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# **ADVERTISING AND THE FOOD SYSTEM**

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**John M. Connor  
and Ronald W. Ward,  
Editors**

**With the assistance of  
Rosanna Mentzer Morrison**

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# **FOOD ADVERTISING AS A SOURCE OF CONSUMER INFORMATION: A CASE STUDY OF NEWSPAPER ADVERTISING AND ITS RELATIONSHIP TO PUBLIC PRICE REPORTS**

**Robert D. Boynton, Vicki McCracken, and Scott Irwin<sup>1</sup>  
Purdue University**

There is reason to believe that consumers face a difficult task in securing accurate and sufficient information to judge relative price levels of competing food stores. The large choice set of food items, the frequency of food price changes, emphasis on quality and service differences, and the complex price merchandising strategies of food retailers all result in an increasingly difficult food price comparison task for consumers. This problem is often referred to as food consumers' information problem.

In this paper we will attempt to document the existence of this food price information problem. Through a detailed analysis of newspaper advertisements by South Bend and Terre Haute, Indiana grocers for selected weeks we will assess the extent to which these ads provide comparative price information and examine the mix of price and non-price information in such messages. South Bend grocers' advertising behavior will be analyzed when an independent comparative foodstore price report is published regularly in their city. In the final section we will indicate ideas for additional analyses of food store pricing and advertising behavior utilizing this data base.

The objectives of this study are to: (i) determine the usefulness of weekly foodstore newspaper advertisements in providing comparative price information; (ii) characterize the nature and extent of such advertisements; and (iii) assess whether grocers' newspaper advertising behavior is affected by the publication of a weekly food price report (specifically the USDA-Purdue price report).

## **THE FOOD PRICE INFORMATION PROBLEM**

Differing food prices among stores within a market is a necessary condition for the existence of a comparative price information problem. If there were no price differences among stores, then price would not be a variable in store selection. The conclusion of most food retailing studies, however, is that prices are not at the same level in local food markets. Holdren (1960) found that competition in food retailing seldom resulted in price uniformity because retailers respond to price changes of rivals by changing the price mix of items. Preston (1963) found that a grocery may maintain a place in the market without matching prices of its rivals because of vast freedom in setting prices. The National Commission on Food Marketing (1966) found price levels within a local food market to be fairly similar; however, fluctuations in relative price levels were so frequent that consumers could not be expected to identify the lowest-priced store. The USDA-Purdue food price reporting study (1979-80) confirmed the existence of sizeable difference among stores in the cost of a 100-item food and non-food marketbasket. For example, prices between highest-and lowest-priced stores differed by 4-5% during most of the experiment in South Bend, Indi-

ana. In addition store cost ranks switched considerably throughout the 23 week period. These findings give support to the idea of a food consumer information problem.

Price differences are not a sufficient condition for the existence of a food consumer information problem. If different stores specialize in serving different consumer groups each of whom selects a different marketbasket, the price dispersion is not a sufficient condition for the presence of imperfect competition, consumer injury, or an information problem. What remains to be determined is whether price dispersion is correctly perceived by consumers, and if so, whether such differences reflect consumer preferences. The hypothesis that observed price dispersion implies perfect competition at work (or no information problem) can be rejected in at least 3 ways: (i) demonstrating that consumers have inaccurate price perceptions; (ii) demonstrating that different preference groups do not specialize across stores; and (iii) showing that some stores have the highest or lowest price for a collection of marketbaskets purchased by different groups.<sup>2</sup>

Let us focus on the first of these three methods. Pertinent evidence has been amassed from several sources on the first method of testing this hypothesis. Brown and Oxenfeldt (1972) found a large number of consumers misperceiving food price levels in stores. Anderson and Scott (1970) found consumers tending to rate their store as lowest in price. The USDA-Purdue study also found that consumers often held prior views on a store's relative price position in the market not confirmed by the price report. We submit that these prior findings are ample evidence that observed dispersions are not consistent with perfectly competitive retail food markets.

