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U.S. Food Commodity Availability by Food Source, 1994-2008

Biing-Hwan Lin, Tobenna D. Anekwe,
Jean C. Buzby, and Jeanine T. Bentley





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Abstract

ERS' Loss-Adjusted Food Availability (LAFA) data and Federal dietary intake surveys supply key data for monitoring Americans' food and nutrient consumption. The LAFA data provide estimates for more than 200 food commodities back to 1970. The data are for the Nation as a whole and are not disaggregated by food source (at home and away from home). The dietary intake surveys, conducted by USDA's Agricultural Research Service in conjunction with the National Center for Health Statistics, provide detailed data on food obtained and eaten by Americans at various locations. ARS has developed databases, in conjunction with ERS, to translate foods reported in dietary intake surveys into ERS food commodities. These databases enable ERS researchers to disaggregate LAFA availability data by demographics and by food source in this study. Consistent with ERS data indicating that the at-home market accounts for 58 percent of food expenditures and 68 percent of caloric intake, over half of all food commodities acquired over 1994-2008 were for at-home use. On average, over 80 percent of total fruits, dairy, and nuts—and 61 percent of all meats and fish—were acquired for at-home use. The at-home share of some commodities (e.g., berries, fluid milk, caloric sweeteners, and nuts) rose over 1994-2008 while the share for others (e.g., chicken and wheat flour) declined.

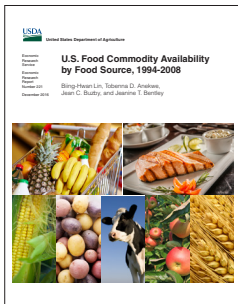
Keywords: Food availability, food consumption, commodity consumption, food source, Food Availability (Per Capita) Data System, Continuing Survey of Food Intakes by Individuals, Loss-Adjusted Food Availability data, National Health and Nutrition Examination Survey, What We Eat in America.

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U.S. Food Commodity Availability by Food Source, 1994-2008

Biing-Hwan Lin, Tobenna D. Anekwe, Jean C. Buzby, and Jeanine T. Bentley

What Is the Issue?

The U.S. Department of Agriculture (USDA) maintains two sources of data on U.S. food consumption: (1) the *Loss-Adjusted Food Availability (LAF) data*, compiled by USDA's Economic Research Service (ERS) and covering over 200 food and beverage commodities; and (2) *dietary intake surveys* conducted by USDA's Agricultural Research Service (ARS) in collaboration with the U.S. Department of Health and Human Services's National Center for Health Statistics (NCHS). When used together, they help quantify the Nation's eating habits and quantify nutritional deficiencies. LAF data, as an approximation of food consumption, show year-to-year changes in commodity consumption, whereas dietary intake surveys collect data on food consumption (e.g., apple pie) but not commodity consumption (e.g., apples used in various foods).

Neither resource, though, reveals exactly who eats what food commodities, the amounts eaten, and where the food commodity is acquired. These additional pieces of information are critical to government and businesses for addressing such issues as the Nation's failure to meet Federal dietary guidelines and the effectiveness of commodity promotion. By determining the amounts of fruit and vegetables consumed by different demographic subgroups and via different food sources, stakeholders can identify which populations are particularly deficient in consuming fruit and vegetables and the source of dietary deficiency. The data on the food source of commodity consumption could have implications for the effectiveness of marketing and educational efforts. If a commodity is consumed mainly at home (e.g., milk), then it makes sense to target educational and other efforts for that commodity more at grocery shoppers than at restaurant-goers. Likewise, if a commodity is evenly consumed at home and away from home (e.g., chicken), then targeting promotional efforts at foodservice establishments and grocery stores might be equally effective.

What Did the Study Find?

Using data from four national food intake surveys conducted between 1994 and 2008, ERS researchers disaggregated 63 LAF commodities (fruit, vegetables, dairy, meats, eggs, grains, fat and oils, caloric sweeteners, and nuts) by food source—food at home (FAH) and food away from home (FAFH)—for the Nation as a whole and for 15 demographic subgroups. Food source is defined mainly by where a food was acquired and less on where it was eaten. Foods obtained at grocery stores are classified as FAH even though they can be eaten away from home, such as at an office or in a school cafeteria. Foods prepared away from home are classified as FAFH even though they can be picked up as take-out or delivered to the consumers' home.

ERS is a primary source of economic research and analysis from the U.S. Department of Agriculture, providing timely information on economic and policy issues related to agriculture, food, the environment, and rural America.

More than half of all food commodities were obtained for at-home consumption. Consistent with ERS food expenditure and nutrient intake data indicating that the at-home market accounted for 58 percent of total food expenditures and 68 percent of total caloric intakes, over half of all food commodities were consumed at home. On average, between 1994 and 2008, over 80 percent of total fruit, dairy, and nuts were obtained for at-home use, whereas 61 percent of all meats and fish were obtained for at-home use. Over time, the at-home shares of some commodities (e.g., berries, fluid milk, caloric sweeteners, and nuts) rose while others (e.g., chicken and wheat flour) declined.

The at-home share of berry consumption rose with per capita availability. Flavor, healthfulness, convenience, and year-round availability have contributed to increasing consumer demand for berries, with per capita availability growing from 4.5 pounds per person per year during 1994-98 to 6.6 pounds during 2007-08. The at-home share of berries rose from 82.8 percent during 1994-98 to 88.6-90.6 percent during 2003-08.

Slightly over half of lettuce and potatoes were obtained for at-home use. Sixty-two percent (169 pounds per capita per year) of total vegetables were obtained for at-home use during 1994-2008. Among vegetables, the at-home share was smallest for lettuce and potatoes, averaging 52 and 53 percent (7.8 and 29.8 pounds), respectively, during 1994-2008. Sweet corn and green peas had the highest at-home market shares, both averaging 80 percent (5.8 and 1.4 pounds, respectively) during 1994-2008.

The at-home share for cheese was much smaller than for other dairy products. On average, 82 percent of total dairy was obtained for at-home use during 1994-2008, with per capita consumption averaging 175 pounds at home and 39 pounds away from home. For yogurt, the at-home market captured 91 percent of consumption (5.8 pounds at home versus 0.6 pound away from home per capita per year). The at-home market also dominated fluid milk consumption with an 85-percent market share. By contrast, 57 percent of cheese was obtained for at-home use, on average, during 1994-2008—11.7 pounds at home versus 8.7 pounds away from home per capita per year.

Among all meats and fish, chicken had the smallest at-home market share. On average, 61 percent of all meats and fish were obtained for at-home use, averaging 88 pounds per capita per year at home and 57.3 pounds away from home during 1994-2008. The away-from-home share of chicken consumption rose from 41.9 percent during 1994-98 to 46.4 percent during 2007-08. This trend is consistent with the introduction of chicken nuggets and their rising popularity in fast-food places.

How Was the Study Conducted?

Our analysis used three databases: the LAFA data series, the Federal dietary intake surveys, and the Food Intakes Converted to Retail Commodities Databases (FICRCDs), which links foods and commodities for data collected in recent dietary intake surveys, including the 1994-96 and 1998 Continuing Survey of Food Intakes by Individuals, 1999-2000 National Health and Nutrition Examination Survey (NHANES), and 2001-02, 2003-04, 2005-06, and 2007-08 What We Eat in America, which is the dietary component of NHANES. The 1999-2002 NHANES data are excluded from this study because they do not have the data to classify food source into at home and away from home. To disaggregate the LAFA data by food source, we employed a two-step procedure. First, we estimated commodity consumption patterns by food source (e.g., the proportion of potatoes acquired for at-home consumption) using intake survey data and FICRCD. Then, we applied the estimated commodity consumption proportions to disaggregate the LAFA data by food source for various demographic variables (i.e., household income, age, men versus women versus boys versus girls, adult education, and race and ethnicity).

U.S. Food Commodity Availability by Food Source, 1994-2008

Introduction

The U.S. Department of Agriculture (USDA) maintains two sources of data on U.S. food consumption: (1) the *Food Availability (per capita) Data System* (FADS) compiled by USDA's Economic Research Service (ERS), and (2) the *dietary intake surveys* conducted by USDA's Agricultural Research Service (ARS) in collaboration with the U.S. Department of Health and Human Services, National Center for Health Statistics (NCHS). When used together, these sources help quantify the Nation's eating habits and support the coordinated research program outlined in the National Nutrition Monitoring and Related Research Act of 1990 (U.S. GPO, 1990).

The FADS contains three data series—Food Availability, Loss-Adjusted Food Availability (LAFA), and Nutrient Availability. This report uses LAFA data, which provide annual estimates of food availability for more than 200 food commodities dating back to 1970 (USDA, ERS, 2014a). The LAFA data as a proxy for consumption are for the Nation as a whole and are not disaggregated by demographics (age, education, race, etc.) or food source (grocery store, school, restaurant, fast-food establishment, community food programs, etc.). For example, the LAFA data report that in 2010, an average American consumed 34.5 pounds of (fresh-weight) oranges, of which 31.3 pounds (fresh orange equivalent) were consumed as juice and roughly 3.3 pounds as fruit.

However, the LAFA data series does not report how much of the orange juice or fruit was acquired at grocery stores versus, say, restaurants. Knowing the source of food commodities could assist policy formulation and decisionmaking by the public and private sectors. If a commodity is consumed mainly at home (e.g., milk), then it makes sense to target educational and other efforts for that commodity more at grocery shoppers than at restaurant-goers. Likewise, if a commodity is evenly consumed at home and away from home (e.g., chicken), then targeting promotional efforts at food-service establishments and grocery stores might be equally effective.

USDA has conducted periodic dietary intake surveys since the 1930s and has collaborated with NCHS on those surveys since 2002. Intake surveys provide data on the foods and beverages (hereafter, "foods") consumed, their amounts, whether or not they were eaten at home, and where they were acquired. Household and personal characteristics are recorded in the survey. For example, the survey indicates how much orange juice was obtained by an average Hispanic teenager at a restaurant with table service.

The dietary intake surveys provide rich data on what foods are obtained by consumers of different demographics at various locations, but the surveys were conducted only periodically prior to 1999. More importantly, the surveys collect data on *food* consumption (such as apple pie) but not *commodity* consumption (such as apples in various product forms). Therefore, users interested in consumption totals by commodity have historically relied on FADS. Indeed, FADS data have been widely used by news media, associations and nonprofit organizations, university researchers, the private sector, State and Federal agencies, and foreign governments/organizations.

Since 2000, ERS researchers have used dietary intake data to disaggregate FADS—commodity by commodity—by food source and demographic variables.¹ These ERS studies demonstrate the utility of translating foods reported in dietary intake surveys into commodities that match those in FADS/LAFA reporting. This food-to-commodity translation is codified in the Food Intakes Converted to Retail Commodities Databases (FICRCDs), developed by ARS in collaboration with ERS (USDA, ARS, 2014a). A recent study used the FICRCD to disaggregate the LAFA data by demographics (Lin et al., 2016).

FICRCDs have been developed for the following dietary intake surveys: the 1994-96 and 1998 Continuing Surveys of Food Intakes by Individuals (CSFII) (USDA, ARS, 2014b); 1999-2000 National Health and Nutrition Examination Survey (NHANES) (USDHHS, NCHS, 2014); and 2001-02, 2003-04, 2005-06, and 2007-08 What We Eat In America (WWEIA) surveys conducted jointly by USDA and NCHS as a component in NHANES (USDA, ARS, 2014b and 2014c). Survey data from 1999-2002 are excluded here because they lack information on food sources as defined in this study.

¹These studies converted foods reported in dietary recalls into commodities by using the USDA's recipe files and disaggregated food availability data, commodity by commodity. A list of publications can be found at <http://www.ers.usda.gov/topics/food-choices-health/food-consumption-demand/food-consumption/eating-patterns.aspx>

Data

ERS's Food Availability Data System (FADS) comprises three related data series that each look differently at the food available for consumption in the United States. The core series, Food Availability, is the foundation for the other two series: (1) Nutrient Availability² and (2) Loss-Adjusted Food Availability (LAFA) (USDA, ERS, 2014a).

Loss-Adjusted Food Availability Data

By incorporating food spoilage and other losses incurred along the food marketing chain and by subtracting the inedible share (e.g., pits and seeds), LAFA data better approximate actual consumption than do unadjusted data. Further, per capita loss-adjusted availability data can be converted into intakes of food energy (i.e., calories) and food pattern equivalents (or “servings”), which can be used to examine how the average American diet stacks up against Federal recommendations.³

The core Food Availability data series (also known as food supply or food disappearance data) measures the flow of fresh and semi-processed food commodities through the U.S. marketing system. These data are not a direct measure of actual consumption (i.e., the quantity of food actually ingested) but rather what is *available* for consumers; as such, FADS data are used widely as a proxy for consumption. The total amount of food available for domestic consumption is estimated as the residual after subtracting exports, industrial uses, seed and feed use, and year-end inventories from the sum of production, beginning inventories, and imports. Per capita food availability is calculated by dividing the total food supply for a specific year by the U.S. total resident population, plus Armed Forces overseas, for that same year. The Food Availability data measure the use of basic commodities, such as wheat, beef, and shell eggs, for food products at the farm gate or an early stage of processing. The series does not measure use of highly processed or multi-ingredient foods—such as bakery products, frozen dinners, or soups—in their finished form. Ingredients of highly processed foods, however, are captured as less processed foods such as sugar, flour, fresh vegetables, and fresh meat.

