A COMPARISON AND ANALYSIS OF PRICE AND ANNOUNCEMENT CHANGES ON CONVENIENCE PRODUCTS AND THEIR IMPACT ON CONSUMER PERCEPTION AND RESPONSE

By

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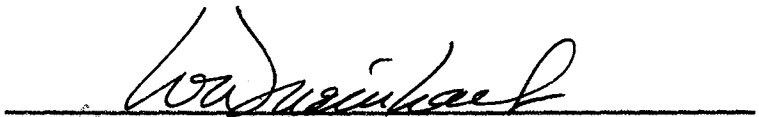

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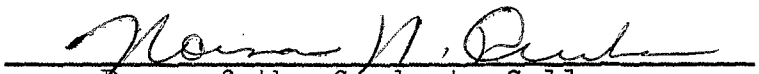

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CHAPTER I

INTRODUCTION

This research project was conceived to provide empirical evidence of consumer responses to special price offers and announcements. The aim of this data is to aid certain retailers and manufacturers in the determination of more effective price and announcement strategies. The intention of the study is to measure consumer perception of special price offers and analyze their effect on consumer buying behavior for branded convenience products.

The data for this paper was generated in the spring of 1968 through personal interviews with the buyers of five different products. Only one store was utilized in the data collection. The location of the experiment was the T. G. & Y. store near the intersection of Knoblock and University Avenues in Stillwater, Oklahoma. The daily interviews were conducted with buyers of one or more of the five products during the period from April 8, 1968 to May 18, 1968. The branded convenience items selected for observation were deodorant, hair spray, toothpaste, mouthwash, and shampoo.

Since 127 of the 187 responses were from hair spray buyers, more statistical operations are conducted with the hair spray data than any other data. Therefore, only

general information will be presented for deodorant, toothpaste, mouthwash, and shampoo.

Statement of Objectives

The main objective of this research is to determine the effects of different price and announcement strategies on the consumer and to analyze the consumer's reaction to these changes. Consumer perception of special price offers plays a significant role in evaluating their importance. The influence of special price offers on buyer behavior is of inestimable value.

Further implications of this research relates to the consumer's evaluation of the different brands of convenience items. Those people buying one of the five products were asked to rate the total performance of the brand they purchased with the performance of the other brands, to evaluate the price of the brand purchased, and to rate the difficulty of the decision to purchase that particular brand. Obviously, the analysis of each of these dimensions of the consumer image of the product with each of the other two dimensions should yield some interesting observations.

The rating given the price of the product compared with the evaluation of brand performance would seem to lend some insight into the consumer mystique. The difficulty of the purchase decision can be compared against both the performance evaluation and the price evaluation for a comparison with the anticipated results. A

comparison of these three evaluations among brands might reveal certain indications of the effect price and announcement changes have on the general image of the brand.

This research also allows the detection of brand switching due to the price change of the control brand. The percent of the consumers changing due to the price reduction would be a reflection of a lack of brand loyalty to the other brands or of the flexibility of the consumers in their buying patterns. Conversely, this could be considered as the effectiveness of the price change as a stimulant to sales.

The most valid comparisons would appear to come from the sales data. The effects of an announced price reduction may be compared with the normal price, no announcement strategy. The implications of announcement can be tested by comparing sales occurring with and without announcement given a constant normal price. Another comparison is of the normal price sales and of price reduction sales assuming both are announced. The effects of a price reduction with or without an announcement may be compared.

Statement of Hypotheses

The hypotheses which will be tested will have their origin in the sales data. The sales will be placed in four categories: (1) sales resulting from the unannounced normal price, (2) sales resulting from the unannounced

price reduction, (3) sales resulting from the announced normal price, and (4) sales resulting from the announced price reduction. Actual sales resulting from one experimental treatment will be compared with the actual sales resulting from one other experimental treatment in the formulation of the hypotheses.

Four hypotheses will be tested. Each will be stated as a null hypothesis. The first null hypothesis says that there is no difference in the sales resulting from the announced normal price from the sales resulting from the unannounced normal price.

The second hypothesis states that there is no difference in the sales resulting from an unannounced price reduction from the sales resulting from an unannounced normal price.

The third hypothesis states that there is no difference in the sales resulting from an announced price reduction from the sales resulting from an unannounced price reduction.

The fourth hypothesis states that there is no difference in the sales resulting from an announced price reduction from the sales resulting from an announced normal price.

These hypotheses are tested only on the hair spray data since 129 of the 187 customers bought or intended to buy hair spray. No other product category accounted for enough sales to justify a testing of their sales results with a meaningful interpretation.

Limitations

While a measurable amount of thought and effort seemed to have been expended in planning this project, certain weaknesses and limitations are observable. The salient limitations will be mentioned.

One of the greatest limitations of data is the lack of an adequate number of responses. The small number of responses obviated any meaningful analysis of the deodorant, toothpaste, mouthwash, and shampoo data. The relatively small number of hair spray buyers seriously hampers the validity and reliability of the results obtained in the study and limits the number of worthy comparisons which might be made with the data.

Interviewers did not appear to be fastidious enough in their conduct of the interviews. Contradictory data was recorded by some of the interviewers. It appears that the interviewers were not adequately instructed regarding proper interview and data collection procedures. This factor weakens the amount of reliance which can be placed on the data.

The responses were almost exclusively female. All 127 of the hair spray buyers were female, and most of the other 60 responses were from women also. This may have biased the results and made them less representative of the actual market for some of the convenience items.

The questionnaire suffered from weakness in its construction. Weak construction is indicated when a

disproportionate number of "other" responses are received. Nearly one-half of the answers to the question, "Why did you buy the brand which you bought?", were of the "other" category. The responses to questions 3b and 5b were characterized by the indefinite "other" response. This reaction could have been curbed by additional relevant responses in the questionnaire.

Since the store selected for this experiment catered to the college student, another major concern would be that it is not representative of the general consumer. Therefore, younger tastes and younger buying habits would appear to be more evident. By the same token, a more educated consumer could be expected. Any conclusions from this study must be accepted with a realization of this bias.

The data would have been more reliable if more time would have been allowed for the collection of data for all four of the design categories for this experiment. More time allotted to the normal-price-no-announcement category would appear particularly feasible to allow a more reliable comparison. Extending the time of the experiment or selecting a store with greater sales would have the effect of increasing the number of responses in each category. A sizable increase in the responses is needed to make this price effect study more meaningful.

Organization of Material

The introduction is intended to give a general

overview of the purposes and problems pertinent to the intentions and outcomes of the study. The statement of objectives, the statement of hypotheses, and the limitations for the data are included in this section with general information.

The survey of literature in Chapter II will summarize relevant findings of product price and announcement manipulation. The implications of price and announcement studies on low priced products will be mentioned. Projects designed to identify the relationship between price and the estimation of performance by the consumer will be reviewed. Studies relating the source and depth of brand loyalty will be exposed.

In Chapter III the methodology of the experiment will be explained. The details of the methods and procedures used to gather and evaluate the data will be stated. The research design, the data collection method, and the sampling procedure sections will clarify the gymnastics of collecting the data. Immediately following these sections, the analysis section will explain the test performed in the evaluation of the data.

The findings will be presented in Chapter IV. The findings on hair spray and the testing of the hypotheses based on hair spray sales will be shown first. Following the hair spray section are the deodorant, mouthwash, toothpaste, and shampoo findings.

The implications of this study for further research shall be cited in Chapter V. The title of this chapter

shall be Implications for Marketing. General observations from the sales data and consumer evaluations will be geared to mesh with the appropriate objectives and to explain the fulfillment or nonfulfillment of the objectives. The results of the tested hypotheses will also be stated in these implications. The direction of the results of this study will also be included. This chapter is presented as implications for marketing, rather than conclusions, since enough weaknesses occurred in the data collection to limit the reliability of the data.

CHAPTER II

SURVEY OF LITERATURE

A relatively small number of studies of the consumer response to price changes and of the consumer evaluation of brands are reported in the literature. Generally, the results are comparable in that they imply psychological as well as economic ramifications. The studies of consumer reaction to price and price changes will be presented in the first section followed by sections relating the studies on consumer evaluation of goods and the factors revealing buying behavior in greater dimension.

Studies of Consumer Reaction to Price

Only a small number of studies have been conducted of the consumer reaction to price and of the effects of relative price changes. One of the pioneer works in this field was a price study by Leavitt (1954). The study of Leavitt suggests that in the absence of other criteria, consumers would likely buy the higher price brand.

A hypothetical choice situation was developed whereby each respondent was asked to select one of the two different priced brands for each product. The only information known about the brand was price.

Leavitt used the following four low priced products

in his simulation: floor wax, razor blades, cooking sherry, and moth flakes. Floor wax and razor blades represented products with a considerable difference in the quality of brand offerings, while cooking sherry and moth flakes represented products with little quality difference in brands.

In comparing the items rated as large "quality-difference" products with "all alike" products, a greater percentage of the subjects selected the higher priced brand. This finding suggests that consumers impute quality on the basis of price.

The findings of Tull, Boring, and Gonsior (1964) support the results of the Leavitt study. Their findings suggest that consumers rely heavily on price as an indicator of quality when uncertainty shadows the purchase decision.

Tull, Boring, and Gonsior conducted a simulation experiment with floor wax, liquid shampoo, table salt, and aspirin. Table salt and aspirin were products with the least difference between brands, and floor wax and liquid shampoo were products with the greatest difference between brands.