Given fairly strong evidence for the existence of a food price information problem, it may be useful to inquire to what extent the weekly newspaper advertisements may ameliorate or exacerbate it. It is clear that much information is conveyed in the weekly food ads and that consumers do use this information. In fact, two-thirds of surveyed consumers believed the weekly newspaper ads were very helpful in choosing the lowest-priced store (USDA-Purdue study, 1979-80). However, the growing number of successful independent comparative food price reporting systems would suggest that there is still an information gap to fill.

Most empirical studies of weekly retail food store newspaper advertising suggest that ads are not designed for direct store price comparison. Baumol *et. al.* (1964) identified two uses of the ads: (i) to create a favorable "image" of the firm and (ii) to reply to competitive challenges posed by the activity of some other firm. With respect to the latter, Baumol found that in selecting items for inclusion in their weekly newspaper advertisement, the firms acted more random than a purely random process would suggest. Stores apparently consciously avoided imitating or deviating significantly from their competitors' advertising actions (choices of items to include).

A number of other retail food advertising studies yielded the same result: the degree of item overlap<sup>3</sup> between stores was low. Alderson and Shapiro (1962) looked at the frequency with which an identical item was advertised over a 4 week period by competing stores. They argued if supermarkets could make a reasonable estimate of what items rivals were likely to advertise, then a low degree of item overlap was probably a delib-

erate competitive policy to avoid duplicating items advertised by other chains.

Nelson and Preston (1962) in a rural and urban market found little evidence of a competitive response by retailers to advertised prices. By advertising different items, the necessity of making competitive price changes was reduced. They concluded that advertising activity within a market did not prove to be a significant variable in explaining the price of a store's advertised items.

Swan (1968) compared advertising in liquor stores and supermarkets in Austin, Texas. He found that supermarkets avoided competing directly by offering few items that were being advertised by competitors and did not frequently change the prices of advertised items. Liquor stores were found to do just the opposite. They advertised a large number of items advertised by competitors and changed these prices frequently. Swan concluded that liquor stores may change prices more frequently to gain a competitive advantage, while the low degree of item overlap in supermarkets may be an attempt to decrease reliance on price changes as a competitive response.

Holdren (1960) found that food stores simply do not advertise the items on which their prices are higher and in which they want to remain "out of line". Also, he found that many of the advertised prices are regular prices, not specials.

Padberg (1975), in summarizing the present situation in food retailing, acknowledged that ads do not assist consumers in finding where to get the lowest prices. They may give information on a few hundred items, but at best, are confusing in that the items presented are usually priced lower than their market value. He feels that ads are poor instruments for conveying price information to consumers.

## **METHODOLOGY**

Two criteria will be analyzed to assess the extent to which the weekly newspaper ads provide comparative price information: item overlap and the representativeness of items included in the weekly advertisements (inclusion of all major store departments, variability in number of advertised items). Additionally, overlap, representativeness, and price versus non-price advertising space will be compared before, during, and after the imposition of the independent comparative price report in South Bend. Comparison of South Bend with Terre Haute, where the report did not appear, also can provide insight into any advertising response to the price report.

Data from grocery store (not meat or produce markets) ads were collected from daily newspapers in South Bend and Terre Haute, Indiana between November 1979 and April 1980. All advertised items in any given week were listed, their price recorded,<sup>4</sup> and the inclusion of any coupons noted. Total advertising space purchased by a foodstore or chain was measured and allocated between price and seven non-price uses.<sup>5</sup>

The USDA-Purdue food price report was published weekly in the South Bend *Tribune* from November 29, 1979 to January 31, 1980 (10 reports). Prices of a 100-item marketbasket were also collected by price surveyors 5 weeks prior to and 8 weeks following the price report's publication. The price report listed the prices of 26 items at 8 stores plus the weighted price of 6 departmental marketbaskets (subsets of the 100 item basket) and the

overall 100-item basket (see Uhl's paper in this monograph for a sample of the price report).