The Food Availability data reflect the amounts of major food commodities entering the market, regardless of their final food use. This data series does not provide information on final product forms (e.g., lasagna versus meat ravioli), consumption locations, or supplies of further processed products. In short, relatively good information exists for many agricultural commodities (or food ingredients), but not for foods as actually eaten. For example, the Food Availability data provide a good estimate of the annual per capita consumption of kidney beans but no information on how the beans were processed for consumption (fresh, canned, or dried⁴); where the beans were marketed and/or consumed (supermarket, hospital, school, restaurant, food manufacturer, or home); how they were consumed (in burritos, chili, or salad); or the socioeconomic characteristics of the consumer who ultimately ate the food.

²This nutrient series, compiled by USDA's Center for Nutrition Policy and Promotion (CNPP) in what they call the Nutrient Content of the U.S. Food Supply, is outside the scope of this report (USDA, CNPP, 2014a).

³These food pattern equivalents were formerly (i.e., from 1992 to 2005) called the Food Guide Pyramid serving equivalents and are defined by the 2005 *Dietary Guidelines for Americans* and its supporting MyPyramid Plan Food Guidance System (USDA, CNPP, 2014b). Also, note that CNPP provides estimates of calories that are not adjusted for loss.

⁴All beans in the FADS data series are reported in their “dried” form. Many of the fruit and vegetables in FADS have data on multiple forms. For example, FADS reports availability for fresh apples, canned apples and applesauce, frozen apples, dried apples, and apple juice.

Food Availability data, which date back to 1909 for most commodities, are useful for delineating trends over time. The data are commonly used for a variety of purposes: to measure U.S. per capita food consumption, to show year-to-year changes in consumption of major food commodities, to calculate the approximate nutrient content of the food supply, to identify long-term consumption trends, and to permit statistical analyses of the effects of prices and income on food consumption. Because the data include food that is lost through spoilage and waste, they overstate actual consumption.

In the late 1990s, ERS adjusted the core Food Availability data for spoilage and other losses by subtracting estimated losses from the “primary weights”⁵ reported in the data series. The resulting Loss-Adjusted Food Availability (LAFA) data series estimates loss at up to three different stages in the marketing chain (i.e., farmgate-to-retail, retail, and consumer). Nonedible portions—such as peels, seeds, and bones—are subtracted in the LAFA data at the consumer level. LAFA data require accurate estimates of the average food loss percentage for each of the more than 200 commodities.⁶

Efforts are underway to improve the LAFA data series by refining food loss estimates at the retail and consumer levels. For example, ERS has recently obtained data on food loss in supermarkets for fresh fruit, vegetables, meat, poultry, and seafood (Buzby et al., 2016), and efforts are underway to update consumer-level food loss estimates. Because of well-known limitations, the series is considered to be preliminary.

Dietary Recall Surveys

USDA has conducted periodic surveys of U.S. household and individual food intakes since the 1930s. In these dietary recall surveys, respondents list which foods they ate, how much of each food they ate, and where they obtained it. They also provide various economic, social, and demographic data about themselves and their households. Likewise, since the 1960s, the National Center for Health Statistics (NCHS) has collected similar information with its National Health and Nutrition Examination Survey (NHANES). Starting in 2002, these USDA and NCHS surveys were integrated and have since been a major component (termed “What We Eat in America,” or WWEIA) in the NHANES.

USDA Dietary Intake Surveys

Before integrating its dietary intake survey into NHANES, USDA’s ARS conducted the 1994-96 and 1998 Continuing Survey of Food Intakes by Individuals (CSFII)—recording intake over 2 nonconsecutive days using 24-hour dietary recalls—in order to collect data on foods actually eaten by individuals.⁷ In addition, the survey collected demographic information (household size, income, race, age, gender, etc.) and information on where a food was obtained and whether or not it was eaten at

⁵In FADS, the primary weight is the weight at a primary distribution level, which is dictated for each commodity by the structure of the marketing system and data availability. In most cases, the primary weight is the farm weight. For meat and poultry, the primary weight is the carcass weight.

⁶Additional information on the limitations of LAFA can be found in the following LAFA documentation: <http://www.ers.usda.gov/data-products/food-availability-%28per-capita%29-data-system/loss-adjusted-food-availability-documentation.aspx#limitations>.

⁷USDA conducted dietary intake surveys prior to 1994 (such as the 1989-91 CSFII and 1977-78 Nationwide Food Consumption Survey). These earlier survey data are excluded from this study because they do not have corresponding technical databases that translate foods into commodities.

home. CSFII data are used for policy formation, regulation, program planning/evaluation, education, and research.

Uses of CSFII data include evaluating the effect of food fortification on nutrient intakes, estimating exposure to pesticide residues and other contaminants from foods, and targeting nutrition assistance and education programs to those most in need. The data are particularly valuable for measuring how socioeconomic and demographic characteristics relate to food consumption and for comparing the nutritional quality of foods prepared for at-home or away-from-home consumption. The 1998 CSFII added a supplemental sample of children under age 10.⁸

In addition to intake data, ARS also provides technical support documents, including recipes and number of servings specified in Federal dietary guidelines (USDA, ARS, 2014b). For each food, the recipe lists all ingredients and their weights in grams; these ingredient descriptions help researchers distinguish between similar food products (e.g., dry pinto beans versus refried beans). ERS researchers have used these technical databases and CSFII data to analyze U.S. commodity consumption. For example, between 2001 and 2007, ERS completed a series of analyses describing the consumption of 21 commodities (e.g., tomatoes, apples, and beef) by consumer age, income, region, and race and by food source (USDA, ERS, 2014b). Building on these descriptive studies, ERS researchers conducted regression analyses to predict future food and commodity consumption (Lin et al., 2003).

National Center for Health Statistics Surveys. Since the early 1960s, NCHS has conducted the National Health and Nutrition Examination Survey (NHANES) to assess the health and nutritional status of adults and children in the United States (USDHHS, NCHS, 2014). Early on, the surveys were periodic and focused on different population groups or health topics. However, since 1999, NHANES has been a continuous survey. Each year, NHANES surveys a nationally representative sample of up to 5,000 persons in 15 counties across the United States. NHANES data are released every 2 years; the individual survey year and respondents' locations are suppressed in order to safeguard data confidentiality. In 2002, when USDA's and NCHS's dietary intake surveys were integrated into What We Eat in America (WWEIA), which is the dietary component of NHANES, NCHS adopted the USDA dietary recall survey methodology. Dietary recall is known to be subject to underreporting (Archer et al., 2013; Moshfegh et al., 2008). The impact of this underreporting on the distribution of food commodity consumption by food source is unclear.

Prior to 2002, both USDA and NCHS collected data on whether or not the food was eaten at home. USDA also collected data on where the food was acquired, whereas NCHS did not collect such data until the 2002 WWEIA. In this report, we use 1994-96 and 1998 CSFII and 2003-08 WWEIA data on what food was eaten, its amount, where it was acquired (food source), and whether or not it was eaten at home; these data were collected for 2 nonconsecutive days.⁹

⁸Both the 1994-96 and 1998 surveys used the same data collection methods, instruments, and other survey procedures. ARS provides a sample weight so that the 1994-96 and 1998 data can be analyzed as a single data set.

⁹Even though the data on food source were collected for 2002, they were not released to the public because these data were not collected in 2001. The 2001 and 2002 data are released as a single data set, and only the data common in both years have been released.

Food Intakes Converted to Retail Commodities Databases (FICRCDs)

To enhance ERS studies of commodity consumption, ERS collaborated with ARS to develop FICRCDs. FICRCDs provide commodity content for food intake data as recorded in national dietary surveys (USDA, ARS, 2014a). For example, a piece of apple pie reported in the dietary survey is translated quantitatively into commodities that include wheat flour, apple, caloric sweeteners, and specific vegetable oils that compose shortening. For each of the foods reported in dietary surveys, FICRCDs have the corresponding values for 65 commodity groups. For example, the 2007-08 FICRCD indicates that each 100 grams of two-crust apple pie contains 10.2 grams of shortening, 53.4 grams of raw apples, 20.8 grams of wheat flour, and 10.7 grams of caloric sweeteners.

There are more than 200 commodities covered in LAFA. Appendix A shows which LAFA commodities fall under each of the 65 FICRCD commodities. Our study has 63 LAFA commodity groups because (1) we combine FICRCD's eggs with and without shell into a single group—eggs—to match LAFA's commodity categorization, and (2) because potatoes¹⁰ account for virtually all of the total roots and tubers (e.g., 58.8 pounds of 59.8 pounds per capita in 2007-08), we disaggregate potato consumption only, not total roots and tubers.

FICRCDs have been developed for the foods reported in the following dietary surveys:

- Continuing Survey of Food Intakes by Individuals, 1994-1996 and 1998;
- National Health and Nutrition Examination Survey, 1999-2000; and
- What We Eat In America, National Health and Nutrition Examination Survey, 2001-02, 2003-04, 2005-06, and 2007-08.

The development of FICRCDs is ongoing but lags both LAFA and WWEIA. The data on disaggregated LAFA will likely be updated if and when more recent FICRCDs become available.

Definition of Food Source

In the 1994-96 and 1998 CSFII and the 2003-04, 2005-06, and 2007-08 WWEIA, survey respondents reported whether or not a food was eaten at home and where it was acquired. Food source coding differs between CSFII and WWEIA (table 1), but many sources—such as grocery store, restaurant with waiter/waitress service, fast food, and school cafeteria—are common to both surveys. Here, food sources are aggregated into two broad categories: “food at home” (FAH) and “food away from home” (FAFH). Further disaggregation of FAFH into subcategories, such as restaurants, fast-food places, and school cafeterias would sometimes result in insufficient observations. For example, up to 10,000 respondents report dietary intakes in each wave of the WWEIA, but only school-age children who are at school on the day of dietary recall can obtain foods at school cafeterias. Also, some of the FICRCD commodities, such as tropical fruit, may have limited observations at certain food sources, such as fast-food places and school cafeterias.

For certain commodities that are frequently served in sit-down restaurants, fast-food places, and school cafeterias (e.g., potatoes, tomatoes, apples, dairy products, etc.), further disaggregation by FAFH source can be conducted by pooling different waves of survey data (say, combining 2005-06

¹⁰Sweet potatoes and yams are included in the total roots and tubers.

and 2007-08 data into a single set) to increase the number of observations. However, in this report, we analyze the four 2-year waves of survey data separately and keep food sources broadly aggregated into FAH and FAFH.

The determination of FAH versus FAFH is predicated on where the food was obtained. However, FAH can be eaten away from home and FAFH 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 was eaten at home.

Table 1
Coding of food at home (FAH) and away from home (FAFH)

WWEIA code	CSFII code	Where the food was obtained	FAH or FAFH
1	1	Store	FAH
2	2	Restaurant with waiter/waitress	FAFH
3	3	Fast food restaurant/pizza	FAFH
4	4	Bar/tavern/lounge	FAFH
5		Restaurant no additional information	FAFH
6	6	Cafeteria not at school	FAFH
7	5	School cafeteria	FAFH
8	8	Children care center	FAFH
9	8	Family/adult care center	FAFH
10	9	Soup kitchen/shelter/food pantry	FAH if eaten at home; otherwise FAFH
11	10	Meals on Wheels	FAFH
12	11	Community food program - other	FAH if eaten at home; otherwise FAFH
13		Community food program no additional information	FAH if eaten at home; otherwise FAFH
14	7	Vending machine	FAFH
15	15	Common coffee pot or snack tray	FAFH
16	13	From someone else/gift	FAFH
17	14	Mail order purchase	FAH
18	16	Residential dining facility	FAFH
19	12	Grown by you or someone you know	FAH
20	71-74	Fish caught by you or someone you know	FAH
24		Sport, recreation, entertainment facility	FAFH
25		Street vendor, vending truck	FAFH
91	96	Other, specify	FAFH
99	98	Don't know	FAFH
	99	Missing value	FAFH

Note: CSFII = *Continuing Survey of Food Intakes by Individuals*; WWEIA = *What We Eat in America*.

Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat in America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics.

