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SUPERMARKET REACTION TO NEW COMPETITION

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How do existing food retailers in a market react to a major disruptive force, such as the entry of a new firm or a new type of store? To what extent are prices lower in limited-assortment, no-frills warehouse stores than in conventional supermarkets? These and other questions were examined in a case study of the Washington, DC area market from October 1979 through May 1980. Since each market area and firm is unique, however, generalizations from this study should be made with caution.

Limited-Assortment Stores

Limited-assortment warehouse stores are growing rapidly and entering many markets throughout the country. While it is difficult to exactly define limited-assortment stores, they generally fall into two categories. The first category, known as box stores, carry only about 400 to 1,000 items and few, if any, perishables. Conventional supermarkets, in contrast, offer as many as 12,000 items. The second category, warehouse stores, often have most departments found in supermarkets--fresh meat, produce, dairy, frozen foods, health and beauty aids, dry groceries, etc.--but carry a greatly reduced number of items in each department.

The primary appeal of the limited-assortment stores is price. These stores typically cut services drastically--shifting as much store labor to the consumer as possible. They can therefore operate at a profit on a gross margin (markup as a percent of sales) of 12 to 13 percent compared to 18 to 21 percent for conventional supermarkets. Limited-assortment stores also have a cost advantage over supermarkets by maximizing the amount of merchandise they purchase "on deal" (at discount) from manufacturers and quite often by paying lower wages.

Limited-assortment stores are estimated to now have less than 2 percent of food store sales. Of course, in many individual markets, their market share is considerably higher. Still, depending on the real or perceived threat of limited-assortment stores by conventional store operators, they can trigger a far stronger competitive reaction than their market share would suggest. Areas where entry of limited-assortment stores have produced vigorous reactions from existing supermarkets include: Baltimore, Portland, ME., Atlanta, St. Louis, Milwaukee, Boston, Kansas City, Dallas, Southern California, and Northern New

Jersey. Trade reports have described the kinds of reactions that have occured in these markets, but there has been no attempt to actually measure and quantify the extent that price structures have actually changed between firms or over time. Any price reaction may be very selective. That is, prices may drop on a few items that are in direct competition with the limited-assortment stores, while prices on items not in direct competition remain the same, or even increase. Further, supermarket operators may alter prices only in stores located near the limited-assortment stores.

Design of the Washington Area Study

When a chain of box stores owned by a supermarket chain already in the Washington market opened in the fall of 1979, ESS researchers designed a study of competitive reaction. Prices were checked three times: once in late September, just as the box stores were opening; once 5 weeks later, in early November; and once in May 1980, 34 weeks after the new stores had opened. Prices were sampled in supermarkets within one mile of the limited-assortment stores, and also in three locations not near the new stores. One hundred product categories were selected at random. In each, prices were recorded for national brands and, where possible, for private and generic labels. In all, prices were tabulated on an average of 370 items representing all departments in the supermarkets.

There is no perfect way of comparing prices between stores without using each consumer's market basket. Because this is unrealistic, a method was developed to reflect probable price differences for the average consumer. By drawing a large sample of products in proportion to their relative sales, the sample reflected average consumers' purchases. Then, by dividing the price of an individual item in a particular store by the item's average price across all stores in the sample, the item's price is converted into a "price relative." For example, if the average price of a head of lettuce in a city is 85¢ and in a particular store 90¢, then the "price relative" would be 1.06 (.90 ÷ .85). Likewise, if a gallon of milk had a city-wide average price of $2.00 and a particular store price of $1.90, then the price relative would be 0.95 (1.90 ÷ 2.00).

Price relatives were calculated for each item (17 oz. Del Monte canned peas), averaged to product categories (canned peas), and then averaged to departments (grocery). Each deaprtment price relative was then weighted by its share of store sales to determine the overall average price relative index for a store. Stores were averaged together to represent firms. Firms were then weighted by their estimated market share to determine a city average. All five of the area's leading supermarket chains (designated Chains A, B, C, D, and E) were represented in the study. Two independents were also included; Independent A has three stores and Independent B has four.

