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WAL★MART SUPERCENTER

The New Low-Price Food Retailer in Town

In the past few years, Wal-Mart has made significant inroads to the food retailing business by combining general merchandise stores with full-size supermarkets to form "Supercenters." The first Supercenter opened in Washington, Missouri in 1988. By 1999, the Wal-Mart family of supermarkets was the fourth largest food retailer in the nation. The chain operated more than 800 Supercenters by late 2000 and is expected to have up to 1,450 Supercenters by 2005.

One of the new Supercenters opened in Athens, Georgia on January 25, 2000. At the time, Athens, a small metropolitan area with a population of 101,439, had several traditional supermarkets including Bi-Lo, Food Lion, Harris-Teeter, Ingles, Kroger, and Publix. The addition of a Wal-Mart Supercenter was expected to increase competition in the local market.

This article describes the extent to which the presence of a Supercenter affects price competition and the food pricing behavior of existing supermarkets. We asked the question, "Does the entry of a Wal-Mart Supercenter lead to lower food prices in local supermarkets?"

THE CONVENTIONAL WISDOM HOLDS THAT WHEN WAL-MART COMES TO TOWN EXISTING STORES CUT PRICES OR PAY THE PRICE. HOW WISE IS THE CONVENTIONAL WISDOM WHEN IT COMES TO THE GROCERY BUSINESS?

Data Collection and Analysis

We surveyed food prices in six major traditional supermarkets before and after the opening of the Athens Supercenter. Retail price data were collected from each of the six supermarkets on a weekly basis between November 1999 and April 2000. We monitored the prices of a "market basket" for 95 food items grouped into 12 categories: (1) cereals and bakery products, (2) dairy products, (3) red meat, (4) poultry, (5) fish, (6) other meats, (7) eggs, (8) fresh vegetables, (9) fresh fruits, (10) processed fruits and vegetables, (11) sugar, and (12) miscellaneous food items. Comparability across stores was achieved by selecting food items based on

brand names and package weights. This "market basket" reflected the total cost of paying regular prices for all of the selected food items. Special discount prices via "loyalty cards" were not collected.

We developed an "average food price index" as an overall measure of pricing behavior among the stores. For ease of comparison, we standardized all food prices on a unit weight basis to obtain an average food price index per pound. A weighted price index was constructed by multiplying the average price per pound of each item by the average annual at-home food expenditure share of households in the southern region of the United States (See Table 1). This index is a measure of food cost that reflects the average proportion of food dollars consumers spend for food at home. In addition, we used statistical procedures to test if the introduction of the Wal-Mart Supercenter affected the observed food price variations among area supermarkets.

Although prices for 95 food items were monitored at each traditional supermarket before and after the opening of the Wal-Mart Supercenter, only 63 individual food prices in 10 food categories were included in the calculation of price indexes. We excluded food items from the price indexes when the average household food expenditure share was not available.

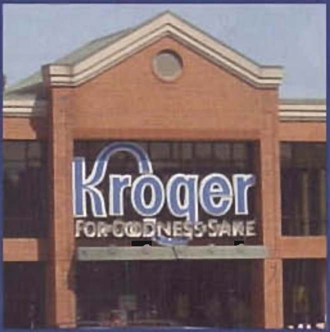
Price Movements by Store and Food Category

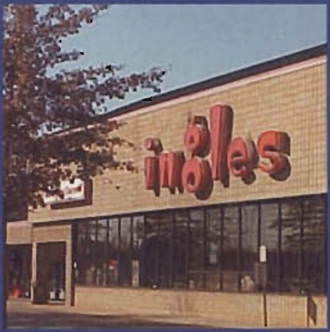
Figure 1 shows the changes in weighted weekly average food prices among selected supermarkets before and after the Supercenter opened. After the opening, food price indexes appeared to be lower except for Harris-Teeter and Bi-Lo. Average price changes at Bi-Lo were high and significant, but no significant price difference was detected for Harris-Teeter. Only Kroger showed a significant decrease in its average price index.