Method To Disaggregate LAFA by Food Source

In an earlier study, the LAFA data for the Nation as a whole were disaggregated by demographic characteristics, including household income as well as respondent's age, gender, (adult's) educational attainment, and race/ethnicity (Lin et. at., 2016). In this study, we convert foods reported in dietary surveys into LAFA commodities, and then total up the amounts of each LAFA commodity by food source (FAH and FAFH) for each respondent. These FAH and FAFH consumption amounts form the basis to estimate the FAH and FAFH shares of a LAFA commodity consumed by a population subgroup, which are then used to disaggregate the LAFA data by food source.

Given the FAH and FAFH consumption amounts for each respondent, FAH and FAFH shares of a commodity for a population subgroup can be calculated using two alternative approaches—the mean proportion and the population proportion. These two approaches may yield similar results, but they often produce different (but equally valid) results that represent different interpretations of the data. In this report, our objective is to disaggregate LAFA data by food source, and population proportion is deemed more suitable for accomplishing that objective. The formulas for deriving FAH and FAFH shares under both approaches are given below, followed by a simplified illustration of the population proportion's advantage in determining how much of a commodity is consumed at home versus away from home.

Let P denote the U.S. population and P_1 and P_2 represent the number of children and adults, respectively. Further, let the sample sizes for children and adults be denoted by S_1 and S_2 , such that W_1 and W_2 are the sample weights for children and adults. For simplicity, we assume an equal weight for all individuals in each age group—children or adult. Therefore, $P = P_1 + P_2 = W_1 * S_1 + W_2 * S_2$.

Let Q denote total U.S. fruit consumption; Q_1 and Q_2 are, respectively, total fruit consumed by children and adults. FAH is total fruit consumed at home and FAH_1 and FAH_2 are total fruit consumed at home by children and adults, respectively. The proportion of total fruit consumed at home can be expressed as

$$\begin{aligned} FAH/Q &= (FAH_1 + FAH_2)/(Q_1 + Q_2) \\ &= (W_1 * \sum_i FAH_{1i} + W_2 * \sum_j FAH_{2j}) / (W_1 * \sum_i Q_{1i} + W_2 * \sum_j Q_{2j}) \end{aligned}$$

where $i = 1$ to S_1 and $j = 1$ to S_2 .

The population proportion approach follows the above formula by first summing up weighted FAH and Q quantities across all individuals in the subpopulation and then taking the ratio of the two sums.

The mean proportion approach calculates the FAH share of fruit consumption for each individual and then derives the weighted-average share across all individuals.

$$\text{The weighted average FAH share} = [W_1 * \sum_i FAH_{1i}/Q_{1i} + W_2 * \sum_j FAH_{2j}/Q_{2j}] / P.$$

The mean proportion approach represents the estimated FAH share for a representative consumer—on average, the share of fruit consumed at home among children (and adults). Because the individual FAH share (FAH_{1i}/Q_{1i} and FAH_{2j}/Q_{2j} , which are unit free as percentages) is used in the mean proportion approach, differences in the amounts of fruit consumed across individuals are not factored into the weighted average, as demonstrated below.

A simplified illustration will demonstrate the differences in data interpretations between the mean and population proportion approaches and why population proportion is used in our analysis. Suppose the U.S. population could be represented by a sample of two individuals of equal sample weight. Individual A consumes a total of 10 pounds of fruit, of which 4 pounds are consumed at home. Individual B consumes all 20 pounds of fruit at home and nothing away from home. The mean proportion approach signifies that an average consumer eats 70 percent of fruit at home (the average of 40 percent and 100 percent). Individual B eats more fruit than individual A, but the difference in consumption amount vanishes as percentages are used in the mean proportion approach. On the other hand, the population proportion approach indicates that of the total fruit consumed in the United States, 80 percent (24/30 pounds) is consumed at home.

The LAFA data are constructed using a balance sheet approach to derive a proxy for food consumption data at the national level, which are then divided by the U.S. population to produce an estimate of per capita consumption. In this report, we disaggregate the LAFA data, commodity by commodity, into FAH and FAFH; that is, we calculate how much of a commodity was obtained for at-home and away-from-home consumption. In other words, we do not estimate the FAH and FAFH shares of food consumption by a representative consumer, which is what the mean proportion approach yields.

The FICRCD has 65 commodity groups, some highly aggregated. For example, “stone fruit” in FICRCD includes apricots, cherries, nectarines, peaches, plums, and prune juice—each of which is reported separately in the LAFA data. Therefore, we group LAFA commodities in accordance with FICRCD definitions (see Appendix A). Once the food eaten by a respondent is converted into LAFA commodities, we total up the amount of each commodity by food source for the respondent and then apply the population proportion approach to calculate the commodity consumption by food source for the Nation as whole or for a population subgroup.

Most CSFII and WWEIA respondents reported intake data for 2 days, but a small percentage of respondents completed only 1 day of intake data. Per-day commodity intakes by food source were calculated by taking the average of 2 days among those who reported intakes for both days. All individuals of all ages who completed the dietary recall surveys, for 1 day or both days, were included in the study.

CSFII’s and WWEIA’s survey design and sample weights were incorporated to estimate the weighted-average shares of FAH and FAFH, the corresponding standard errors, and the 95-percent confidence intervals using the statistical package STATA (StataCorp, 2015). The weighted-average shares are used to disaggregate LAFA into FAH and FAFH for the Nation as a whole and by demographic subgroup.

Results: Commodity Availability by Food Source From 1994-98 to 2007-08

In this report, two sets of data for the whole Nation and by demographic subgroup were generated: (1) the weighted-average FAH and FAFH shares of commodities, and (2) the disaggregated LAFA data by food source. Demographic subgroups include children (under age 20) and adults; boys, girls, men, and women; low- and high-income households (using 185 percent of the Federal poverty line as the threshold); adults by highest level of education attained (less than high school, high school, and college); and race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, and other).

In addition to weighted-average FAH and FAFH share and quantity data, we also calculate the associated 95-percent confidence intervals so that differences across demographic groups and years can be statistically tested. In this section, we present two sets of results for the whole Nation: (1) the weighted-average FAH and FAFH shares of commodities (table 2), and (2) per capita annual consumption quantities at home and away from home for the 63 LAFA commodities¹¹ (table 3). In the interest of brevity, the following data, reported in the appendices, were not interpreted:

- Confidence intervals—the 95-percent confidence intervals for the weighted-average FAH and FAFH shares and quantities for the whole Nation and by demographic subgroup (Appendixes B and C, online).
- FAH and FAFH shares and quantities by demographic subgroup (Appendixes B and C, online).

Using 95-percent confidence intervals (Appendix B), we test changes in FAH and FAFH shares from the 1994-98 to 2003-08. The shaded numbers in table 2 indicate that the shares in the respective survey periods (i.e., 2003-04, 2005-06, and 2007-08) differ from the 1994-98 shares at the 5-percent significance level. The dietary survey data span just 14 years, but still there are noticeable changes in FAH and FAFH shares. The LAFA data are reported as point estimates (without corresponding variances); we calculated the 95-percent confidence intervals of the disaggregated LAFA data (pounds per capita per year for FAH and FAFH) by applying the standard errors in weighted average shares to the LAFA data.¹²

Most fruit was purchased for at-home consumption. On average, during 1994-2008, the at-home market accounted for 86.5 percent of the total market for fruit (table 2, fig. 1), or an average per capita consumption of 106.9 pounds per year (table 3). This compares with a 13.5-percent share and per capita consumption of 16.7 pounds per year for the away-from-home market. Among all fruit, bananas had the highest at-home share, averaging 93.8 percent during 1994-2008, and “other citrus

¹¹As discussed earlier, the FICRCD has 65 commodity groups, but we have 63 commodity groups because (1) we combine eggs with shell and eggs without shell into an “eggs” category and (2) potatoes accounted for 98.3 percent of total roots and tubers in 2007-08, so we drop total roots and tubers in this report.

¹²The confidence intervals are calculated to facilitate statistical testing of the differences between disaggregated LAFA quantities by food source. The confidence intervals should be treated as approximations because the LAFA data are treated as fixed numbers without variances. In table 2, we indicate whether or not changes in FAH and FAFH shares over time are statistically significant. Nonsignificant changes in shares by food source do not necessarily imply that changes in disaggregated LAFA quantities by food source are not significant. For example, FAH and FAFH quantities can change significantly over time, but if FAH and FAFH quantities change in the same direction and by a similar percentage, then changes in FAH and FAFH shares over time will not be significant.

Table 2

Average FAH and FAFH shares of LAFA commodities: 1994-98, 2003-04, 2005-06, and 2007-08

	Home					Away from home				
	1994-98	2003-04	2005-06	2007-08	1994-2008	1994-98	2003-04	2005-06	2007-08	1994-2008
	<i>Percent</i>									
Total fruit	85.60	86.63	87.13	86.62	86.50	14.40	13.37	12.87	13.38	13.51
Apples, Total	86.56	88.89	87.73	88.34	87.88	13.44	11.11	12.27	11.66	12.12
Apples as fruit	86.71	89.61	88.29	89.43	88.51	13.29	10.39	11.71	10.57	11.49
Apple juice	86.42	88.41	87.35	87.25	87.36	13.58	11.59	12.65	12.75	12.64
Bananas	93.40	94.41	94.18	93.33	93.83	6.60	5.59	5.82	6.67	6.17
Berries	82.82	88.57	90.63	88.64	87.67	17.18	11.43	9.37	11.36	12.34
Grapes	86.75	89.43	91.19	89.43	89.20	13.25	10.57	8.81	10.57	10.80
Melons	83.77	79.89	87.64	84.38	83.92	16.23	20.11	12.36	15.62	16.08
Oranges, Total	85.75	86.18	86.22	85.19	85.84	14.25	13.82	13.78	14.81	14.17
Oranges as fruit	88.30	90.91	90.99	90.08	90.07	11.70	9.09	9.01	9.92	9.93
Orange juice	85.56	85.89	85.86	84.77	85.52	14.44	14.11	14.14	15.23	14.48
Other citrus fruit	79.08	73.80	75.51	70.78	74.79	20.92	26.20	24.49	29.22	25.21
Stone fruits	85.76	88.57	88.20	91.05	88.40	14.24	11.43	11.80	8.95	11.61
Tropical fruits	75.41	82.52	78.15	82.29	79.59	24.59	17.48	21.85	17.71	20.41
Vegetables, Total	63.86	60.64	61.57	63.45	62.38	36.14	39.36	38.43	36.55	37.62
Brassica, Total	71.33	68.58	70.59	71.16	70.42	28.67	31.42	29.41	28.84	29.59
Broccoli and cauliflower	73.79	69.83	73.16	73.80	72.65	26.21	30.17	26.84	26.20	27.36
Carrots	76.05	76.08	77.85	78.74	77.18	23.95	23.92	22.15	21.26	22.82
Celery	69.37	69.95	71.68	78.97	72.49	30.63	30.05	28.32	21.03	27.51
Cucumbers	65.71	66.03	69.31	62.97	66.01	34.29	33.97	30.69	37.03	34.00
Green peas	79.99	81.02	78.43	80.10	79.89	20.01	18.98	21.57	19.90	20.12
Leafy vegetables, Total	56.97	57.68	57.37	57.66	57.42	43.03	42.32	42.63	42.34	42.58
Lettuce	52.10	52.94	51.31	52.84	52.30	47.90	47.06	48.69	47.16	47.70
Onions	60.11	55.50	56.69	61.17	58.37	39.89	44.50	43.31	38.83	41.63
Peppers	59.12	49.75	50.90	59.43	54.80	40.88	50.25	49.10	40.57	45.20
Tomatoes	66.70	59.45	61.27	62.33	62.44	33.30	40.55	38.73	37.67	37.56
Sweet corn	78.62	80.47	79.87	79.60	79.64	21.38	19.53	20.13	20.40	20.36
Potatoes	52.78	52.29	51.48	54.41	52.74	47.22	47.71	48.52	45.59	47.26
Snap beans	76.60	73.65	72.75	76.08	74.77	23.40	26.35	27.25	23.92	25.23
Legumes dried	72.17	68.66	65.94	70.02	69.20	27.83	31.34	34.06	29.98	30.80
Dairy, Total	79.33	83.29	82.57	81.41	81.65	20.67	16.71	17.43	18.59	18.35
Fluid milk, Total	81.44	86.90	86.08	84.90	84.83	18.56	13.10	13.92	15.10	15.17
Fluid milk, 1 percent fat	85.93	86.61	87.46	86.19	86.55	14.07	13.39	12.54	13.81	13.45
Fluid milk, 2 percent fat	83.57	89.24	88.11	86.07	86.75	16.43	10.76	11.89	13.93	13.25
Fluid milk, Skim	79.40	86.17	84.52	85.46	83.89	20.60	13.83	15.48	14.54	16.11
Fluid milk, Whole	79.75	85.16	84.29	82.72	82.98	20.25	14.84	15.71	17.28	17.02
Butter	71.07	75.73	78.74	76.66	75.55	28.93	24.27	21.26	23.34	24.45
Cheese	58.63	56.70	57.65	56.52	57.38	41.37	43.30	42.35	43.48	42.63