While this experiment bore a striking resemblance to the Leavitt simulation experiment, there was one striking difference. The respondents were given the reference price of the brand "they usually bought". During different phases of the experiment, this reference price was equal to the low, medium, and high prices given as

choices.

When the low price was given as a reference, nearly one-half of the respondents indicated that they would buy one of the two higher priced brands of floor wax and shampoo. Only three prices were offered. For the products considered to exhibit greater similarity among brands (aspirin and table salt), about one-quarter indicated they would buy one of the higher priced brands when the low reference price was given.

When the same experiments were run with the medium and high reference prices, an even greater percentage of respondents indicated that they would buy one of the two higher priced brands.

Wasson (1965) relates that a manufacturer of American bone china was having difficulty competing with less expensive imports through retail outlets. The firm raised both the price and total sales by implementing a house-to-house sales operation.

In another price phenomenon, Wasson tells of a firm which was not enjoying adequate sales on a common hardware item priced at $1.19. The retail chain repriced the item at $.89, at $1.09, and at $1.29 in three different groups of outlets. As a result, sales of the item priced at $1.09 flourished, while the sales of the same item priced at $.89 and $1.29 were deprived.

Findings pertaining to brand switching due to relative price changes have been divulged by Pessemier

(1959, 1963), by Abrams (1964), and by Smith and Broome (1967). Pessemier (1959) conducted a study to simulate purchase decisions for toothpaste and cigarettes. In this experiment, the relative difference between the prices of the subjects' preferred brands and all other brands was increased or decreased to make the other brands more enticing. In this way the brand loyalty to the respondents' preferred brand of toothpaste and cigarettes was determined.

Toothpaste buyers showed a low degree of brand loyalty with 53 percent of all buyers changing to a second-choice brand with only a three cent manipulation. Cigarette buyers required a five cent price movement before 58 percent switched to an alternate brand.

In further studies Pessemier (1963) studied buying patterns for respondents acting in a simulated situation with a very similar technique. The products were toothpaste and toilet soap. The different brands of each product received varying amounts of brand loyalty from their customers. However, the brand switching for both products was again relatively high in response to small changes in the relative prices of the two goods.

Abrams (1964) conducted a study of the effect of price reductions on sales of durable goods. He studied the effect on industry-wide refrigerator sales when prices were reduced to stimulate demand. The result was that refrigerator sales for the industry were relatively unchanged.

The amount of brand switching occurring for these somewhat more expensive products was not significant for small price changes. However, Abrams found that a larger change in the relative price was adequate stimulus for substantial brand switching.

A laboratory study by Smith and Broome (1967) supported the general findings previously uncovered. This study was done with aspirin tablets, sweet peas, coffee, and toothpaste. The interviewees were placed in different groups. They were either given information about the prices of the brands, the market standing of the brands, or no information at all.

The results revealed that the subjects would spend average amounts from ten cents to 21 cents more for the known brand. Many respondents expressed that they felt strong preferences for one unknown brand over another unknown brand. Both price information and market standing information swayed the subjects to some degree.

These findings imply that price may not be the competitive tool that it is often considered to be. Many times consumers will not even notice small changes in the prices. Therefore, significant changes are often needed to expand a firm's market share.

Consumer Evaluation of Goods

The consumer's evaluation of the goods he buys is closely related to his psychological dimensions.

Birdwell (1968) performed a study of consumer

perception of themselves and their automobiles. Birdwell's by semantic differential study revealed a close correlation between an automobile owner's image of himself and his car. Owners of prestige cars showed the highest degree of self-identification with their automobiles. The lowest degree of self-identification was between the owners and their compact cars. This was explained to result from this man's restricted ability to truly express himself.

As an extension of his study, Birdwell discovered that the perception of a particular type of car was substantially different for different categories of car owners.

Gross (1967) discovered some meaningful relationships. He used the monadic test to measure consumer evaluation of new products. In the monadic test, the consumer uses only one product, as he would use any brand of the product, and evaluates it.

In the evaluations which were made of new brands, there were three times as many favorable reactions as unfavorable reactions. Over three-fourths of the respondents said they found things they liked about the product. The performance rating of the new brands was only slightly lower than "very good". Nearly three-fourths of the subjects said they were interested in buying the product, even though 40 percent found something they did not like.

Other Dimensions of Consumer Buying Behavior

Many studies have been made of different aspects of consumer purchase behavior. Studies of brand loyalty, fulfillment of intentions, and in-store behavior have been made which add some insight to understanding consumer responses to different products, product brands, and relative prices.

A study correlating brand loyalty for grocery products was made by Frank, Douglas, and Polli (1968). The increase in the age of the youngest child and the increase of the population of purchases devoted to small package sizes are negatively associated with brand loyalty. A positive correlate of brand loyalty is the increase of the average price per unit. This implies how brand loyalty is associated with low priced, small package items.

Tucker (1964) discovered that brand loyalty for bread developed even though identical loaves were wrapped in different wrappers.

Another interesting study of buying behavior is of the actual outcome of purchase intentions. A study by Namias (1959) showed that negative intentions are move often fulfilled than positive buying intentions. The study showed further that most of the purchases are likely to be made by the group of consumers who do not plan to buy.

Namias found that the existence of personal debts by

the respondent did not prevent individuals from buying, but people with a favorable attitude about their personal finances seemed more likely to buy. Price differences in convenience goods would seem to be less effective with positive attitudes toward the assumption of debt prevailing.

A study to determine whether the plans of the husband or the plans of the wife were fulfilled most often was made by Wolgast (1958). In each case the suggestions of the woman were fulfilled the greatest percentage of times.

The study also showed the unanticipated purchases were most often made by the husband. For the purchase of household goods, the wife exercises more decisions than the husband.

A study by Granbois (1968) identified three variables which were important in explaining the variation between planned purchases and actual purchases. These three variables were the size of the shopping party, the composition of the shopping party, and the amount of time spent shopping.

The actual purchase equalled the intended purchase when there were only one or two persons in the shopping party, but with three or more in the party actual purchases tended to be one more or one less than the planned purchase.

Parties containing children were more likely to purchase less than planned. Also, unaccompanied women

over 30 were more likely to purchase more than they planned.

The shoppers spending two minutes or less were most likely to purchase the same number of items as planned. Those shoppers spending more time tended to purchase more items than they had planned.

The study of in-store traffic patterns is most helpful when it is accompanied by the manipulation of specific prices and special displays or announcements.

Many of the findings of these experiments seem to be easily explainable, but some can only be attributed to the peculiar irrationality of the consumer. Perhaps the most peculiar finding is that consumers expect to pay a price comparable to their evaluation of the brand's quality. This phenomenon may be written more correctly by saying that the average consumer imputes a particular quality from the list price of the brand of a product. It makes one wonder if price competition for some products needs redecoration.

CHAPTER III

METHODOLOGY

The methodology portion of this paper will explain the research design, the data collection methods, the sampling procedure, and the analysis performed. These portions will simply state what was done. The evaluation may be gleaned from the limitations section in the introduction.

Research Design

The research design differed according to the product considered. No two products received exactly the same treatment. One brand of deodorant, hair spray, toothpaste, and mouthwash received each of the following treatments: (1) price reduction with no announcement, (2) normal price with announcement, (3) price reduction with an announcement, and (4) normal price with no announcement. These treatments were administered for one week intervals. To avoid confusing the results, treatments on the manipulated brand of the product were not used more often than every other week. The interval weeks given treatment occurred when the manipulated brand was placed for sale on the shelves at the normal price with no announcement.

For each of the products, Brand 1 was the only brand which received any price reduction with or without an announcement. All other brands received the normal price, no announcement treatment.

None of the brands of shampoo received any treatment during the period when the information for this study was gathered. They were all placed for sale during the period at the normal price with no announcement.

The exact treatment given the manipulated brand of each product is shown in Appendix A, Table XVII.

The name of the experimental brand for each product is indicated in Appendix A, Table XVIII. The container size observed for each product will be listed. The normal price and the special price offer for each manipulated brand will also be shown in Table XVIII of Appendix A.

Data Collection Method

The data collection method was the questionnaire. The questionnaire was completed by a field worker who interviewed each consumer buying one of the five products. The structured-nondisguised method of questioning was used in conducting the personal interview. Using this form of questioning, it is less likely that the interviewer will bias the results.

A copy of the questionnaire used for each of the interviews is shown in Appendix B.

Sampling Procedure

Data Collection Form

The universe in this project consists of all persons who buy one of the five branded convenience products. The sample is composed of all of those persons who bought one of these products between 4:00 p.m. and 6:00 p.m. during the period from April 8, 1968 to May 18, 1968 at the store selected for the study.

The data collection form used by the interviewers is shown in Appendix B.

Field Work

The field workers used for this study were members of an undergraduate marketing class taught by Dr. Michael Perry at the Oklahoma State University. The amount of training and instruction given these workers on interview techniques was conducted in this class prior to the actual field work. The amount of training for conducting an interview was as thorough as Dr. Perry considered necessary. As a further precaution, Dr. Perry and Dr. Nelson made periodic checks of the conduct of the interviews to promote compliance with the proper interview procedures.

In verifying the data shown on the data collection forms, certain inconsistencies did occur on a small number of the forms. However, these were minor errors, and the contradictory answer was corrected by converting the error into the obvious intended response during the

editing process.

