. FAFH = food away from home.
Source: USDA, Economic Research Service using data from the USDA Nationwide Food Consumption Survey (NFCS), 1977-78 and the National Health and Nutrition Examination Survey (NHANES), 20011-14.

Nutrient Densities of FAH and FAFH and Differences in Contribution to Total Intake

Table 7.1 presents differences in the nutrient density of FAH and FAFH in 2011-14. The selected dietary components can be subdivided into those for which a lower density diet would be optimal—saturated fats and sodium—and those for which a more dense diet would be optimal—calcium, iron, and dietary fiber.

The most recent Federal *Dietary Guidelines for Americans* recommends that Americans consume less than 10 percent of calories per day from saturated fats. Both FAH and FAFH density exceeded that standard in 2011-14, but FAH, at 10.6 percent of calories, is significantly lower than FAFH at 12.2 percent. The saturated fat density of fast food is particularly high at 13 percent of calories (table 7.1).

The Healthy Eating Index-2010—developed by USDA's Center for Nutrition Policy and Promotion in collaboration with the National Cancer Institute (Guenther et al., 2013)—is used to measure how well diet quality conforms to Federal dietary recommendations. Its sodium standard sets the maximum sodium density of the diet at no more than 1,100 milligrams per 1,000 calories (see data box in chapter 8). Both FAFH and FAH exceed that standard, but again FAFH was significantly higher in 2011-14—1,796 mg/1,000 calories versus 1,535 mg/1,000 calories for FAH. Wait-staff restaurant and fast-food sources are both high in sodium density at 1,962 mg and 1,833 mg per 1,000 calories, respectively (table 7.1).

Calcium density is significantly higher for FAH than for FAFH sources, with one notable exception. School food, at 725 mg/1,000 calories, has significantly higher calcium density than any source. Milk is served with USDA-funded school breakfasts and lunches, and cheese is an ingredient in popular school foods such as pizza. Since dairy foods are the largest contributors to calcium intake, school foods are particularly calcium-rich.

Table 7.1
Nutrient density by food source, 2011-14

Nutrient	Food sources						
	Total	FAH	Total FAFH	Full-service restaurant	Fast food	School	Other FAFH
	Percent of calories						
Saturated fats	11.16 (11.05-11.27)	10.63 (10.51-10.76)	12.16 (12.03-12.30)	11.28 (11.01-11.55)	12.98 (12.80-13.16)	11.83 (11.55-12.12)	11.58 (11.26-11.91)
	Per 1,000 calories						
Sodium (mg)	1,625 (1,614-1,635)	1,535 (1,523-1,547)	1,796 (1,777-1,815)	1,962 (1,923-2,001)	1,833 (1,812-1,853)	1,651 (1,608-1,693)	1,532 (1,489-1,575)
Calcium (mg)	466 (460-471)	503 (496-511)	394 (387-400)	336 (325-346)	419 (409-429)	725 (704-746)	342 (329-354)
Iron (mg)	7.03 (6.97-7.09)	7.53 (7.45-7.61)	6.07 (6.01-6.13)	5.97 (5.86-6.07)	6.07 (5.99-6.15)	6.99 (6.81-7.17)	6.02 (5.88-6.15)
Fiber (g)	7.77 (7.65-7.89)	8.38 (8.21-8.55)	6.60 (6.50-6.69)	6.81 (6.56-7.06)	6.31 (6.19-6.43)	8.13 (7.89-8.37)	6.62 (6.40-6.85)

Note: FAH = food at home. FAFH = food away from home. Numbers in parentheses indicate the 95% confidence interval.

Source: USDA, Economic Research Service using data from the National Health and Nutrition Examination Survey (NHANES) 2011-14.

Iron and dietary fiber density of FAH are both significantly higher than for total FAFH. However, iron density of school foods is significantly higher than for other FAFH sources, while dietary fiber densities of FAH and school foods are not significantly different (table 7.1). School breakfasts and lunches provided through USDA-funded meal programs are expected to meet nutrition standards established by USDA, resulting in those meals having a different nutrient profile than other FAFH sources.

Conclusion and Discussion

This chapter presents data from large, nationally representative food consumption surveys that provide insights into how the shift from FAH to FAFH may have affected the nutritional quality of diets. The analysis is not without weaknesses. Changes in survey methodology, especially methods of collecting food intake data, may affect the comparability of data collected by the individual surveys, as may the problems of underreporting and self-selection that plague surveys of dietary intake. In addition, descriptive studies cannot draw causal interpretations. More sophisticated multivariate analysis is needed to fully assess the determinants of this trend. Nevertheless, these descriptive findings provide information that can guide discussion and inform future analyses.