Continued—

Table 2

Average FAH and FAFH shares of LAFA commodities: 1994-98, 2003-04, 2005-06, and 2007-08—continued

	Home					Away from home				
	1994-98	2003-04	2005-06	2007-08	1994-2008	1994-98	2003-04	2005-06	2007-08	1994-2008
Yogurt	88.23	89.82	93.67	91.32	90.76	11.77	10.18	6.33	8.68	9.24
Dairy, Other	67.32	71.72	68.74	71.26	69.76	32.68	28.28	31.26	28.74	30.24
Meat, poultry, and fish, Total	62.16	59.86	59.23	61.14	60.60	37.84	40.14	40.77	38.86	39.40
Meat, Total	63.65	63.15	62.05	64.15	63.25	36.35	36.85	37.95	35.85	36.75
Beef	60.25	58.97	58.21	60.29	59.43	39.75	41.03	41.79	39.71	40.57
Pork	71.26	71.70	69.45	71.60	71.00	28.74	28.30	30.55	28.40	29.00
Poultry, Total	61.04	54.64	52.83	56.54	56.26	38.96	45.36	47.17	43.46	43.74
Chicken	58.15	51.48	49.98	53.56	53.29	41.85	48.52	50.02	46.44	46.71
Turkey	76.06	73.70	74.34	77.42	75.38	23.94	26.30	25.66	22.58	24.62
Finfish and shellfish	56.74	60.87	67.03	63.30	61.99	43.26	39.13	32.97	36.70	38.02
Eggs	71.59	72.18	69.55	71.50	71.21	28.41	27.82	30.45	28.50	28.80
Grains, Total	71.17	68.16	67.20	69.57	69.03	28.83	31.84	32.80	30.43	30.98
Corn flour	78.45	78.27	76.88	78.21	77.95	21.55	21.73	23.12	21.79	22.05
Oat flour	94.05	96.02	95.39	95.72	95.30	5.95	3.98	4.61	4.28	4.71
Rice dried	76.12	73.28	71.52	74.56	73.87	23.88	26.72	28.48	25.44	26.13
Wheat flour	68.20	64.18	63.21	65.57	65.29	31.80	35.82	36.79	34.43	34.71
Fat and oils, Total	60.60	58.93	59.18	60.48	59.80	39.40	41.07	40.82	39.52	40.20
Margarine	75.12	69.38	68.99	72.83	71.58	24.88	30.62	31.01	27.17	28.42
Salad and cooking oils	61.21	56.15	57.44	57.20	58.00	38.79	43.85	42.56	42.80	42.00
Shortening	56.72	52.84	51.77	56.75	54.52	43.28	47.16	48.23	43.25	45.48
Oils, other	73.40	81.06	82.03	79.27	78.94	26.60	18.94	17.97	20.73	21.06
Caloric sweeteners	67.29	71.04	69.97	71.50	69.95	32.71	28.96	30.03	28.50	30.05
Nuts, Total	81.85	87.99	89.47	90.01	87.33	18.15	12.01	10.53	9.99	12.67
Peanuts	83.59	86.94	91.06	90.39	88.00	16.41	13.06	8.94	9.61	12.01
Tree nuts	74.69	90.56	85.82	89.29	85.09	25.31	9.44	14.18	10.71	14.91

Notes: the shaded numbers are statistically different from their corresponding 1994-98 figures at $p = 0.05$. See appendix B for the 95-percent confidence intervals. FAH = food at home; FAFH = food away from home; LAFA = Loss-Adjusted Food Availability.

Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat in America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Table 3

U.S. per capita consumption of disaggregated LAFA data by food source: 1994-98, 2003-04, 2005-06, and 2007-08

	Home					Away from home				
	1994-98	2003-04	2005-06	2007-08	Mean 1994-2008	1994-98	2003-04	2005-06	2007-08	Mean 1994-2008
<i>Pounds per person per year</i>										
Total fruit	108.55	109.30	106.32	103.40	106.89	18.26	16.87	15.71	15.97	16.70
Apples, Total	24.59	26.45	25.63	26.26	25.73	3.82	3.31	3.59	3.47	3.55
Apples from fruit	13.27	12.81	12.08	11.71	12.47	2.03	1.48	1.60	1.38	1.62
Apple juice	11.11	13.40	13.30	14.26	13.02	1.75	1.76	1.93	2.08	1.88
Bananas	10.44	9.93	9.59	9.63	9.90	0.74	0.59	0.59	0.69	0.65
Berries	3.74	5.03	5.61	5.86	5.06	0.78	0.65	0.58	0.75	0.69
Grapes	6.58	7.25	8.18	8.25	7.57	1.01	0.86	0.79	0.98	0.91
Melons	4.29	3.67	4.23	4.23	4.11	0.83	0.92	0.60	0.78	0.78
Oranges, Total	36.35	35.53	33.43	28.65	33.49	6.04	5.70	5.34	4.98	5.52
Oranges from fruit	3.64	3.27	3.13	2.49	3.13	0.48	0.33	0.31	0.27	0.35
Orange juice	32.74	32.31	30.33	26.17	30.39	5.53	5.31	5.00	4.70	5.14
Other citrus fruits	6.40	4.89	3.80	4.23	4.83	1.69	1.73	1.23	1.74	1.60
Stone fruits	6.37	6.50	5.94	6.38	6.30	1.06	0.84	0.80	0.63	0.83
Tropical fruits	4.39	5.09	4.70	4.71	4.72	1.43	1.08	1.31	1.01	1.21
Vegetables, Total	109.87	105.72	103.03	102.76	105.35	62.19	68.63	64.31	59.20	63.58
Brassica, Total	6.15	6.01	6.25	6.46	6.22	2.47	2.75	2.60	2.62	2.61
Broccoli and cauliflower	2.94	3.00	3.17	3.37	3.12	1.05	1.30	1.16	1.20	1.18
Carrots	4.40	3.37	3.30	3.21	3.57	1.39	1.06	0.94	0.87	1.07
Celery	2.12	1.93	1.90	2.18	2.03	0.93	0.83	0.75	0.58	0.77
Cucumbers	1.36	1.47	1.51	1.43	1.44	0.71	0.76	0.67	0.84	0.75
Green peas	1.61	1.39	1.24	1.39	1.41	0.40	0.33	0.34	0.35	0.36
Leafy vegetable, Total	0.25	0.52	0.63	0.51	0.48	0.19	0.39	0.47	0.37	0.36
Lettuce	7.42	8.54	7.81	7.31	7.77	6.83	7.59	7.42	6.52	7.09
Onions	4.34	4.67	4.69	5.17	4.72	2.88	3.75	3.59	3.29	3.38
Peppers	3.31	3.47	3.81	4.40	3.75	2.29	3.51	3.68	3.01	3.12
Tomatoes	20.91	18.83	19.33	19.03	19.53	10.44	12.84	12.22	11.50	11.75
Sweet corn	6.53	5.70	5.79	4.96	5.75	1.77	1.38	1.46	1.27	1.47
Potatoes	32.33	31.01	27.70	28.34	29.84	28.92	28.29	26.11	23.74	26.77
Snap beans	2.67	2.71	2.74	2.86	2.75	0.82	0.97	1.03	0.90	0.93
Legumes dried	4.66	3.81	3.74	3.87	4.02	1.80	1.74	1.93	1.66	1.78
Dairy, Total	174.92	176.45	175.10	172.06	174.63	45.58	35.40	36.96	39.29	39.31
Fluid Milk, Total*	118.85	115.44	113.13	110.69	114.53	27.08	17.40	18.29	19.69	20.62
Fluid Milk, 1 percent fat	12.98	12.95	13.31	13.44	13.17	2.13	2.00	1.91	2.15	2.05
Fluid Milk, 2 percent fat	40.12	37.37	36.79	37.12	37.85	7.89	4.51	4.96	6.01	5.84
Fluid Milk, Skim	17.57	16.18	16.10	16.31	16.54	4.56	2.60	2.95	2.77	3.22
Fluid Milk, Whole	39.69	36.46	33.40	30.04	34.90	10.08	6.35	6.22	6.28	7.23

Continued—

Table 3

U.S. per capita consumption of disaggregated LAFA data by food source: 1994-98, 2003-04, 2005-06, and 2007-08—continued

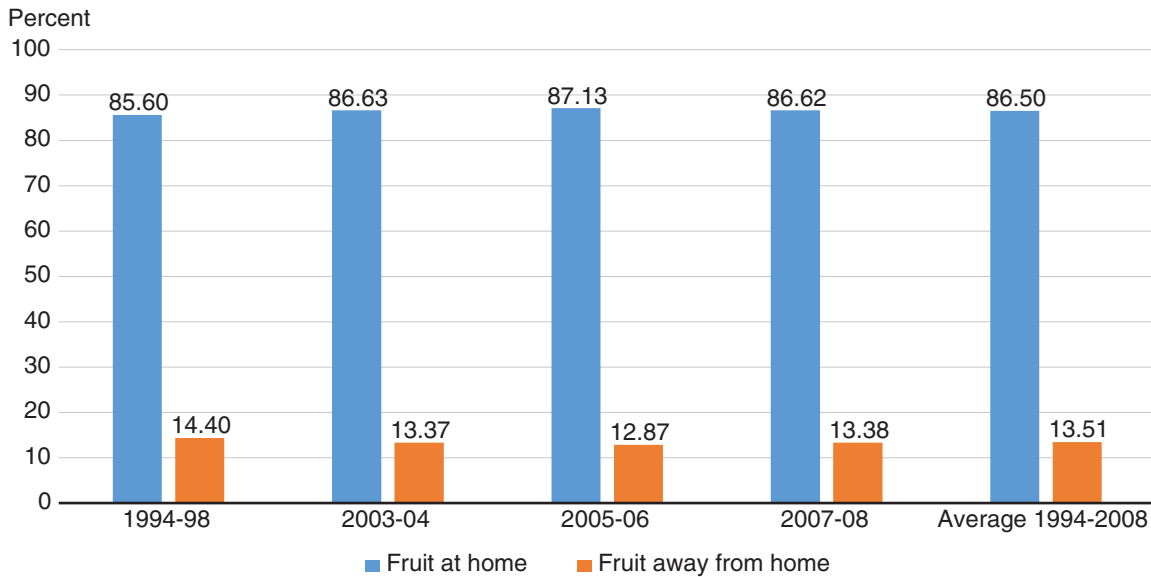
	Home				Mean	Away from home				Mean
	1994-98	2003-04	2005-06	2007-08		1994-98	2003-04	2005-06	2007-08	
<i>Pounds per person per year</i>										
Butter	1.92	2.07	2.21	2.26	2.12	0.78	0.66	0.60	0.69	0.68
Cheese	10.57	11.54	12.38	12.30	11.70	7.45	8.81	9.10	9.47	8.71
Yogurt	3.57	5.44	6.96	7.37	5.84	0.48	0.62	0.47	0.70	0.57
Dairy, Other	3.70	7.92	8.00	8.38	7.00	1.79	3.12	3.64	3.38	2.98
Meat, poultry, and fish, Total	87.00	88.38	87.61	89.10	88.02	52.96	59.27	60.30	56.63	57.29
Meat, Total	52.22	51.40	49.72	50.60	50.99	29.82	29.99	30.41	28.28	29.63
Beef	29.28	28.19	27.89	28.03	28.35	19.32	19.62	20.03	18.46	19.36
Pork	23.07	23.46	21.84	22.65	22.76	9.31	9.26	9.60	8.98	9.29
Poultry, Total	29.80	30.72	30.56	32.29	30.84	19.02	25.51	27.29	24.82	24.16
Chicken	23.27	24.55	24.76	25.93	24.63	16.75	23.14	24.78	22.49	21.79
Turkey	6.69	6.29	6.18	6.72	6.47	2.10	2.25	2.13	1.96	2.11
Finfish and shellfish	5.16	6.11	6.65	6.17	6.02	3.93	3.92	3.27	3.58	3.68
Eggs	13.11	14.40	13.71	13.56	13.70	5.20	5.55	6.00	5.41	5.54
Grains, Total	94.76	89.96	89.06	94.13	91.98	38.38	42.02	43.47	41.17	41.26
Corn flour	9.06	10.17	10.23	10.57	10.01	2.49	2.82	3.08	2.95	2.84
Oat flour	2.84	2.59	2.58	2.65	2.67	0.18	0.11	0.12	0.12	0.13
Rice dried	8.08	8.38	8.37	8.96	8.45	2.54	3.05	3.33	3.06	3.00
Wheat flour	68.69	61.32	60.12	63.44	63.39	32.03	34.23	34.99	33.31	33.64
Fat and oils, Total	28.71	37.27	37.53	39.33	35.71	18.67	25.97	25.88	25.70	24.06
Margarine	4.10	2.20	1.79	1.92	2.50	1.36	0.97	0.80	0.71	0.96
Salad and cooking oils	10.83	15.10	16.84	20.01	15.70	6.87	11.80	12.47	14.98	11.53
Shortening	6.42	8.82	7.15	5.68	7.02	4.89	7.87	6.67	4.33	5.94
Oils, Other	0.28	0.81	1.10	0.94	0.78	0.77	0.19	0.24	0.25	0.36
Caloric sweeteners	57.29	59.17	57.83	56.98	57.82	27.85	24.12	24.82	22.71	24.88
Nuts, Total	5.67	7.61	7.45	7.69	7.11	1.26	1.04	0.88	0.85	1.01
Peanuts	4.37	5.16	5.45	5.22	5.05	0.86	0.77	0.54	0.55	0.68
Tree nuts	1.27	2.46	2.01	2.46	2.05	0.43	0.26	0.33	0.30	0.33

*For conversion, use 8.63, 8.61, and 8.64 pounds equal to one gallon for total milk, whole milk, and non-whole milk, respectively. FAH = food at home; FAFH = food away from home; LAFA = Loss-Adjusted Food Availability.

Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Figure 1

Close to 90 percent of fruit purchased by consumers was acquired for at-home use



Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

fruit” (fresh tangerines, fresh grapefruit, fresh lemons, fresh limes, grapefruit juice, lemon juice, and lime juice) had the smallest, at 74.8 percent.

Little change occurred in the FAH and FAFH shares for apple juice and apples as fruit. Changes in FAH and FAFH market shares for apple juice and apples consumed as fruit are statistically nonsignificant except for the increase in FAH share from 1994-98 to 2003-04 for apples as fruit. At-home per capita consumption of apple juice rose from 11.1 pounds (raw-weight equivalent) during 1994-98 to 14.3 pounds during 2007-08 (table 3, fig. 2), while the at-home consumption of apple as fruit declined from 13.3 pounds to 11.7 pounds during the same period (table 3, fig. 2). The away-from-home market for apple consumption—either as fruit or as juice—did not change significantly during 1994-2008.

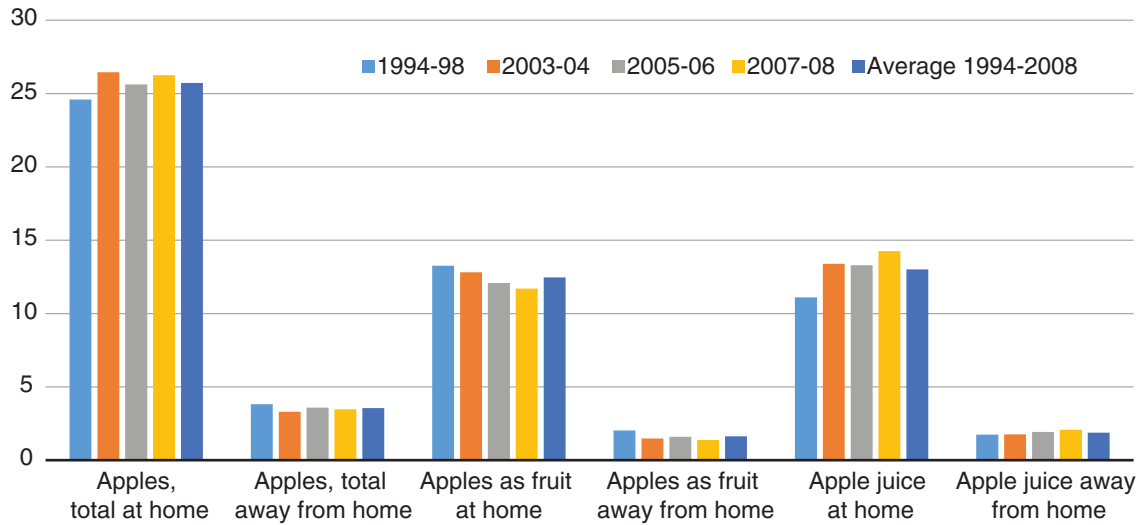
No change in FAH and FAFH shares of citrus fruit. No statistically significant shifts in the FAH and FAFH shares of orange juice, oranges as fruit, or other citrus fruit are evident during 1994-2008. The at-home consumption of oranges, either as fruit or juice, declined during 1994-2008. Between 1994-98 and 2007-08, the at-home consumption of orange juice, measured in fresh weight, declined from 32.7 pounds to 26.2 pounds per capita per year (table 3, fig. 3).

For berries, both the at-home share and per capita availability rose. Flavor, healthfulness, convenience, and year-round availability have contributed to increasing consumer demand for berries (Rabobank Food & Agribusiness Research and Advisory, 2015). Per capita availability of berries grew from 4.5 pounds per year during 1994-98 to 6.6 pounds during 2007-08 (fig. 4). The at-home share of berries rose from 82.8 percent during 1994-98 to 88.6-90.6 percent during 2003-08, while the away-from-home share fell (table 2).

Figure 2

The at-home market dominated the use of apples: total apples, apples as fruit, and apple juice

Pounds of fresh apple equivalent per person per year



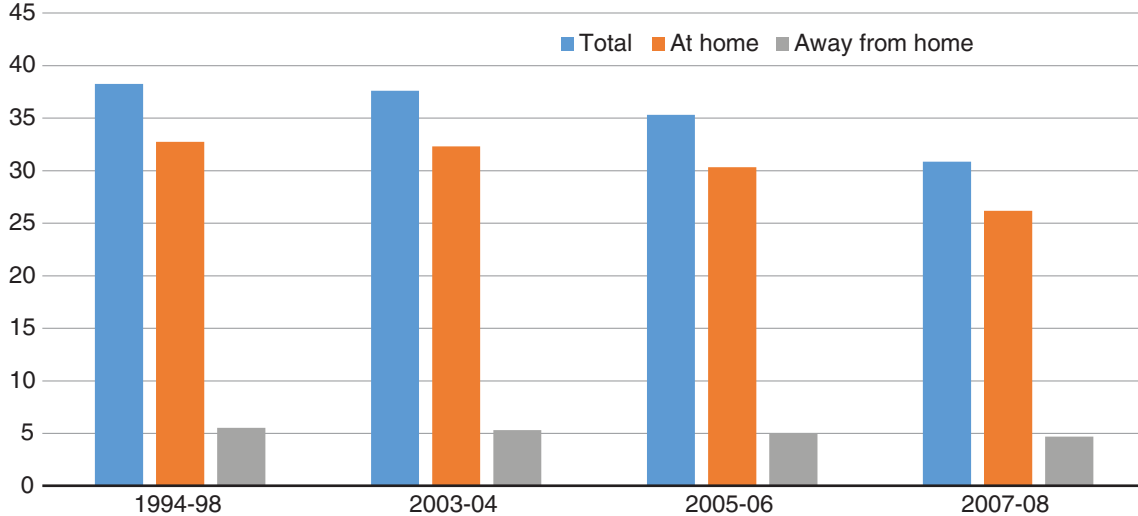
Note: One gallon of apple juice equals 8.8 pounds of apples. Weights shown are for fresh apple equivalents.

Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Figure 3

The bulk of orange juice was acquired for at-home use, and the consumption declined over time

Pounds of fresh orange equivalent per person per year

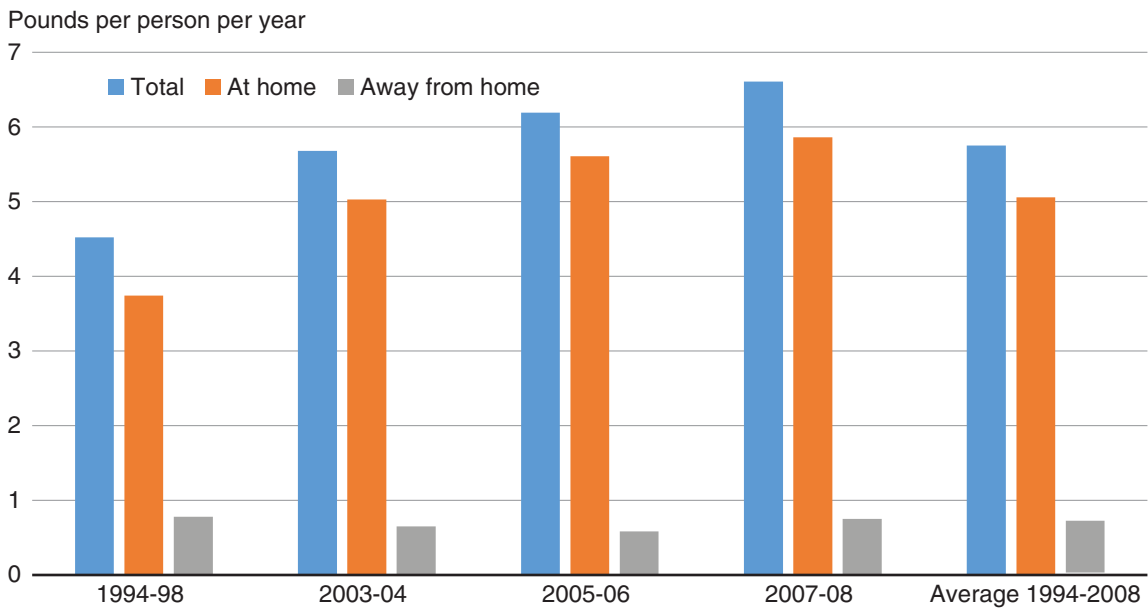


Note: One gallon of orange juice equals 8.7 pounds of oranges. Weights shown are for fresh orange equivalents.

Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Figure 4

At-home shares of berries rose with per capita availability



Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Over 62 percent of vegetables were acquired for at-home use. The at-home share of total vegetable consumption exhibited a U-shaped pattern, while the away-from-home share exhibited an inverted (upside down) U-shaped pattern. On both measures, significant shifts were observed from 1994-98 to 2003-06 but not to 2007-08. On average during 1994-2008, most of the total vegetables obtained (62.4 percent) were for at-home consumption (table 2); In other words, an average of 105.4 pounds of vegetables were consumed at home per person per year during 1994-2008, versus 63.6 pounds away from home (table 3).

At-home shares of lettuce and potato consumption were the smallest among all vegetables.

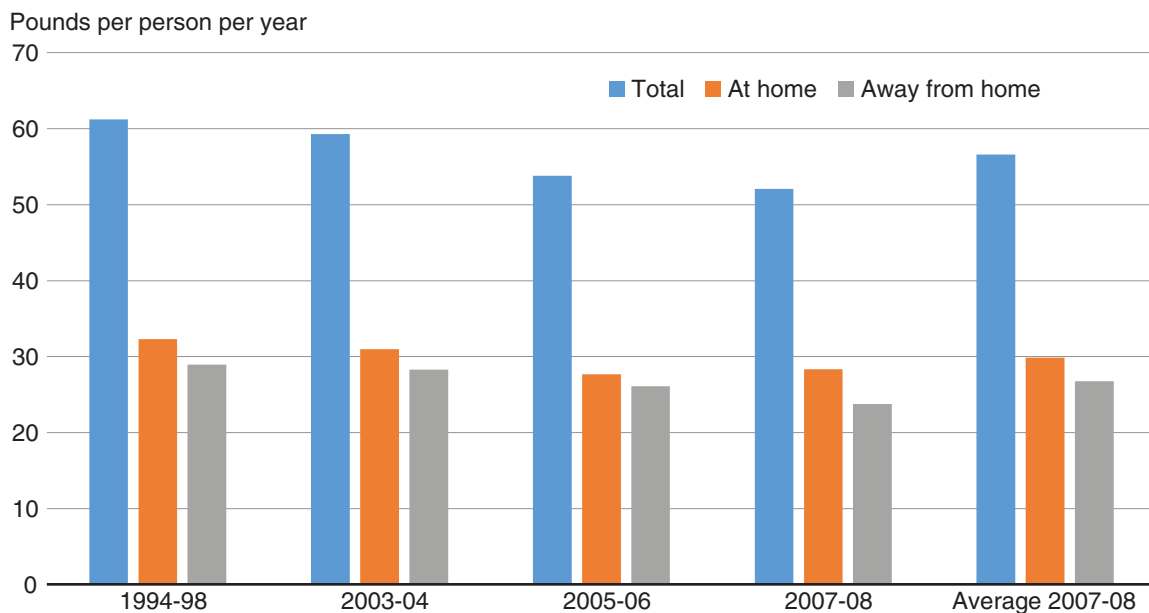
Among the vegetables examined, lettuce and potatoes had the smallest at-home shares, averaging 52.3 and 52.7 percent, respectively. This compares with the 80-percent at-home share for green peas and sweet corn during 1994-2008, which were the two vegetables with the highest at-home shares (table 2). The amounts of lettuce (in weight) consumed at home and away from home changed little. Potato consumption at home declined from 32.3 pounds per person per year during 1994-98 to 28.3 pounds in 2007-08, and consumption away from home declined from 28.9 pounds to 23.7 pounds (fig. 5). Per capita tomato consumption also declined for the at-home market from 20.9 pounds to 19.0 pounds from 1994-98 to 2007-08, but away-from-home consumption rose from 10.4 pounds per person per year during 1994-98 to 11.5 pounds during 2007-08 (table 3).

