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ADVERTISED AND INSTORE SPECIALS: A KINKED OLIGOPOLY DEMAND THEORY OF SUPERMARKET BEHAVIOR

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The purpose of this paper is to explore the hypothesis that the pricing behavior of supermarkets with respect to advertised and instore specials may be consistent with the kinked oligopoly demand theory [1, 5, 6]. Empirical evidence will be presented on the differences between advertised and instore specials. Economic logic suggests that supermarket pricing strategy should differ markedly between the two.

First, kinked oligopoly demand theory suggests that firms which are mutually interdependent will match each other's price reductions if they have knowledge that reductions in price are taking place. Advertised prices for retail food become public knowledge when published in a local newspaper and require little effort on the part of grocery store managers to compare his price with those of other oligopolists in the market. If firms in a market behave as oligopolists, it is logical to expect that few of their advertised prices would reflect price reductions.

Second, oligopoly theory suggests that if retail food price cuts are to be made, grocery store managers will try to make them covertly and thus difficult for other oligopolists in the market to follow. This would be true for instore specials. Instore specials are only publicized to the customers in the store. The effort required for competitors to gain knowledge of price reductions on instore specials is much more demanding. Comparisons of hundreds of items would have to be made weekly; brands would have to be standardized for comparisons; and quality considerations would have to be included. Thus, it is logical to expect more of their instore specials would entail price reductions.

Advertised and instore specials are key elements in the operating strategy of supermarkets. While many consumers trade at the same supermarket week after week, others comparison-shop and can be persuaded by lower prices to switch their loyalties to another store in order to save money. Since consumers cannot make price comparisons among all of the thousands of items in supermarkets, their attention is most likely to be drawn by advertisements in newspapers or by price changes within the stores.

For this application of kinked oligopoly demand theory to hold, it seems necessary that a substantial number of consumers believe that (1) an advertised price is the lowest price; and (2) an instore price change may or may not be the lowest price. A study by Morris and Firch tends to support this assumption. The Arizona study concludes:

> That consumers believe that an advertised price is a reduced price must follow from the research results which found that there would be significant responses to advertising with no price reductions in 41 of 48 groups of items. Fourteen of the advertising responses were at least 100 percent increases over normal and two were more than 300 percent over normal. The advertising response is achieved with no reduction in price and only a very small added cost of advertising. The results of this study suggest that the subject firm, in terms of a profit maximizing objective, is well justified in advertising large numbers of items with no price reduction. At the same time we believe that there must be some optimum number and size of price reductions below which the customers will be attracted to the stores in smaller numbers and reduce purchases of nonprice reduced items, thus reducing profits from the entire store operations [2].

For purposes of this study, a special is defined as a change in price resulting in the lowest price in the market for the item, as suggested by Preston.[1/] Operationally, we note that the advertised or instore price changed from what it was two weeks previously in the same store. Then we compare the new price with the prices for the same item at all other stores in the market. If the price change resulted in the specialed item becoming the lowest price in the market for that item, it is considered a bonafide price special. The

typical case is that described by the National Commission on Food Marketing as a " ...temporary low price used to promote the store which is not justifiable in terms of the economics of cost or demand for the individual products" [4, p. 175].

The empirical evidence assembled to test the hypothesis is (1) the probability of obtaining a special when shopping weekly newspaper ads and instore price changes, (2) whether advertised and instore price changes vary among departments, and (3) whether advertised or instore specials offer the consumer more in cost savings.

Nature of the Study

The data analyzed are the bi-weekly advertised and instore price changes of five local supermarkets operating in a single market area. Two of the supermarkets are large chains, one is a medium-sized chain, one a small chain, and one an independent. These firms each advertise regularly once a week in the local paper with all ads appearing on Wednesday except one which comes out on Thursday. The advertised and instore promotion prices of the items included in the product sample were collected and recorded for 26 weeks in 1969. The product sample for which the ads and instore promotions were checked was basically identical to the Bureau of Labor Statistics' Consumer Price Index list of items. Some additional items were added in order to increase the coverage. The final list included 108 items. Regular prices of these items were collected directly from the supermarkets every two weeks. Prices were converted to a per-unit basis, and identical brands were used in each store where possible. In cases where identical brands were not available, brands of equal quality and national significance were substituted. There were a few cases, however, where the quality problem was not completely overcome. In the produce department, quality was judged on the basis of appearance. The meats were all USDA Choice grade, but appearances indicated some differences in quality. Thus, the results of this study are subject to some error due to the inability to standardize completely all products as to quality. It would seem logical, however, that at least some of the errors would cancel each other out as quality changes within each store. It was not apparent that any one store had priority on either poor or premium quality.