For purposes of this study, a pre-period week (week 4), two publication period weeks (weeks 10 and 15), and a post-period week (week 21) were chosen for analysis. Advertising comparisons between the two cities and among the three periods within a city facilitate analysis of the interaction between advertising behavior and the publication of a comparative price report.

## RESULTS

### Overlap

Item overlap is a direct measure of the comparative potential of grocery advertisements. An overlap allows consumers to make price comparisons between stores although some ad formats would make such comparisons very time consuming for consumers. An overlap occurs when two or more stores advertise the same item in any given week. This may be given a strict or less restrictive interpretation. Strictly, an overlap occurs only if two or more stores advertise the identical item, identical in size and brand name (the disaggregated case). A second less restrictive definition, where the size and brand restrictions were dropped, made up the aggregated case.

The data confirm the low incidence of strict item overlaps in both South Bend and Terre Haute.<sup>6</sup> The vast majority of overlaps in each week involved only two stores. Virtually no higher-order overlaps occurred in Terre Haute. Most overlaps occurred in meat and produce items, a logical circumstance given the seasonality and perishability of these items. More overlaps were found in South Bend than in Terre Haute. But it would seem the potential for overlaps should have been greater in Terre Haute; fewer stores in Terre Haute advertised, and on average more items were included in their ads (81 items/week versus only 41 in South Bend). Apparently retailers in the two cities were following very different advertising strategies.

The degree of disaggregated overlap is depicted in Table 1. Here overlaps of different degrees are combined by summing them across items in a given week. For example, a 2-store overlap for ground chuck and a 3-store overlap for round steak would yield a score of 5 for the "beef" category. This table clearly shows the greater incidence of overlaps in South Bend in each of the studied weeks. Overlaps are also expressed as a proportion of the maximum possible overlaps in a given week. The maximum number of overlaps was calculated as the number of advertising stores in week *t* multiplied by the total number of *different* items advertised by all such stores that week. The incidence of overlapping items is dramatically shown by this calculation. Less than six percent of the potential overlap occurred in both cities weekly.

Next overlaps were redefined to include the advertisement of any brand of size of a given item type.<sup>7</sup> For perishables the aggregation was less objective than for branded products. The same measure of proportion of overlap was used in this case but with a maximum number of possible overlaps computed over the reduced set of aggregated items. The degree

of overlap increases to at least 31 percent of the maximum possible. This is a 7 to 25-fold increase over the disaggregated case (Table 2). Moreover, the degree of overlap in Terre Haute equals or exceeds that in South Bend suggesting that the ratio of identical to substitutable item overlaps is not constant between these two cities.

Despite the reasonably high degree of overlap measured in the aggregate case, there is still reason to question the ability of newspaper advertisements to act as comparative price vehicles. At least half of the total possible aggregated overlap is missed by the ads. But perhaps more importantly, some consumers would not find the items included in any particular aggregate category acceptable substitutes, thus hindering comparative pricing.

**Table 1. Total Number of Disaggregated Item Overlaps<sup>1</sup> In Selected Weeks, South Bend (SB) and Terre Haute (TH), Indiana**

	<u>Week 4</u>		<u>Week 10</u>		<u>Week 15</u>		<u>Week 21</u>	
	<u>SB</u>	<u>TH</u>	<u>SB</u>	<u>TH</u>	<u>SB</u>	<u>TH</u>	<u>SB</u>	<u>TH</u>
	(total no. of overlaps)							
Beef Items	25	6	24	14	10	13	30	7
Pork	20	6	16	9	15	2	11	2
Poultry	40	8	0	0	8	0	2	0
Produce	46	6	17	17	37	4	38	6
Dairy/Deli	30	4	13	10	17	4	10	0
Bakery	6	0	0	0	10	0	4	0
Bottles & jars	17	4	6	10	12	8	11	6
Canned	17	0	0	0	13	4	8	8
Frozen	17	2	6	4	6	18	5	14
Bags & boxes	21	0	5	2	12	4	5	2
Household	4	2	2	2	11	4	10	6
TOTAL	243	38	89	68	151	61	139	51
RATIO SB:TH Overlaps	6.4		1.3		2.5		2.7	
Percent of Possible Overlap	5.2	1.7	5.3	3.3	4.5	2.9	3.9	3.3

