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GARY BURL WILCOX

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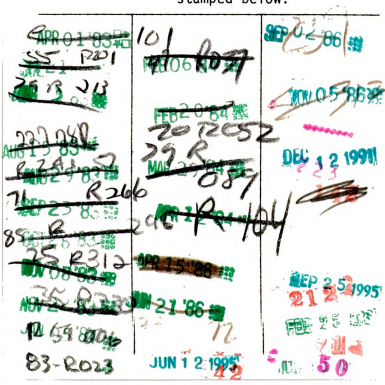

THE EFFECT OF MASS MEDIA PRICE ADVERTISING ON THE RETAIL PRICE OF A CONVENIENCE PRODUCT

By

Gary Burl Wilcox

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ABSTRACT

THE EFFECT OF MASS MEDIA PRICE ADVERTISING ON THE RETAIL PRICE OF A CONVENIENCE PRODUCT

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The impact of advertising on the prices of products and services has long been disputed. Three major theories have emerged concerning the effect of advertising on the price of products: (1) the advertising market power theory, (2) the advertising information theory, and (3) the information processing theory of consumer choice.

The market power model views advertising as changing consumer tastes and establishing brand loyalties among buyers of advertised products. The results are higher profits for the large advertisers and higher prices for the consumer. An alternative to the advertising market power model developed from information theory maintains that advertising provides information to consumers and thereby increases price sensitivity and lowers price.

A theory of consumer choice has emerged based on cognitive information processing. The information processing theory of consumer choice views products as multiattribute objects. In the case that price is an important attribute, price advertising for the product is likely to increase in importance to the consumer and the use of such advertising is also likely to increase.

The primary purpose of the dissertation was to examine the effects of price advertising in the mass media on a convenience product. The study used an ad hoc matched pair design to compare the price of a convenience product in markets that restrict mass media price advertising to the price in markets which allow mass media price advertising. The price and dispersion of price for a convenience product--domestic beer--was unaffected by the presence or absence of price advertising in the mass media within a market.

Applying the findings to the relationships presented in the information processing perspective reveals some interesting implications. First, considering the multiattribute nature of products expressed in the theory, these findings indicate that price appears to be an attribute that has little importance for a convenience item--domestic beer.

Second, the consumer's use of internal memory may be an important reason why price advertising has no effect on the price of convenience products. The consumer may have sufficient information stored in memory without activating his external search process to arrive at a purchase decision.

This dissertation is dedicated to JoHannah, my wife, who never once doubted my ability or perseverance to complete my Ph.D.

and

to the memory of my Father: Burl Hunter Wilcox.

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G.B.W.

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CHAPTER I

INTRODUCTION

The impact of advertising on the prices of products and services has long been disputed. On one hand, advertising has been criticized as being mainly persuasive in nature thereby creating false wants and raising the price of products to the consumer.

On the other hand, by providing consumers with information about products, advertising has given consumers the opportunity to economize on search of salient product characteristics and to locate low-priced sellers more readily. As advertising assumes this informational role, it may tend to lower prices to the consumer, and in turn allow producers to take advantage of economies of scale and economize on merchandising costs.

Advertising occupies an important informational role in our economy because (1) products are available in such wide varieties, (2) new products are offered in such great numbers, and (3) existing products must be called to the attention of new consumers who are added to the market as a result of expansion in incomes, population, and changes in taste.[1]

The informational role of advertising has been concisely summarized by Stigler:

> . . . under competition, the main tasks of a seller are to inform potential buyers of his existence, his line of goods, and his prices. Since both sellers and buyers change over time, since people forget information once acquired and since new products appear, the existence of sellers must be continually advertised . . . This informational function of advertising must be emphasized because of a popular and erroneous belief that advertising consists chiefly of non-rational appeals.[2]

Stigler continues to point out that ". . . information is a valuable resource," that advertising is "the obvious method of identifying buyers and sellers" which "reduces drastically the cost of search."[3]

A major critic of advertising, J. K. Galbraith recognizes that:

> A new consumer product must be introduced with a suitable advertising campaign to arouse an interest in it. The path for an expansion of output must be paved by a suitable expansion in the advertising budget. Outlays for the manufacturing of a product are not more important in the strategy of modern business enterprise than outlays for the manufacturing of demand for the product.[4]

The economy of the United States is one that has little resemblance to the ideal of perfect competition postulated by economists. However, one of the postulates of this ideal economy is perfect knowledge. Thus in such an idealized economy, even though advertising may be somewhat wasteful, it would still have a role to play. In the world of reality, however, with all its imperfections, advertising is much more important. Advertising is an integral and vital part of our growing economy and contributes to the launching of the new products and the mass transfer of product information.

The Advertising and Price Relationship

The effect of advertising on prices is one of the most vigorously debated topics in the marketing and economic literature.[5] Three major theories have emerged--two from the economic literature: (1) the advertising market power theory and (2) the advertising information theory, and one from the marketing literature: the information processing theory of consumer choice.

The market power model views advertising as changing consumer tastes and establishing brand loyalties among buyers of advertised products. The predicted results are higher profits for the large advertisers, higher prices for the consumer, and less competition in the market. All these stem from the theoretical mainstay of the model: product differentiation.

Product differentiation generally refers to the emphasis of a chosen feature, quality, style, or image by certain firms in the marketplace. In doing so, the differentiated brand tends to attract a premium value associated with the specific attribute emphasized.

An alternative to the advertising market power model has developed from information theory.[6] This alternative model maintains that advertising provides information to consumers, and thereby increases price sensitivity, lowers price and reduces monopoly power. Proponents of this theory stress that because advertising serves to announce a product's existence and/or major attributes, the consumer's need to search for information about the product is reduced.[7] By

allowing consumers to economize on search and to locate low priced sellers more readily, advertising may tend to lower prices to consumers. It may also lower prices by allowing sellers or producers to economize on other marketing costs and to take advantage of economies of scale.

A major theoretical perspective recently emerging from the marketing literature, the information processing theory of consumer choice views products as multiattribute objects. Each product is evaluated on attributes which are salient to the consumer. Generally information about these attributes becomes important in the consumer's decision process. Therefore, communication of information concerning the attributes will be the most useful for the processing of future information. In the case that price is an important attribute, price advertising for the product is likely to increase in importance to the consumer and his use of such advertising also is likely to increase. However, where price is not a highly evaluated attribute, the role price advertising plays in the consumer's choice process is likely to decrease. This relationship would imply that price advertising may have a significant effect in reducing the price of the product when price is a salient attribute.[8]

Price Advertising for Goods and Services

There are instances in which informational advertising may play a decisive role in a consumer's decision process and lead directly

to the purchase of a product. For example, having decided to make a purchase, the consumer may be waiting for a price reduction on one of the several acceptable brands. Inclusion of the offered selling price within an advertisement (price advertising) would allow the consumer to compare the prices for the preferred brands without actually visiting the physical locations of sale. In this case, price advertising may trigger a sale.

The purpose of price advertising is to provide consumers with salient information, that is price, upon which they may base decisions. The provision of such information makes consumers more efficient in their decision making process by lowering the cost of search that is "approximately proportional to the number of identified sellers approached, for the chief cost is time."[9] Search costs are reduced when consumers are able to compare product features, components, and prices without physically going from store to store. With lower search costs for individual products, consumers will engage in more searches. "The lower the marginal cost of search, the greater the number of searches will be; thus lowering the cost of search implies a lower average market price and a smaller variance of market prices."[10] This suggests that the presence or absence of price advertising within a market could affect the price of the good or service within that market.

Advertising Effects

To increase the understanding of the impact of advertising on prices, several have examined markets for a product in which advertising

is allowed and one in which advertising is prohibited, comparing the price structure between the two markets. The level of price may be significantly affected by the presence in a market of a seller who is able to advertise. Furthermore, the full impact on prices of the existence of advertising may be much greater than the price difference observed in a market in which the seller has a choice to advertise or not to advertise. -If retailers are able to advertise product price, consumers only have to read newspapers or view store signs. If retailers are restricted from advertising prices, consumers searching for lower prices must physically go from outlet to outlet. -It is obvious, therefore, that the marginal cost of search would be greater where price advertising is restricted.

Empirical Findings of Advertising and Price

Several researchers have examined the effect of advertising on the price of products and services. Steiner by examining the toy industry concluded that in conjunction with mass merchandising, advertising had lowered markups on advertised brands and reduced them on competing nonadvertised products as well as bringing lower prices to the consumer.[11]

Concerning the relationships between price advertising and the retail price of products and services, three studies have provided mixed results. In each of the cases, advertising for the product or service examined was restricted by some form of state or local law or

organizational ruling prohibiting price advertising. Indeed, these restrictions raise fundamental First Amendment questions concerning the right to advertise "truthful information about legal products" by a retailer.[12] Results from empirical investigations certainly may provide increased insight for future public policy decisions.

Maurizi compared markets that allowed price advertising for gasoline and markets that prohibited price advertising for gasoline. He found significantly greater variances in prices in cities prohibiting price advertising. Although significantly lower prices in cities prohibiting price advertising was also found, because of inconsistencies within the study's design, no firm conclusions could be reached regarding the effect of price advertising prohibition on average prices.[13]

Benham examined markets in which advertising for the price of eyeglasses was prohibited and markets in which advertising for price was legal. He reported that eyeglass prices suggested that advertising restrictions in the market increased the prices paid by the consumer by 25 percent to more than 100 percent.[14]

The final empirical study was undertaken by Cady on the retail prescription drug market. Again by examining markets in which price advertising was restricted and markets in which price advertising was allowed, he concluded that (1) consumers pay an average of 4 percent more for the sampled drugs in restricted states than in unrestricted states. (2) With significantly greater dispersion of prices in restricted states it becomes time-consuming and costly for consumers to

search out low prices. The net expected benefits of search for price information were outweighed by the cost of acquiring it. The results of the study suggested that advertising can act as a significant stimulus to market competition through the provision of salient, useful information.[15]

Classification of Goods

As can be expected, the role advertising plays in the marketing strategies of differing goods varies considerably. Marketers have suggested that promotional strategies should have some relation to the durability and tangibility of a good. Based on this, one classification of types of products would be: (1) nondurable goods, (2) durable goods, and (3) services.[16] An alternative method used to classify goods on the basis of consumer shopping habits would distinguish between (1) convenience goods, (2) shopping goods, (3) specialty goods, and (4) unsought goods.[17]

Using the later method, a convenience good is one in which the consumption time is relatively short, the search time is low, and the replacement rate high. In contrast, a shopping or specialty good would have increased consumption time, increased search effort, and relatively less time between replacement. The classification schema, based on consumer purchasing characteristics of the product, could obviously not include all consumers of the product. In other words, while a majority of the consumers may exhibit consumption and shopping behavior associated with a convenience good, there still may exist a

segment of the market that exhibits the characteristics associated with a shopping or specialty good. Nevertheless, the classifications have proven to be a useful tool for both strategic marketing and advertising decisions.

Whatever method of classification the marketer uses, it is recognized that each classification of goods will likely produce divergent marketing strategies. Likewise, the role advertising plays in the promotion of the product is likely to vary depending upon classification of the product. In the case of convenience goods, for example, advertising would typically be used to build awareness for the product which in turn is hopefully used by the consumer in his purchasing decision. Conversely, advertising for specialty goods would tend to emphasize the product's unique characteristics and in some manner differentiate the product from competing brands.