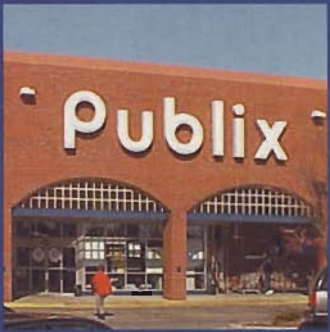
Average food prices appeared to vary within a relatively small range, with less than a 40 cents-per-pound difference between the highest- and the lowest-price stores (Figure 1). Prior to the opening of the Supercenter, the six traditional supermarkets could be divided into two groups according to pricing behavior. Harris-Teeter and Kroger charged the highest average prices and were close competitors. Bi-Lo, Food Lion, Publix, and Ingles maintained average food prices generally 10 to 30 cents-per-pound below prices at Harris-Teeter and Kroger. These stores generally exhibited a price movement pattern similar to and parallel to Kroger and Harris-Teeter.

Average food prices dropped in every supermarket the week prior to January 25, 2000 in anticipation of the grand opening of the Supercenter. During the first few Supercenter weeks, Wal-Mart established itself as the low-cost leader and had the lowest average food prices in town. Average food prices at the Wal-Mart Supercenter were generally 20 to 50 cents-per-pound lower than prices at the traditional supermarkets.

While average food prices at Wal-Mart remained fairly stable, substantial price fluctuations were evident among other supermarkets when compared with the period before January, 2000. The magnitudes of price changes were greatest at Kroger, Ingles, and Food Lion. Kroger lowered its prices substantially. Overall, the price differences among the traditional supermarkets seemed to narrow after the Supercenter arrived.







Caged Lion? Do these stores move prices downward when Wal-Mart comes into town?

All photos courtesy of the authors.