Most fluid milk was consumed at home. The loss-adjusted availability of fluid milk declined from 145.9 pounds per person per year during 1994-98 to 130.5 pounds during 2007-08.¹³ The decline in fluid milk consumption was more pronounced in the away-from-home market than the at-home

¹³One gallon equals 8.61 pounds of whole milk and 8.64 pounds of skim, 1%, or 2% milk,

Figure 5

Away-from-home use of potatoes was slightly less than at-home use



Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

market; the FAFH share of total milk consumption fell from 18.6 percent during 1994-98 to 13.1-15.1 percent during 2003-08.¹⁴ The at-home market dominated fluid milk consumption, averaging 84.8 percent during 1994-2008 (table 2). Both at-home and away-from-home consumption declined over time: At-home consumption dropped from 118.9 pounds (13.8 gallons) per person per year during 1994-98 to 110.7 pounds (12.8 gallons) during 2007-08, while away-from-home consumption dropped from 27.1 to 19.7 pounds (3.1 to 2.3 gallons) (fig. 6). The declines in both at-home and away-from-home markets were observed primarily for 2-percent milk and whole milk, the two most popular milk types (figures 7 and 8).

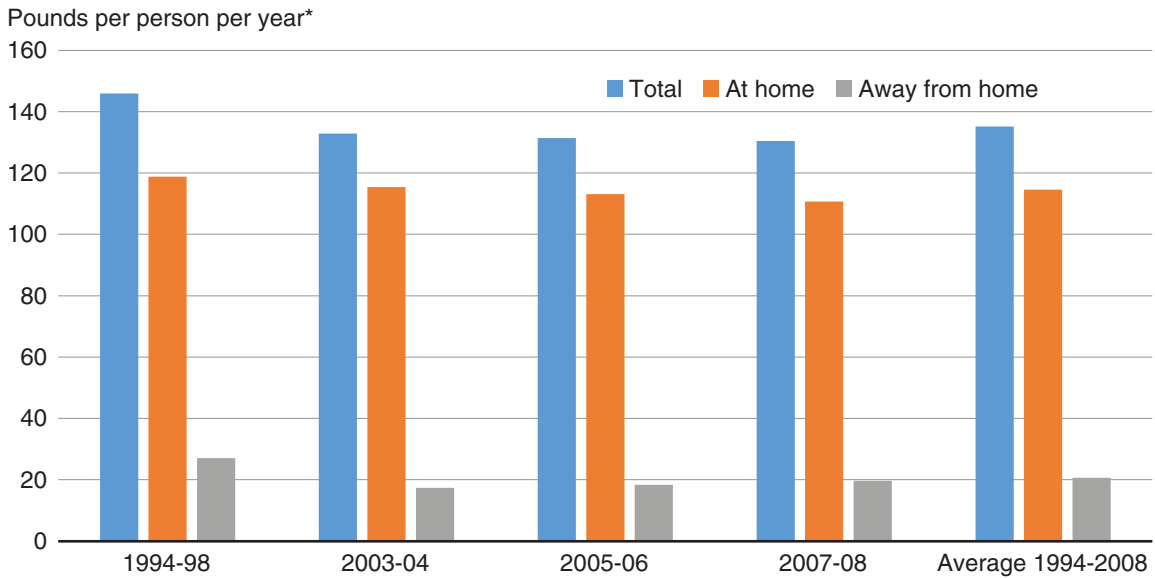
At-home and away-from-home consumption of cheese and yogurt rose. In general, no significant shifts in the FAH and FAFH shares of cheese and yogurt were observed over 1994-2008. The at-home market averaged 57.4 percent of total cheese consumption (table 2), with per-capita annual consumption rising from 10.6 to 12.3 pounds during 1994-2008 for the at-home market and rising from 7.5 to 9.5 pounds for the away-from-home market (fig. 9). Yogurt was purchased mainly for at-home consumption, averaging 90.8 percent of total yogurt consumption (table 2). At-home yogurt consumption rose from 3.6 to 7.4 pounds per person per year during 1994-2008 (fig. 10).

At-home and away-from-home consumption of beef and pork were relatively stable, but chicken consumption rose during 1994-2008. During 1994-2008, significant declines in FAH share were observed for chicken but not for beef and pork. Per capita chicken consumption rose from 40 to 48.4 pounds during 1994-2008. Away-from-home consumption rose from 16.8 to 22.5 pounds

¹⁴The declining FAFH shares of fluid milk consumption are statistically significant at the 5-percent significance level for all fluid milk except 1-percent milk.

Figure 6

Fluid milk consumption has declined at home and away from home

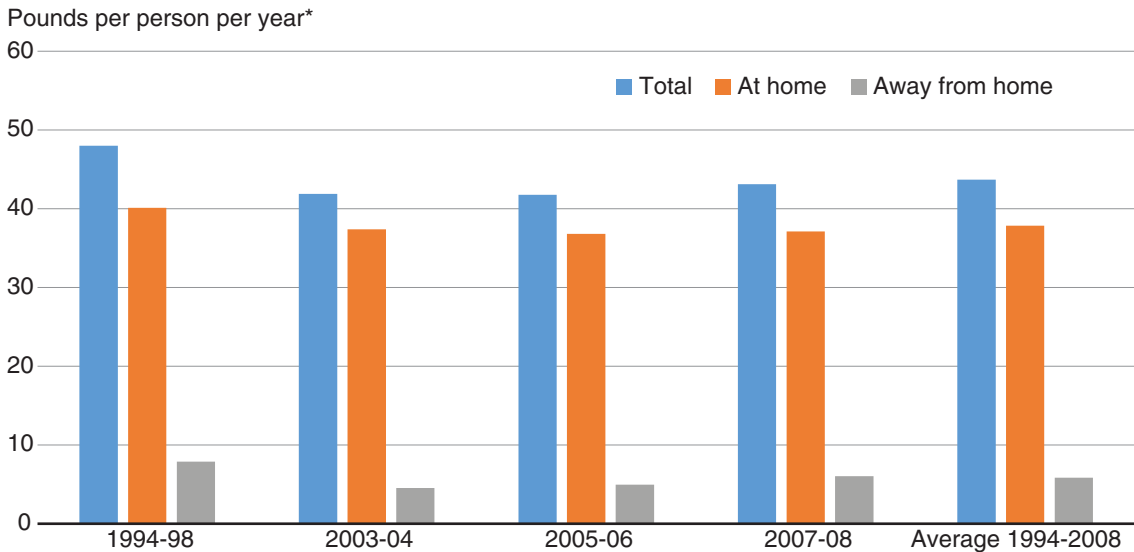


*8.63 pounds equal one gallon for fluid milk.

Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Figure 7

At-home and away-from-home use of 2-percent milk has declined between 1994-98 and 2007-08

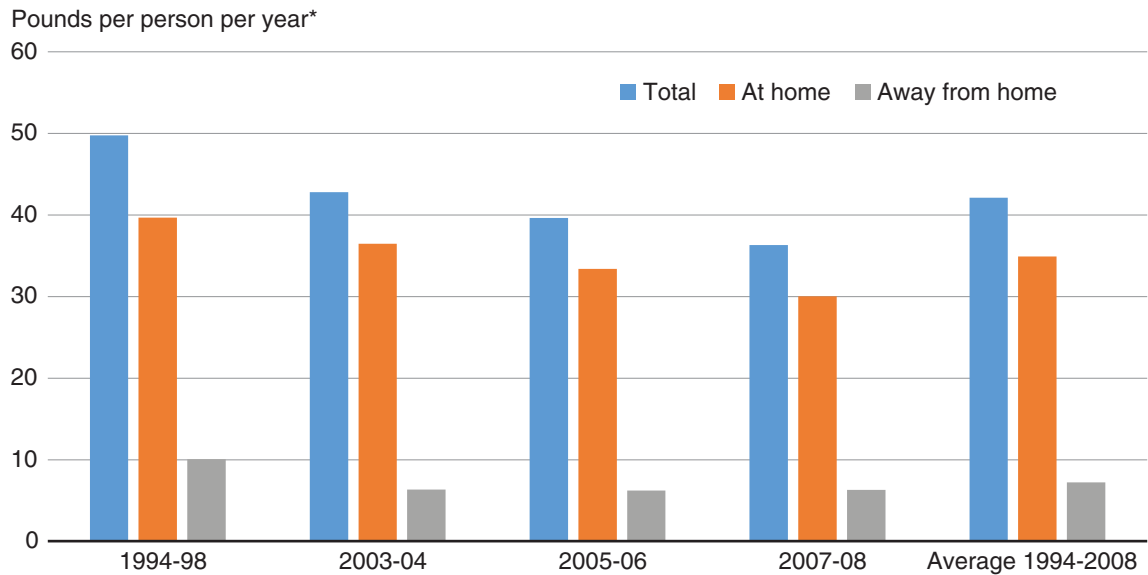


*8.64 pounds equal 1 gallon for 2% milk.

Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Figure 8

At-home and away-from-home use of whole milk also declined over time

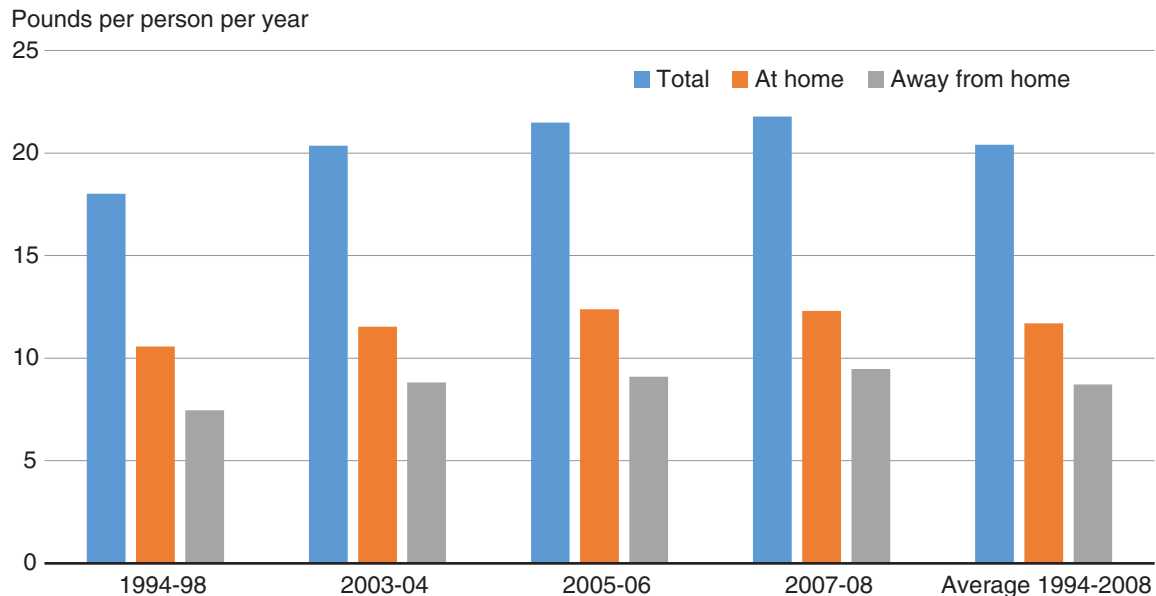


*8.61 pounds equal to 1 gallon of whole milk.

Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

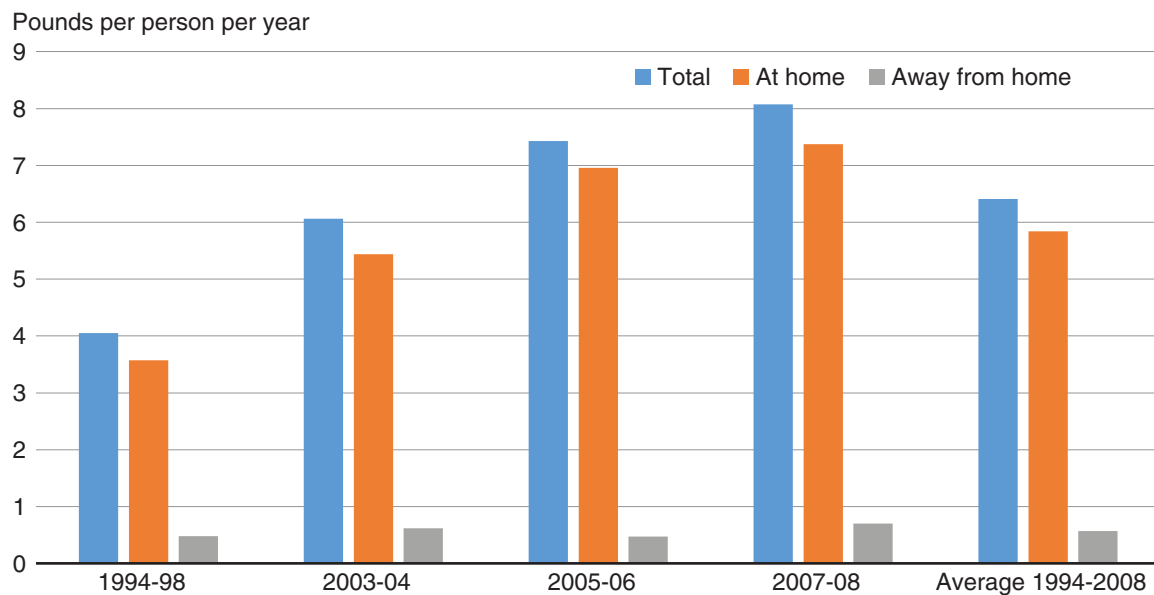
Figure 9

At-home and away-from-home use of cheese increased while their shares remained unchanged



Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Figure 10

Yogurt was mainly consumed at home, and consumption rose

Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

during 1994-2008, while at-home consumption of chicken rose from 23.3 to 25.9 pounds (table 3, fig. 11). Per capita consumption of fish at home rose from 5.2 to 6.2 pounds per person per year during 1994-2008, while away-from-home fish consumption showed no statistically significant change.