As can be implied from this discussion, the role that price advertising plays in the promotion of a product may vary considerably depending upon the classification of the product. In some instances, the price may be influential in triggering a purchase and the use of price in the advertising of the product may be an important element in the promotional mix of the firm.

From a review of the empirical literature concerning the effect of price advertising on the retail price of products, it can be summarized that for products related to health, restrictions on the advertising of price have led to certain inequities for the consumer. In the cases of both eyeglasses and pharmaceuticals, the restriction

of price advertising has generally led to higher prices in the market place. Restrictions concerning the advertising of price for gasoline via signs on premises basically found no differences between restrictive and non-restrictive markets for average prices.

Using the classification system above, when the product exhibits characteristics associated with a shopping or specialty item, the restriction of price advertising in the mass media can significantly affect the price. This has been demonstrated empirically in the case of both prescription drugs and eyeglasses. However, where the consumer's propensity to search is likely to be low as in the case of convenience goods, the effect of the restriction of price advertising in the mass media has yet been empirically examined.

Purpose of the Study

The primary purpose is to examine the effects of price advertising on the convenience good category. Using markets that restrict mass media price advertising and markets that allow mass media price advertising, the price for a convenience product in each market will be compared. Through this examination, increased understanding of the relationship of price advertising to retail price will be presented.

Further investigations concerning the effect of price advertising on the retail price of products are desirable for two reasons: to increase (1) the understanding, scope, and dimensions of the three theoretical perspectives, and (2) the insight such analysis would provide for future policy decisions.

Organization of the Dissertation

The dissertation will be organized into six chapters, the first chapter being an introduction. The general theoretical framework within which the study is set and previous empirical work in the area will be discussed in Chapter II. In Chapter III, a detailed structure analysis of the brewing industry will be presented for the purpose of providing insight to pricing and advertising relationships. Chapter IV will describe the research methodology used in conducting the investigation and will consist of market selection procedures, administration, and data analysis procedures. Chapter V will present the findings of the study. In Chapter VI, the conclusions and implications suggested by the study will be discussed. In addition, the concluding chapter will present a discussion of assumptions and limitations of the study and areas for future research.

ENDNOTES FOR CHAPTER I

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[8]James R. Bettman, An Information Processing Theory on Consumer Choice, Addison-Wesley Publishing Company, 1979.

[9]Stigler, 1961, p. 216.

[10]Maurizi, pp. 321-329.

[11]Maurizi, pp. 321-329.

[12]Gary B. Wilcox, "Implications of First Amendment Doctrine on Prohibition of Truthful Price Advertising Concerning Alcoholic Beverages," Communication and the Law, Vol. 3, No. 2, Spring, 1981, pp. 49-66.

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[15]Cady, pp. 27-30.

[16]Philip Kotler, Principles of Marketing (Prentice-Hall, Inc., 1980), p. 370.

[17]E. Jerome McCarthy, Basic Marketing: A Managerial Approach, Third Edition (Richard D. Irwin, Inc., 1963), pp. 251-258; Louis P. Bucklin, "Retail Strategy and the Classification of Consumer Goods," Journal of Marketing, January, 1963, pp. 50-55.

CHAPTER II

BACKGROUND OF THE STUDY

Mass media advertising plays an important role in society today by providing consumers with information about products and services. This information role is a vital element of the mass merchandising methods employed by major marketers. By providing relevant product information to consumers, advertising has generally increased the public's knowledge of goods and services in the marketplace.[1]

Price, often a very important element in the consumer's purchase decision, is one type of relevant product information contained in advertising. Generally, it is thought that the inclusion of the selling price of a product or service in an advertisement has benefited the consumer by reducing associated search costs concerning price.[2] With price advertising in the mass media, the consumer need only to read newspapers, for example, to gain knowledge of the price of various products or services.

According to economic perspectives of advertising, this inclusion of price in advertisements would tend to lower the retail price of the product in the aggregate by reducing the consumer's cost of obtaining this necessary information. Therefore, by economizing on search, the consumers would be able to locate low priced sellers more readily.[3]

In recent years, a theory of consumer choice has emerged based on cognitive information processing.[4] The information processing perspective presents a product as a multiattribute object. In short, the product is a total or sum of these many attributes. Arriving at an attitude about certain products or brands, the consumer will order the attributes of the product according to their importance. The consumer will then acquire information for the various brands under consideration and evaluate the alternatives presented.

When price is an important attribute, the consumer's use of price information contained in an advertisement is likely to increase. In this case, price advertising may be useful in helping the consumer to locate low priced sellers. However, when price is a relatively unimportant attribute, the inclusion of price in an advertisement for the product may be of little value.

This notion seems to parallel the classification of goods schema found in the marketing literature.[5] Classified as a convenience item, characteristics of the product would indicate that price is likely to play a minor role in the consumer decision process. However, as characteristics of the product are those more in line with a shopping or specialty good, the importance price plays in the choice process is likely to increase. From this, then, one could conclude that price comparisons for a convenience item may rarely be made by the consumer. However, as price as an attribute increases in importance in the case of shopping and specialty goods, increased comparison on this attribute would be expected.

This chapter is divided into three sections. The first section presents information processing in the consumer research and alternative evaluation stages in the purchase process from cognitive psychology. The second section focuses on the Advertising Market power theory, the Advertising Information theory, and an integrated discussion of relevant relationships crossing theoretical perspectives from economics. The last section concludes with the research questions and hypotheses.

I. Information Processing

This particular approach to understanding consumer purchase behavior views the decision process from an information processing perspective. The consumer is characterized as interacting with his or her choice environment, seeking and receiving information from various sources, processing this information, and then making a selection among alternatives.[6] In making a choice, the consumer examines relevant information in memory, and in some cases, may acquire additional information from the external environment if that in memory is not sufficient.

Generally, the first step is an internal search within memory to determine whether sufficient information is available. Internal search refers to the acquisition of information that is available in memory. Various degrees of internal search are possible, ranging from virtually automatic responses in habitual choice situations to more extensive searches of what is in memory.

In the course of internal search, interruptions may occur. For example, information may be found to be lacking. This deficiency may not be recognized until some processing is done. For example, a consumer may discover that he or she cannot remember a price. Furthermore, conflict may be aroused in other ways during internal search. For example, if the consumer's weight for various attributes has changed since the last choice in a product class, and if previously selected brands would not be preferred given these current attribute weightings, perceived conflict might increase. Finally, during the course of internal search, the consumer may be reminded of goals other than those relevant to the purchase being considered. Although responses to interrupts vary, one major type of response arising during internal search may be formation of a goal for external search.[7]

External search (Figure 1) is the acquisition of information from sources other than memory, such as friends, packages, and advertisements. In theory, external search is postulated to follow internal search, but the internal search need not be complete to lead to external search. For example, a brief internal search may suffice for the consumer to ascertain what is not known. Periods of external search, followed by internal search, then more external search are typical. In many cases, however, decisions to be made are trivial and habitual, and very little internal or external search may ensue for such choices where there is a great deal of prior knowledge and experience.[8]

Figure 1

External Search

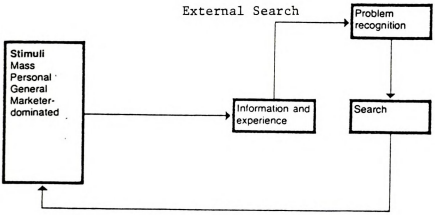
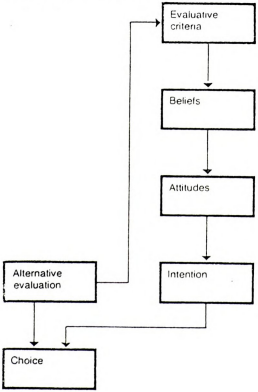


Figure 2

Consumer's Attitudes Toward Purchasing



External search can also be of varying degrees as well as different directions. The influences on degree of search are numerous, i.e., costs vs. benefits of search, choice environment factors, individual differences, and conflict. External search is also subject to interruptions due to novel or surprising events, conflicting information, lack of information, etc.

Internal and external search are seen to interact with each other. The most simplistic conception is that internal and external search are compensatory, that the more is done of one, the less done of the other. However, it is also possible that the degrees of search are positively correlated; that is, one tends to do a good deal of internal search, one also tends to do a good deal of external search.[9]

As the consumer collects and evaluates the information obtained by external search, beliefs are formed about the various brands available. These beliefs serve to specify the consequences of purchasing a particular make in terms of each criteria the consumer feels to be significant. Each evaluative criterion, therefore, is accompanied by a belief that states the anticipated outcome of purchasing one brand over another and an evaluation of that outcome. The sum total of these beliefs and evaluations represent the consumer's attitude toward the act of purchasing and using each brand[10] (see Figure 2).

Empirical work on prepurchase search shows that some consumers do much more investigation than others. This finding is to be expected. The idea of differences was central to the classification scheme of convenience, shopping, and specialty goods. Since then

others have elaborated on the theme that search would occur as long as the prospective buyer felt the benefits would outweigh the costs in terms of money, time, and discomfort.[11]

Two general determinants of degree of internal search are (1) the amount of information stored in memory and (2) the suitability of that information for making the choice. Generally, the greater the amount of stored information and the more suitable that information is, the greater the amount of internal search.

Amount of Stored Information. The amount of information in memory reflects the degree of prior learning relevant to the problem in question. There are several sources of information in memory about a product class. First, past purchase experiences in a product class may lead directly to learning about criteria and/or alternatives. Bennett and Mandell examined search behavior for new car purchases, and found that the number of previous purchases of the same make as that eventually bought was negatively related to the degree of external search. This in effect implied a greater salience on internal search.[12]

A second source of information in memory is low involvement learning, from information with which the consumer is confronted, rather than from information which is actively sought. Such information, hypothesizes Krugman, would mainly affect attribute saliences, or whether attributes come to mind during the choice process.[13]

A third source of information in memory is from previous learning about the environment. Brands available and general price levels for specific retail stores are among the types of information which might be utilized in this situation.[14]

Finally, a fourth influence on the amount of information actually stored in memory as a result of prior experiences is an individual difference variable--the degree of reliance upon in-store displays as an external memory.[15] In other words, a consumer may not try to remember items of information, but may instead use the information provided within a store. Therefore, these become an external memory, making efforts to retain data internally less crucial.

Suitability of stored information. Another important determinant of degree of internal search is the suitability, appropriateness, or usefulness of the stored information for the current decision.[16] One factor influencing suitability is satisfaction with previous purchases. Presumably, the more satisfactory these purchases, the more relevant is stored information based upon past purchases. Newman and Staelin have shown that satisfied users take less time to make a decision.[17]

A second factor influencing suitability is length of interpurchase time. The longer the interpurchase time, the greater the likelihood of forgetting relevant information. In addition, the longer the interpurchase time, the greater the likelihood of changes in the mix of alternatives, such as the appearance of new brands or the occurrence of changes in price or other attributes. Swan found that more external search ensued when different mixes of brands remained the same.[18] Also, Krugman hypothesized that under low involvement learning, attributes that are salient can change. The longer the interpurchase time, the greater the likelihood of such switches in

salience of attributes.[19] These switches might lead to the necessity for more external search if different attributes than the consumer had previously considered are of increased salience.