Figure 1 **Expenditure Weighted Average Food Price Per Pound**

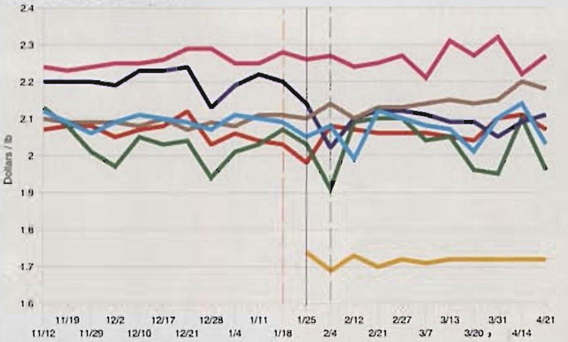


Figure 2 **Weekly Cost Of Red Meat By Store**

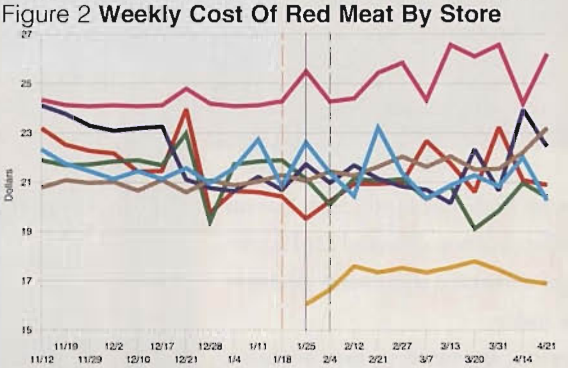


Figure 3 **Weekly Cost Of Dairy Products By Store**

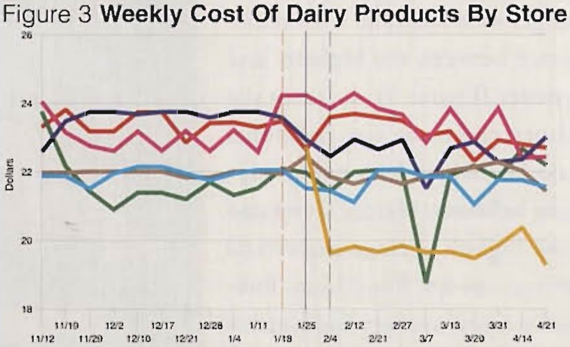


Figure 4 **Weekly Cost Of Fresh Vegetables By Store**

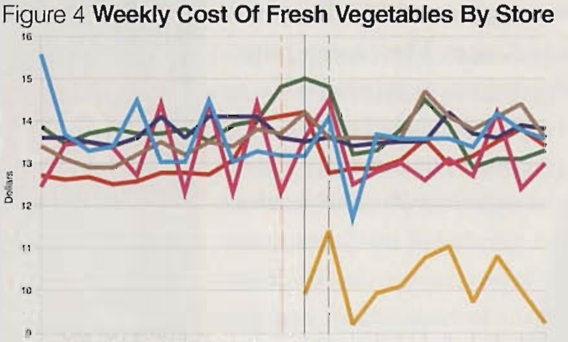


Figure 5 **Weekly Cost Of Poultry Products By Store**

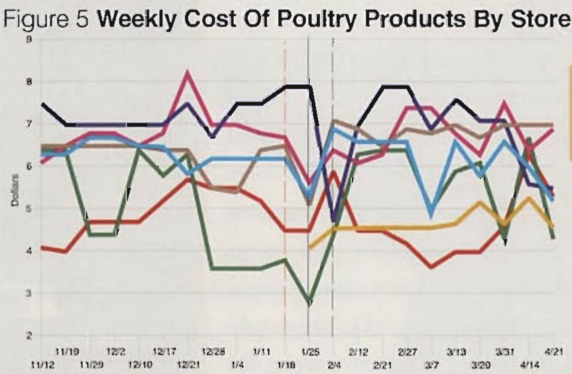


Table 1 **Average Annual Food Expenditures of Households in the Southern Region of the United States, 1998**

	Expenditure	
Food Category	**Amount ($)**	**Share (%)**
Cereal and bakery products	386	21.40
Red meat	360	19.96
Poultry	137	7.59
Fish	97	5.38
Eggs	32	1.77
Dairy products	273	15.13
Fresh vegetables	131	7.26
Fresh fruits	126	6.98
Processed fruits and vegetables	167	9.26
Sugar	95	5.27
Total food at home	**1,804**	**100.00**

Source: Bureau of Labor Statistics.

To discern if pricing behavior varies by food category, red meat (13 items), dairy products (13 items), fresh vegetables (10 items), and poultry products (3 items), were selected for further analysis. Table 2 shows the individual food items included in each of these four food categories. Together, these four food groups account for about 50 percent of the household food expenditures and represent food items that are most frequently purchased and on a regular basis.

Red Meat

Figure 2 shows that Harris-Teeter and the Wal-Mart Supercenter had the highest and lowest prices for red meat, respectively. The prices of red meat at other traditional supermarkets appeared to move in tandem and fluctuated frequently from week to week. Except for Harris-Teeter and Bi-Lo, where prices were significantly higher, the average price of red meat at area supermarkets decreased after the opening of the Supercenter. Average prices of red meat at Harris-Teeter and Bi-Lo during the post-opening period were significantly higher than for the pre-opening period. The other supermarkets reduced red meat prices after the opening of the Supercenter, but Ingles was the only store with statistically significant lower average prices after the opening, making it a low-cost store for red meat. After an initial low price in the week of the grand opening, the average red meat price at the Supercenter went up sharply and then remained relatively stable.

Dairy Products

Price movements in dairy products seemed fairly inactive during the survey period, except for those of Harris-Teeter and Ingles (Figure 3). The average price of dairy products stayed essentially unchanged at Ingles, but dairy prices actually increased slightly at Harris-Teeter after the Supercenter arrived in town. In contrast, the average price of dairy products dropped significantly at Publix, Kroger, and Food Lion. Bi-Lo also lowered its prices for dairy products, but the changes were insignificant. Except for the Wal-Mart Supercenter, Food Lion seemed to be the low-cost leader for dairy products.