Since errors were noted on the data collection forms, two assumptions are made regarding this imperfection. Possibly, these errors were caused by a combination of negligence and lack of interest by the interviewers. It also appears that the questionnaire needed further refinement to facilitate more workable, less complicated usage by the interviewer. These factors probably worked in unison to weaken the results of the study.

Analysis

The hair spray results were analyzed with the Kolmogorov-Smirnov Two-Sample Test. The two samples use in this test are the Brand 1, Sudden Beauty hair spray, and the summation of Brand 2, Brand 3, and Brand 4 (Aqua Net, Style, and Just Wonderful, respectively). In this explanation Brand 1 sales will be n_1, and the summation of the sales of all other brands will be n_2.

The focus of the Kolmogorov-Smirnov Test is on the differences occurring between the two samples. Let the ratio $K/n_1 = Sn_1(X)$, where K is the observed frequency and n_1 is the size of the Brand 1 sample. Also, let $K/n_2 = Sn_2(X)$, where K is the observed frequency and n_2 is the size of the sample of all other brands. The Kolmogorov-Smirnov One-Tailed Test focuses on the following equation:

$$D = \text{maximum } \left[Sn_1(X) - Sn_2(X) \right]$$

The value of D is defined to be the maximum deviation between the two samples.

The one-tailed test is designed to determine the direction of the results. A statistician would state that this test is designed to see if the values of one population (or sample) are stochastically larger than the values of the other population (or sample).

The four categories of treatment were as follows: (1) normal price with no announcement, (2) normal price with announcement, (3) price reduction with no announcement, and (4) price reduction with an announcement. Two of these categories were compared in the formulation of each null hypothesis. These two categories are considered in each test to measure the significance, if any, of the differences in the sample distributions.

To facilitate using the chi-square table, the value of D must be altered according to the following equation:

$$X^2 = 4D^2 \, n_1 n_2 \, / \, n_1 + n_2$$

The appropriate values of D, n_1 and n_2 must be used for each hypothesis. The table will show where the value of X^2 does fall.

Using this test H_o, the null hypothesis assumes there is no significant difference between the two sets of sample values. The significance level chosen is .01, but the range in which the test result is significant will be indicated.

The Kolmogorov-Smirnov Test is used in preference to

the Chi Square Test since the Kolmogorov-Smirnov Test is more powerful than the Chi Square Test when the samples are small. In this way information need not be lost due to the forced combination of categories. Siegel (1956) states that when N is between 20 and 40, the Chi Square Test may be used if all expected frequencies are five or more. The data did not fulfill this requirement.

CHAPTER IV

FINDINGS

The material for the findings will be divided into sections according to the product evaluated. The data for hair spray will be presented first since about two-thirds of the responses are from hair spray buyers. The limited data for deodorant, mouthwash, toothpaste, and shampoo will be presented very concisely. The limited responses in those categories do not make comparisons advisable.

In the analysis, Brand 1 will always be the brand manipulated according to the experimental treatment shown in Appendix A. During the course of this experiment, Brand 2 and all subsequent brands will receive the normal price, no announcement treatment.

For each product Brand 1 was selected for manipulation because it was the most popular brand. The sales of only one container size for each product was observed in this experiment. This container size was considered the most popular using past sales of the various sizes of containers as the criteria.

The data for each product will be presented in the following order: general sales data, brand evaluations,

and the more specific portrayal of data when it is considered meaningful.

Hair Spray

Of the 187 customers represented in this study, 129 intended to buy hair spray. Of this number 127 bought hair spray, but two did not. The two nonbuyers intended to buy a particular brand, Sudden Beauty. The first interviewee gave no reason for not buying, but the other said she could not find her brand. The latter respondent said she did notice that Sudden Beauty was on sale. During the time of the interview with the first nonbuyer, there was an announced normal price. The interview with the second nonbuyer occurred when there was a price reduction with no announcement. These two nonbuyers will not be included in the buyer comparisons.

The information relating total sales by brand number and brand name will be shown in Table I. The only size of hair spray which was evaluated in this experiment was the 13 ounce size can. This size container was selected for manipulation because it was the most popular size. Sudden Beauty was selected to be manipulated as Brand 1 since it was the most popular brand of hair spray. The special price on the 13 ounce size of Sudden Beauty was a reduction from 67 cents to 50 cents. This reduction in price occurred only during the days indicated in the Research Design in Appendix A, Table XVII.

The experimental treatment given Sudden Beauty

TABLE I

NUMBER OF SALES BY BRAND

Brand Number	Brand Name	Number of Buyers
Brand 1	Sudden Beauty	76
Brand 2	Aqua Net	25
Brand 3	Style	13
Brand 4	Just Wonderful	12
Other	Other	1
Total		127

(Brand 1) by date and the sales of the respective brands are shown in Table II. A problem is encountered in presenting this data. The research design does not include any treatment for the Sundays which occurred during the course of the experiment since the collection of data was not planned for that day. Since interviews were made on those days, those responses are shown separately with the notation, "treatment unknown." While it appears that these responses should be included with the week following them, this assumption will not be made due to the lack of absolute proof.

The sales of Sudden Beauty (Brand 1) did indicate some definite tendencies. The sales of Brand 1 more than tripled the sales of the other three brands during the week when the price of the 13 ounce container of Brand 1 was reduced from 67 cents to 50 cents with an announcement. For contrast, when Brand 1 received the same treatment as the other brands, the Brand 1 sales ranged from approximately one-half to double the combined sales of the other three brands.

In evaluating buyer perception, it is necessary to know the percentage of buyers who saw hair spray on sale, the brand which they saw on sale, and the day the sale was allegedly noticed. Table III will state the number of buyers who noticed that a brand of hair spray was on sale. The actual treatment occurring during each time interval will be shown on the right side of Table III. The one day intervals for which the treatment is not definitely known

TABLE II

SALES BY BRAND RESULTING FROM DIFFERENT EXPERIMENTAL TREATMENTS

Time Period	Brand * 1	2	3	4	Experimental Treatment
April					
8-13	6	3	1	2	Normal price - announcement
14					Treatment unknown
15-20	7	7	3	4	Normal price - no announcement
21	2	1	1	1	Treatment unknown
22-27	16	4	5	2	Price reduction - no announcement
28	2			1	Treatment unknown
29-4	14	3	2	1	Normal price - no announcement
May					
5	7	1			Treatment unknown
6-11	17	3	1	1	Price reduction - announcement
12	1				Treatment unknown
13-18	4	3			Normal price - no announcement
Total	76	25	13	12	

*Brand numbers with corresponding names:

Brand 1 -- Sudden Beauty
Brand 2 -- Aqua Net
Brand 3 -- Style
Brand 4 -- Just Wonderful

TABLE III

COMPARISON OF THE NUMBER OF BUYERS
WHO SAW HAIR SPRAY ON SALE
WITH ACTUAL TREATMENT

Time Period	Brand * 1	2	3	4	Experimental Treatment
April					
8-13	3/6	2/3	0/1	1/2	Normal price - announcement
15-20	0/7	4/7	0/3	2/4	Normal price - no announcement
22-27	8/16	1/4	1/5	2/2	Price reduction - no announcement
29- 4	9/14	0/3	1/2	1/1	Normal price - no announcement
May					
6-11	13/17	1/3	0/1	1/1	Price reduction - announcement
13-18	2/4	0/3	0/0	0/0	Normal price - no announcement
Totals Brands	35/64	8/23	2/12	7/10	

*Brand numbers with corresponding names:

Brand 1 -- Sudden Beauty
Brand 2 -- Aqua Net
Brand 3 -- Style
Brand 4 -- Just Wonderful

will be omitted.

To allow a comparison of the observations with the sales occurring during the week, the data is presented in the form of a fraction. The numerator is the number of observations, while the denominator denotes the number of sales for that particular brand during that week.

The results from Table III show that 52 of the 109 respondents said they saw a brand of hair spray on sale when they selected their brand. Some of the buyers who said they saw a brand of hair spray on sale were not correct. During the weeks when Brand 1 (and all other brands) was receiving the normal price, no announcement treatment, 19 of the 48 purchasers of all four brands said they saw a brand of hair spray on sale. Obviously, there were false observations.

Among the persons who said they noticed hair spray on sale, many indicated the particular brand which they noticed on sale. The data showing the brands which were noticed on sale is presented in Table IV according to the brand which was purchased by the respondents.

The meaning of the figures indicated in Table IV will be explained in the following narrative to assure their clarity. Among the buyers of Brand 1, 41 noticed that Brand 1 was on sale, and one noticed that Brand 2 was on sale. Of the buyers of Brand 2, four saw that Brand 1 was on sale, one noticed that Brand 2 was on sale, and two noticed that Brand 3 was on sale. Both of the purchasers

TABLE IV

PERCEPTION OF BRAND ON SALE
BY BRAND PURCHASED

Brand Purchased *	Brand Noticed on Sale *			
	1	2	3	4
Brand 1	41	1		
Brand 2	4	1	2	
Brand 3	2			
Brand 4	5			2
Total	52	2	2	2

*Brand numbers with corresponding names:

Brand 1 -- Sudden Beauty
Brand 2 -- Aqua Net
Brand 3 -- Style
Brand 4 -- Just Wonderful

of Brand 3 noticing a brand on sale said they noticed that Brand 1 was on sale. Among the buyers of Brand 4, five noticed that Brand 1 was on sale, while two said that they noticed that Brand 4 was on sale.