<sup>1</sup>Total number of disaggregated overlaps is the weekly sum of the number of store overlaps (disaggregated items) in a city, given by

$$\sum_{i=1}^N X_{i,t} \text{ for } X_{i,t} \geq 2$$

where  $X_{i,t}$  is the number of stores advertising item  $i$  in week  $t$  and  $N$  represents the number of different items advertised in week  $t$  in the city.

**Table 2. Total Number of Aggregated Item Overlaps<sup>1</sup> In Selected Weeks, South Bend (SB) and Terre Haute (TH), Indiana**

	Week 4		Week 10		Week 15		Week 21	
	SB	TH	SB	TH	SB	TH	SB	TH
	(total no. of overlaps)							
Beef Items	28	15	22	18	10	15	39	14
Pork	34	16	29	20	36	20	29	12
Poultry	22	29	0	3	13	8	4	2
Produce	46	14	20	39	48	20	54	12
Dairy/Deli	55	25	35	38	30	37	34	16
Bakery	16	6	10	13	12	17	13	4
Bottles & jars	23	6	8	6	23	15	24	6
Canned	43	18	2	0	14	23	39	30
Frozen	30	14	8	11	12	13	13	11
Bags & boxes	30	6	9	13	27	23	16	11
Household	20	2	2	21	25	20	33	15
Seafood	0	2	0	2	2	6	5	6
<b>TOTAL</b>	<b>347</b>	<b>153</b>	<b>145</b>	<b>198</b>	<b>261</b>	<b>233</b>	<b>296</b>	<b>139</b>
<b>RATIO SB:TH</b>	<b>2.3</b>		<b>0.7</b>		<b>1.1</b>		<b>2.1</b>	
Overlaps								
Percent of Possible Overlap	36.4	39.2	43.2	52.8	31.2	51.2	32.6	49.6

<sup>1</sup> Aggregation has been accomplished by collapsing the item definition on readily substituted items; specifically aggregating over brand name, size, and where appropriate common use. For meats and produce, there is an element of subjectivity involved in grouping substitutes. Item overlaps were computed as described in the footnote to Table 1.

Another measure of the usefulness of newspaper ads in price comparisons is the extent to which all foodstores advertise in a given week. If not all stores advertise, a comprehensive comparison in any given week is not possible. And if all the stores in a given city do not advertise each week then week-to-week comparisons can not be made either. Approximately 60% of all stores in both cities advertised in at least 14 of the 17 weeks examined.

### Representativeness

Not only must overlap occur if newspaper ads are to be useful for comparative price purposes, but the advertisements must include the full range of items carried by a modern supermarket. If the ad is not representative of the entire store, consumers would experience difficulty in assessing the overall store price structure or the price structure for their own marketbasket. The number of items advertised by South Bend and Terre Haute grocers varied among stores. Stores advertised from 9 to 119 items per week in South Bend and 29 to 149 in Terre Haute (averaged across the four weeks studied). It is clear from these data that not all stores present an equally rich picture of their price structure. Moreover, the number of items a store advertises varies each week, too, and contributes to the difficulty of making week-to-week comparisons among a group of stores in much the same manner as does variation in the frequency with which stores advertise.