Price Competition in 100 Randomly Selected Product Categories

As expected, in the first sampling the box stores turned out to have the lowest prices--averaging 30 percent below the weighted average for all firms (Table 1). Two of the chains, Chain C and Chain D, together have more than 60 percent of the area market. For these two, prices at outlets both near and not near the new box stores were studied. In September, as the box stores opened, Chain D had already begun to react to the competition. The Chain D outlets near the box stores had already dropped prices four index points below prices at the firm's other outlets. Apart from this reaction, however, the three market-leading chains in the area--B, C, and D--had virtually identical overall prices.

Table 1. Average Price Indexes, Total Market Basket, by Firm, Washington, DC

Company	Stores Priced in May	Average Price Relative Index		
		Sept. 1979	Nov. 1979	May 1980
	No.			
Chain A	2	104	107	112
Chain B	1	101	102	104
Chain C	3	101	99	106
Chain C near box store	5	100	98	105
Chain D	3	101	97	101
Chain D near box store	4	97	95	99
Independent A	1	97	98	104
Independent B	1	92	92	96
Chain E	1	90	92	97
*Box store chain	4	70	71	77
**Warehouse store chain	1	--	--	88
Weighted Ave.		100	98	103

*Stocks under 1,000 items, mostly private label.

**Stocks about 3,000 items, mostly national brands; stores were not yet open during the September and November survey period.

By early November, 5 weeks after the box stores opened, the price structure among the three market leaders had become much more diverse. In comparison to the weighted average for all firms, the box stores' prices were still 28 percent lower. But chain D has extended its price cutting to all its stores, making even deeper cuts at outlets near the box stores. Chain C had lowered prices in outlets both near and away from the box stores. Other firms surveyed--both chains and independents--did not drop overall prices in response to the new competition, but they may have raised prices more slowly than usual.

By May, 34 weeks after the box stores arrived, the price differential between them and the average of all firms had dropped from 30 percent to 25. Also, before the third survey was taken, Chain A had introduced its own variation on the limited-assortment theme, opening two warehouse stores that carry primarily national brands. One of these stores was included in the May survey. Its relative price index, 88, was 15 percent below the all-firms average of 103.

Price Competition on Selected Items

The effect of the limited-assortment stores was noticeable in the random 100 product categories. In Table 2, the price comparison was changed in two ways. First, the product categories computed were reduced to the 74 categories carried by the box stores. Second, box store prices were compared to the conventional stores' lowest-priced item in a category, since conventioanl retailers usually focus price cuts on particular items.

The average overall price index for all brands (Table 1) increased from 100

Table 2. Average Price Indexes, Lowest Priced Brand, Limited Assortment Categories Only, Washington, DC.

Company	Average Price Relative Index		
	Sept. 1979	Nov. 1979	May 1980
Chain A	86	90	91
Chain B	79	80	82
Chain C	82	80	85
Chain C near box stores	81	77	82
Chain D	82	78	81
Chain D near box stores	71	71	74
Independent A	84	85	90
Independent B	82	81	83
Chain E	76	78	83
*Box store chain	63	64	69
**Warehouse store chain	--	--	74
Weighted Ave.	81	79	83

*Limited assortment box stores.
**Limited assortment warehouse store.

to 103, while the average price index in Table 2 rose from 81 to 83. When comparing the cheapest brand in each category, the box stores' prices were 22 percent below the all firm average in September. However by May, competitive reactions had cut this price difference to 17 percent. Also, greater price differences are evident between stores located near the box stores. vs. those not near box stores for both Chain C and Chain D. Chain C's stores near box stores averaged 1 to 3 index points lower than their remaining stores not near box stores, while Chain D's stores near box stores were 7 to 11 index points lower than their remaining stores. When only the lowest priced brand is included, Chain D replaces Independent B and Chain E as the low price conventional supermarket firm. The warehouse store's price differential for the lowest price brand in the 74 product categories, was 11 percent below the all-firm average (74 compared to 83).

