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Photo courtesy of Wal-Mart Stores, Inc.

Where You Shop Matters

Store Formats Drive Variation in Retail Food Prices

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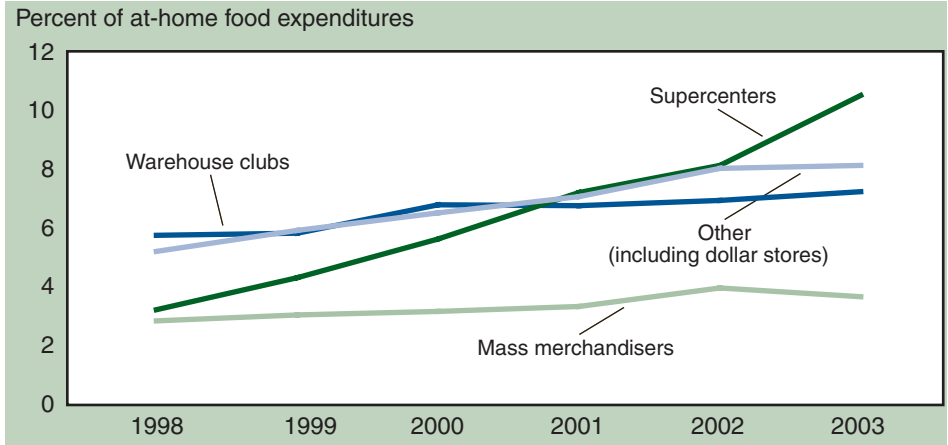
Americans' food shopping habits are changing. Just 20 years ago, traditional grocery stores claimed nearly 90 percent of Americans' at-home food purchases. Today, their share has dropped to 69 percent. Led by retail giants Wal-Mart, Costco, and Target, nontraditional food stores have managed to grab market share by enticing consumers with a formula of one-stop shopping and lower prices. Supercenters, warehouse club stores, and other nontraditional foodstores (see box, "What's in a Name?") increased their share of consumer food expenditures from 18 percent in 1998 to 31 percent in 2003. Among the nontraditional retailers, supercenters (primarily Wal-Mart Supercenters) made the largest leap over this 6-year period, increasing in share from just over 3 percent of food-at-home sales to nearly 11 percent.

What does the eroding role of the traditional grocery store mean for consumers and for retail food prices? Over the past 20 years, the Consumer Price Index for food at home has increased by 3 percent per year, implying relatively stable food prices over time. However, this aggregate measure of food price change does not tell the whole story.

The determinants of retail food prices are many and their interaction is often complex. Certainly, the cost of procuring food (from wholesalers, distributors, or other suppliers) is a major factor, but labor and other costs associated with the operations of a store are also important. In addition, the competitive environment in which a retailer operates along with the preferences of consumers in a given market will have an effect on average prices paid, as well as on the ability of retailers to adjust prices as market conditions change.

These differences in store costs, store characteristics, and consumer preferences cause retail prices to vary across regions and markets. Even within a narrowly defined market, food prices can and do vary substantially: average prices for an identical basket of food items can vary by 5 to 15 percent between stores. Measuring variation in food prices helps improve our understanding of inter-regional variation in food purchasing power and the economic well-being of households, especially low-income households whose food purchases constitute a large share of their household budgets.

Supercenters lead growth of nontraditional food retailers



Source: Calculated by USDA, Economic Research Service using ACNielsen Homescan data.

Prices Vary by Region . . .

ERS investigated variation in food prices by calculating national prices for a variety of dairy products, using a unique data set that facilitated an analysis of average prices paid across all retail outlets (see box, "Homescan Provides Insight Into Food Purchases"). Prices paid for food during 1998-2003 were found to vary geographically. Comparing food prices across four regions of the U.S., ERS found variations of as much as 11 percent. Within the milk category, for example, prices for both skim milk and low-fat milk were highest in the South, while whole-milk prices were highest in the West. Skim-milk prices showed the greatest variation in prices paid, with a 14- to 16-percent difference between the highest and lowest priced regions. For example, in 2003, consumers paid an average price of $2.55 per gallon for skim milk in the South, but only $2.14 per gallon in the Midwest. Low-fat milk prices varied 8-13 percent, while whole-milk prices varied by 7-11 percent. By comparison, these differences dwarf annual milk price inflation rates during this time period. The East averaged the highest price increase at 3.1 percent per year between 1998 and 2003, while the Midwest and West averaged annual price increases of 2.6 and 2.5 percent, respectively. The South had the most stable prices, with average increases of 2.1 percent per year.