Addressing the question of representativeness directly, Table 3 suggests that in each city all major store departments are represented every week in the average newspaper advertisement. The pattern is fairly stable from week-to-week across categories as well. When the percentage of advertised items in each category is compared to the BLS's expenditure weights it appears that ad space (or the total number of advertised items) is not allocated in exact proportion to the share of the average consumer's food budget devoted to each category (Table 4). Beef is under-advertised with respect to its food budget share as are household items; while pork, poultry, and produce receive a disproportionately large share of the advertising space. Since stores advertise items which they need to move, which they think will attract shoppers to their store, or which will offer a high margin, these items need not coincide with expenditure patterns of consumers. That the match is as close as it is undoubtedly reflects the necessity for each department manager to have a share of his store's total ad space.

### **Advertising and Price Reporting**

In this section of the paper we consider to what extent retailers changed their advertising behavior as a result of the independent comparative food price report. Such an evaluation can be made by comparing South Bend, where the report appeared, to Terre Haute, where it did not, and by comparing publication period observations (weeks 10 and 15) to pre-period (week 4) and post period (week 21) observations.

Among the four cities in which the report appeared, South Bend is a particularly good candidate for an examination of non-price response to the price report. South Bend exhibited the smallest relative price decline (0.2%) during the publication period. Its grocers might be expected to respond to non-price ways more so than retailers who adjusted prices rapidly and significantly. Such non-price competition might be less disruptive to stable (oligopolistic) retailer relationships existing prior to the report's publication.

The data previously discussed will be examined for any evidence of advertising-behavior changes by South Bend retailers. Tests of the advertising-price reporting relationship are not terribly robust since advertisements from only 4 of 23 weeks of the reporting period have been analyzed at this time. Additionally, it can be argued that a 10 week price reporting period is not sufficiently long to evoke an advertising response.<sup>8</sup> Therefore, all evidence presented here should be treated as only suggestive of a possible direction of effect. One could offer tangible hypotheses for both a decline in advertising intensity and overlap and an increase in these characteristics as a result of the price report. Also a change in the mix of price and non-price messages might be anticipated but its direction is unclear.

**Table 3. Average Number of Items<sup>1</sup> Advertised per Advertising Store for Selected Weeks, South Bend (SB) and Terre Haute (TH)**

	Week 4		Week 10		Week 15		Week 21		Average	
	SB	TH	SB	TH	SB	TH	SB	TH	SB	TH
Beef items	4	6	3	6	2	5	3	5	3	5
Pork <sup>2</sup>	6	8	4	9	4	6	4	5	4	7
Poultry	6	12	1	1	2	2	1	2	3	4
Produce	6	7	3	12	6	8	7	6	5	8
Dairy/Deli	9	14	5	17	3	12	5	9	6	13
Bakery	3	3	1	8	2	6	2	5	2	6
Bottles & jars	5	3	2	6	4	8	4	3	4	5
Canned	6	6	1	6	5	13	5	9	4	9
Frozen	4	5	1	6	2	9	2	5	2	6
Bags & boxes	7	7	2	5	5	10	3	6	4	7
Household	4	7	1	10	4	8	5	7	3	8
Seafood	3	2	3	2	1	3	1	3	1	3
TOTAL	60	80	24	88	40	90	42	65	41	81
RATIO SB:TH	0.75		.27		.44		.65		.51	

<sup>1</sup> Pet foods and alcoholic beverages are excluded from all these calculations. Non-food items included represent household cleaning supplies, personal use products, non-prescription drugs.