Research has indicated many factors influence the amount of external search performed by the consumer. Generally, the degree of external search is influenced by (1) the costs versus the benefits of information, (2) factors affecting choice environment such as availability, difficulty of the choice task and time pressure, and (3) individual differences.[20]

Costs versus benefits. The cost versus benefit view represents a marked departure from traditional economic theory, which postulated that the rational individual would list all conceivable actions and their consequences, choose the best, and consistently stick to his choice.[21] Katona, Bauer, and Howard and Sheth are among the theorists who have viewed shopping as problem solving or decision making under uncertainty.[22]

To date empirical work on the cost-benefits model has focused on the cost component, the benefits component, and an interaction between the two. Concerning the cost component, Lanzetta and Lanzetta and Kanareff found that as cost of information increased, less information was purchased.[23] Lutz and Reilly found that in purchase situations where perceived risk was low, and hence costs of search relative to benefits might be high, the subjects stated preferences were for simply buying and trying a brand rather than seeking information from other sources.[24]

Work completed relative to benefits of search found consumers searched more for higher priced products.[25] Also, the research has shown that the presence of financial constraints for a consumer implied more search.[26] In other words, if finances are tight, presumably cost savings or benefits are more important, and search may be seen as potentially leading to cost savings.

Concerning the interaction effect between cost and benefits, Lanzetta and Driscill and Lanzetta found that search continued until uncertainty was reduced to a certain level, when a decision was made.[27] Hansen found that either conflict will be reduced to a tolerable level, or search will stop when the conflict generated in choosing search alternatives is greater than the product choice conflict.[28] These notions imply that there is a point below which it simply is not worth the effort to further reduce uncertainty or conflict.

Choice environment. Since human beings adapt their behavior to achieve goals and goals are sought in particular choice environments, the characteristics of the choice environment may greatly influence the amount of information search. Furthermore, this influence of the shopping environment is more important for external search than for internal search. In general, there are three major properties of choice environments.

The first major influence, availability, refers not only to whether the information actually exists, but to whether it is more or less accessible. If there is little or no information available relevant to the consumer's goals, extended search may not be possible.

Even if there is a great deal of information, it may not be the type desired by the consumer.[29]

—The second choice environment factor influencing degree of search is difficulty of the choice task. Two areas of research are important here: research related to how easy the information itself is to process and research related to the sheer amount of information presented--the information load. Ease of processing is heavily impacted by the format utilized for presentation of the information.[30] Information may be present, but in a form which consumers cannot process. Concerning the amount of information to be processed, research to date has been somewhat inconclusive. Generally, though, all indications point to the amount of information processing necessary per unit time to be the crucial factor.[31] For example, in situations where the consumer controls the rate of information as in print media, the sheer amount of information may not be a crucial factor. In this setting, the consumer can pause and integrate the information with past experience as well as review any material which at first seemed unclear. On the other hand, in cases in which the rate of information input cannot be controlled by the consumer, as in listening to radio or television commercials, the processing ability may deteriorate as the information load increases.

The third environment factor related to degree of search is time pressure. Since time pressure influences the degree of control the consumer can have over internal processing rate, such pressure may affect search behavior.[32] In general, as time pressure increases,

search should decrease.) Several researchers have shown that the more immediate the need for purchase, the less the information search.[33]

Individual differences. Several types of individual differences may be related to degree of external search. First, individuals may use the external memory provided by in-store displays to different extents, and differ in the amount of prior planning done before entering the store.[34] Furthermore, individuals differ in terms of the degree of prior latent learning or other sources of learning about the environment for different purchases.[35] The fact that some individuals have exhibited low levels of external search for durable items may simply mean that internal search is used.

A second source of individual differences is the abilities of consumers. Several researchers have found that more educated and affluent consumers engage in more search.[36] Also, Sieber and Lanzetta have shown that the degree of conceptual complexity is related to search, with more complex subjects searching more.[37]

A third major type of individual difference variable related to degree of external search is the consumer's concern with optimality of the choice.[38] Consumers may develop criteria for determining when activity related to goals should be stopped. One such criterion may be satisficing, stopping when an alternative is 'good enough', even if it is not necessarily optimal.[39] Individuals with higher standards for what is 'good enough' will tend to engage in more external search.[40])

Alternative Evaluation--The
Information Processing Approach

The incoming information acquired through external search helps the consumer clarify and evaluate the alternative brands. Generally, the consumer forms these product judgements on a conscious and rational basis. The evaluative process is generally composed of four elements: Product attributes, importance weights, brand beliefs, and utility functions.[41]

Generally, the consumer, using the information processing theory, sees products as multiattribute objects. A particular product is perceived in terms of where it stands on a set of attributes that are relevant to that product class. For example, attributes of normal interest to buyers in some familiar product classes are:

> beer, smooth taste, alcohol content, bitterness, calorie content, price
> aspirin: speed of relief, reliability, side effects, price
> tires: tread life, safety, ride quality, price.[42]

Second, the consumer is likely to attach different importance weights to the relevant attributes. For example, in the case of beer a consumer may feel smooth taste is the most important attribute, followed by bitterness, calorie content, alcohol content, and price and seek information to evaluate brands according to these weights.

Thirdly, the consumer is likely to develop a set of brand beliefs--beliefs about where each brand stands on each attribute. The consumer's beliefs or perception may be at variance with the true attributes due to the consumer's particular experience and the effect

of selective perception, selective distortion, and selective retention.

Fourth, the consumer is assumed to have a utility function for each attribute. The utility function describes how the consumer expects product satisfaction to vary with alternative levels of each attribute. For example, a consumer may expect his satisfaction from an automobile to increase with gas economy and to peak with a subcompact car.

Finally, the consumer arrives at an attitude toward the brand alternatives through an evaluation procedure. Starting with an evoked set, i.e., the brands under consideration, the consumer compares these brands across attributes. The attributes are weighted in accordance to the salience each holds for the consumer. Information stored in his memory (internal) and/or from his environment (external) is then processed and attitudes concerning each product or brand emerge. These attitudes, favorable or unfavorable, will lead to an intention to act. Intentions are generally a statement of the subjective probability that a specified action (delay-purchase) will be undertaken. All things being equal, this intention will culminate in an actual purchase.

The multiattribute nature of products certainly has important implications concerning the effect of price advertising on the price of products. With price being an important attribute of a product, the use of price information provided by advertising may play an increasing role in the consumer's search and evaluation process.

Through the relatively easy access advertising provides to information on this salient attribute, the consumer will be able to readily compare brands in his evoked set across this dimension. As the ease of comparison increases, the likelihood that more comparison on price increases. This in turn is likely to reduce the price as well as the dispersion of prices for the product as the consumer's sensitivity to changes in price would be increased.

In the case that price is a relatively unimportant attribute, the effect of price advertising on the price of the product is likely to diminish. While the information may still be provided on price, the salience of the attribute is diminished and the consumer's use of the information is likely to be minimal. In these situations, price advertising should have relatively minimal effect on price of dispersion of prices for the product.

II. Economic Theories

The two principle theories that researchers use to describe the effects of advertising differ markedly with respect to their assumptions about the way advertising influences the price sensitivity of consumers. Table I summarizes the main points of the advertising market power view and the advertising information view. Generally, the first model views advertising as a persuasive communication tool that marketers use to make consumers less sensitive to price and to increase the firm's market power. The second model regards advertising as informative in nature and believes it increases consumers'

TABLE I

Two Theories of Advertising and Price

Advertising/Market Power		Advertising/Information
Advertising affects consumer preferences and tastes, changes product attributes, and differentiates the product from competitive offerings.	Advertising	Advertising informs consumers about product attributes and does not change the way they value those attributes.
Consumers become brand loyal and less price sensitive, and perceive fewer substitutes for advertised brands	Consumer Buying Behavior	Consumers become more price sensitive and buy best "value." Only the relationship between price and quality affects elasticity for a given product.
Potential entrants must overcome established brand loyalty and spend relatively more on advertising	Barriers to Entry	Advertising makes entry possible for new brands because it can communicate product attributes to consumers.
Firms are insulated from market competition and potential rivals; concentration increases, leaving firms with more discretionary power.	Industry Structure and Market Power	Consumers can compare competitive offerings easily and competitive rivalry is increased. Efficient firms remain, and as the inefficient leave, new entrants appear; the effect on concentration is ambiguous.
Firms can charge higher prices and are not as likely to compete on quality or price dimensions. Innovation may be reduced.	Market Conduct	More informed consumers put pressure on firms to lower prices and improve quality. Innovation is facilitated via new entrants.

TABLE I (Continued)

Advertising/Market Power		Advertising/Information
High prices and excessive profits accrue to advertisers and give them even more incentive to advertise their products. Output is restricted compared to conditions of perfect competition.	Market Performance	Industry prices are decreased. The effect on profits due to increased competition and increased efficiency is ambiguous.

Source: Paul W. Farris and Mark S. Albion, "The Impact of Advertising on the Price of Consumer Products," Journal of Marketing, Vol. 44, No. 3, Summer, 1980, p. 18.

price sensitivity and stimulates competition among firms. An in-depth analysis of the components and relationships of each of the theories will be presented to provide further insight as to the views of each perspective.

The Advertising Market Power Theory

The market power model views advertising as a means of persuasion which allows firms individually, and the industry as a whole, to raise prices and obtain higher profits via decreased price elasticity. Advertising is thought to change consumer tastes and establish brand loyalty among buyers of an advertised product. This view also states that firms will increase prices to a level not possible without advertising and that advertising creates barriers to entry that make it more difficult for competitors to enter the industry. As advertising differentiates the product from competitive offerings, buyers perceive fewer close substitutes and demand for the advertised product becomes less price elastic.[43]

From a marketing perspective, sellers are seen to differentiate their product in four main ways.[44] First, they may select plant or store locations which are more convenient in terms of travel time and transportation costs than rival locations. The locational advantages of the corner drug store and the local convenience store are illustrations. Second, they may offer varying degrees of service. Some retailers maintain large and well-trained staffs to provide

prompt, efficient, and courteous service while others are known for long checkout lines and unfriendly employees. Some firms may even offer services along with their product such as programming assistance with a computer hardware purchase. Third, there are physical differences in the products supplied. Innovative design features such as the handling ability of certain automobiles or the ability of a stereo amplifier to reproduce the audio spectrum with less harmonic distortion cause the products to actually have different physical characteristics.

Finally, products are differentiated in terms of the subjective image they impress on the consumer's mind. Firms attempt to enhance the image of their products through brand labeling, advertising, direct word-of-mouth sales promotion, and the design of attractive packages.

Much of the product differentiation effort observed in a modern private enterprise economy represents a natural response to legitimate demands. Consumers' wants are extremely diverse, and they clearly desire a variety of consumption opportunities. In some instances, a consumer may value convenience in the location of suppliers serving him and many may pay a premium price for a certain amount of locational convenience.

The diversity of wants with respect to physical design and performance characteristics is especially great. Likewise, different consumers place varying weights on the subjective image accompanying the products they buy.[45]

However, much debate in the literature has focused on not whether product differentiation is a good thing, but rather how much product differentiation there should be and whether certain market conditions might lead to excessive or inadequate differentiation. This discussion has produced no hard and fast answers. This is basically due to the lack of data on the costs and benefits of diversity and the failure of economic theory to provide operational methods for comparing the benefits of diversity with its social costs.[46]

The discussion so far has presented four opportunities or areas in which the marketer may differentiate his product. The most relevant application of this concept to the topic addressed in this dissertation concerns products differentiated by image. Economists and social critics are concerned about the possibility that advertising may be able to differentiate physically homogeneous products to a significant extent or exaggerate innate product differentiation. Simply stated, advertising may cause consumers to perceive greater differences between products or brands than in fact exist.