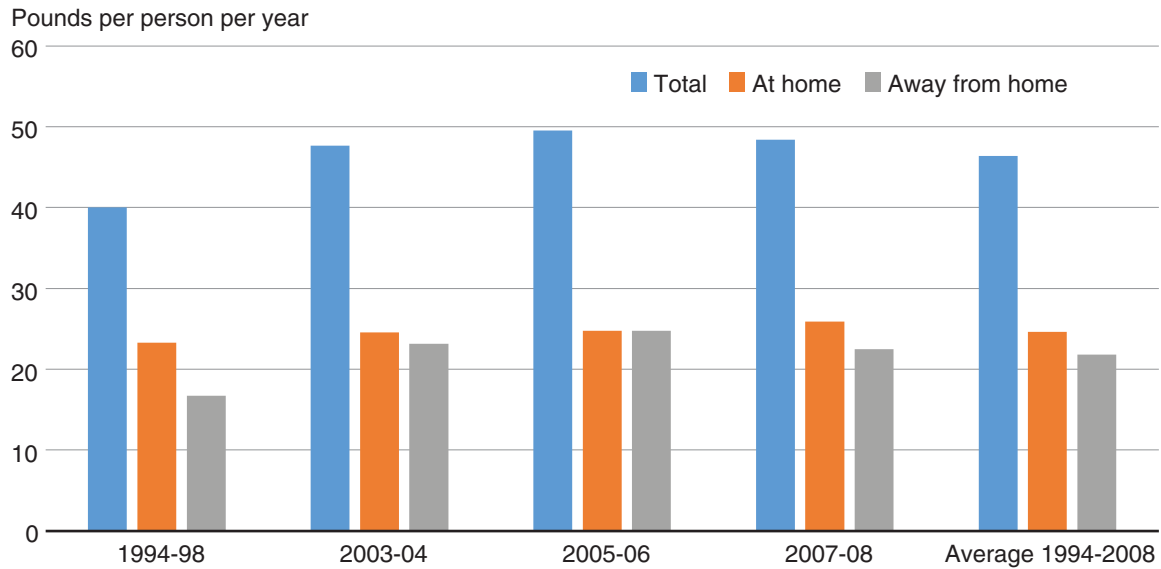
The at-home market led the decline in the consumption of wheat flour. Wheat flour accounted for the bulk of U.S. grain consumption. The FAH share of wheat flour consumed declined significantly from 1994 to 2008. About two-thirds of wheat flour was obtained for at-home consumption and one-third for away-from-home consumption (table 2). At-home consumption declined from an average 68.7 pounds to 63.4 pounds per person during 1994-2008, with no statistically significant change in away-from-home consumption (table 3, fig. 12).

Away-from-home consumption led the decline in caloric sweeteners. From 1994 to 2008, the FAH share of caloric sweeteners rose from 67.3 percent to 71.5 percent (table 2). Per capita consumption of caloric sweeteners declined from 85.1 to 79.7 pounds during 1994-2008 as away-from-home totals fell from 27.9 to 22.7 pounds (table 3, fig. 13).

Most peanuts and tree nuts were consumed at home. The per capita availability of nuts (peanuts and tree nuts) reached 8.3 pounds per year during 2007-08, up from 6.9 pounds during 1994-98 (fig. 14). During 1994-98, 83.6 percent of peanuts and 74.7 percent of tree nuts were consumed at home, and those shares rose to 90.4 and 89.3 percent, respectively, by 2007-08 (table 2). Per capita consumption of peanuts at home rose from 4.4 to 5.2 pounds over 1994-2008; at-home tree nut consumption rose from 1.3 to 2.5 pounds (table 3).

Figure 11

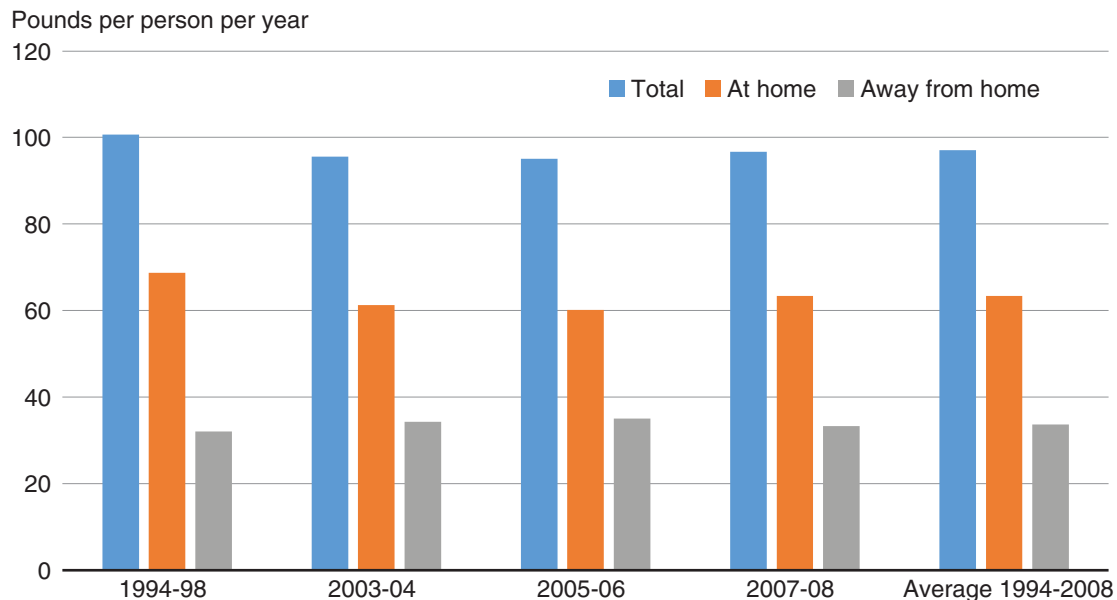
Chicken consumption away from home grew between 1994-98 and 2007-08, resulting in rising total consumption



Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Figure 12

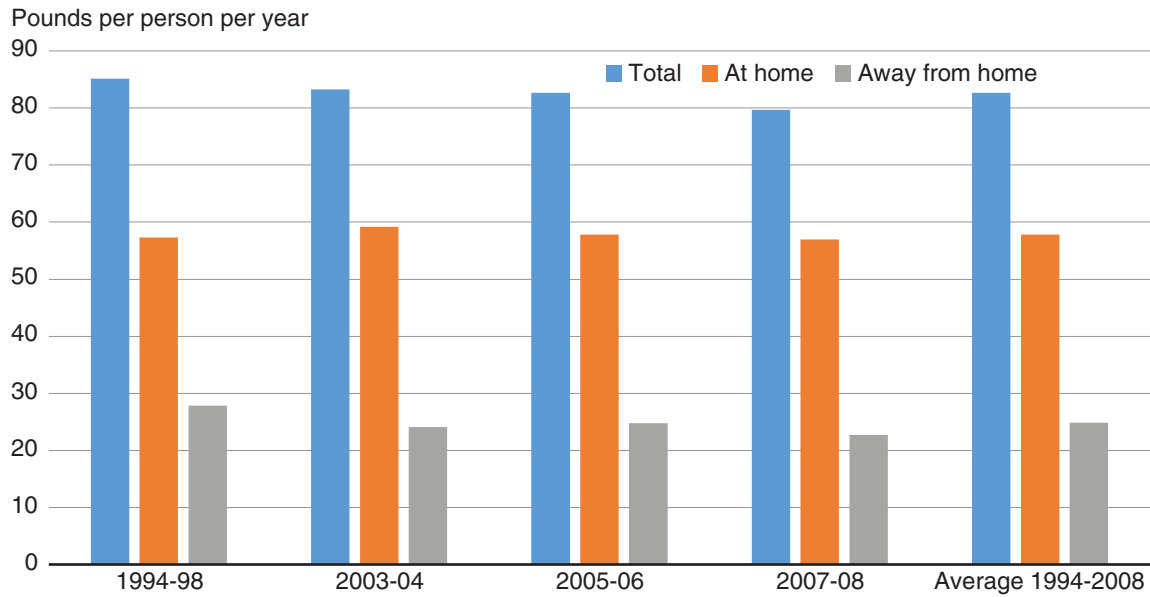
Wheat flour consumption declined at home but stayed stable away from home



Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Figure 13

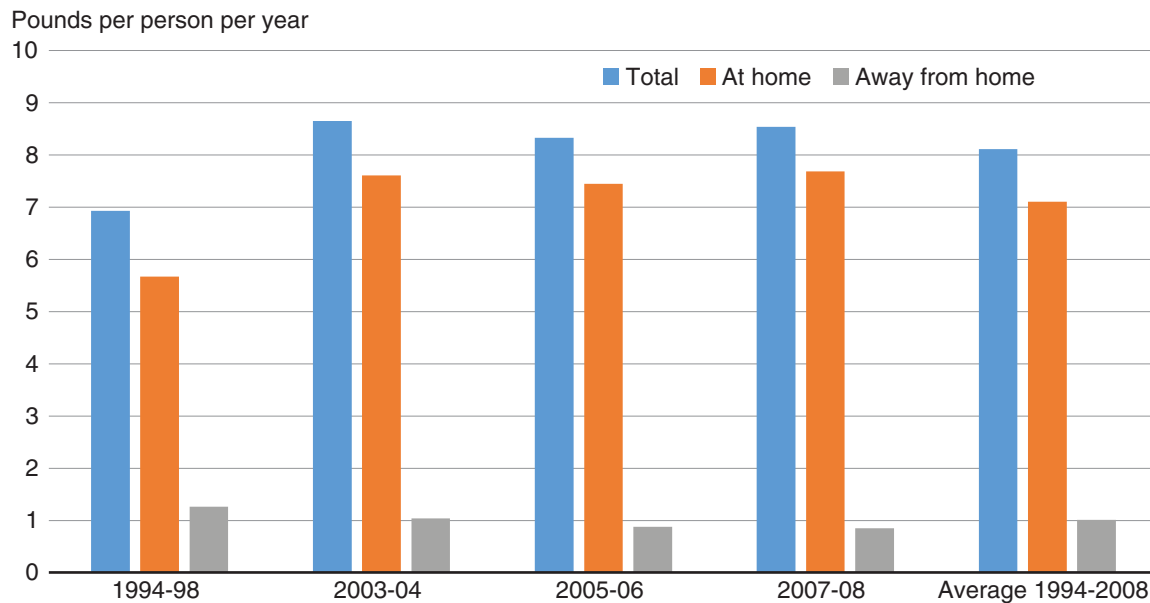
Away-from-home use led the decline in the market for caloric sweeteners



Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Figure 14

At-home use dominated the nuts market



Sources: *Continuing Survey of Food Intakes by Individuals*, USDA, Agricultural Research Service; *National Health and Nutrition Examination Survey, What We Eat In America*, USDA, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; *Food Intakes Converted to Retail Commodities Databases*, USDA, Agricultural Research Service; and *Food Availability Data System*, USDA, Economic Research Service.

Consumption of salad and cooking oils rose over time. During 2003-08, both the at-home and away-from-home markets for salad and cooking oils grew, from 15.1 to 20 pounds for at-home consumption and from 11.8 to 15 pounds for away-from-home consumption (table 3). Because the number of firms reporting salad and cooking oils (in FADS) rose sharply after 1998, the 1994-98 data on consumption are not strictly comparable with the data reported for later years.