Findings

Table 1 summarizes by department the number of times each food was advertised, the number of instore price changes, the number of lower priced specials, the probability of obtaining a special, and the average percent savings.

The probability of buying an advertised special was only 2 percent when purchasing the entire BLS market basket of food items. When buying that portion of the market basket advertised in weekly newspaper ads, the probability of obtaining lower priced specials was 19 percent. A total of 14,040 price observations were obtained, 1,344 items were advertised in the local newspaper, and 256 of these were found to be lower price specials. Together the five stores had 10 advertised specials per week with a saving of 13 percent. Dollar savings on the 10 items averaged 60 cents per week or 12 cents per store.

By comparison, probability of buying an instore special was about 8 percent when purchasing the entire BLS market basket of food items. When buying only that portion of the market basket for which instore prices changed, the probability of obtaining lower priced specials increased to 47 percent. Of the 14,040 price observations, 2,280 nonadvertised items changed price, and 1,068 of these were found to be lower price specials. All five stores combined had 41 instore specials per week with a saving of about 14 percent. Dollar savings on the 41 items averaged $2.70 per week or 54 cents per store.

The tendency for the incidence of instore specials to exceed advertised specials is consistent for all departments in supermarkets. Yet comparison among the seven departments shows a pattern in supermarket preference for advertised and instore specials.

Indications are that advertised price specials were slightly more important in the dairy, packaged food, and produce departments than in the frozen food, cereal, canned food, and meat departments. By contrast, instore price specials were slightly more important in the frozen food, cereal, packaged, canned, and meat departments than in the dairy and produce departments. The packaged foods department is the only one with a higher probability of both advertised and instore price specials than the average of all departments.

Table 1. Advertised and Instore Specials Five Supermarkets, Fort Collins, Colorado, 1969

Department	Items in sample	Total times items appear		Total price changes	Total specials		Probability of being a special		Average percent saved	
		Advertised	Instore	Advertised	Instore	Advertised	Instore	Advertised	Instore
	number					percent			
Dairy	9	56	160	15	65	26.8	40.6	11.0	9.1
Frozen	8	48	127	7	63	14.6	49.6	10.9	15.8
Cereal	11	114	135	18	71	15.8	52.6	15.7	9.4
Packaged	12	151	113	39	61	25.8	54.0	8.8	8.1
Canned	23	205	329	39	167	19.0	50.7	11.1	10.6
Produce	18	254	697	71	300	27.9	43.3	17.7	19.3
Meat	27	516	719	67	341	13.0	47.8	12.0	12.9
TOTALS	108	1,344	2,280	256	1,068	19.0	47.1	13.1	13.8

Comparison among the five stores shows some variation in advertising and pricing practices, although in no case did weekly store advertising exceed 12 of the 108 foods in the market basket, nor did the probability of obtaining a lower special price exceed one-third when shopping advertised items in the market basket. The store with the highest number of advertised items with an average of 12 per week, had the fewest number of advertised specials with one per week, the lowest probability of obtaining an advertised special with an 8 percent chance, and the lowest average savings per special with 11 percent. In contrast, another store had the lowest frequency of advertised items with eight per week, the most specials offered per week with three, for the highest probability of obtaining a lower priced special with a 34 percent chance.

Comparison among the five stores also shows some variation in practices with respect to instore pricing, although in no case did weekly instore price changes fall below 14 of the 108 foods in the market basket, nor did the probability of obtaining a lower special price when shopping instore price changes fall below 43 percent. The store with the highest number of instore price changes averaged 23 per week, and the highest number of instore specials with 11 per week, yet it offered consumers only a slightly greater probability of obtaining a special with a 49 percent chance.

Conclusions

The analysis of newspaper advertised food items reveals that few (19 percent) bonafide price specials were offered by the stores in the market. This is the expected strategy under conditions of kinked oligopoly demand curve and perfect knowledge among the oligopolists. The strategy with respect to instore specials by the firms in this market is clearly one of reducing prices. By making the largest number (47 percent) of bonafide price reductions within the store, other oligopolists are limited in their knowledge of price changes. Such behavior is also consistent with the kinked oligopoly demand theory.

The scope of this study is limited to a single local retail food market in Colorado. Nevertheless, the general relationships discovered are thought to approximate closely food retailing in many local markets throughout the Western states. Further research would be useful in testing the general applicability of the results.

FOOTNOTES

1/ Preston states: "The price of the individual item in the individual store at a single point in time must be examined in relation to the price of the same item in the same store at earlier periods, prices of other items in the same store and in the same ad, and prices of the same and other products, advertised and not advertised, at other stores in the market" [3, p. 68].

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