For example, branded aspirin, such as Bayer, has been found to be physically identical to private-label products that sell for less than half the price. Yet national brands continue to hold more than 95% of the market. Steiner concludes that "the Bayer brand has been aggressively advertised and this has helped produce a towering reputation premium such that consumers are unwilling to purchase far lower priced generic substitutes of identical or virtually identical efficacy." He continues "it has long been known that it is

comparatively easy to build a high reputation for a low price medication that is ingested. The consumer says to himself, why not spend a half cent more per tablet for the reassurance that infers in a well known brand?"[47] A similar point is made by Comanor and Wilson who maintain that advertising differentiates many homogeneous products merely by the fact that the brand is advertised and that the advertising may constitute an implicit warranty of performance.[48]

Both price insensitivity and brand loyalty could be created by any number of factors. Higher product quality, better packaging, favorable use experience, market position are examples. Price insensitivity and brand loyalty are probably related to each other, but need not be the result of advertising. Moran reports that price inelasticity, brand loyalty, and profit margins on sales are all highly correlated, but does not detail the product categories studied nor the methodologies and measurements employed.[49] There is, however, theoretically no reason why product differentiation could not lead to more price competition. For example, if competitors feel that a leading brand has differentiated its product by advertising, they may cut prices to compete. The reaction need not always be to increase active competitive rivalry; firms respond by means of their own advertising as well as by price and quality adjustments.[50]

Considering the other side of the arguments presented above, Steiner suggests that under some circumstances, innate product differentiation may be far greater than that which is perceived by consumers. He cites life insurance policies as an example of a service

that many consumers incorrectly perceive as differing little from company to company. In such a situation, advertising may bring the level of perceived product differentiation more into line with 'real' differences between policies.[51]

The Advertising Information Theory

An alternative to the advertising market power theory has developed from information theory.[52] It maintains that advertising provides information to consumers, thereby increasing price elasticity, lowering prices, and reducing monopoly power. The theory states that the consumer's cost of search is reduced because advertising provides a useful source of information.

Generally, the advertising information theory has evolved from a number of researchers' work, with some of the major relationships being hypothesized by Stigler and Nelson.[53] Examination of their efforts would provide insight toward theoretical development.

Stigler built the base for the advertising information theory in 1961.[54] In his article, he discussed the importance of information to the consumer and attempts to quantify relationships between price and advertising. Stigler posits that "price dispersion is a manifestation . . . of ignorance in the market."[55] He feels there is never absolute homogeneity in the goods offered for sale if the terms of the sale are included as part of the good. For example, some retailers' level of service or inventory vary widely and could likely affect

consumers actual perception of the product. Even though this might account for some of the variance in price present in a given market, Stigler feels it would be inaccurate to assume that all of the variance is due to truly heterogeneous goods. He continues to point out that the larger the variance in price (relative to the cost of search) the more important information search becomes.[56]

Stigler also notes that advertising is "a method of providing potential buyers with knowledge of the identity of sellers," and "is clearly an immensely powerful instrument for the elimination of ignorance."[57] The identification of sellers is necessary not only because of the identity of sellers' changes over time, but also because of the turnover of buyers. For example, in every consumer market new consumers will enter requiring knowledge of existing sellers.

Price advertising is also seen as having an important influence on the dispersion of prices. Search, in the presence of price advertising becomes extremely economical for the consumer. Stigler states:

> The effect of advertising prices is equivalent to that of the introduction of a very large amount of search by a large portion of the potential buyers.[58]

Therefore, as the level of knowledge (information) within the market increases, the variance in prices is likely to decrease. Further insight into the advertising price relationship is provided by Nelson.

Nelson's Model of Consumer Search. Nelson, whose ideas are rooted in the work of Stigler, has developed an economic model of the

consumer and his search for information.[59] The major point in the model is the assumption that the price elasticity of demand depends upon the amount of knowledge consumers have about close brand substitutes, not upon the existence of a certain number of substitutes. The central element is, therefore, the determination of the probability that the consumer will find or know about alternative brand offerings within a product category. In his model, monopoly power results from consumer ignorance and will be reduced as advertising increases the amount of information and the number of known competing brands and thereby increases the price elasticity of demand and lowers price.

Nelson approaches consumer purchasing behavior and the role of advertising by depicting the characteristics of the product that will affect the consumer's search process. He proposes that the greater number of searches and/or sampling the consumer can make within a product category, the greater is the price elasticity of demand for the product.[60]

In the Nelson model, consumers are assumed to have fixed preferences; therefore, advertising cannot change tastes, differentiate a product, or establish any semblance of brand loyalty. The question arises--Why would a firm advertise in the Nelson model? Simply, advertising is seen as affecting the consumer's perception about the product by signaling its characteristics. These 'signals' help the consumer direct his search process or choose which brand he may try. Products are differentiated only by their value, but advertising can inform consumers that the product exists or what some of

—the attributes are. Although advertising cannot create attributes or add 'utilities' in the Nelson model, it can increase the value of a product by promoting lower prices for a product category.[61]

Through the examination of the central ideas of the major contributors of the advertising information theory, a theoretical base can be laid from which to summarize. Generally, this model views advertising as providing information on brands, prices, and quality, thereby increasing consumer knowledge, reducing buyer search costs, and ultimately the total cost to society of transacting business. In addition, advertising induces sellers to improve the quality of goods as better informed buyers are not as likely to purchase or repurchase low-quality or unsatisfactory goods. By increasing information, advertising also increases the number of substitutes known to buyers, thereby increasing price elasticity of demand and reducing price-cost margins.

Advertising facilitates market entry allowing previously unknown products to gain rapid market acceptance. Without advertising, market penetration would be much slower for new products than it is with advertising. Finally, advertising serves consumers by increasing product variety and by permitting firms to exploit economies of scale in production and distribution--which in turn yield lower consumer prices.

Since the early 1960's when Stigler hypothesized the relationships central to the advertising information theory, much work has been done concerning the behavioral aspects of consumer search and

shopping behavior. As Stigler identified, search is directly related to the cost of information to the consumers. When this cost of acquiring the information concerning price is less than the savings realized by search, the consumer is likely to engage in search. With the presence of price advertising in the mass media within a market, the consumer's cost of search would be reduced. For example, he would only have to read newspapers or magazines to obtain the price comparative information instead of traveling to each retail outlet to acquire the information.

The behavioral research indicated, however, that search for information and evaluation of that information on a consumer's pre-purchase criteria is a complex process. Ordering of the product attributes on which the consumer bases his decision is hypothesized as playing a major role in search for information related to the attributes.

Stigler assumed that price is an important attribute in the consumer's evoked set. As can be imagined, the importance of price as an attribute for a convenience product may play a somewhat minimal role. While the consumer has assigned weights to the product's attributes and determined the most important aspects of each product or brand, price may indeed play a lesser role. For the savings of a few cents or even a few dollars, the consumer may remove or lower the order of price in his evoked set. For example, location of sale may be a more important attribute than the price of the product. Being able to acquire the product at a higher price physically closer

to the consumer may offset any transportation costs involved in acquiring the product at a lower price at a location farther away from the consumer. Therefore, the rational consumer, while aware of the cost savings available on the product via mass media price advertising, would consider the total cost of acquiring the item before making a purchase.

Furthermore, time, a major element of the advertising information theory may be hypothesized in a slightly different role. Time, in the advertising information theory, is identified as playing a major role in the consumer search process. Reduction of time for search of price savings is seen as being the major benefit of price advertising. However, even though the consumer's search for price is reduced, the ultimate cost of the product, with time included as a purchasing variable, may be important. In other words, for the consumer to realize a savings or reduction on the price of the product or service, the time expended acquiring the product is considered into the total purchase price. Also, the extent to which aggregate consumer purchasing characteristics for a particular product category exhibit such behavior, the importance of price advertising is likely to vary.

For substantial savings on identical products at different retail outlets, the time invested by the consumer may be beneficial. This would likely be the case for both shopping and specialty good classifications. In these cases, the price of the product may be a highly ranked attribute in relation to time of acquiring the product

and in these cases provide an incentive to purchase at a location physically inconvenient.

Generally, it can be stated that the presence or absence of price advertising for certain types of goods may have an effect on the price of the product within the market. However, the consumer is pictured as associating the cost for the product with more than just the advertised price. The time and convenience of the place of purchase may interact with price causing the consumer's perceptual importance of price to vary with product class.

Several researchers have examined the effects of advertising on the price of products and services. Generally, four studies have been completed that examined (1) the toy industry, (2) retail gasoline, (3) eyeglasses, and (4) the prescription drug market.

The Toy Industry. Steiner, by examining the toy industry, described the process by which advertising may lower consumer prices in strongly advertised industries whose goods are sold through the general retail trade. By the use of large media budgets by national advertisers, consumer recognition of the advertised item was increased, enabling the buyer to readily identify and compare its price wherever the item was sold.[62]

Steiner noted the effect of mass advertising by looking at the impact on distribution margins. Through an analysis of the toy industry from the 1950's to early 1970's, he traced the development and use of large national advertising campaigns to create consumer demand for toy items. Accompanying this rise in national advertising

expenditures, was the emergence of 'discount stores' that operated with a high volume and low margin retailing strategy. He concluded that in conjunction with this mass merchandising, advertising had lowered markups on advertised brands and reduced them on competing non-advertised products as well as bringing lower price to the consumer.[63]

Retail Gasoline. Concerning the relationships between price advertising and the retail price of products, three studies have provided varying results. Maurizi compared markets that allowed price advertising for gasoline and markets that prohibited price advertising for gasoline. Of the ten largest cities in the U.S., two were found to have ordinances prohibiting price advertising by retail gasoline stations while in the remaining eight no ordinance was found. He hypothesized that average gasoline prices would be higher and that the variance of prices would be greater in the markets that prohibited price advertising.[64]

Significantly greater variance was found in cities prohibiting price advertising. However, a significantly lower price was found in cities prohibiting price advertising. Furthermore, after all local, state, and federal taxes were subtracted, the difference between the two groups means revealed no significant differences.[65]

Maurizi felt that possible inconsistencies of data collection techniques via survey methods left questionable the reliability of the Bureau of Labor Statistics retail price data. Concluding, Maurizi found (1) significantly greater variances in prices in cities prohibiting price advertising, and (2) significantly lower prices in cities

prohibiting price advertising, however, this was believed to be due to error present in the wholesale price data.[66]

Eyeglasses. Benham examined markets in which advertising for the price of eyeglasses was prohibited by state boards of optometry and markets in which advertising for price was legal. His data on eyeglasses and eye examination prices were obtained from a 1963 survey of a national sample of individuals concerning use of an expenditure on medical services. A subsample of 634 individuals who each underwent an eye examination and/or obtained a pair of eyeglasses in 1963 was used for the analysis. In addition to the amount spent by individuals for eye examinations and eyeglasses, detailed demographic information on each individual was included in the survey.[67]