Discussion and Future Research

Food away from home is now a routine part of Americans' diets; it accounted for 42 percent of total food expenditures¹⁵ and 32 percent of total caloric intake in 2008 (Lin and Guthrie, 2012; USDA, ERS, 2016). But what proportion of food commodities is consumed at home versus away from home, and how have these proportions changed over time? ERS's Loss-Adjusted Food Availability (LAFA) data have been accessed by news media, associations and nonprofit organizations, university researchers, the private sector, State and Federal agencies, and foreign governments, many of whom are interested in commodity consumption. The LAFA data cover the Nation as a whole and do not indicate how much of these commodities were acquired at, say, grocery stores versus restaurants. The need to disaggregate LAFA data by food source was raised in a 2014 ERS-sponsored workshop on improving the Food Availability Data System (FADS) (NRC and IOM, 2015, p. 125). The present study was conducted to address this need.

Data on the food source of commodity consumption could have implications for the effectiveness of marketing and educational efforts. If a commodity is consumed mainly at home (e.g., milk), then it makes sense to target educational and other efforts for that commodity more at grocery shoppers than at restaurant-goers. By contrast, if a commodity is evenly consumed at home and away from home (e.g., chicken), then targeting promotional efforts at foodservice establishments and grocery stores might be equally effective.

In this report, we demonstrate how to disaggregate the LAFA data by food source (at home and away from home) and why the population (rather than mean) proportion measure generates the correct data to accomplish our research objective. Our results show who consumes which agricultural commodities, how much is consumed, and whether it is acquired at grocery stores or foodservice establishments. For example, at-home consumption of finfish and shellfish rose from 5.2 pounds per capita during 1994-98 to 6.4 pounds during 2005-08, whereas there are no statistically significant changes observed for away-from-home consumption of these fish. These results suggest that marketing strategies to promote fish consumption (such as tips for selecting fresh seafood and keeping seafood safe, and species-specific culinary tips) may be more purposefully aimed at grocery shoppers by making them more accustomed to preparing and consuming fish at home.

Lin and colleagues (2016) laid out the methodology for disaggregating national LAFA data by demographic subgroups. In this report's appendix tables, we list (without discussion) disaggregated, demographic-segmented LAFA data by food source (i.e., at home and away from home). Future research could improve this information by determining and describing the commodity products in terms of how they are formulated/cooked for consumption and where they are acquired. For example, commodities like potatoes, apples, onions, tomatoes, and wheat flour can be used to prepare a variety of foods, with drastically different nutritional profiles, that are favored by Americans. Determining how many potatoes are consumed as baked, fried, or potato chips—when

¹⁵ERS provides two datasets of the food-away-from-home share of food expenditure differentiated by the definition of food expenditure away from home. The 42 percent share is derived by including away-from-home meals and snacks purchased by families and individuals and food furnished to employees. When the expenditure from expense-account meals, food furnished to inmates and patients, and cash donated to schools and institutions are counted toward food-away-from expenditure, its share of total food dollars is estimated to be 48.5 percent in 2008 and 50.1 percent in 2014. For more information about these two sets of share data, visit <http://www.ers.usda.gov/data-products/food-expenditures.aspx>.

combined with USDA's nutrition databases—can help assess and facilitate changes in the diet quality of Americans (Lin et al., 2013).

Prices and demographics are major determinants of demand for meat products. The major shift that has occurred in U.S. meat consumption from red meat to chicken merits an examination of who buys how much meat and where—data that would be valuable to the meat industry. Product development can both reflect and instigate changes in tastes and preferences among consumers, shifting market shares among different commodities. For instance, the away-from-home share of chicken consumption was found in this report to have risen from 41.9 percent during 1994-98 to 46.4 percent during 2007-08. This trend is consistent with the introduction of chicken nuggets and its rising popularity in fast food places (Spiegel, 2014), with attendant nutritional concerns and consequences (Schlosser, 2001).

This is the first comprehensive study to disaggregate LAFA by food source—at home and away from home. For commodities, such as potatoes that feature in restaurants or apples that feature in school cafeterias, further breakdown of away-from-home food sources can be conducted in future research. That type of refined disaggregation of food sources would result in fewer observations for certain commodities at a particular source, but pooling different waves of survey data could remedy these sampling issues. In addition, the underlying factors that affect *where* we acquire food commodities, such as chicken, are another topic for future research.

Finally, due to the sample size in each wave of WWEIA/NHANES surveys, some less frequently consumed commodities are aggregated into a single category. For example, apricots, cherries, nectarines, peaches, and plums are included in the stone fruit category. Future research could investigate the feasibility of disaggregating FICRCD commodities by combining multiple waves of survey data to increase sample sizes.

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Appendix A—Definitions of FICRCD and LAFA commodities

FICRCD commodity group	LAFA commodities
Total fruit	Dried apples, dried apricots, fresh oranges, dried dates, fresh tangerines, dried figs, fresh grapefruit, dried peaches, fresh lemons, dried pears, fresh limes, dried plums, raisins, fresh apples, fresh apricots, fresh avocados, fresh bananas, grapefruit juice, fresh blueberries, lemon juice, fresh cantaloupe, lime juice, fresh cherries, orange juice, fresh cranberries, fresh grapes, fresh honeydew, apple juice, fresh kiwifruit, cranberry juice, fresh mangoes, grape juice, fresh papaya, pineapple juice, fresh peaches, prune juice, fresh pears, fresh pineapple, fresh plums, fresh strawberries, fresh watermelon, canned apples and applesauce, canned apricots, canned sweet cherries, canned tart cherries, canned peaches, canned pears, canned pineapple, canned plums, canned olives, frozen blackberries, frozen blueberries, frozen raspberries, frozen strawberries, other frozen berries, frozen apples, frozen apricots, frozen sweet cherries, frozen tart, cherries, frozen peaches, frozen plums and prunes, other frozen fruit
Total apples	Fresh, frozen, canned, dried apples, and apple juice
Apples, not juice	Fresh, canned, dried apples
Apple juice	Apple juice
Bananas	Fresh bananas
Berries	Fresh blueberries, fresh cranberries, fresh raspberries, fresh strawberries, frozen blackberries, frozen blueberries, frozen raspberries, frozen strawberries, and cranberry juice
Grapes	Fresh grapes, grape juice, and raisins
Melons	Fresh cantaloupe, fresh honeydew, and fresh watermelon
Total Oranges	Fresh oranges, orange juice
Oranges, not juice	Fresh oranges
Orange juice	Orange juice
Other citrus fruits	Fresh tangerines, fresh grapefruit, fresh lemons, fresh limes, grapefruit juice, lemon juice, lime juice
Stone fruits	Fresh apricots, fresh cherries, fresh peaches, fresh plums, canned apricots, canned sweet cherries, canned tart cherries, canned peaches, canned plums, frozen sweet cherries, frozen tart cherries, frozen apricots, frozen peaches, frozen plums, dried apricots, dried peaches, dried plums, and prune juice
Tropical fruits	Fresh mangoes, fresh papaya, fresh pineapple, canned pineapple, and pineapple juice
Total vegetables	Fresh artichokes, frozen asparagus, fresh asparagus, frozen snap beans, fresh bell peppers, frozen broccoli, fresh broccoli, frozen carrots, fresh Brussels sprouts, frozen cauliflower, fresh cabbage, frozen sweet corn, fresh carrots, frozen green peas, fresh cauliflower, frozen lima beans, fresh celery, frozen potatoes, fresh collard greens, frozen spinach, fresh sweet corn, miscellaneous frozen vegetables, fresh cucumbers, fresh eggplant, fresh escarole and endive, dehydrated onions, fresh garlic, dehydrated potatoes, fresh kale, potato chips and shoestring potatoes, fresh head lettuce, fresh Romaine and leaf lettuce, fresh lima beans, dry peas and lentils, fresh mushrooms, dry edible beans, fresh mustard greens, dry black beans, fresh okra, dry great northern beans, fresh onions, dry lima beans, fresh potatoes, dry navy beans, fresh pumpkin, dry pinto beans, fresh radishes, dry red kidney beans, fresh snap beans, other dry beans, fresh spinach, fresh squash, fresh sweet potatoes, fresh tomatoes, fresh turnip greens, canned asparagus, canned snap beans, canned cabbage (sauerkraut), canned carrots, canned sweet corn, canned cucumbers (pickles), canned green peas, canned mushrooms, canned chile peppers, canned potatoes, canned tomatoes, other canned vegetables
Total brassica	Fresh broccoli, fresh Brussels sprouts, fresh cabbage, fresh cauliflower, fresh radishes, frozen broccoli, frozen cauliflower, canned cabbage
Broccoli and cauliflower	Fresh broccoli, fresh cauliflower, frozen broccoli, and frozen cauliflower
Carrots	Fresh carrots
Celery	Fresh celery
Cucumbers	Fresh cucumbers

Continued—

Appendix A—Definitions of FICRCD and LAFA commodities

FICRCD commodity group	LAFA commodities
Green peas	Canned green peas, frozen green peas
Total leafy vegetables	Fresh escarole, fresh spinach
Lettuce	Fresh head lettuce, fresh leaf lettuce
Onions	Fresh onions, dehydrated onions
Peppers	Fresh bell peppers, canned chile peppers
Tomatoes	Fresh tomatoes, canned tomatoes
Sweet corn	Fresh sweet corn, frozen sweet corn, canned sweet corn
Total roots and tubers	Fresh potatoes, canned potatoes, frozen potatoes, dehydrated potatoes, potato chips, fresh sweet potatoes
Potatoes	Fresh potatoes, canned potatoes, frozen potatoes, dehydrated potatoes, potato chips
Snap beans	Fresh snap beans, canned snap beans, frozen snap beans
Legumes, dried	(Dry) Peas and lentils, edible beans, black, great northern, lima, navy, pinto, red kidney, other
Total dairy	Plain whole milk, plain 2-percent, plain 1-percent, skim, whole flavored milk, lowfat flavored milk, buttermilk, yogurt, cheddar, other American cheese, provolone, Romano, parmesan, mozzarella, ricotta, other Italian cheese, swiss, brick, muenster, blue, other miscellaneous cheese, regular cottage cheese, lowfat cottage cheese, regular ice cream, lowfat ice cream (ice milk), evaporated and condensed milk (whole, skim), dry whole milk, nonfat dry milk, dry buttermilk, dairy share of half and half and eggnog
Total fluid milk	Plain whole milk, plain 2-percent, plain 1-percent, skim, whole flavored milk, lowfat flavored milk, buttermilk, yogurt, butter
Fluid milk, 1pct	1 percent milk
Fluid milk, 2pct	2 percent milk
Fluid milk, skim	Skim milk
Fluid milk, whole	Plain whole milk
Butter	Butter
Cheese	Cheddar, other American cheese, provolone, Romano, parmesan, mozzarella, ricotta, other Italian cheese, swiss, brick, muenster, blue, other miscellaneous cheese
Yogurt	Yogurt
Other dairy	Light cream, heavy cream, sour cream, cream cheese
Total meat poultry and fish	Beef, pork, veal, lamb, chicken, turkey, fresh and frozen fish and shellfish, canned salmon, canned sardines, canned tuna, canned shellfish, other canned fish, cured fish
Total meat	Beef, veal, pork, lamb
Beef	Beef
Pork	Pork
Total poultry	Chicken, turkey
Chicken	Chicken
Turkey	Turkey
Finfish and shellfish	Fresh and frozen fish and shellfish, canned salmon, canned sardines, canned tuna, canned shellfish, other canned fish, cured fish
Eggs with shell	NA
Eggs no shell	NA
Eggs with and without shell	Eggs

Continued—

Appendix A—Definitions of FICRCD and LAFA commodities

FICRCD commodity group	LAFA commodities
Total grain	White, whole wheat, durum flour, rice, rye flour, corn flour and meal, corn hominy and grits, corn starch, barley products, oat products
Corn flour	Corn flour and meal
Oat flour	Oat products
Rice dried	Rice
Wheat flour	White, wheat, durum flour
Total fat and oils	Butter, margarine, lard, edible beef tallow, shortening, olive oil, canola oil, specialty fats, fat share of half and half, light cream, heavy cream, sour cream, cream cheese, fat share of eggnog
Margarine	Margarine
Salad and cooking oils	Corn oil, olive oil, canola oil, peanut oil, and soybean oil
Shortening	Shortening
Other oils	Specialty fats (for confectionery products and non-dairy creamers)
Total caloric sweeteners	Cane and beet sugar, high fructose corn sweetener, glucose, dextrose, honey, edible syrups
Total nuts	Peanuts, almonds, hazelnuts, pecans, walnuts, macadamia nuts, pistachio nuts, other tree nuts (Brazil nuts, pignolias, chestnuts, cashews, and mixed nuts)
Peanuts	Peanuts
Tree nuts	Almonds, hazelnuts, pecans, walnuts, macadamia nuts, pistachio nuts, other tree nuts (Brazil nuts, pignolias, chestnuts, cashews, and mixed nuts)

Notes: LAFA = Loss-Adjusted Food Availability; FICRCD = Food Intakes Converted to Retail Commodities Databases.