<sup>2</sup> Includes lamb

<sup>3</sup> Less than 0.5

**Table 4. Comparison of the Average Store's Advertising Distribution by Product Categories Computed Over Selected Weeks to the BLS's Expenditure Weights (Adjusted)**

Categories	Percent of Advertised Items		
	South Bend	Terre Haute	U.S.D. Labor BLS wts. <sup>1</sup>
Beef <sup>2</sup>	7	6	11.5
Pork	10	9	6.9
Poultry	7	5	3.0
Seafood	3	4	2.8
Produce-fresh	12	10	6.1
Dairy/Deli	15	16	16.8
Bakery	5	7	7.8
Canned & packaged <sup>3</sup>	34	33	30.7
Household	7	10	14.4
TOTALS	100.0	100.0	100.00

<sup>1</sup> BLS-CPI expenditure weights have been proportionately adjusted to coincide with the food and non-food items extracted from the newspaper ads. Due to differences between BLS classifications and those categories developed for tabulating the advertising of food stores, the correspondence is not perfect between the 3 columns above. The comparison is still useful for present purposes, however.

<sup>2</sup> Excludes prepared meats (see Deli)

<sup>3</sup> Includes the following categories previously reported separately: canned, frozen, bagged & boxed, bottles & jars

Strict or disaggregated overlap was lower in South Bend in weeks 10 and 15 than in week 4 in absolute terms and fell against weeks 4 and 21 relative to Terre Haute (Table 1). Aggregate overlap followed a similar pattern (Table 2).<sup>9</sup> The number of items advertised in South Bend dropped slightly during the price reporting period (Table 3), both absolutely, and relative to Terre Haute.

A comparison of ad space devoted to price and non-price messages<sup>10</sup> in the two cities for weeks 4, 10, 15, and 21 reveals that price space (as a percent of total space) rose absolutely in weeks 10 and 15 (compared to weeks 4 and 21) and climbed more steeply relative to Terre Haute food-store ad space, which fell during weeks 10 and 15. Total ad space climbed during the publication of the price report in South Bend as well, despite a reduction in the number of items advertised, while advertising space reacted in a mixed fashion during these same weeks in Terre Haute.<sup>11</sup> No significant changes in the space devoted to non-price advertising categories, such as consumer education, hours of business, location, etc., was observed during the food price report's publication.

Figure 1 presents the ratios of South Bend to Terre Haute total ad space and non-price ad space over a continuous set of weeks. This graph suggests virtually no decline in South Bend ad space relative to Terre Haute's from the onset of the price report (week 7) to the termination of the price report (week 16). Neither did the pattern in the post-period appear to change dramatically from that in the publication period. It is difficult to observe any dominant pattern in non-price ad space behavior either among the 3 periods.

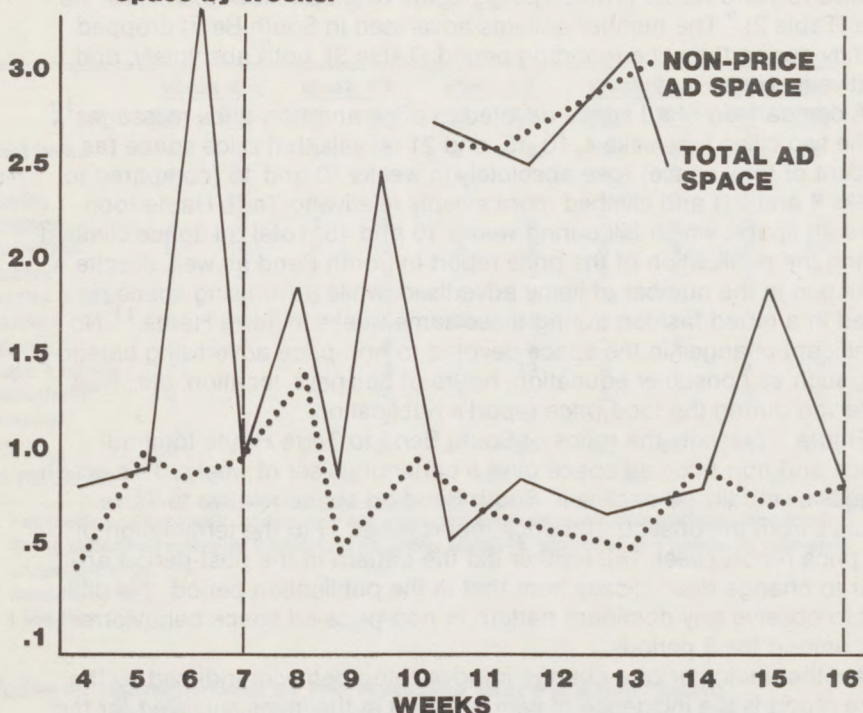
Another indicator of a change in advertising behavior induced by the price report is the incidence of item overlaps in the items surveyed for the report. In South Bend the number of advertising overlaps occurring in the 26 items individually identified in the price report was not noticeably changed by publication of the price report. Neither was any apparent change seen in the number of reported (26-item basket) or unreported (74-item basket) items advertised by South Bend grocers over the course of the price reporting experiment.