Over the past four decades, food prepared away from home has almost doubled as a share of the average caloric intake of Americans. The strongest economic downturn since the 1930s resulted in a decline in FAFH in 2007-10, but by 2011-12, consumption of FAFH had rebounded (consistent with expenditure patterns discussed in chapters 3 and 5). This indicates the strength of consumers' desire to include FAFH in their diets.

Lower income Americans participated in the shift to more FAFH, though to a lesser extent than higher income consumers, and chose proportionately more of the lower cost, fast-food option. Compared to their higher income peers, lower income children also obtained a larger share of daily calorie intake from school, where they are income-eligible for free or reduced-price meals through USDA's National School Lunch Program.

Of particular interest is FAFH consumption by children. School foods in this analysis include both foods provided as part of USDA-funded school meals (breakfast and lunch) and other foods obtained at school. Non-USDA school foods are sometimes termed "competitive foods" because their sale can be seen as competition with USDA school meals (Guthrie et al., 2013). Although FAFH as a whole is less nutritious than FAH, school foods are more calcium-dense than home foods, similar to home foods in dietary fiber content, and more iron-dense than other FAFH.

In 2011-12, USDA-sponsored school meals had nutrition standards specifying that the meals would contain minimum amounts of calcium, iron, and other dietary essentials, and limiting fat and saturated fat levels. In the school year of 2012-13, USDA required schools participating in its National School Lunch Program (NSLP) to begin serving lunches that met updated nutrition standards, requiring lowfat milk, fruits, a healthier mix of vegetables, and more whole grains (Guthrie and Newman, 2013). In 2013-14, new standards for school breakfasts were implemented requiring lowfat milk, more whole fruit, and whole grains. These updated standards could be expected to impact school foods consumed by children in 2012-14. However, either in anticipation of new standards or because of their own desire to offer the most nutritious meals possible, some school foodservices began offering healthier meals even before the required dates of implementation. In addition, some vendors serving the school foodservice market had begun offering healthier products, such as pizzas with whole grain-rich crusts. These changes had already led to some improvement in the nutritional quality of foods consumed (Newman, 2013; Fox et al., 2010).

During the data collection time period, few limits were placed on competitive foods, and the most commonly purchased items were desserts, sweetened beverages, and salty snacks (Guthrie et al., 2013). In 2014-15, new standards for competitive foods were implemented, requiring limits on sodium, fat, and sugars (Guthrie and Newman, 2013). These changes would be expected to further improve the nutritional profile of school foods. A number of small studies suggest that at least in some schools, students are reacting positively to the changes and eating the healthy foods offered to them (Ralston and Newman, 2015; Johnson et al., 2016).

There are some encouraging signs of change in nonschool FAFH, particularly related to children's options. With growing social awareness of the problem of childhood obesity, more parents have become concerned about the FAFH choices offered to children. Recent years have seen an increase in healthier options as part of children's meals served at restaurants and fast-food establishments (CBS News, 2011). Some establishments have even begun offering them as the default—that is, the standard children's meal comes with a healthier beverage or side item, such as fruit, possibly with other options, such as fried potatoes, available upon request (Wootan, 2012). Some fast-food companies have agreed to voluntary standards limiting advertising of less nutritious foods to children (Kolish et al., 2015). Some studies have reported positive changes in the nutritional content of children's meal orders, indicating these efforts may be paying off (Wansink and Hanks, 2014; Peters et al., 2016). Some restaurants may brand themselves as promoting healthful options for children and families, further shifting norms (Peters et al., 2016).

Looking forward, the visibility and ubiquity of healthful FAFH options may make healthful choices more normative. Ideally, this could create a virtuous circle in which changes in social attitudes lead to increased demand for healthier options, generating a supply-side response that makes it ever easier to prioritize health. Such changes are unlikely overnight and may be more pronounced in certain segments of the population. Parents may be quicker to make changes for their children. Among adults, menu labeling likely will appeal disproportionately to health-conscious consumers (see chapter 10). Less health-conscious consumers might experience the spillover benefit of availability of healthier versions of popular items. Or, given a dynamic marketplace, some FAFH establishments might specialize in more indulgent items, appeasing less health-conscious consumers.

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