Development of the Food-at-Home Monthly Area Prices Data

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What Is the Issue?

Food prices can impact U.S. consumers' food security, food choices, and diet quality, and price changes can vary across the country and across food types. Reliable granular data about the food price landscape are a necessary tool for economic research on household food choices and access to healthy and affordable food. However, the understanding of these relationships is limited by the sparse granular public data available on food prices.

Publicly available food price data often cover limited products or do not provide sufficient detail to support many food economics research inquiries. Some widely used food price datasets contain data only of specific products, such as fruits and vegetables. Other food price datasets contain aggregate data for broad food categories, across broad regions, or across broad periods of time. National- or annual-level aggregate price data can mask the extent to which price variation affects consumer purchasing decisions. Moreover, foods within the same broad food category may have substantial differences in ingredients or level of processing. This can—in turn—lead to significant variation in the price and healthfulness of foods within a category, which are important distinctions for food and nutrition research.

The Food-at-Home Monthly Area Prices (F-MAP) data provide monthly detailed food prices by granular food categories and geographic areas; additionally, it can be used to model the effects of policies that could influence food consumption, diet quality, and health outcomes. F-MAP data include monthly average unit values and price indexes for 90 food-at-home (FAH) categories across 15 geographic areas of the United States for 2016–18. Geographic areas covered include the total United States, the metropolitan areas of Atlanta, Boston, Chicago, Dallas, Detroit, Houston, Los Angeles, Miami, New York, and Philadelphia and the Northeast, Midwest, South, and West census regions. The F-MAP is an updated version of the Quarterly Food-at-Home Price Database (QFAHPD) that USDA, Economic Research Service (ERS) created for 1999–2010. Its regional- and metropolitan area-level detail provides insight into geographic variation in food prices and its monthly frequency offers data on seasonal variation in prices. The detailed food categories in the F-MAP, the ERS Food Purchase Groups (EFPGs), are based in part on USDA's *Dietary Guidelines for Americans*. Researchers studying food policy issues benefit from access to detailed data for monitoring and understanding variability in food prices across food categories, space, and time.

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.

What Did the Study Find?

The F-MAP contains seven weighted price measures for each food category, geographic area, and month combination: an average unit value and six price index measures. The average unit value is a per quantity price, where quantity is measured by weight in grams. The unit value is a simple average price for all items in the food category during each month and may be influenced by changes in prices for identical products or by changes in the product mix within a food category. During the 2016–18 base period:

- Infant formula had the highest national average price of all food groups at $2.85 per 100 grams. Water had the lowest national average price per 100 grams at $0.05, followed by reduced-fat, low-fat, or skim milk at $0.10; and

- Prices varied considerably within broad categories. National average prices for dairy products ranged from $0.10 per 100 grams for reduced-fat, low-fat, or skim milk to $1.10 per 100 grams for cheese (excluding processed cheese). Similarly, national average prices for protein foods ranged from $0.31 per 100 grams for eggs and egg substitutes to $1.66 per 100 grams for fresh fish and seafood.

F-MAP also provides six price index measures: Laspeyres, Paasche, Törnqvist, Fisher Ideal, GEKS (named for Gini, 1931; Eltetö & Köves, 1964; Szulc 1964), and CCD (named for Caves et al., 1982). Price indexes provide a unitless measure for the cost of a basket of consumption goods or services over time periods, across locations, or over pairs of time periods and locations. The price indexes often track each other closely over shorter periods but may show larger differences over longer periods of time. Based on the Fisher Ideal price index from 2016 to 2018:

- Prices increased for about 53 percent of area-EFPG combinations from 2016 to 2017 and increased for 68 percent of area-EFPG combinations from 2017 to 2018; and

- Prices were typically higher in the Northeast and West regions compared with the South and Midwest. Across all EFPGs and months from 2016–18, prices were highest in the Northeast region for 55 percent of EFPG-month combinations, followed by the West with 41 percent. In contrast, prices were lowest in the South region for 54 percent of EFPG-month combinations from 2016–18, followed by the Midwest with 34 percent.

Price indexes are advantageous for tracking inflation because price measures based on unit values cannot distinguish among variation in prices of identical products, differences in the product mix, or quality differences among items. The authors constructed each price index using different methods that have distinct features, advantages, and recommended uses. Data users may select a preferred price index based on their specific needs or analytical purposes. These price measures in the F-MAP data product address a gap in existing food price data and offer an improved data resource to support diverse food price and food economics research.

How Was the Study Conducted?

The report used proprietary Circana (formerly Information Resources, Inc. (IRI)) retail scanner data for 2016–18 to construct the F-MAP price measures. Circana retail scanner data is a commercial dataset that contains dollar sales (revenue) and quantities of food items sold at FAH retail establishments. The authors mapped food products in the data to the EFPGs, a system for classifying foods based on characteristics such as ingredients, nutritional content, and convenience level. The EFPGs are structured as a tiered hierarchy of products and include 90 detailed food categories that can be aggregated into summary categories. Researchers used the retail scanner data to calculate monthly weighted average unit values, price indexes, and total sales volumes for 90 EFPGs across 15 geographic areas of the United States for all months for the 2016–18 period.