## **SUMMARY AND CONCLUSIONS**

Newspaper ads by grocery retailers differ markedly between cities both in terms of space purchased, number of items included, number of overlaps and the ratio of price to non-price message space. Furthermore, much variation in these characteristics is evident among stores in the same grocery market. Less than 6% of the potential overlap of advertised items (strictly defined) among stores was found to exist. This rises to 30-50% when items are aggregated into groups of substitutes.

The extent to which the full range of supermarket departments is represented in advertisements was found to be quite high in both cities. Not all stores advertised every week and stores often changed their ads considerably from week-to-week. There was a large range found among stores in the number of items advertised in any given week. On balance, grocery ads appear to be inadequate for purposes of comparative foodstore pricing by South Bend and Terre Haute shoppers.

**Figure 1. South Bend-Terre Haute Ratio of the Average Store's Total Advertising Space and Non-price Advertising Space by Weeks.**



Little evidence was found to support the idea that an independent comparative price report had an impact on grocer's advertising behavior. A tentative conclusion is that overlap (voluntary imitative advertising behavior) declined with the availability of a comparative price report (mandatory imitation).<sup>12</sup> It would appear that South Bend grocers incorporated more divergence in their ads during weeks 10 and 15 perhaps in deference to the imitation present in those reports. These grocers also decreased the number of items advertised in these weeks but increased the space purchased and the share allocated to price messages. This could mark a response of the South Bend retailers to the price report (increased advertising focusing on price) but when ad space and its allocation is examined over a 17 week period, these impacts are much less clear. This analysis suffers from the inclusion of advertising data from only a few weeks and from the fairly short stimulus period (10 weeks). The former limitation can be remedied within the current data base, the latter one cannot.

### **FURTHER RESEARCH**

Beside extending the type of analysis presented here to the three additional pairs of cities included in the USDA-Purdue price reporting project and including additional weeks, the data base we have offers other opportunities as well. Price change frequency and price leadership patterns can be directly examined with these data. The work of Baumol *et al.* (1964)

suggests another direction. They present an interesting model of a reacting oligopoly in food retailing. Our data base is richer than theirs (although of shorter duration) and therefore offers some unique opportunities to model grocers' advertising and pricing decisions. Pricing and advertising decisions could be modelled at the department level (or for various subsets of a department). Price and advertisement decisions by the leading firm(s) might be expected to affect other stores' responses as would a store's price rank among its competitors in the prior week. Such a model could be estimated for each represented store over time and for various types of cross-section and pooled formulations.

In as much as consumers felt that the ads were slightly more useful in weekly shopping decisions than the comparative price report (USDA-Purdue study) it would be interesting and useful to conduct some price perception experiments with consumers in a behavioral laboratory. Specifically, one could compare perceptions of a store's price level for a particular collection of goods formed from newspaper ads with those formed from a price report. This work would measure the extent to which ads might misinform and help determine what form and content for a price report would be most efficiently used by consumers.