The Supercenter made a major adjustment in its prices on dairy products after the grand opening. After one week, Wal-Mart reduced the price of dairy products drastically and kept the price at a relatively low level for the remainder of the survey period. At the time of its opening on January 25, 2000, the average price of dairy products at Wal-Mart was about the same as at Publix, in the middle of the traditional supermarkets. Later, Wal-Mart cut the cost of dairy products by almost $3, further distancing itself from other supermarkets. This pricing strategy for dairy was very different from that for red meat. The Supercenter started pricing red meat prices at a very low level and gradually adjusted them upward.

Fresh Vegetables

Figure 4 shows that the traditional supermarkets' prices for fresh vegetables varied substantially over time, but generally moved together within a narrow band. The average price of fresh vegetables moved in parallel at Publix and Bi-Lo, increasing by two to four percent after the opening of the Supercenter. The price changes at Bi-Lo were found to be significantly higher. Ingles, Harris-Teeter, Kroger, and Food Lion all reduced average prices for fresh vegetables after the opening of the Supercenter, but price changes were modest. Harris-Teeter seemed to have the competitive edge over the other traditional supermarkets although the margin was small.

As it did for red meat, Wal-Mart started fresh vegetables prices at low competitive levels. However, unlike prices for red meat, fresh vegetable prices fluctuated greatly from week to week. Although the average price of fresh vegetables at the Supercenter stayed far below prices at traditional supermarkets, the same pattern of price variation was observed across all stores.

Perhaps store managers were keeping a careful eye on each other's actions. More likely, the similar pricing patterns stemmed from the fact that fresh vegetablesprices are more sensitive than prices for red meat or dairy products due to changing supply conditions and short-run seasonal variations.

Poultry

Price variations appeared volatile for poultry products before and after the opening of the Supercenter (Figure 5). The prices of poultry products at five supermarkets went up one week after the grand opening. Kroger was the exception with an almost 50 percent reduction in price. Although Kroger subsequently increased its poultry prices, it maintained an average price level substantially lower than before Wal-Mart arrived. Unlike other stores, the price of poultry products remained relatively stable from week to week at Bi-Lo, particularly during the post-opening period.

Although poultry prices varied substantially from week to week, the average price of poultry products before and after the opening of the Supercenter did not change appreciably at any supermarket. Poultry prices at the Supercenter were relatively constant and closely aligned with prices at the traditional supermarkets. The Supercenter was charged a higher price for poultry than Publix for most of the period after the grand opening (Figure 5). The pricing pattern for poultry products at the Supercenter resembled that for red meat in that the weekly prices remained basically unchanged for five weeks after an initial increase. Wal-Mart apparently did not seek to distance itself from the traditional stores by becoming the low-cost provider of poultry products. Nevertheless, the average price of poul-

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(continued from p. 9)
try products at Wal-Mart was still significantly lower than that for four of the traditional supermarkets.

Concluding Remarks

Wal-Mart clearly lived up to its reputation as a low-price competitor. More importantly, the results showed that each surveyed supermarket had its own pricing strategy when faced with the challenge of low-cost competition from a mass merchandiser—the Wal-Mart Supercenter. While the pattern of responses varied among stores, all responded with a reduction in prices prior to the opening of the Supercenter. However, a week after the grand opening, price variations among the surveyed stores seemed to resume normal patterns, but with more frequent changes in a narrower range.

Hunting And Gathering. Most consumers have benefitted from lower prices no matter where they've chosen to shop.

Location appears to be one of the factors that affects how a particular store responds to increased price competition. Kroger and Food Lion, both located in the vicinity of the new Supercenter, were the only supermarkets that reduced prices in all of the food categories examined. Average food prices at Kroger were relatively higher than at other supermarkets, especially prior to the opening of the Supercenter. Indeed, Kroger was the only supermarket that responded with a significant reduction in overall food prices. Food Lion maintained lower price levels than Kroger in almost all food categories. With Kroger lowering prices to become more competitive with other supermarkets, the gap in food price levels between Food Lion and Kroger almost disappeared.