Among major U.S. markets, general regional patterns persist for skim-milk prices, with cities in the Midwest (Chicago) and West (Los Angeles and San Francisco) having the lowest average prices paid, and cities in the East (New York and Philadelphia) and South (San Antonio and Atlanta) having the highest average prices. Consumers in nonmetro areas pay lower average prices for skim milk than consumers in major urban areas. Low-fat and whole-milk prices are also low in Chicago but are high in Los Angeles and San Francisco.

ECONOMIC RESEARCH SERVICE/USDA

In general, variation in retail food prices across markets is a function of differences in costs of producing and transporting foods, consumer preferences, the level of competition in a given market, and USDA programs that regulate production and/or prices of certain commodity groups at earlier stages of production. In the case of milk, while Federal milk marketing orders set minimum prices for raw milk, actual prices reflecting market forces are generally, and sometimes substantially, higher than the minimum prices. In addition, a 2004 USDA Report to Congress concluded that the influence of State-level intervention on raw milk prices is minimal due to the regional and national scope of milk marketing. Variation in raw milk prices within a region would be faced by all processors. This implies that even if there are differences in the minimum allowable milk price at earlier stages of production, the effect of milk marketing regulations will be minimal at the retail level.

Other factors more closely related to the retail-level transaction must play a larger role in accounting for variations in retail milk prices. Regional variation in prices for skim milk, as opposed to whole and low-fat milk, are attributed to differences in demand for these products and differences in retailer pricing strategies. The significant differences in milk prices across U.S. markets, as well as between metro and nonmetro locations, implies that there are differences in the purchase behavior of consumers in different markets that may impact the average price paid for milk.

. . . But Less so by Shoppers' Income Levels

Consumers can affect the price they pay for foods through their purchase behavior: this can include using coupons, checking the newspaper for sale items and

What's in a Name?

Both traditional and nontraditional retail formats contain a variety of store types:

Traditional food retailers

- ***Conventional supermarket***—A format offering a full line of groceries, meat, and produce with at least $2 million in annual sales. These stores typically carry approximately 15,000 items and frequently offer a service deli and a bakery.
- ***Superstore***—A larger version of the conventional supermarket with at least 40,000 square feet in total selling area and 25,000 items. Superstores offer an expanded selection of nonfood items, including health and beauty products and general merchandise.
- ***Combination food/drug store***—A combination of a superstore and drug store, but with 85 percent of sales still from food products.
- ***Warehouse store***—A low-margin grocery store offering reduced variety, lower service levels, and a streamlined merchandising presentation, along with lower average prices.
- ***Super warehouse***—A high-volume, hybrid format of a superstore and a warehouse store. Super warehouse stores typically offer a full range of service departments, quality perishables, and reduced prices.
- ***Limited-assortment foodstore***—A low-priced grocery store that provides very limited services and carries fewer than 2,000 items with limited perishable products.
- ***Specialty/Gourmet retailers***—Stores that specialize in a specific food category, such as organic, locally grown or produced, ethnic/international, or health focused.