In assessing these results, it becomes obvious that, while 52 may have been valid observations, at least six are unavoidably false since Brand 1 was the only brand placed on sale. Actually, it is quite likely that many of the 52 responses indicating the observation of a sale on Brand 1 were received when no brand was on sale. The results of Table III support this assumption.

Another section of the questionnaire of particular meaning in this analysis is the evaluations which each buyer was asked to make of the brand which he purchased.

Each consumer was asked to perform evaluations of the brand he bought in comparison with the other brands of that product. He was asked to evaluate the following: (1) total performance of the brand bought in comparison with the other brands, (2) price of the brand chosen, and (3) difficulty of the purchase decision.

It seems that a meaningful comparison can be made of the evaluations of Sudden Beauty hair spray by three categories of Sudden Beauty buyers. These three categories of evaluations are from the following sources: (1) respondents who intended to buy Sudden Beauty (Brand 1); (2) respondents who intended to buy Aqua Net, Style, or Just Wonderful (Brand 2, Brand 3, or Brand 4, respectively); and (3) respondents who either did not indicate

an intended brand purchase or who indicated an unlisted brand as the brand which they intended to purchase. The use of these categories allows the inspection of these evaluations by the initial intention of the respondent who ultimately bought Sudden Beauty. The results are interesting.

The performance rating given Brand 1 by buyers of Brand 1 who may or may not have intended to buy Brand 1 is portrayed in Table V. The meaning of each of the numerical performance ratings is as follows: (1) very inferior, (2) somewhat inferior, (3) average, (4) somewhat superior, and (5) very superior.

Certain tendencies are apparent from the data. First, the mythical "average" buyers of Brand 1 rated its performance between "average" and "somewhat superior". This appears logical if one thinks the consumer usually considers the product which he buys better than average.

Also, the data in Table V indicates that the buyers of Brand 1 who intended to buy Brand 1 tended to rate its performance higher than the brand switchers or those who stated no intended brand. As a corollary to this observation, one could say that consumers tend to reduce their evaluation of the performance of brands which are placed on sale for a period of time.

The price evaluation given Brand 1 by the buyers of Brand 1 categorized according to their original purchase intention is shown in Table VI . The meaning given the five numerical price ratings is as follows: (1) very low,

TABLE V

PERFORMANCE RATING OF BRAND 1 BY BUYER'S INTENDED BRAND

Intended Brand *	No. of Brand 1 Buyers	Evaluation of Brand 1 Performance ** 1	2	3	4	5	Average Evaluation
Brand 1	44		1	19	20	4	3.61
Brand 2, 3 or 4	9			6	2	1	3.44
Other	23	1	1	12	4	5	3.48
Total	76	1	2	37	26	10	3.55

*Brand numbers with corresponding names:

Brand 1 -- Sudden Beauty
Brand 2 -- Aqua Net
Brand 3 -- Style
Brand 4 -- Just Wonderful

**Code to the numerical performance ratings:

1 -- very inferior
2 -- somewhat inferior
3 -- average
4 -- somewhat superior
5 -- very superior

TABLE VI

PRICE EVALUATION OF BRAND 1 BY BUYER'S INTENDED BRAND

Intended Brand *	No. of Brand 1 Buyers	Evaluation of Brand 1 Price ** 1	2	3	4	5	Average Evaluation
Brand 1	44	4	17	20		3	2.57
Brand 2, 3 or 4	9	1	4	3	1		2.44
Other	23	2	13	8			2.26
Total	76	7	34	31	1	3	2.46

*Brand numbers with corresponding names:

Brand 1 -- Sudden Beauty
Brand 2 -- Aqua Net
Brand 3 -- Style
Brand 4 -- Just Wonderful

**Code to the numerical price ratings:

1 -- very low
2 -- relatively low
3 -- fair
4 -- relatively high
5 -- very high

(2) relatively low, (3) fair, (4) relatively high, and (5) very high.

The average evaluation of price is determined by weighting the number of numerical evaluation by the appropriate figure. The average price evaluation for all buyers of Brand 1 is 2.46--nearly midway between a relatively low price rating and a fair price rating.

The tendency of these price ratings is noticeable. Persons who intended to buy Brand 1 when they entered the store did not rate the price of Sudden Beauty (Brand 1) as low as those persons who intended to buy another brand when they entered the store and changed to buy Brand 1. This appears likely because many brand switchers changed to purchase Brand 1 because of the price reduction on Brand 1.

The respondents were also asked to rate the difficulty of the purchase decision for the particular brand which they bought. The evaluation of the difficulty of the decision to buy Brand 1 by the previously mentioned categories will be portrayed in Table VII. The numerical ratings for the difficulty of the purchase decision are the following: (1) very easy, (2) relatively easy, (3) not difficult, (4) somewhat difficult, and (5) very difficult.

In Table VII the so-called "average" buyer of Brand 1 rated the difficulty of the purchase decision midway between very easy and relatively easy. Nearly two-thirds of the respondents indicated the purchase decision was

TABLE VII

EVALUATION OF DIFFICULTY OF DECISION TO BUY BRAND 1 BY INTENTION

Intended Brand *	No. of Brand 1 Buyers	Difficulty of Decision to Buy Brand ** 1	2	3	4	5	Average Evaluation
Brand 1	44	31	9	4			1.39
Brand 2, 3 or 4	9	5	2	2			1.67
Other	23	11	11			1	1.65
Total	76	47	22	6	0	1	1.50

*Brand numbers with corresponding names:

Brand 1 -- Sudden Beauty
Brand 2 -- Aqua Net
Brand 3 -- Style
Brand 4 -- Just Wonderful

**Code for the numerical ratings for the difficulty of the purchase decision:

1 -- very easy
2 -- relatively easy
3 -- not difficult
4 -- somewhat difficult
5 -- very difficult

very easy. As one would assume through deductive reasoning, generally speaking, the buyers who entered the store intending to buy Brand 1 rated the purchase decision less difficult than either the brand switchers or those who indicated no intended brand.

To facilitate a visual comparison of the cumulative numerical ratings given each of the three evaluations, the raw data for each evaluation will again be presented in Table VIII.

Among the hair spray buyers who bought Brand 1, the regular brand of the consumer varied. While most people who bought Sudden Beauty (Brand 1) considered it their regular brand, approximately one-third either listed no regular brand preference or indicated another brand as their regular brand.

All hair spray buyers were asked to state the reason they bought their brand. Of particular meaning in this study were the reasons given for the purchase of the manipulated brand, Sudden Beauty. This information is stated in Table IX which shows the consumer's regular brand and the reason given for purchasing Sudden Beauty (Brand 1).

The reasons shown on the right side of Table IX will have the meaning indicated as follows: (1) could not find my regular brand, (2) price, (3) announcement, (4) dissatisfaction with prior purchase because of quality, (5) dissatisfaction with a prior purchase because of container, (6) dissatisfaction with a prior purchase

TABLE VIII

COMPARISON OF THE EVALUATION OF PERFORMANCE, PRICE, AND DECISION DIFFICULTY BY BRAND 1 BUYERS

Numerical Rating	Performance Evaluation	Price Evaluation	Evaluation of Decision Difficulty
1	1	7	47
2	2	34	22
3	37	31	6
4	26	1	
5	10	3	1
Total	76	76	76
Average Rating	3.55	2.46	1.50

TABLE IX

BRAND 1 BUYERS ACCORDING TO REGULAR BRAND AND REASON

Regular Brand *	No. of Brand 1 Buyers	Reason for Buying Brand 1 **						
		1	2	3	4	5	6	7
Brand 1	50		12	2	1	1		34
Brand 2	9		9					
Brand 3	1		1					
Brand 4	3		3					
Other	13	5	7					1
Total	76	5	32	2	1	1	0	35

*Brand numbers with corresponding names:

Brand 1 -- Sudden Beauty
Brand 2 -- Aqua Net
Brand 3 -- Style
Brand 4 -- Just Wonderful

**Reasons for buying Brand 1:

1. Could not find regular brand
2. Price
3. Announcement
4. Dissatisfaction with prior purchase because of quality
5. Dissatisfaction with prior purchase because of container
6. Dissatisfaction with prior purchase because of image
7. Other

because of image, and (7) other.

It becomes apparent from this data that those persons changing from their regular brand to buy Sudden Beauty switched primarily because of price. All 13 respondents changing from Brand 2, Brand 3, or Brand 4 to buy Brand 1 cited price as their reason.

Similarly, not all buyers bought the brand which they intended to buy when they entered the store. The intentions stated by the purchasers of Sudden Beauty showed that over forty percent either did not intend to buy Sudden Beauty when they entered the store or they did not list Sudden Beauty as their purchase choice. Again, for the purposes of this study, the reason stated for the purchase decision is of greatest importance from those respondents who changed brands to buy Sudden Beauty (Brand 1). The information stating the intended brand purchase and the reason for buying Sudden Beauty hair spray is in Table X.

The reasons for buying a particular brand are the same as reasons one through seven stated above.