His analysis dealt mainly with eyeglasses and not with eye examinations as very few states permitted advertising of eye examinations in 1963. Benham hypothesized prices in states that restricted price advertising of eyeglasses would be higher than states that allowed price advertising. His hypothesis was based on the increased knowledge consumers in unrestricted states would have concerning the price of eyeglasses and the resulting savings of time and transportation spent searching for the lowest price.[68]

Benham's results indicated that eyeglass prices suggested that advertising restrictions in the market increased the prices paid by the consumer by 25 percent to more than 100 percent. He pointed out that his evidence suggests that established optometrists and other professionals within a state are likely to benefit if

advertising is prohibited. Therefore, implications of such restriction not only affect the price actually paid for the product, but ultimely long term industry structure by increasing barriers to entry in the market.[69]

The Prescription Drug Market. This study undertaken by Cady examined the retail prescription drug market. Again, by examining markets in which price advertising was restricted and markets in which price advertising was allowed, he compared the variance of retail prices of ten prescription drugs of specified dosage and quantity within the restricted markets to the variance of retail prices within the unrestricted markets. He also examined the average price of the ten drugs between the restricted and unrestricted markets. He hypothesized (1) that a greater dispersion of prices would be found in markets where price advertising was restricted, and (2) the average price was higher in states that restricted price advertising.[70]

The results of his analysis indicated that the dispersion of prices was significantly greater in restrictive states and the level of prices was higher in restrictive states. He concluded that (1) consumers pay an average of 4 percent more for the sampled drugs in restrictive states than in unrestrictive states. Projected to all prescription drugs, the results of this study indicate that consumers would save over $400 million if the regulations had not been in effect. (2) With a significantly greater dispersion of prices in restrictive states, it would become time-consuming and costly for consumers to search out low prices. The net expected benefits of search

for price information were outweighed by the cost of acquiring it. Consumers who viewed search as costly relative to anticipated savings were less likely to search out pharmacies with the desired mix of service and price. The result, therefore, is likely to be lower consumer satisfaction than would be the case if price advertising was not restricted. The results of the study suggested that advertising can act as a significant stimulus to market competition through the provision of salient, useful information.[71]

From a review of the empirical work to date, results have generally supported the relationships presented in the advertising information theory. Steiner has demonstrated that mass media advertising associated with mass merchandising created economies of scale for the retailer which in turn reduced distribution margins and ultimately retail price.

The presence of price advertising in markets has generally had the effect of lowering average price and reducing dispersion of variance within the market. That has especially been the case where the product has exhibited characteristics of a shopping or specialty good (eyeglasses and prescription drugs). The presence of price advertising within a market seems basically to have no effect on the average price of a convenience item (gasoline). However, in this last case, it should be noted that the price advertising was via signs at the location of product sale and not the mass media as in the previous two cases. This conceivably could be an important difference

when comparing search costs as the purchaser would still have to visit the retail location to compare prices.

In explaining the lack of effect of price advertising for average gasoline prices, in addition to methodological problems (1) search costs for the consumer even with price advertising could have outweighed the benefits associated with the discovery of lower prices, (2) the varying level of service found at sales locations of gasoline may be an intervening variable, i.e., full service station versus self-service stations, and (3) the nature of the product as more of a convenience item, thereby reduced the consumer's motivation to search.

Synthesizing and applying these findings to the area of beer price advertising points to some interesting implications:

(1) Consumer recognition and awareness of nationally advertised brands has enabled identification and comparison of price.

(2) The relative importance of the price attribute in the consumers evoked set appears to play a lesser role in the convenience product category. Conclusions concerning the convenience category, however, are still uncertain and additional study should provide additional knowledge.

(3) The effect of industry structure may be an important element. The number, type, and size of firms comprising the industry could affect the pricing policies within that industry.

Table II provides a summary of the effects of advertising on price from (1) the Advertising Market Power perspective, (2) the

TABLE II

The Effect of Advertising on Price
Three Theoretical Viewpoints

Theory	Effect	Convenience	Shopping	Specialty
Advertising Market Power	Advertising will decrease consumer's price sensitivity through product differentiation.	raise	raise	raise
Advertising Information	Advertising will increase consumer's price sensitivity by providing relevant information to consumers and thereby reduce search costs.	lower	lower	lower
Information Processing	Products are multiattribute. Where price is a salient attribute to consumers, provision of advertising containing price information is likely to reduce price.	no effect	lower	lower

Sources: Mark S. Albion and Paul W. Farris, Appraising Research on Advertising's Economic Impacts, Marketing Science Institute, December, 1979.

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Advertising Information perspective, and (3) the Information Processing perspective on the price of different types of goods. The Advertising Market power and Advertising Information theories make no specific mention of the difference product classifications may play on the effect of advertising on prices. In general, the Market Power theory makes no distinction between types of goods in presenting its relationships. With the Advertising Information theory, the only distinction between goods is based on the cost of search. As long as search costs produce favorable economic rewards, the consumer will engage in search until those benefits are no longer present.

The Information Processing theory presents products as multiattribute objects. As price as an attribute increases in importance, the consumer's likelihood of information use increases. Where price is a relatively unimportant attribute, the consumer's use of price information is likely to be minimal.

III. Research Questions and Hypotheses

The discussion concerning the effect of price advertising on the price of products and services has generally pointed to lower prices in areas in which price advertising is present. The findings have been related to the cost of obtaining the information by the consumer. Where the cost of acquiring information on price outweighs the actual savings found, the likelihood of search decreases. Empirically, this has been demonstrated for shopping and specialty goods in the case of prescription drugs and eyeglasses.

When applying the theoretical propositions to the area of convenience goods, however, the findings have been inconclusive. The consumer's lack of search for product information in the convenience good category may be hypothesized as playing a major role in relation to the price of the product. Conceivably the savings obtained via search could be outweighed by the cost or effort of obtaining the information. In this case, the consumers use of the information, if available, might be minimal.

Also, the multiattribute nature of products as described by the information processing theory may play an important role. In the convenience good category, the attributes of a particular product may be ordered by the consumer in the aggregate in such a way that price plays a minor role in the consumer's evoked set. Price information may be provided, but not used to any great extent by the consumer because of the relative unimportance of price in the consumer's decision process.

To hypothesize the effect of price advertising on the price of a product, an ordering of product attributes would be helpful. By using this information, the research could determine the importance price plays in the decision process and be able to estimate the effects of price advertising. However, information of this type is not generally available.

The lack of additional information concerning the effect of price advertising on the convenience good category, necessitates reliance on the advertising information theory. Through the provision of

information to the consumer via mass media, the potential search costs are reduced, the level of knowledge concerning comparative prices is increased, and potential economies of scale would be present for the retailers. Using this theory, the presence of price advertising in the mass media within a market should (1) reduce the average price of the product, and (2) decrease the dispersion of prices within that market. Specifically, the hypotheses are:

> Hypothesis I: The average retail price for a "convenience" product is higher in markets where there is not price advertising in the mass media than in markets where there is price advertising in the mass media.
>
> Hypothesis II: The dispersion of retail prices of a "convenience" product over time is greater where there is no price advertising in the mass media than where there is price advertising in the mass media.

The Advertising Information theory was used as a basis for the hypotheses mainly because of the related empirical work concerning price advertising and its effect on prices of products. However, since this dissertation will explore a different category of products, convenience goods, the results may be different than previous findings. For example, if no price difference is found between the two markets, generally the relationships presented in the Information Processing theory may be valid. However, if the prices are higher in restrictive markets, the relationships presented in the Market Power theory may be valid. In this latter case, the brand images built by national merchandising may have created strong brand preferences by the consumers and result in general insensitivity to price. Therefore, brands

may be an important variable and should be included as part of the analysis.

If price is higher on nationally advertised and marketed brands in markets that restrict price advertising, relationships presented in the Advertising Market Power theory may be valid. Therefore, in addition to the prior hypotheses, the study will also examine the effect of price advertising on the retail price of specific brands of the "convenience" product. Several different national brands will be tested, repeating the hypotheses. Specifically, the hypotheses are:

> Hypothesis III: The average retail price for the "convenience" product Brand A is higher in markets where there is not price advertising in the mass media than in markets where there is price advertising in the mass media.
>
> Hypothesis IV: The dispersion of retail prices of the "convenience" product Brand A over time is greater where there is no price advertising in the mass media than where there is price advertising in the mass media.

According to the Advertising Information theory, the presence of price advertising in a market has the effect of reducing search costs for the consumer. As the level of information within the market increases, the variance or dispersion of prices is likely to decrease. Therefore, if relationships presented in the Advertising Information theory are valid, the dispersion of prices within the market which allows price advertising will be lower than in markets where there is no price advertising.

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CHAPTER III

THE BREWING INDUSTRY

This chapter presents a historical perspective of the brewing industry for the purpose of structural analysis. The general structural characteristics, consumption trends, and dimensions of rivalry are discussed from an economic perspective. Concluding the chapter is a discussion of promotional efforts focusing on price and advertising competition.

The Brewing Industry Since 1947

Following World War II, the brewing industry went into a period of decline and stagnation which persisted until the early 1960's.[1] Evidence of the decline and stagnation characterizing this period is shown by the trend in beer sales and industry profits. In Table III, total industry sales, in barrels for the period 1947-1977 are presented along with the value of shipments. From 1947 through 1967, beer sales in terms of barrels increased by just 24 percent, whereas from 1967 through 1977 barrelage increased 48 percent.

Dimensions of Structural Change. The major feature of structural change in the brewing industry has been the decline in the number of breweries (Table IV) and the increase in national concentration (Table V). Most of the plants that have exited the industry since

TABLE III

Taxpaid Withdrawals and Value of Shipments,
for the Total Beer Industry:
1947-77

Calendar Year	Total Taxpaid Withdrawals (thousands of barrels)	Value of Shipments (mil.)
1947	87,172	$1,498.9
1952	84,836	1,777.1
1957	84,371	2,057.9
1962	91,197	2,282.0
1967	106,974	2,929.7
1972	131,809	4,054.4
1977	156,948	N.A.

Sources: U.S. Brewers Association, Brewers Almanac, Washington, D.C., 1976; Census of Manufacturers, 1977; Courtesy of U.S. Brewers Association.

TABLE IV

Number of Breweries and Brewery Firms:
1947-76

Year	Plants	Firms
1947	465	404
1952	357	263
1957	264	211
1962	220	171
1967	154	125
1972	131	108
1976	94	49

Sources: 1947-1972: Brewing Industry Survey (New York: Research Company of America, 1973-4). (For number of firms): U.S. Bureau of the Census, Census of Manufacturers.

1976: Brewers Digest Brewery Directory, 1977.

TABLE V

National Beer Sales Concentration Ratios:
1935-77 (percent)

Year	Four-Firm	Eight-Firm
1935	11	17
1947	21	30
1954	27	41
1958	28	44
1963	34	52
1966	39	56
1967	40	59
1970	46	64
1972	52	70
1973	54	70
1974	58	74
1975	59	78
1976	59	80
1977	63	83

Sources: 1935-72: U.S. Bureau of the Census, Census of Manufactures (based on value of shipments) (establishment basis).

1973: Based on share of total sales of U.S. Brewers. Brewing Industry Survey (1974).

1974-75: Based on sales data in Advertising Age, November 3, 1975, and December 27, 1976.

1976-77: Based on sales data in Modern Brewery Age, Feb. 14, 1977, and Feb. 13, 1978, by permission.