Harris-Teeter and Bi-Lo seemed to be the high-cost supermarkets in the study area after the opening of the Wal-Mart Supercenter. Harris-Teeter was located on the opposite side of town from the Supercenter,

How We Did It

The statistical procedures, t-tests, were used to determine whether the traditional supermarkets adjusted their prices to meet Wal-Mart's competition — a within-store comparison of average price changes before and after the opening of the Supercenter. T-tests were also used to learn if Wal-Mart food prices were significantly different from prices at other supermarkets in the Athens area — a between-store comparison of price differences. The word "significant" is used in the text to describe test results showing that the observed price differences were different from zero in a statistical sense at the 0.1% significance level. In other words, we are 99.9% confident that the price differences are real with a high degree of statistical reliability.

Table 2. Market Basket of Grocery Items Included in Major Food Categories

Food Category	Description
Red Meat	Ground beef chuck; Ground beef; Ground beef (lean); Beef chuck roast (boneless); Beef round roast (boneless); T-bone steak; Rib-eye steak; Beef sirloin steak; Beef round steak; Beef for stew; Pork short ribs; Pork chops; and Pork chops (center cut).
Dairy Products	Whole milk (1/2 gal.); Whole milk (gal.); Milk, 2% fat (1/2 gal.); Milk, 2% fat (gal.); Skim milk (1/2 gal.);Skim milk (gal.); Kraft American cheese; Kraft cheddar cheese; Edy's ice cream; Blue Bell ice cream; Breyers ice cream; Dannon yogurt; and Breyers yogurt.
Fresh Vegetables	Idaho white potatoes; Lettuce (iceberg); Tomatoes; Broccoli; Cabbage; Carrots (short trimmed and topped); Celery; Cucumbers; Dry yellow onions; and Green peppers.
Poultry Products	Whole chicken (fresh); Chicken breast (bone-in); and Chicken legs (bone-in).

in an upscale area surrounded by relatively affluent and high-income neighborhoods. Because of this however, Harris-Teeter appeared to be able to continue to command relatively higher prices. Bi-Lo, is not perceived as an upscale supermarket and one of its stores is in close proximity to the Supercenter. Bi-Lo makes use of its "loyalty" card extensively and exclusively to offer special discount prices and to promote sales. Since we collected regular prices only, we may have missed the effective price changes that occurred during the survey period for Bi-Lo.

Epilogue

Almost thirty months have passed since the data for this article were gathered and another Supercenter has just opened on the west side of town. During that time, Kroger acquired 15 Harris-Teeter grocery stores in Georgia in Summer, 2001. The retail giant chose to close the Athens Harris-Teeter store rather than to reopen it as a Kroger store—perhaps because it was in close proximity to an existing Kroger store.

According to a report from "Trade Dimensions" published in the *Athens Banner Herald*, by July of 2001, the Wal-Mart Supercenter had 11 percent of the Athens grocery market. Nonetheless, despite smaller market shares, all of the supermarkets on the east side of town (where the Wal-Mart Supercenter is located) are still operating. One store has undergone a major remodeling. Food Lion changed its loyalty card to an all-exclusive one like Bi-Lo. Kroger also introduced a loyalty card program similar to the one used by Bi-Lo and Food Lion shortly after our study ended. Since Kroger had been testing the loyalty program in other markets for some time, the timing of its introduction in Athens may be coincidental.

We did not find any evidence to support the contention that Wal-Mart drives other food stores out of the market and then raises prices. Much to our surprise, "business as usual" seemed to return after the dust had settled. Apparently, a major impact of Wal-Mart was to generate additional business activity drawing from neighboring counties and communities rather than from pure substitution effects within the local market. In other words, the entry of Wal-Mart made the pie larger instead of re-dividing and redistributing shares of the existing pie.

The presence of the Wal-Mart Supercenter no doubt intensified the rivalry and competition among the local retail food stores. In the short run, most consumers benefited by paying lower prices regardless of where they shopped for groceries. While Wal-Mart's strategy is to keep luring price-conscious consumers, other food retailers are focusing on loyalty card discounts and offering non-price features such as amenities, gourmet products, high quality food, or convenience to maintain appeal and customer loyalty. The phenomenal Wal-Mart effect appeared to be largely a short-lived transitory shock in terms of direct price competition.

For More Information

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