Again, it is of particular relevance that all of the respondents changing from a specific brand (Brand 2, Brand 3, or Brand 4) changed their brand to buy Sudden Beauty (Brand 1) because of price. Also, over one-half of the responses from the noncommittal "other" category said they bought Sudden Beauty because of price. The stimulus which the price caused in the consumers to buy Brand 1 is cross verified in the evaluations of price by

TABLE X

BRAND 1 BUYERS ACCORDING TO INTENDED BRAND AND REASONS

Intended Brand *	No. of Brand 1 Buyers	Reasons for buying Brand 1 **						
		1	2	3	4	5	6	7
Brand 1	44	1	11	1	1	1		29
Brand 2	6		6					
Brand 3	1		1					
Brand 4	2		2					
Other	23	4	12	1				6
Total	76	5	32	2	1	1	0	35

*Brand numbers with corresponding names:

Brand 1 -- Sudden Beauty
Brand 2 -- Aqua Net
Brand 3 -- Style
Brand 4 -- Just Wonderful

**Reasons for buying Brand 1:

1. Could not find regular brand
2. Price
3. Announcement
4. Dissatisfaction with prior purchase because of quality
5. Dissatisfaction with prior purchase because of container
6. Dissatisfaction with prior purchase because of image
7. Other

categories shown in Table X. The price rating of Brand 1 given by the brand switchers indicated a lower price than the price evaluation rendered by those intending to purchase Brand 1.

The analysis of the hair spray sales data in the next section will compare the Brand 1 sales with the sales of all other brands. The results of one experimental treatment will be tested against the effects of another experimental treatment to determine the significance of their difference, if any.

Analysis Performed on Hair Spray Data

Kolmogorov - Smirnov Test Between Announced and Unannounced Normal Price Samples

H_o = There is no difference in the number of Sudden Beauty hair spray buyers and any other hair spray buyers whether or not there is a normal price with announcement or normal price with no announcement on Sudden Beauty.

Level of significance = .01

Degree of freedom = 1

Experimental Treatment	Sudden Beauty	All Other Brands	Total
Normal price - no announcement	25	23	48
Normal price - announcement	6	6	12
Total	31	29	60

$$D = \text{Maximum } \left[Sn_1(X) - Sn_2(X) \right]$$

$$D = (25/31 - 23/29) \text{ or } (6/31 - 6/29)$$
$$= .01335$$

$$X^2 = 4D^2 \, n_1 n_2 \, / \, n_1 + n_2$$
$$= 4(.00018)\,(899) \, / \, 31 + 29$$
$$= .0108$$

$$(p = 1.00) \quad X^2 \quad (p = .99)$$

Since the value of X^2 falls between p = 1.00 and p = .99, the null hypothesis should be accepted.

Kolmogorov - Smirnov Test Between Unannounced Price Reduction and Unannounced Normal Price Samples

H_o = There is no difference in the number of Sudden Beauty and any other hair spray buyers whether or not there is a Sudden Beauty price reduction with no announcement or no price reduction with no announcement on Sudden Beauty.

Level of significance = .01

Degree of freedom = 1

Experimental Treatment	Sudden Beauty	All Other Brands	Total
Price reduction - no announcement	16	11	27
Normal price - no announcement	25	23	48
Total	41	34	75

$D = \text{Maximum } \left[Sn_1(X) - Sn_2(X) \right]$

$D = (16/41 - 11/34) \text{ or } (25/41 - 23/34)$
$= .06671$

$X^2 = 4(.06671)^2 (41)(34) / (41 + 34)$
$= 4(.00445)^2 (1598) / 75$
$= .37026$

$(p = .90) \quad X^2 \quad (p = .80)$

Since the value of X^2 falls between p = .90 and p = .80, the null hypothesis should be accepted.

Kolmogorov - Smirnov Test Between Announced and Unannounced Price Reduction Samples

H_o = There is no difference in the number of Sudden Beauty hair spray buyers and any other brand of hair spray buyers whether or not there is a price reduction with announcement or a price reduction with no announcement on Sudden Beauty.

Level of significance = .01

Degree of freedom = 1

Experimental Treatment	Sudden Beauty	All Other Brands	Total
Price reduction - announcement	17	5	22
Price reduction - no announcement	16	11	27
Total	33	16	49

$$D = \text{Maximum } \left[Sn_1(X) - Sn_2(X) \right]$$

$$D = (17/33 - 5/16) \text{ or } (16/33 - 11/16)$$
$$= +.20265$$

$$X^2 = 4D^2 \, n_1 n_2 \, / \, n_1 + n_2$$
$$= 4(.20265)^2 \, (33) \, (16) \, / \, (33 + 16)$$
$$= 1.770$$

$(p = .50) \quad X^2 \quad (p = .30)$

Since the value of X^2 falls between p = .50 and p = .30, the null hypothesis should be accepted.

Kolmogorov - Smirnov Test Between Announced Price Reduction and Announced Normal Price Samples

H_o = There is no difference in the number of Sudden Beauty hair spray buyers and any other brand of hair spray buyers whether or not there is a normal price with an announcement or a price reduction with an announcement on Sudden Beauty.

Level of significance = .01

Degree of freedom = 1

Experimental Treatment	Sudden Beauty	All Other Brands	Total
Normal price - announcement	6	6	12
Price reduction - announcement	17	5	22
Total	23	11	34

$$D = \text{Maximum } \left[Sn_1(X) - Sn_2(X) \right]$$

$$D = (6/23 - 6/11) \text{ or } (17/23 - 5/11)$$
$$= +.28458$$

$$X^2 = 4D^2 \, n_1 n_2 \, / \, n_1 + n_2$$
$$= 4(.28458)^2 \, (23)(11) \, / \, (23 + 11)$$
$$= 2.411$$

$(p = .30) \quad X^2 \quad (p = .20)$

Since the value of X^2 is between $p = .30$ and $p = .20$, the null hypothesis should be accepted.

Deodorant

The manipulated brand of deodorant chosen due to its usual popularity was Spray Secret. The most frequently purchased size of deodorant and the size observed in the data collection was the seven ounce container. During the periods of an actual price reduction, the price of Spray Secret was reduced from the $1.59 normal price to the $.99 special price.

The deodorant sales data will be presented by brand purchased and by week of purchase. The key to the brands of deodorant is: Brand 1, Secret spray; Brand 2, Right Guard; Brand 3, Arrid; Brand 4, Calm; Brand 5, Hour After Hour; and Brand 6, Ban. Table XI is used for this sales data. Since the sales are so small, the experimental treatment will not be indicated in the table.

The periods when Spray Secret (Brand 1) was manipulated and the experimental treatment performed on Spray Secret are: April 8 - April 13, price reduction with an announcement; April 22 - April 27, normal price with an announcement; and May 6 - May 11, price reduction with no announcement. During the other weekly intervals, Spray Secret received the unannounced normal price treatment.

The three evaluations will be presented as average ratings only. Since each brand will be shown, comparisons will be simplified. These data will be shown in Table XII.

The total sales of all brands of deodorant was 23

TABLE XI

WEEKLY SALES OF DEODORANT
BY BRAND

Time Period	Sales by Brand *					
	1	2	3	4	5	6
April						
8-13			2			
14-20	1	1		1		1
21-27	1	1	1			1
28- 4	1	2	2	1		2
May						
5-11	1	2			1	1
Totals	4	6	5	2	1	5

*Brand numbers with corresponding names:

Brand 1 -- Secret
Brand 2 -- Right Guard
Brand 3 -- Arrid
Brand 4 -- Calm
Brand 5 -- Hour After Hour
Brand 6 -- Ban

TABLE XII

EVALUATION OF DEODORANT PERFORMANCE, PRICE, AND DECISION DIFFICULTY BY BRAND

Brand No. *	Average Evaluation		
	Total Performance	Price	Decision Difficulty
Brand 1	3.0	2.8	1.5
Brand 2	4.0	3.2	1.5
Brand 3	4.3	4.0	1.4
Brand 4	4.0	4.0	1.5
Brand 5		3.0	2.0
Brand 6	4.4	4.2	1.4
Overall Average	4.0	3.6	1.5

*Brand numbers with corresponding names:

Brand 1 -- Secret
Brand 2 -- Right Guard
Brand 3 -- Arrid
Brand 4 -- Calm
Brand 5 -- Hour After Hour
Brand 6 -- Ban

units. A study of the comparative sales and evaluations reveals that those brands receiving the highest evaluations of performance tend to record the highest sales. Price did not seem to be the major criterion in the purchase decision as Spray Secret (Brand 1) received the lowest price evaluation and only placed fourth of six brands in total sales. However, the small number of sales and evaluations limits the credibility of any comparison.

Mouthwash

Listerine was the brand of mouthwash which was selected for manipulation. The size of mouthwash considered most popular was the 20 ounce bottle. The amount of the reduction allowed for Listerine was 19 cents. This figure represented a cut from the $1.07 normal price to $.88.

The mouthwash sales data will show the brand purchased and the week of the purchase. This data is in Table XIII. The brands of mouthwash are as follows: Brand 1, Listerine; Brand 3, Lavoris; Brand 4, Scope; Brand 6, Green Mint; and Brand 7, S. P. Antiseptic. No sales occurred with Brand 2 or Brand 5 representing Cepacol and Micrin, respectively. Since sales are small, none of the experimental treatments will be indicated in the table.

The time periods when Listerine (Brand 1) received a special treatment and the treatment given to Listerine are: April 15 - April 20, price reduction with an

TABLE XIII

WEEKLY SALES OF MOUTHWASH
BY BRAND

Time Period	Sales by Brand *				
	1	3	4	6	7
April					
8-13	1	1			
14-20	1	2	4		
21-27		1	1		
28- 4	2		2		
May					
5-11	1		1	1	1
Totals	5	4	8	1	1

*Brand numbers with corresponding names:

Brand 1 -- Listerine
Brand 3 -- Lavoris
Brand 4 -- Scope
Brand 6 -- Green Mint
Brand 7 -- S. P. Antiseptic

announcement; April 29 - May 4, normal price with an announcement; and May 13 - May 18, price reduction with no announcement. During all of the other weekly periods, the treatment received by Listerine was the unannounced normal price treatment.