Department Price Indexes

We also examined the extent relative price levels differed across departments within a firm. In some cases, a firm's overall market basket index may not be a reliable indicator of individual department price levels. As it turned out, Chain A's prices were consistently the highest across all departments. At the low end of the scale, Independent B, Chain E, and the box store and warehouse store chains consistently had low prices across all departments. However, there was considerable price variability among departments for the remaining firms.

For example, Independent A had the third lowest produce prices, while its prices for "grocery food products" were the second highest. Chain D's meat and produce prices were relatively much higher than its prices for groceries. Apparently this chain focused its price cutting activity on products in the grocery category which were most likely to face direct

Table 3. Average Price Indexes by Major Department by Firm, May 1980

Company	Total Market Basket	Fresh Produce	Fresh Meat	Grocery Food Products
Chain A	112 (1)*	140 (1)	107 (1)	108 (1)
Chain B	104 (5)	115 (4)	94 (7)	104 (3)
Chain C	106 (2)	126 (2)	105 (4)	104 (4)
Chain C near box store	105 (3)	124 (3)	104 (5)	104 (5)
Chain D	101 (6)	115 (5)	106 (2)	98 (7)
Chain D near box store	99 (7)	112 (6)	105 (3)	97 (9)
Independent A	104 (4)	97 (9)	98 (6)	107 (2)
Independent B	96 (9)	77 (10)	90 (8)	99 (6)
Chain E	97 (8)	111 (7)	89 (9)	98 (8)
Box Store Chain	77 (11)	63 (11)	--**	72 (11)
Warehouse Store Chain	88 (10)	108 (8)	88 (10)	86 (10)
Weighted Ave.	103	119	103	101

*Numbers in parentheses indicates the relative ranking of each firm's price index. A ranking of (1) indicates the highest relative price level while an (11) ranking indicates the lowest price level.

**This firm does not carry fresh meat.

competition from the box stores. At the same time, this chain charged the second highest meat prices among the sample firms. This firm evidently tried to protect overall store margins by maintaining relatively higher prices on products not in direct competition with the new limited-assortment stores.

Non-Price Reactions by the Supermarkets

Supermarket firms fought to preserve their market share not only by stronger price competition, but also by increased advertising. Advertising linage in the two major Washington newspapers was totaled for each firm in our survey. From September through December 1979, compared to the same period a year earlier, Chain D increased its advertising nearly 35 percent. Chain C increased ads by 26 percent. Chains A and B increased linage by 5 and 10 percent respectively. However, the firms that changed their advertising strategy the most were Chain E and Independent B, generally the two lowest-priced conventional supermarket companies in the survey. Both had been relatively light advertisers before entry of the limited-assortment stores. From a low base, Chain E raised its newspaper linage by 264 percent, and Independent B increased linage by 57 percent.

In addition to stepped-up advertising, there was also an increase in supermarket offers to redeem coupons at double their face value. Finally, several firms have recently introduced consumer games as a competitive tactic.

General Effects of the Limited Assortment Stores

From the survey it seems clear that whenever a new market entrant is perceived as a potentially powerful competitor, existing firms will react vigorously, even when the new competitor's initial market share is very small. In this study, it appeared that a leading retailer--Chain D--strongly reacted to the advent of the box stores and that perhaps the other companies in turn reacted to the agressive tactics of Chain D.

As a result, Washington consumers have gained not only low-cost shopping alternatives, but perhaps also a slight reduction in the overall food price level. Food prices in the Washington area typically increase at a rate faster than the U.S. average. During the study period, the national consumer price index for food-at-home rose 5 percent. However, both the CPI for the Washington market and the index calculated in this study rose only 3 percent.

It is too early to determine if the market-wide price moderating effect of limited-assortment stores is transitory or permanent. Since May, prices in Washington, DC (as measured by the CPI) have increased faster than the national average. However, in addition to generating price response from existing retailers, the new competition has prompted the market leaders to open their own version of limited-assortment warehouse stores. In the final analysis, this wider adoption of limited-assortment stores, because of their lower operating costs, may have a more permanent impact on the general price level.

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