1935 have been much smaller in terms of rated capacity than those remaining or those built since World War II.[2]

The increase in national concentration since World War II implies that the industry has been transformed from a fairly unconcentrated industry into what might be characterized, considering only concentration, as a moderately 'tight' oligopoly, based on a national market perspective. Due to the economic and political implications that are often drawn from the structural characteristics of an industry, a more in-depth analysis of the situation is presented.

Structural Characteristics. Prior to World War II, most brewers served relatively small local areas, though some sold regionally and a few such as Anheuser-Busch and Schlitz sold beer nationally. At that time firms selling nationally operated out of one brewery. To cover additional transportation costs not incurred by local or regional brewers, the national firms advertised their beer as being of premium quality and charged a premium price.[3] The national breweries and a number of regional brewers such as Carling, Hamm, and Falstaff began entering new geographical regions in the 1950's and were successful in increasing their shares in those areas. The level of national concentration rose, but in regional markets concentration did not rise to the same extent since the increased sales of these national and regional firms came at the expense of local and small regional firms which had previously dominated these markets. What occurred in the regional markets then was a change in the composition of the sellers.

Regional brewers have been displaced by national brewers and state concentration has been and continues to be higher than national concentration.[4] The evidence on state concentration levels supports the earlier contention that what has occurred has been a replacement of regional brewers who once were market leaders by the national brewers in a large number of states.[5] The increase in the level of concentration at the state level is not entirely attributable to success of the national brewers, however. There are states such as Oregon, Idaho, and Montana in which concentration increased in spite of the fact that the national brewers were never previously very important in terms of sales.

Estimates of the weighted average state concentration ratios are presented in Table VI. The 1964 and 1973 ratios are not directly comparable with those of 1974-77 because some states appear on one list but not on the other. However, the average state concentration did rise in 1974 because of several mergers involving regional brewers. Since then, average state four firm concentration has been relatively stable.

A comparison of the national and state ratios yields two important conclusions: (1) concentration (especially four firm) has always been much higher at the state level than at the national level, and (2) the increase in concentration (especially four firm) has been much greater at the national level than at the state level.

Therefore, inferences and conclusions drawn from the increase in national concentration must be done carefully. Most consumers

TABLE VI

Weighted Average State Concentration[1]
(percent)

	1964	1973	1974	1975	1976	1977
Four-firm	67.4	79.4	82.4	81.7	80.9	82.7
Eight-firm	88.5	95.3	--	--	--	--

[1]State concentration ratios were weighted by 1976 consumption as given in Beverage World, March, 1977, p. 54. The 1964 Texas concentration is actually 1965. Including Illinois (1966 and 1973) would affect the 1964 and 1973 ratios by less than one percentage point. The States included in the 1964 and 1973 ratios accounted for 58 percent of 1976 U.S. sales; 62 percent for the 1974-77 ratios.

TABLE VII

Percentage Increase in Beer Sales, Population, and Income: 1951-76

	1951-59	1959-67	1967-76
Total taxpaid withdrawals[1]	4.5	26.8	40.6
Population aged 20-44[2]	0.8	7.4	19.7
Disposable personal income, 1972 dollars[3]	28.5	40.3	33.0

[1]See Table 3.

[2]U.S. Department of Commerce, Bureau of the Census.

[3]Ibid. and Bureau of Economic Analysis.

face markets which are and always have been more concentrated than is indicated by the level of national concentration. The rise in national concentration reflects a displacement of local and regional brewers by the national brewers rather than a dramatic decrease in the number of sellers faced by the consumer.

Changes in Consumption Patterns. As has been established, beer sales declined and stagnated in the 15 years following World War II. In fact, total sales of 1947 were not surpassed until 1959. This stagnant demand is a major reason why many firms exited the industry during this period. This lack of growth in demand has been in part blamed on demographic factors.

According to Brewers Almanac 1976 (p. 82) past industry surveys have shown that persons aged 21-44 account for about 69% of beer consumption. Since this age group was almost constant in size during 1951-59, demographics appear to be a good explanation for beer demand during this period. However, after 1959, beer sales grew more than twice as fast as did the number of people aged 20-44.

Brewers Almanac (p. 29) constructed an index of beer consumption per capita by eliminating the under 21 population and weighting the older age groups according to their relative beer consumption. Between 1957-59 and 1975, the per capita consumption of the 'weighted beer consuming population' rose by 41.9%, while per capita consumption based on total population grew 43.0%. This suggests that factors other than demographics explain much of the increase in beer demand after 1957-59. Real income is a variable common in many statistical

demand studies, and it usually has significant explanatory power. But according to Table VII, beer sales rose much less rapidly than did real disposable personal income from 1951 to 1967, whereas from 1967 to 1976 sales increased somewhat more than did income.

Thus, it is likely that other factors may be partly responsible for the change from the stagnant demand of the 1950's to the more rapid growth of the late 1960's and 1970's. One of these may have been a shift in tastes away from distilled liquor and toward beer and wine. Another may have been an easing of the legal restrictions on beer sales, i.e., in the areas of minimum ages, alcohol content, price advertising and Sunday sales.

National Brewers: Multi-Plant Economies of Scale

Much of the success of the national brewers is attributable to the advantages that have been gained by multi-plant economies of scale. For example, two identical but separate plants may achieve lower per unit production, distribution, and/or marketing costs when operated jointly by one firm than when operated by two separate firms.

The brewing industry was included in the sample of 12 industries studied by Scherer and his associates in an attempt to determine the importance of multi-plant economies of scale.[6] They found that the only significant advantage to national multi-plant operation in the brewing industry was of a promotional nature. However, it was substantial enough by itself to give firms that pursued a multi-plant

strategy a significant advantage over other brewers. Reductions in production costs attributable to multi-plant operation were found to be insignificant. Although transportation costs for the firm as a whole were reduced, the reductions did not give any of the national firms any advantages over regional or local firms in their particular markets.

National Brewers: Promotion and Advertising. There are several advantages resulting from promoting and advertising on a national basis. First, the national brewers tend to be larger and there may be discounts to firms that buy space or time in large quantities, although there appears to be little evidence for this proposition.[7]

A second possible advantage suggested by Scherer is that the creation of an image requires a certain minimum level of advertising. In other words, it is not only advertising intensity that counts, but also the absolute amount spent on advertising.[8] While this may be true, it appears that the national brewers in general had to overcome the 'threshold effect' due to the established images already held by many regional and local brewers. It should be noted that these established images of most regional beers were images of good inexpensive beers rather than premium beer images. Furthermore, it may be that most regional firms advertise more than 'threshold' amounts.[9]

Thirdly, national advertising may be more productive due to buyer mobility. As people move out of a region, the information conveyed to them in the past by local brewers becomes useless. Likewise,

people moving into a region must be informed of new, local-based beers that are now available to them. Thus, to keep a mobile population informed would be more costly for local or regional brewers as compared to those brewers advertising and selling nationally. The value of the information does not depreciate as rapidly, nor is there a need to inform those first entering the market from another location.[10]

National as compared to regional or local advertisers may also be advantaged if a good is most effectively advertised through media that are not divisible in terms of audience selectivity. Since network television is such a medium, regional brewers will suffer a disadvantage vis-a-vis national brewers if network television has significant advantages over more divisible media such as spot television. Porter has argued that network television has important cost advantages over spot television, in large part because network rates range from only 10 to 70 percent of the sum of individual station rates, with the amount varying by time of day and season.[11]

However, most of the variation in network rates referred to by Porter simply accounts for time of day and seasonal differences in the size of audience viewing television. That is, network rates are varied by time of day and season to equalize approximately the cost per unit of audience reached by the different network advertisers. Similar variations also occur in the pricing of spot television which Porter neglects to consider.[12]

Secondly, a direct comparison between estimates of the cost per thousand homes reached on network and spot television suggests

that the differences between the two are much smaller than those indicated by Porter. Estimates by the FTC suggest that the cost per thousand homes on spot television ranges from 85 to 121 percent of the cost per thousand on network television, the exact percentage depending on the number of commercial units purchased per situation and on the exact terms of the contracts entered by spot buyers. Indeed, making reasonably plausible assumptions respecting the weights assigned to the various spot purchases, the cost per thousand on spot television appears, on average, to equal roughly that on network television. So far as the cost of time is concerned, the advantages of network advertisers seem much smaller than what Porter suggests and in fact may be nonexistent.[13]

Table VIII gives network and spot television advertising levels for four national and six regional brewers in 1974 and 1975. With the important exception of Anheuser-Busch, television comprised almost all of the total measured media advertising for these brewers in 1975. While the four national brewers, Anheuser-Busch, Schlitz, Pabst, and Miller spent heavily on network television, they did not avoid spot television despite its alleged cost disadvantages. In 1974 both Miller and Schlitz spent more on spot television than on network advertising. If network television has significant advantages over spot television for national advertisers, it is doubtful that the four national brewers would rely on spot television as much as they do.

TABLE VIII

TV Advertising Expenditures for Ten Major Brewers: 1974-75

		6-Media Ad Expenditures[1] (thousand dollars)	Network TV[2] (th. dol.)	Spot TV[2] (th. dol.)	TV as a Percentage of 6 Media Ad	TV Expenditures per Barrel (dollars)
Anheuser-Busch	1975	$27,354	9,468	6,152	57	$0.44
	1974	17,840	7,054	3,595	60	0.31
Schlitz	1975	26,530	17,690	5,263	88	1.00
	1974	20,911	6,678	10,814	84	0.77
Pabst	1975	9,622	5,387	3,495	92	0.57
	1974	8,449	4,347	3,292	90	0.53
Miller	1975	21,252	16,267	4,463	98	1.61
	1974	13,556	5,068	6,902	88	1.32
Shaefer	1975	2,636	0	2,367	90	0.40
	1974	4,290	136	2,089	52	0.46
Olympia	1975	5,775	1,599	3,620	90	0.94
	1974	3,893	82	1,659	45	0.40
Stroh	1975	3,950	553	3,301	98	0.75
	1974	4,383	0	3,113	71	0.71

TABLE VIII (Continued)

		6-Media Ad Expenditures[1] (thousand dollars)	Network TV[2] (th. dol.)	Spot TV[2] (th. dol.)	TV as a Percentage of 6 Media Ad	TV Expenditure per Barrel (dollars)
G. Heileman	1975	2,902	0	2,587	89	0.56
	1974	2,666	0	2,275	85	0.53
Falstaff	1975	915	0	915	100	0.20
	1974	6,214	0	1,856	30	0.32
C. Schmidt	1975	2,294	118	2,148	99	0.68
	1974	3,490	0	3,025	87	0.86
10-firm Weighted Average	1975					0.74
	1974					0.58

[1]The six measured media are newspapers, magazines, spot radio, network TV, spot TV, and outdoor advertising. Source: Advertising Age, Nov. 3, 1975, and Dec. 27, 1976.

[2]Source: Leading National Advertisers.