The performance, price, and decision evaluations will be shown again as averages for clarity and simplification. These will be shown in Table XIV.

The total sales of all of the brands of mouthwash was only 19 units. Since Listerine (Brand 1) placed second in sales with only five units, it is assume that the announcements and the price reductions were not particularly effective, but the insufficient sales volumes make any dependable judgments indeterminable. Again, price did not seem to be the major factor in the consumer's minds, but the highest sellers did receive the highest performance evaluations.

Toothpaste

The brand of toothpaste which received the experimental treatments was Crest. The most frequently purchased size of toothpaste was thought to be the 6.75 ounce size, so it is the size of toothpaste for which the observations were recorded. During the weeks of the price reductions on the 6.75 ounce tube of Crest, two tubes could be bought for one dollar, or one tube could be bought for 50 cents. This was a reduction of 17 cents from the 77 cent normal price.

TABLE XIV

EVALUATION OF MOUTHWASH PERFORMANCE, PRICE, AND DECISION DIFFICULTY BY BRAND

Brand No. *	Average Evaluation		
	Performance	Price	Decision Difficulty
Brand 1	4.2	3.4	1.0
Brand 3	3.0	3.3	1.3
Brand 4	3.9	3.1	1.4
Brand 6	3.0	2.0	2.0
Brand 7	3.0	1.0	2.0
Overall Average	3.7	3.1	1.3

*Brand numbers with corresponding names:

Brand 1 -- Listerine
Brand 3 -- Lavoris
Brand 4 -- Scope
Brand 6 -- Green Mint
Brand 7 -- S. P. Antiseptic

Total toothpaste sales were 37, somewhat larger than the 23 units for deodorant and the 19 units for mouthwash. Sales data for the mouthwash brands will be shown in Table XV. The brands of toothpaste represented are as follows: Brand 1, 6.75 Crest; Brand 2, Flouride; Brand 3, McCleans; Brand 4, Colgate; Brand 5, Ultra-Brite; and Brand 6, Gleem. No sales were recorded for Brand 7, Pepsodent. The experimental treatment given Brand 1 will be shown with the data.

From Table XV, it appears that the announced price reduction did stimulate Brand 1 sales. However, the unannounced price reduction and the announced normal price had no apparent effect.

The consumer evaluations of the performance, price, and decision difficulty related to the brands of toothpaste by their purchasers will be presented again as averages only. A relatively meaningful comparison of these brands of toothpaste can be gleaned from Table XVI.

The evaluations of the brands of toothpaste by the consumers is somewhat confusing in view of past implications. The brand receiving the highest performance evaluation suffered with one of the sparcer sales figures. The possible answer is that it was also given the highest evaluation on price of all the toothpaste brands.

However, the brands of toothpaste receiving the two next highest "average" performance evaluations enjoyed a strong majority of the sales. The price evaluations for these two brands were reasonably competitive, but they

TABLE XV

WEEKLY BRAND SALES OF TOOTHPASTE
AND BRAND 1 TREATMENT

Time Period	Brand * 1	2	3	4	5	6	Experimental Treatment
April							
8-13				3			Normal price - no announcement
14-20	1		1	3	1		Price reduction - no announcement
21-27	2	1	2	1	1	3	Normal price - no announcement
28- 4	4	1		1	1		Price reduction - announcement
May							
5-11	2	2		2	1	1	Normal price - no announcement
12-18				2			Normal price - announcement
Totals	9	4	3	12	4	4	

*Brand numbers with corresponding names:

Brand 1 -- Crest
Brand 2 -- Flouride
Brand 3 -- McCleans
Brand 4 -- Colgate
Brand 5 -- Ultra-Brite
Brand 6 -- Gleem

TABLE XVI

EVALUATION OF TOOTHPASTE PERFORMANCE, PRICE, AND DECISION DIFFICULTY BY BRAND

Brand No. *	Average Evaluation		
	Performance	Price	Decision Difficulty
Brand 1	3.8	2.9	1.2
Brand 2	2.8	2.0	1.8
Brand 3	3.3	3.0	1.7
Brand 4	4.0	3.3	1.6
Brand 5	5.0	3.5	1.0
Brand 6	3.3	3.0	1.3
Overall Average	3.8	3.0	1.4

*Brand numbers with corresponding names:

Brand 1 -- Crest
Brand 2 -- Flouride
Brand 3 -- McCleans
Brand 4 -- Colgate
Brand 5 -- Ultra-Brite
Brand 6 -- Gleem

were not the lowest expressed. Inspection of the "average" decision difficulty figures was not enlightening.

Shampoo

Total shampoo sales were only 12 units. While this amount of sales does not justify much evaluation, the data is presented for the benefit of the reader in narrative form. The sales recorded for the six ounce size shampoo were for the following brands: Brand 1, Head and Shoulders; Brand 2, Lustre Cream; Brand 3, Prell; Brand 5, White Rain; Brand 6, Clairol; Brand 7, Breck; and Brand 8, Woodbury. No sales were listed for Brand 4, Halo. The sales figures by brand are as follows: Brand 1, three; Brand 2, one; Brand 3, two; Brand 5, two; Brand 6, two; Brand 7, one; and Brand 8, one. There are so few evaluations on each brand that presentation of them would be meaningless.

CHAPTER V

IMPLICATIONS FOR MARKETING

In this chapter the writer shall attempt to generalize from the findings and verbalize the comparisons which appear to be most meaningful. The tendencies and the direction of the results will be indicated as well as possible.

This chapter shall be broken into two sections: implications for marketing and recommendations for further research. In the section citing the implications for marketing, the information relating the variables pertaining to the different experimental treatments and their effects shall be presented first. Following the experimental treatment comparisons, the evaluations of each brand of convenience good, the tendencies of the perception of announcements, and the actions resulting from these perceptions will be generalized. Other comparisons and a more general statement of the implications will also be made.

The experimental treatment information shall be presented in the following order: (1) price reduction with an announcement, (2) price reduction with no announcement, and (3) normal price with an announcement. These three treatments shall be paired with the unannounced normal

price treatment to yield comparisons of the sales data. The sales occurring to the manipulated brand will be divided by the total sales for that period to form a percentage, and two of these percentages will form the ratio for comparison. The order of presentation of the treatments is in the descending order of the significance of each experimental treatment as a stimulant to sales.

The ratios of the percentages (of total sales represented by the manipulated brand) of the sales occurring during the announced price reduction with the sales occurring during the unannounced normal price were highest for toothpaste and hair spray. These percentage of sales ratios were 3.0:1 and 2.97:1, respectively. The same ratios for the mouthwash and deodorant sales data were unmeaningful due to the small number of responses.

The percentage of sales ratio of the unannounced price reduction to the unannounced normal price for hair spray yielded the figure 1.14:1. With considerably fewer responses, the ratio of the deodorant sales was 1.2:1, while the ratio of toothpaste sales was .875:1. The mouthwash data yielded too few responses for a comparison.

The percentage of sales maintained by the manipulated brand of hair spray during the announced normal price was only 0.96 of the percentage of total sales claimed by the manipulated brand of hair spray during the unannounced normal price. This would imply that the announcement of the normal price of a hair spray brand would be ineffective. However, with a small number of responses for both

mouthwash and deodorant the ratios of the appropriate percentages of announced normal price sales with unannounced normal price sales are 2.0:1 and 1.5:1, respectively. For these data the announcement may have made some difference in sales.

The apparent greatest effectiveness for the leading brand price manipulation of the various products was of the hair spray price reduction. The price reductions as a percentage from list price for the lead brand of each of the following products were: (1) deodorant, 38 percent; (2) hair spray, 25 percent; (3) toothpaste, 22 percent; and (4) mouthwash, 18 percent. The sales of the four experimental treatments varied somewhat according to the week they were administered. The sales figures for the first and last weeks of the study were quite small and as a result, less valid. Nonetheless, the amount of the price reduction did have some effect on sales resulting from the price change considered alone and on sales resulting from the announced price reduction.

The implications of the evaluations of deodorant, toothpaste, and mouthwash shall be presented as they are pertinent. During certain weeks the brand of deodorant which was manipulated received a 38 percent reduction in price. This was the greatest reduction in price granted the manipulated brand of any product used in this experiment. The size of this price reduction seemed to have an impact on the evaluations of the manipulated brand. The price evaluation for the manipulated brand was the lowest

of all brands--2.8 compared to the overall average of 3.6. However, the performance evaluation was substantially below the overall average evaluation of performance--3.0 compared to 4.0. The difficulty of the decision to buy the different brands did not fluctuate significantly.

The price of the manipulated brand of toothpaste was reduced 22 percent for certain periods. While only one of the other five brands of toothpaste had a lower rating of price, the performance evaluation of the manipulated brand was higher than the evaulation given three of the other five brands. The price evaluation of the manipulated brand was 2.9, slightly below the overall average of 3.0, but the performance evaluation of the manipulated brand coincided with the overall average evaluation of 3.8. The decision to buy toothpaste as an overall average was rated nearer to very easy than relatively easy. The easiest decisions occurred when the consumers rated the brand performance relatively high and the price as moderate or fair. As one would expect, the greatest sales also occurred for those brands which received a relatively high performance evaluation and a fair price evaluation.