Nontraditional food retailers

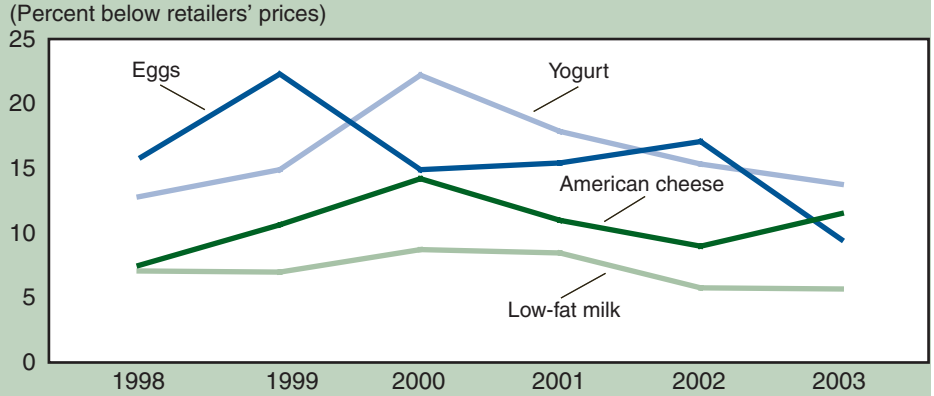
- ***Supercenters***—A large food-drug combination store and mass merchandiser under a single roof. Supercenters offer a wide variety of food, as well as nonfood merchandise, average more than 170,000 square feet, and typically devote as much as 40 percent of their space to grocery items.
- ***Wholesale club***—A membership retail/wholesale hybrid with a limited variety of products presented in a warehouse-type environment. These 120,000-square-foot stores usually have 30 to 40 percent grocery sales and sell mostly large sizes and bulk sales.
- ***Mass merchandiser***—A store that primarily sells household items, electronic goods, and apparel, but also offers packaged food products.
- ***Dollar store***—A limited assortment store that sells a variety of general merchandise and, increasingly, food products. These stores offer a wide assortment of basic household goods at very low prices.

Dairy department prices 5 to 25 percent lower at nontraditional retailers

Product/Store type	1998	1999	2000	2001	2002	2003
			Dollars			
Skim milk (per gallon)						
Traditional	2.27	2.41	2.39	2.42	2.30	2.32
Nontraditional	1.99	2.29	2.27	2.20	2.17	2.07
Low-fat milk (per gallon)						
Traditional	2.34	2.51	2.45	2.54	2.38	2.41
Nontraditional	2.18	2.34	2.24	2.33	2.25	2.28
Whole milk (per gallon)						
Traditional	2.55	2.67	2.60	2.73	2.57	2.63
Nontraditional	2.45	2.58	2.59	2.71	2.52	2.53
Large eggs (per dozen)						
Traditional	1.01	0.93	0.94	0.97	0.99	1.18
Nontraditional	0.85	0.72	0.80	0.82	0.82	1.07
Butter (per pound)						
Traditional	2.63	2.37	2.16	2.79	2.28	2.14
Nontraditional	2.63	2.61	2.39	2.41	2.32	2.09
American cheese (per pound)						
Traditional	2.75	2.89	2.86	2.88	2.80	2.74
Nontraditional	2.55	2.59	2.45	2.57	2.55	2.43
Yogurt (per 6 ounces)						
Traditional	0.47	0.47	0.49	0.50	0.52	0.51
Nontraditional	0.41	0.40	0.38	0.41	0.44	0.44

Price difference between nontraditional and traditional retailers

(Percent below retailers' prices)



Source: Calculated by USDA, Economic Research Service using ACNeilsen Homescan data.

PhotoDisc

buying accordingly, or traveling to a store offering lower prices. Because this behavior is often linked to income, ERS examined how average prices paid for food vary by household income level to determine if income and prices paid are related.

Differences in average milk prices paid by households of different income levels ranged from 1 to 3 percent. Low-income households paid 2 to 3 cents more per gallon for skim milk than households in the other income groups; however, the order and magnitude of the price differences varied from year to year. For whole milk, low-income households paid, on average, 3 cents more per gallon than middle-income households and 5 cents more than high-income households. Lower income households do not always pay higher prices; they paid 2 to 7 cents less per gallon for low-fat milk than did high-income households.

Store Formats Matter

Given the relatively small differences in milk prices paid across income groups, but the larger differences in average milk prices among regions and markets, a store's format, including physical characteristics, product offerings, business practices, and marketing strategies, is a likely determinant of and a key to understanding retail food price variation. Earlier research by ERS and the University of Minnesota examined the relationship between variations in store characteristics, operating costs, and the income levels of consumers shopping at a given store. Store characteristics included physical characteristics, such as square feet of selling area and date of last remodeling, services offered, and operating practices.

Study results showed that stores serving low-income shoppers are generally smaller and older than stores serving moderate-income consumers and offer fewer time-saving services for shoppers. In urban locations, stores serving the poor

Ken Hammond, USDA

lag behind other stores in the use of sophisticated inventory controls and in worker training and compensation practices. They also have fewer checkout lanes and parking spaces, and shorter operating hours than other metro area stores.