Scherer found that national brewers prefer spot television advertising in order to tailor "the intensity of their campaigns to specific market conditions."[14] He concluded that for breweries "the advantage of advertising on a nationwide plane are in most respects not very great."[15]

According to Scherer and his associates, industrial structural change was brought about by the interaction of promotional advantages and economies of scale. National firms initially were 'content' with a small share of each market and charged premium prices to cover their transportation costs. Having established a premium image, the national brewers had an incentive to expand their operations. They constructed modern regionally decentralized breweries which initially lowered transportation cost and later lowered production costs. This raised the price-cost ratio which in turn induced the national brewers to advertise more intensively, thereby further establishing the premium image of their beer.[16]

At the same time real per capita income was rising and this led to consumers' "trading up," i.e., substitution of higher priced beers with premium 'images' for the lower priced beers. This income effect was reinforced by a relative price change as the premium/popular price differential narrowed.[17] The brewers producing the premium beers were the ones who had constructed the new, highly efficient breweries, thereby enabling them to charge a relatively lower price.

Prices. The price of beer, like most other prices, has risen since World War II. This is indicated by the Consumer Price

Index for packaged beer (Table IX). However, beer prices have risen at a slower rate than the general price level, as indicated in column 2 of Table IX, which shows the ratio of the Consumer Price Index for packaged beer to the Consumer Price Index for all items. In addition, column 3 of Table IX shows that beer prices have increased at a slightly slower rate than the price index of all alcoholic beverages since 1956. Thus, the real and the relative price of beer has decreased over time.

In Table X, the Consumer Price Indexes for beer consumed at home and for beer consumed away from home are presented along with the ratio of the two indexes. The ratio shows that the prices of beer consumed at home (largely packaged beer) have risen at a slower rate than the prices of beer consumed away from home (largely draught beer). Given the proportion of packaged to draught beer has steadily increased since World War II, the composite price will reflect the change in consumption habits. While the composite price itself does not give much specific information, it is nonetheless useful as an indicator of the overall average price actually paid for beer.

A Federal Trade Commission staff report looked at recent price and profit trends in four food manufacturing industries, one of which was brewing. It was found that beer prices have continued to increase through April, 1975, but that the rise in beer prices is related "most clearly to increases in brewing costs, and not to enhanced profitability."[18]

TABLE IX

Beer Industry Price Indexes: 1956-77
(1967 = 100)

	Retail Consumer Price Index for Beer[1]	CPI for Beer Divided by CPI for all Items	CPI for Beer Divided by CPI for Alcoholic Beverages
1956	86.1	1.07	1.008
1961	93.8	1.05	1.005
1966	98.3	1.01	1.003
1971	112.9	0.93	0.966
1976	143.7	0.84	0.979
1977	145.9	0.80	0.067

[1] Packaged Beer

Sources: Handbook of Labor Statistics (1972), Department of Labor, Bureau of Labor Statistics, Brewers Almanac, U.S. Brewers Association; Brewing Industry Survey, Research Corporation of America.

TABLE X

Consumer Price Indexes for Beer Consumed at Home and Away from Home: 1964-77

Year	Beer Consumed at Home (1)	Beer Consumed Away from Home (2)	Column (1) Divided by Column (2)
1964	95.9	92.4	1.008
1969	105.4	111.8	0.943
1974	126.8	145.8	0.870
1977	145.9	173.5	0.841

Source: U.S. Department of Labor, Bureau of Labor Statistics.

Price Promotions. It has been alleged that extensive price promotions (very short-term price cuts) were responsible for the increases in market share of the national brewers. Apparently, the extent of price promotion activity in general has decreased in the past few years. This can be attributed to two factors.

First, a number of states have enacted price posting laws which diminish the ability of brewers to engage in price competition. These laws, typically enacted at the request of small brewers who have trouble competing with the national brewers, restrict the number and length of temporary price cuts that the brewer can engage in over the course of a year. As of April, 1978, about one-third of the states had some kind of price posting law which restricted the ability of brewers to engage in price competition.[19]

Although no attempt was made to determine the actual effect of these laws on pricing behavior, some observers suggest that brewers prefer to use temporary price cuts on the order of a few weeks, so that laws requiring price cuts to remain in effect for periods as long as six months or one year should substantially inhibit price competition.[20] If this is the case, an increase in non-price competition should be expected in such states. It is not clear that the small brewers are any more successful at coping with non-price competition than with price competition.[21]

Many economists prefer price to non-price competition. One reason is a belief that when price competition is suppressed, the consumer often ends up with a higher priced package than he really

wants.[22] Another reason is the belief that price competition is more effective in increasing output and reducing profits than is non-price competition.[23] However, these are beliefs, and it has not been proven that price competition is, in fact, generally more "efficient" in meeting consumer's needs.

The recent reduction in price promotions may also be related to the fact that the prices of inputs used in brewing and packaging have risen dramatically in recent years. The price of metal cans rose 21 percent in the first half of 1974, another 13 percent in the later half. Malt, which represents about 8 percent of total direct variable costs, rose 25 percent in price in the first half of 1974 and an additional 27 percent in the last half.[24] As a result, beer prices in general were forced up and price cuts probably would have been costly to firms. Brewers appeared to have trouble just passing on the increases in the costs of inputs, the latter having increased more in 1974 and early 1975 than did the price of beer in the same period.

The variation in the extent of price promotion activity suggests that it is used as a tool, in conjunction with advertising, for increasing sales in those areas where a firm feels it can or must expand. Of course, it can also be argued that price promotions are a defensive tool in that they may be used to counter decreases in sales or increased competition from other brewers. Thus, causality between price promotions and sales may run in either direction.

Advertising. Much of the rivalry between firms in the brewing industry has manifested itself in the form of advertising. The use of advertising by the industry, however, has fluctuated over the past three decades. In 1946 aggregate industry advertising expenditures were $50.4 million, a moderate sum judging by the corresponding advertising-to-sales ratio of 2.61 percent (Table XI). Thereafter, however, aggregate advertising expenditures escalated, and continued to rise until 1965 when they peaked at $255 million with a corresponding advertising-to-sales ratio of 6.90 percent. This ratio is based on gross sales. If excise taxes were subtracted from this figure, the ratio would rise.

Between 1965 and 1973 aggregate advertising expenditures in current dollars gradually declined as did the industry advertising-to-sales ratio. Although comparable data are not available since 1973 there is evidence that there was a major escalation of advertising effort by the leading firms in 1975, 1976, and 1977 (see Tables XII and XIII).

The escalation process before 1965 was judged by Greer to be the most important cause of the increase in concentration, his reasoning being that the level of advertising expenditures eventually became too burdensome for the 'less skillful or lucky firms'.[25] The escalation was most likely triggered by the rapid growth of television and by geographical market extensions undertaken by expanding firms. He then suggested that the reversal of the escalation could be explained by his hypothesis that the relationship between advertising

TABLE XI

Industry Advertising and Advertising Intensity: 1946-73

Year	Total Advertising Expenditures (thousands of dollars)[1]	Advertising per barrel (dollars)[2]	Advertising to Sales (percent)[3]
1946	50,420	0.66	2.61
1950	115,545	1.38	4.79
1954	191,605	2.23	6.76
1958	209,793	2.50	6.84
1962	222,718	2.46	6.90
1965	263,251	2.62	6.90
1969	248,503	2.22	5.33
1973[4]	199,870	1.44	5.33

Sources and Explanations:

[1] Brewers Almanac (various years).

[2] Advertising dollars per barrel. Brewers Almanac.

[3] Advertising as a percentage of gross sales. Brewers Almanac.

[4] U.S. Brewers Association.

TABLE XII

Advertising Cost Per Barrel, by Company: 1949-76

Year	Anheuser-Busch	Schlitz	Pabst	Falstaff	Miller	Schaefer	Stroh	Schmidt
1949	$0.26	$0.33	$0.48	$0.21	$0.31	$0.26	n.a.	n.a.
1954	1.17	1.35	1.18	0.83	1.64	0.61	$0.62	$0.28
1959	1.38	1.27	0.89	1.14	1.32	0.96	0.88	0.85
1964	1.59	2.22	1.29	2.00	1.68	1.02	1.28	1.01
1969	0.86	1.20	0.51	1.06	1.83	0.87	0.84	0.80
1974	0.52	0.92	0.59	1.07	1.50	0.89	1.00	1.01
1975	0.78	1.14	0.61	0.19	1.65	0.45	0.77	0.68
1976	0.98	1.42	0.57	0.48	1.58	0.47	0.87	0.78

Table XII (Continued)

Year	Hamm	Ballantine	Lucky	Olympia	Carling	National	Coors
1949	$0.37	$0.24	n.a.				
1954	0.85	0.73	$0.71				
1959	1.25	0.67	1.02	$1.10	$0.87	$1.37	$0.08
1964	1.59	1.29	0.53	0.73	1.98	0.70	0.07
1969	0.91	0.79	0.22	0.96	0.94	1.38	0.16
1974	1.48	--	n.a.	0.90	0.11	1.34	0.13
1975	--	--	n.a.	1.04	1.03	--	0.10
1976	--	--	n.a.	0.89	1.09	--	0.15

Note: These advertising expenditures are for major media only, including television, radio, newspapers, magazines, and outdoor. The figures for 1971 are five media only, whereas the figures for other years are for six media. The difference is that advertising in newspapers is omitted, but it appears that this is a very small bias.

Sources: Advertising Age (September 29, 1958); Advertising Age (January 2, 1967); Advertising Age (September 20, 1971); Brewing Industry Survey (1974); Advertising Age (November 3, 1975); Advertising Age (December 27, 1976); Advertising Age (September 26, 1977).

TABLE XIII

Total Advertising Expenditures of Leading Brewers
(totals in $1,000's, per-barrel figures in dollars)

		1974	1975	1976	1977
A-B:	Total	31,807	41,958	49,021	79,171
	Per Barrel	0.94	1.20	1.69	2.16
Coors:	Total	ca 6,000[1]	7,102	9.831	--
	Per Barrel	0.49	0.59	0.72	--
Heileman:	Total	7,700	7,800	10,600	--
	Per Barrel	1.79	1.72	2.03	--
Miller:	Total[2]	ca 27,000	ca 39,000	--	--
	Per Barrel	ca 3.00	3.00	--	--
Olympia:	Total	--	10,524	10,780	14,543
	Per Barrel	--	1.89	1.69	2.13
Pabst:	Total	--	20,281	20,533	26,799
	Per Barrel	--	1.29	1.21	1.67
Schlitz:	Total	29,644	33,527	43,626	55,080
	Per Barrel	1.34	1.44	1.81	2.49

[1] Business Week, November 8, 1976, p. 58.

[2] Estimate of Wertheim and Co., reported in Business Week, November 8, 1976, p. 58.

Source: SEC Forms 10K, except as noted.

and concentration is 'parabolic'. That is, up to a certain point increasing advertising efforts will lead to an increase in concentration, but after a certain point concentration will be sufficiently high to enable firms tacitly to collude on the amount of advertising. Collusion may then lead to a reduction in advertising levels, so that, from the industry point of view, the leading firms will be at their joint profit-maximizing levels.