## FOOTNOTES

- <sup>1</sup>This research was supported by the Department of Agricultural Economics, Purdue University and by the Agricultural Marketing Service, U.S. Department of Agriculture. The assistance of Kevin Hahn and An Tran in compiling these data is gratefully acknowledged.
- <sup>2</sup>We are indebted to Steven Salop for the articulation of these ideas.
- <sup>3</sup>Item overlap refers to the degree to which items appearing in one store's advertising were duplicated by one or more stores in the same week.
- <sup>4</sup>When an item was advertised so that its price could not be determined in the ad (e.g. 10¢ off the price of brand x), this was also noted.
- <sup>5</sup>These non-price uses of ad space were consumer education, hours/location, special services, quality of goods or services, non-food promotions, price guarantees, and miscellaneous non-price messages.
- <sup>6</sup>Preliminary analysis of comparable advertising data from Erie (another price report test city) and Altoona (a control city) also suggests low levels of item overlap.
- <sup>7</sup>Details of this aggregation process will be provided upon request.
- <sup>8</sup>A representative of a leading national grocery chain indicated that their advertising program for non-perishables is planned at least six weeks in advance.
- <sup>9</sup>Preliminary analysis of data from Erie yielded a different pattern. In Erie, the numbers of aggregated overlaps increased dramatically in weeks 10 and 15 relative to Altoona. This suggests that the price report may have stimulated more imitative advertising behavior in Erie. This conclusion is tempered, however, by the fact that in absolute terms, the number of aggregate overlaps in Erie exceeded the pretest level (week 4) in only one of the two price reporting weeks.
- <sup>10</sup>The average store purchased about 1 full page of space per week in South Bend and about 1-1/4 pages in Terre Haute. The average South Bend store devoted about 20% of this space to non-price messages but Terre Haute stores allocated about 25% of their space to such messages. The absolute sizes of ads and the percentage allocated to price and non-price space is quite variable from week-to-week.
- <sup>11</sup>Advertising space in Erie changed in much the same fashion as that in South Bend in response to the price report. Preliminary analysis revealed that total ad space rose slightly in Erie in weeks 10 and 15. But the proportion of price space did not rise as it did in South Bend.
- <sup>12</sup>As measured by the full range of advertised items, not just those surveyed for the price report.

## REFERENCES

- Alderson, W. and S.J. Shapiro, "Toward a Theory of Retail Competition," in R. Cox, et. al., eds., *Theory in Marketing*, R.D. Irwin, Inc., 1964, pp. 190-212.
- Anderson, C.R., and R.A. Scott, "Supermarkets: Are They Really Alike?" *Journal of Retailing*, Fall 1970, pp. 228-236.
- Baumol, W.L., R.E. Quandt, and H.T. Shapiro, "Oligopoly Theory and Retail Food Pricing," *Journal of Business*, Vol. 37, 1964, pp. 346-363.
- Brown, F.E., and A.R. Oxenfeldt, *Misperceptions of Economic Phenomena*, Speer and Douth, Inc., New York, 1972.
- Burgoyne, Inc., *The National Study of Supermarket Shoppers*, 1979-1980.
- Holdren, B.R., *The Structure of a Retail Market and The Market Behavior of Retail Units*, Iowa State University Press, 1960.
- National Commission on Food Marketing, *Organization and Competition in Food Retailing*, Technical Study No. F, 1966.
- Nelson, P.E., and L.E. Preston, *Price Merchandising in Food Retailing: A Case Study*, IBER, University of California, 1966.
- Padberg, D.I., in "The Market Functions and Costs for Food Between America's Fields and Tables" ERS and AMS-USDA, for Sub-Committee on

Agricultural Production, Marketing and Stabilization of Prices of the Committee on Agriculture and Forestry, U.S. Senate, March 25, 1975.

Preston, L.E. *Profits, Competition, and Rules of Thumb in Retail Food Pricing*, IBER, University of California, 1963, p. 70.

Swan, J.E., "Patterns of Competition for Differential Advantage in Two Types of Retail Institutions," *Journal of Retailing*, Spring 1971, p. 96.