Despite these differences, overall operating costs for stores that serve a greater proportion of low-income consumers were not significantly different from those of stores serving more middle- and high-income consumers. However, differences do exist in terms of the sources of costs. For example, stores serving the poor incur greater costs for procuring the foods they sell, but have significantly lower payroll costs and fewer expenses on additional services. These differences in the sources of costs can impact the prices consumers pay for food.

Using the Homescan data, ERS extended this earlier work by examining prices paid at traditional versus nontraditional food retailers. Even when controlling for similar-sized packages, dairy prices are 5 to 25 percent lower at nontraditional retailers than at traditional supermarkets. For example, skim and low-fat milk prices are consistently 5-12 percent lower at nontraditional stores. Similar patterns of lower prices at nontraditional store formats exist across a wide variety of food products including eggs, fruits, vegetables, beef, poultry, coffee, and cookies.

These price differences are significant, especially when compared with standard measures of food price variation. Over the past 20 years, annual food price changes have averaged 3 percent per year, while differences in food prices paid across income groups ranged from 1 to 3 percent. Differences of more than 5 percent in food prices are driven by differences in store formats, which largely account for the regional and market variation in prices observed across the U.S.

Homescan Provides Insight Into Food Purchases

The ACNielsen Fresh Foods Homescan data set uses a consumer panel consisting of 15,000 randomly selected households across the U.S. and includes purchase as well as demographic information for all households in the sample. ERS used the Fresh Foods Homescan Panel to obtain purchase information for random-weight, non-UPC coded food purchases, such as loose fruit and vegetables, store-packaged cheeses, and random-weight meats, in addition to the standard fixed-weight, UPC-coded products. The panel is geographically dispersed and is demographically balanced in terms of household income, family composition, education, and other characteristics. Each household is equipped with an electronic home-scanning unit, and household members record every UPC-coded food purchase by scanning in the product's UPC code or the relevant product look-up code for non-UPC coded food purchases.

One of the unique features of the Fresh Foods Homescan data is that panelists record food purchases across all retail outlets that sell food for home consumption, including grocery, drug, mass merchandiser, club, supercenter, and convenience stores. Panel members record their purchases, capturing not only what is purchased, but where the purchase was made, and whether the purchase was a promotional, sale, or coupon item.

Photo courtesy of Wegman's Food Markets, Inc.

Lower Prices Not the Only Issue

Changes in food retailing affect food prices, as well as the variety of products and services available to consumers. With average food prices 5-25 percent lower at nontraditional retailers, the growing presence of these stores will benefit the average U.S. consumer. It remains to be seen, however, if the overall economy will benefit from these new retail formats, particularly when taking into account the impact on traditional retailers, food retail workers, food manufacturers, and agricultural producers.

Initially, as the share of consumer food spending dollar shifts to nontraditional outlets, traditional retailers are forced to lower costs by reducing the services they provide to consumers, by decreasing the benefits provided to their workers, or by combining the two strategies. They may also opt to expand the variety of products and services available in their stores to include additional prepared foods, carryout meals, organic and health products, and nonfood related services (banking, dry cleaning, etc.) to provide the perception of a unique shopping experience for the consumer.

Traditional food retailers that have lowered prices and/or increased the quality and variety of the services they provide have remained competitive, while those that have not adapted have struggled. Retailers that do not adjust quickly lose market share and are in jeopardy of being forced out of markets where they once were dominant, and in some cases, out of food retailing entirely. For food wholesalers, distributors, and others involved in the food supply chain, expanding and maintaining relationships with nontraditional retailers will be crucial to ensuring that their products are available to the U.S. consumer in the future.

This article is drawn from . . .

Supermarket Characteristics and Operating Costs in Low-Income Areas, by Robert P. King, Ephraim S. Leibtag, and Ajay S. Behl, AER-839, USDA, Economic Research Service, December 2004, available at: www.ers.usda.gov/publications/aer839/

CPI Bias from Supercenters: Does the BLS Know that Wal-Mart Exists? by Jerry Hausman and Ephraim S. Leibtag, NBER Working Paper No. 10712, National Bureau of Economic Research, Inc., August 2004, available at: www.nber.org/papers/w10712

ERS Briefing Room on Food CPI, Prices, and Expenditures at: www.ers.usda.gov/briefing/cpifoodandexpenditures