The manipulated product receiving the lowest sales also received the smallest price reduction for its manipulated brand. The manipulated brand of mouthwash received an 18 percent reduction in price. As somewhat of a paradox, the manipulated brand received the highest price evaluation and the highest performance evaluation of all brands of mouthwash purchased. To parallel these

evaluations, the decision to buy the manipulated brand was rated as very easy, the best rating possible. Therefore, the price and performance ratings were above the overall average, while the evaluation of the difficulty of the purchase decision was below the overall average to mean that it was an easier decision than average.

If a person were able to say that the higher values for the decision difficulty reflected greater quality-difference items, some further generalizations could be made. For the mouthwash, toothpaste, and deodorant data, the decision difficulty gets gradually greater. The overall average performance evaluation for these three products also gets slightly larger. If the greater decision difficulty items are actually greater quality-difference items, the consumers tend to purchase greater performance items as their uncertainty grows.

For the hair spray data the evaluations by the Brand 1 purchasers was divided essentially into three groups for comparison: those consumers who intended to buy Brand 1, those consumers intending to buy another brand, and those consumers who indicated no purchase intention. In rating the total performance of the manipulated brand, those consumers who intended to buy Brand 1 rated its performance somewhat higher than those consumers intending to buy another brand or those who stated no intention choice. This information suggests that those persons who bought the manipulated brand because of price tended to have lower expectations of the performance of that brand.

However, it would appear that if the same consumer bought the manipulated brand again, he would have a slightly higher evaluation of its performance. If that brand were again offered at a special price, it appears likely that his lower performance evaluation would be reinforced and that the image of the brand could suffer from repetitious price reductions.

The tendency of the price ratings according to original purchase intention is also observable. The people who did not intend to buy the manipulated brand on entering the store rated its price lower than those persons who intended to buy the manipulated brand. This indicates that price was part of the reason for their brand switching behavior.

There was also a distinguishable difference in the ratings given the difficulty of the purchase decision according to buyer intention. Those persons intending to buy the manipulated brand on entering the store rated the purchase decision markedly less difficult than those persons who did not follow or did not know their purchase intentions. The implicit assumption which might be made from this data is that, if a consumer returned to repurchase the same brand, the decision would be less difficult, even if the brand were not offered at a special price.

In regard to these three evaluations, some very general assumptions can be made. Consumers tend to rate the brands which they purchase better than average. Whether this is true because the consumer is ego-involved

and feels a need to defend his purchase or because the consumer is well informed is only hypothetical. Possibly, consumer evaluations have certain dimensions of each of the two possibilities in ranging degrees. In any case, for each product the overall average evaluation of performance was measurably above the average.

While the overall average evaluations of price for two products, toothpaste and hair spray, were average or lower than average, the price evaluations of mouthwash and deodorant were slightly above average. The inflationary trends in our economy may be partially credited for this phenomenon. Also, the tendency of consumers to impute quality on the basis of price and the relative importance of quality performance for most consumers are indicated in these comparisons.

As one would expect, the purchase of low cost convenience items approaches being very easy for most customers in terms of the purchase decision difficulty. Such a decision for a low cost item would be relatively easy for most people since they normally have a brand preference when they enter the store. The socially sanctioned need for each of these convenience goods would seem to erase some of the uncertainties of the decision making process. Approximately two-thirds of the respondents rated the purchase decision as a "very easy" one.

The information showing the day an announcement was seen and the brand which was observed for sale at a "special" price was quite interesting. Due to the larger

number of respondents for hair spray, the responses of hair spray purchasers pertaining to the announcements were the only announcement responses presented fully.

The announcement of the price reduction of the manipulated hair spray brand seemed to be reasonably effective as a stimulus for purchasing behavior. Approximately 25 percent more people noticed the reduction in price of the manipulated hair spray brand when it was announced. This increased the claimed perception of the special price to approximately 70 percent of the people buying hair spray.

Another interesting observation is that a very similar percentage of buyers noticed the unannounced price reduction as noticed the announced normal price. Since the sum of these two percentages is greater than the percent of people noticing the announced price reduction on Sudden Beauty hair spray, it is assumed that the difference of these two figures approximates the percent of respondents who would have noticed both the price reduction and the announcement for the manipulated hair spray brand. The respondents observing both the announcement and the price reduction computed by this method approaches 25 percent.

However, not all of these consumer observations were correct. There were many people who said they noticed an announcement during the unannounced normal price treatment and the unannounced price reduction treatment. Following the strict interpretation of announcement observation to

include only announcements of the price, approximately 60 percent of the responses appeared to be incorrect. When the interpretation of correct responses is relaxed to include the unannounced price reduction, the number of the incorrect responses falls to the rate of one incorrect response for each three claimed observations of the announcement. It appears that many of the interviewees interpreted the announcement perception question to include the unannounced price reduction category by their responses.

The respondents also generated incorrect responses when they answered the question of which brand of hair spray was offered at a special price. When they answered the question of which brand they saw on sale, six persons thought they saw a brand other than the manipulated hair spray brand on sale. These six responses were evenly distributed among the brands, Aqua Net, Style, and Just Wonderful. There was a tendency for the respondents to feel that the brand which they purchased was on sale, but this certainly was not always the case. Many persons saw the sale on the manipulated brand and continued in their intention to buy another brand of hair spray. There were six incorrect responses of which brand was on sale, but 52 of the responses were correct. This means the appropriate responses were about 90 percent of the total.

A vague indication of the brand switching attributable to the price and announcement on the manipulated brand of hair spray is intimated by a breakdown of the buyers of

the manipulated brand by regular brand and reason for the purchase. It is particularly meaningful that all consumers who changed from a particular regular brand bought the manipulated brand of hair spray because of price. Also, over one-half of the respondents which listed no regular brand bought Sudden Beauty hair spray because of price. Most of the other one-half of these noncommittant respondents said they bought Sudden Beauty because they could not find their regular brand.

Brand switching behavior occurred as different percentages of the estimated preferences for the particular regular brands indicated. The estimated preferences were determined by adding the regular purchasers of the brand who bought the manipulated brand with the actual purchasers of that particular brand. This method of measuring the percentage of brand switchers might underestimate slightly the actual figure if it is not exact since a small number of regular Sudden Beauty customers could have changed to buy another brand.

The most active brand switchers were those whose regular brand was Aqua Net. Apprxoimately 26 percent of the regular buyers of Aqua Net changed to buy Sudden Beauty because of price. This lack of brand loyalty to Aqua Net hair spray could be cause for the manufacturers of Aqua Net to review their price and quality control guidelines to encourage a more profitable marketing strategy for this product.

The buyers of Style hair spray only switched to buy

Sudden Beauty hair spray about seven percent of the time. The reason given for buying a brand other than the regular brand was price.

Relatively active brand switching was done by the regular customers of Just Wonderful hair spray to the manipulated brand, Sudden Beauty. Approximately 20 percent of the regular Just Wonderful customers changed to Sudden Beauty because of price. This is for fewer sales than occurred for Aqua Net, so the exactness of the approximation of Just Wonderful brand switching is not quite as reliable.

The breakdown of the Sudden Beauty consumers by the intended brand purchase with the reason for the purchase of Sudden Beauty brought results quite similar to the breakdown by regular brand of the product. Each of the persons switching from the other brands (Aqua Net, Style and Just Wonderful) changed from their initial intention because of price. Slightly fewer people changed from their initial intention to buy Sudden Beauty than the number of people who changed from their regular brand to buy Sudden Beauty. This is probably because some people went to the store intending to buy Sudden Beauty due to the announcement of possibly the advice of a friend.

It seems meaningful that nearly one-third of the buyers of Sudden Beauty listed no intended brand purchase. Over one-half of this undecided category said they purchased Sudden Beauty because of price. A few people said they could not find their regular brand, and one-fourth

only mentioned "other" as their reason. One person even said he purchased Sudden Beauty because of the announcement.

Therefore, the price reductions on Sudden Beauty hair spray can be regarded as a stimulant to sales. Approximately one of seven persons intending to buy some other brand of hair spray bought Sudden Beauty.

The tests conducted on the hair spray sales were somewhat meaningful. The Kolmogorov-Smirnov Two-Sample Test on the hair spray sales data indicated almost no difference in the sales of Sudden Beauty whether a normal price was announced or unannounced. Also, no significant difference in Sudden Beauty sales occurred between an unannounced price reduction and an unannounced normal price. However, the price reduction alone was more effective as a stimulant for sales than the announcement of the regular normal price. This phenomenon suggests that the consumer is normally more informed than to react more favorably toward the announcement of the normal price of a good than to an actual price reduction even though it is not announced.

The effects of the announced price reduction on sales of Sudden Beauty hair spray was compared with the effects of the unannounced price reduction and the announced normal price. There was no significant difference in Sudden Beauty sales between an announced price reduction and an unannounced price reduction. However, the results were significant at the 0.5 level. Also, no significant

difference in the sales of Sudden Beauty hair spray occurred between an announced price reduction and an announced normal price. The differences between these two categories were the most significant of those tested as they were meaningful at the 0.3 level of significance. The unannounced price reduction again proved to be a more effective stimulant of sales than the announced normal price.

These implications are particularly meaningful to the small proprietor. The greater effectiveness of the unannounced 25 percent price reduction as a stimulant of sales than the announced normal price is an indication of an increasing general awareness of consumers. Most likely the size of the price reduction needed to be effective would vary with the particular convenience good, but a reduction near the 25 percent range seemed to be most effective.

It was also apparent that, once the proper reduction was made, announcing the price reduction generated more sales. While some consumers would be aware of a reduction in price when no announcement is made, a greater number of consumers can be made aware of the reduction in price with an announcement.

Generally, the sales were higher among brands which received the greatest span in the performance-price evaluations. This is true because superior performance received a high rating and lower price evaluations received a lower rating. The "average" performance ratings were

higher than the "average" price ratings. From this observation it appears that a price reduction on a brand which has a respectable rating of performance by consumers is more heeded than a price cut on a low performance brand.

It becomes obvious from this study that a price reduction on a particular brand has a tendency to cause consumers to lower their evaluation of the performance of the brand. This finding supports other studies in which consumers use price as an indicator of product quality.

While the number of consumers switching to purchase Sudden Beauty hair spray was not significant according to the Kolmogorov-Smirnov Two-Sample Test, the price reduction on Sudden Beauty did cause some brand switching. The writer feels that, if a more sizable sample had been obtained, a much more noteworthy significance would have been attained.

Recommendations for Further Research

The possibilities of research on price and announcement strategies are very broad. The manipulation of different features of the competitive strategy could become very complicated. A few possibilities shall be cited.

The manipulation of price can achieve many things. The most effective price reduction for different products and for different brands of these products seems attainable. The degree of brand loyalty enjoyed by different

brands may be approximated through price manipulation. The profitability of different amounts of price reduction may be approached by analyzing the different sales levels and their associated expenses.

After determining an effective price reduction, a measure of response to different kinds of announcements may be possible. Possible variables might be the size of the announcement, the color of the announcement, or the location or locations of the announcement.

The data generated from different price and announcement strategies may be inspected more closely through observing the behavior of different categories of people. The data may be divided into socio-economic groups, age groups, sex groups, groups of different size shopping parties, groups divided according to shopping time, or ethnic groups. With this type of information a proprietor can manipulate the marketing variables available to him in order to best reach his market.

Nonetheless, the study of the effect of different price and promotional combinations on consumer behavior is a relatively new area of study. Very few studies of the actual in-store perception and response of price and announcement changes have been published. A few studies have been made of simulated purchase behavior, but they have not considered the effect of the announcement of prices. Therefore, the observation of consumer responses in a retail outlet is a particularly fruitful area for further research.

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APPENDIX A

TABLE XVII

RESEARCH DESIGN

Date	Deodorant	Hair Spray	Toothpaste	Mouthwash	Shampoo
April					
8-13	Price Reduction Announcement	Normal Price Announcement	Normal Price No Announcement	Normal Price No Announcement	Normal Price No Announcement
15-20	Normal Price No Announcement	Normal Price No Announcement	Price Reduction No Announcement	Price Reduction Announcement	Normal Price No Announcement
22-27	Normal Price Announcement	Price Reduction No Announcement	Normal Price No Announcement	Normal Price No Announcement	Normal Price No Announcement
29- 4	Normal Price No Announcement	Normal Price No Announcement	Price Reduction Announcement	Normal Price Announcement	Normal Price No Announcement
May					
6-11	Price Reduction No Announcement	Price Reduction Announcement	Normal Price No Announcement	Normal Price No Announcement	Normal Price No Announcement
13-18	Normal Price No Announcement	Normal Price No Announcement	Normal Price Announcement	Price Reduction No Announcement	Normal Price No Announcement

TABLE XVIII

NORMAL PRICES AND SPECIAL PRICES
FOR EXPERIMENTAL BRANDS

Products	Brand and Size	Normal Price	Special Price
Experimental			
Deodorant	7 oz - Spray Secret	$1.59	$.99
Hair Spray	Sudden Beauty 13 oz.	.67	.50
Toothpaste	Crest 6.75 oz.	.77	2/$1.00 or .50
Mouthwash	Listerine 20 oz.	1.07	.88
Control			
Shampoo	Head & Shoulders 6 oz.	1.49	- -

APPENDIX B

OKLAHOMA STATE UNIVERSITY

College of Business

Department of Marketing Prof. C. E. Nelson, M. Perry

PRICE EFFECT STUDY

Questionnaire

I am a college student, doing a marketing research study as part of my course requirements, and I would like to ask you a few questions. It will take only two minutes.

1. (a) Before you came to this store, did you intend to buy any particular product(s)?

   (b) Did you intend to buy any particular brand(s) of these products?

2. What is your regular brand or brands of these products?

3. Did you actually buy this product(s)?

If Yes	If No
(a) What brand did you buy? (aa) Why did you buy this brand? 1. Could not find my regular brand. 2. Price. 3. Announcement. 4. Dissatisfaction with prior purchase. a. Quality. b. Container. c. Image. 5. Other.	(b) Why didn't you buy this product? 1. Could not find the product. 2. Could not find my brand. 3. Price. 4. Other.

4. Was there any brand of this product on special sale? If yes, which one?

5. Did you notice any special announcement in the store with respect to any brand of this product?
   (a) If Yes, what brand?
   (b) If Yes, what was the announcement?
   1. Price
   2. Other

6. How would you rate the total performance of the brand you chose in comparison to other brands?

(1)	(2)	(3)	(4)	(5)
Very Inferior	Somewhat Inferior	Average	Somewhat Superior	Very Superior

7. What do you think about the price of the brand you chose?

(1)	(2)	(3)	(4)	(5)
Very Low	Relatively Low	Fair	Relatively High	Very High

8. How difficult was it for you to make the decision of which brand to buy?

(1)	(2)	(3)	(4)	(5)
Very Easy	Relatively Easy	Not Difficult	Somewhat Difficult	Very Difficult

9. In order that we might follow up this questionnaire at a later date, may I please have your name and telephone number?

   At what hours of the day could you be most easily contacted?

OKLAHOMA STATE UNIVERSITY

College of Business

Department of Marketing Prof. C. E. Nelson, M. Perry

Price Effect Personal Answers Sheet

Interviewer_____ Interviewee_____

Date_____ Telephone_____

Hour_____ Place and Hour_____

Directions: When Applicable,
1. Check yes or no;
2. Check appropriate product and/or brand;
3. Write in number or letter of proper response on same line as brand(s) referred to.

Question No.	1	2	3	4	5	6	7	8	1	2	3	4	5	
DEODORANT														
7 oz. Secret Spray														
Right Guard														
Arrid														
Calm														
Hour After Hour														
Ban														
Trig														
HAIR SPRAY														
13 oz Sudden Beauty														
Aqua Net														
Style														
Just Wonderful														
MOUTHWASH														
20 oz. Listerine														
Cepacol														
Lavoris														
Scope														
Micrin														
Green Mint														
S. P. Antiseptic														
TOOTHPASTE														
6.75 oz. Crest														
Flouride														
McCleans														
Colgate														
Ultra-Brite														
Gleem														
Pepsodent														

Question No.	1	2	3	4	5	6	7	8	1	2	3	4	5	
SHAMPOO														
6 oz. Head & Shoulders														
Lustre Cream														
Prell														
Halo														
White Rain														
Clairol														
Breck														
Woodbury														

VITA

Harold Max Detrixhe

Candidate for the Degree of

Master of Business Administration

Thesis: A COMPARISON AND ANALYSIS OF PRICE AND ANNOUNCEMENT CHANGES ON CONVENIENCE PRODUCTS AND THEIR IMPACT ON CONSUMER PERCEPTION AND RESPONSE

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Professional Organizations: Blue Key, Beta Alpha Psi, Phi Eta Sigma.

Name: Harold Max Detrixhe Date of Degree: May 24, 1970

Institution: Oklahoma State University

Location: Stillwater, Oklahoma

Title of Study: A COMPARISON AND ANALYSIS OF PRICE AND ANNOUNCEMENT CHANGES ON CONVENIENCE PRODUCTS AND THEIR IMPACT ON CONSUMER PERCEPTION AND RESPONSE

Pages in Study: 86 Candidate for Degree of Master of Business Administration

Major Field: Business Administration

Scope and Method of Study: The purpose of this research was to study the perception of special price offers and announcements; to link the related evaluation of all brands of these products on the basis of performance, price, and decision difficulty to these perceptions; and to analyze the effect of these price reductions and announcements on buying behavior. To accomplish this purpose, a questionnaire designed to determine buyer intentions, respondent perceptions, purchase actions, and consumer evaluations was administered to all purchases of one of five low-priced branded convenience products in a store in Stillwater, Oklahoma. The products observed and analyzed were deodorant, hair spray, toothpaste, mouthwash, and shampoo. A more complete analysis was performed on the hair spray data since 129 of the 187 respondents bought or intended to buy hair spray.

Findings and Conclusions: Brand switching to the manipulated brand did occur. The relationships between sales, buyer intentions, and buyer evaluations was particularly meaningful in that the evaluations were less favorable among brand switchers. The increased sales of the manipulated brand in a descending order of significance were as follows: announced price reduction, unannounced price reduction, announced normal price, and unannounced normal price. This order of sales volumes may be partially attributed to consumer awareness. While most respondents noticed the announcements on the manipulated brand, approximately one-third of these observations were incorrect. Consumers tended to impute quality on the basis of price.

ADVISER'S APPROVAL