Greer's analysis of the effect of advertising is mediated by his failure to take into account the significant increase in the minimum efficient plant size. He hypothesizes this as being a cause behind the increase in concentration, relying on an estimate made by Horowitz and Horowitz that a minimum efficient size plant is one which produces just 100,000 barrels per year.[26]

Furthermore, economists generally are divided on the real ability of firms to collude on advertising. Stigler argues that collusion to restrict advertising is more likely to be successful than collusion on prices since advertising is visible and, hence, it is less costly to detect cheating on any tacit or explicit agreement.[27] Other economists argue that it is more difficult to collude on advertising than on prices. For example, Simon argues that since firms are always changing their advertising programs, it is difficult to monitor actual advertising efforts and thus difficult to detect when cheating occurs.[28] Scherer also believes that it is generally difficult for firms in an industry to hold advertising expenditures at their joint profit-maximizing level. Because it takes time to react to a change

in a competitor's advertising program, firms may initiate their own new campaign with the results that an advertising race or competition is begun.[29]

However, a new theory based on collusion is not needed to explain trends in beer advertising. The same theoretical considerations which explain the start of the escalation process also shed light on why it subsided and may be on the rise again. According to Ackoff and Emshoff, the need for a larger market as a result of increasing sales economies coincided with the development of television, which led to an increase in a firm's brand recognition because it reduced the cost of achieving a given level of awareness. Thus, firms increased their advertising investments until a desired new level of brand recognition was attained. Once created, the level of advertising decreased since all that was necessary was a level sufficient to maintain the awareness levels which is affected by such variables as consumer mobility, forgetting, changes in tastes and advertising by rivals, and changes in market conditions such as new brands or new methods of marketing.[30]

Therefore, by the mid-1960s firms, having achieved their higher level of brand recognition, decided accordingly to reduce their future levels of advertising. This explanation is consistent with Anheuser-Busch's decision to cut back on advertising. Studies of the effects of advertising on sales which the firm commissioned gave results supporting this view.[31]

The process of rivalry between the national brewers and the major regional brewers can be put into perspective by data on firm advertising costs (in major media) per barrel which appear in Table XII. From 1949 to 1950, 6 of the 8 firms for which data are available increased their level of advertising expenditures per barrel. From 1950 to 1951, 8 of the 11 firms for which data exist increased their per barrel advertising expenditures. This parallel escalation of advertising efforts generally persisted until the mid-1960s when a parallel de-escalation of advertising began. The de-escalation continued through 1974. Since then Anheuser-Busch, Schlitz, Coors, and Heileman have sharply increased their advertising expenditures per barrel.

Of interest is a comparison of the level of advertising intensity of the three brewers, Anheuser-Busch, Schlitz, and Pabst, with the growth in their relative shares of national barrelage. In 1951, their shares were respectively, 6.5 percent, 6.8 percent, and 4.7 percent (see Table XIV). In 1975 they were 23.8 percent, 15.5 percent and 10.6 percent. Clearly, Anheuser-Busch has grown the most and yet its advertising cost per barrel has been almost consistently below that of Schlitz. The data in Table XII are not consistent with the proposition that success is correlated with high advertising expenditures per barrel.

Recently, a new process of rivalry has begun among major national brewers, this time at the instigation of Miller Brewing. In the past 10 years, Miller has generally maintained the highest levels

TABLE XIV

Shares of National Barrelage, by Brewer: 1951-77

Year	Anheuser-Busch	Schlitz	Pabst	Falstaff	Miller	Schaefer	Stroh
1951	6.53	6.82	4.71	2.74	3.12	3.10	0.76
1952	7.11	7.48	4.77	2.68	3.59	2.83	0.97
1953	7.80	6.11	4.94	3.38	2.48	2.95	1.32
1954	7.00	6.49	4.20	3.95	2.52	3.23	1.74
1955	6.61	6.81	4.12	4.30	2.58	3.15	2.53
1956	6.90	6.99	3.66	4.55	2.64	3.20	3.19
1957	7.25	7.14	3.20	5.09	2.75	3.48	3.06
1958	8.27	6.98	3.02	5.33	2.63	3.30	2.28
1959	9.20	6.69	5.14	5.42	2.69	3.48	2.41
1960	9.64	6.48	5.00	5.59	2.70	3.64	2.36
1961	9.56	6.48	5.86	5.75	3.03	3.65	2.28
1962	9.91	7.53	6.41	5.83	3.08	3.97	2.27
1963	10.02	8.35	7.11	5.92	3.11	4.12	2.18
1964	10.51	8.37	7.55	5.99	3.33	4.31	2.32
1965	11.79	8.57	8.20	6.27	3.65	4.34	2.39
1966	13.02	9.08	8.86	6.71	3.98	4.39	2.34
1967	14.52	9.71	9.39	6.20	4.28	4.53	2.25
1968	16.51	10.68	9.79	5.65	4.35	4.53	2.28
1969	16.09	11.79	8.79	5.33	4.46	4.69	2.53
1970	18.19	12.40	8.04	4.51	4.22	4.73	2.68
1971	18.76	12.89	9.10	3.96	4.01	4.32	2.84
1972	19.88	14.17	9.44	4.62	4.05	4.13	3.17
1973	21.30	15.21	9.36	4.28	4.93	3.91	3.31
1974	23.17	15.58	9.83	3.99	6.23	3.30	3.00
1975	23.81	15.73	10.59	3.11	8.69	3.97	3.47
1976	19.31	16.06	11.32	2.63	12.23	3.52	3.83
1977	23.35	14.10	10.20	N.A.	15.43	2.99	3.90

Table XIV (Continued)

Year	Schmidt	Hamm	Ballantine	Lucky (General)	Olympia	Carling	National	Coors
1951	1.36	1.37	4.76	1.48				
1952	1.43	1.63	4.76	1.74				
1953	1.60	1.96	4.51	2.02				
1954	1.82	2.70	4.46	2.13				
1955	2.32	3.91	4.65	2.15				
1956	2.18	3.91	4.67	2.31		3.52	1.31	
1957	2.08	4.00	4.72	2.45	1.20	3.73	1.54	
1958	1.97	4.02	4.78	2.68	1.48	4.18	1.53	
1959	1.98	4.05	4.94	2.49	1.61	5.04	1.51	
1960	2.05	4.44	5.02	2.47	1.70	5.48	1.54	
1961	2.08	4.17	5.07	2.51	1.76	5.66	1.54	
1962	2.05	4.08	4.98	2.37	1.91	5.88	1.53	
1963	2.06	4.08	4.77	2.22	2.31	6.06	1.49	
1964	2.23	3.78	4.48	1.80	2.20	5.85	1.73	
1965	2.36	3.82	4.22	1.66	2.37	5.24	1.87	
1966	2.47	4.04	3.62	1.68	2.55	4.89	1.93	
1967	2.49	4.03	3.35	1.60	2.68	4.58	1.95	
1968	2.53	3.87	2.78	1.36	2.76	4.51	1.92	4.68
1969	2.51	3.60	2.51	1.12	2.88	4.68	1.91	5.34
1970	2.49	3.31	2.04	0.92	2.77	4.10	1.85	5.85
1971	2.44	2.85	1.72	1.10	2.39	3.50	1.70	6.58
1972	2.39	2.95	0.22	1.16	2.49	3.15	1.61	7.33
1973	2.51	2.32	--[2]	0.95	2.59	2.49	1.57	7.80
1974	2.40	2.13	--	--	2.96	2.34[4]	1.45	8.59
1975	2.25	--[1]	--	--	3.75	3.28[4]	--	8.07
1976	2.26	--	--	--	4.23	2.87	--	9.08
1977	2.28	--	--	--	4.35[3]	2.77	--	8.17

Table XIV (Continued)

[1]Acquired by Olympia.

[2]Acquired by Falstaff.

[3]Includes Lone Star.

[4]Includes National.

Source: Advertising Age. 1976 and 1977 data are calculated from Modern Brewery Age, Feb. 14, 1977 and Feb. 13, 1978, and do not include imports.

of advertising per barrel in the industry, but its share of national barrelage never exceeded 5 percent until 1974. In the early 1970's Phillip Morris replaced Miller's management and successfully revised its High Life advertising campaign. In 1975 Miller finally found a successful method of promoting a low calorie beer, Lite, spending heavily, around $6.00 per barrel, to introduce it nationwide.[32] Lite's success was not attributable simply to heavy advertising, however.

Low calorie beers, such as Gablinger's, had been promoted in the past with a notable lack of success. The problem was that dieters are generally not people who drink a lot of beer. Also, big beer drinkers tend to resent the implication that they might be getting fat. Miller discovered that many big beer drinkers are young or middle-aged men who are sports fans and who have or have had dreams of athletic prowess. In advertising Lite, Miller relied on retired athletes renowned not just for strength and ferocity, but also for speed and agility. The message was that one can drink a lot of Lite and still be fast, not that you should drink Lite because you are getting fat. One could say that Lite found a new market segment, but it is perhaps more accurate to say that Miller found a better way to tap an existing market segment.[33]

By 1975 Schlitz, and to a lesser extent Anheuser-Busch, were beginning to increase their own advertising expenditures and making plans to enter the low calorie beer market, probably in response not only to Miller's aggressiveness, but also to a general slackening of growth in demand in the face of increasing industry capacity. In 1976

and 1977 both Anheuser-Busch and Schlitz significantly increased their advertising expenditures per barrel (see Table XI). Heavy advertising is not unusual for introduction of new products, and it remains to be seen whether a higher level of advertising expenditure will become an enduring part of the brewing industry.

Another point of interest in Tables X and XI is the very low advertising costs per barrel figures for another major brewer--Coors, a firm which has enjoyed phenomenal success in the brewing industry. Comparison of these figures with the relatively high levels spent by other brewers that have fallen upon hard times point out that there is no magical formula for transforming advertising efforts into sales growth. Nor is intensive advertising or extensive use of television a guarantee of success, though it does seem to have helped some firms, most notably Miller.[34]

Given the lack of a clear and uniform correlation between advertising efforts and success, it is difficult to isolate the effects of advertising. That is, success is a function of much more than selecting the right level of advertising or choosing the proper advertising medium. Other factors surely include prices, real product differences, having made good business decisions, and just plain luck. Note that theoretically, advertising, holding all else equal, can have a positive effect on sales. However, that 'all else' is not in actuality being held equal and hence it is difficult to quantify the effects of advertising by itself. Presumably, the conclusions could be advanced by empirical research utilizing multivariate analysis

and there have been attempts to do just this. Unfortunately, a number of the studies on the effects of advertising have weaknesses which confound their findings.[35] For example, many studies have posited a one-way relationship running from advertising intensity to sales. But as Schmalensee observes, the level of advertising efforts is often a function of sales, and given this, studies based on the assumption of a one-way relationship are subject to bias.[36] Added to all this is the problem that not all advertising messages are equally potent. Some firms have spent a lot on ineffective advertising and as a consequence have benefited little from their expenditures.

When examining the effect of a variable on the retail price of a product, components of the industry are important in determining the ultimate price of the product through both interaction of the individual firms and the industry as a whole. The structure, size, and number of firms may affect the pricing policies within that industry.

The analysis of the brewing industry since the late 1940's has concentrated in four main areas: (1) structural changes in the form of increasing four and eight firm concentration ratios, (2) increasing aggregate consumption, (3) emergence of national brewers encompassing economies of scale via production methods, and (4) price and promotion and their relationships to advertising. Although the concentration ratios have been steadily rising, no firm has held a fully dominant position over the past 20 years. From this analysis, therefore, the conclusion can be drawn that one firm in the industry has no overpowering effect on the pricing structure. In other words,

dimensions of rivalry exist between the firms in the brewing industry.

The emergence of national brands accompanied by large advertising media budgets have built consumer recognition of the advertised brands, enabling the public to readily identify and compare price wherever sold. Because the product is recognizable its approximate price on the market is widely known. In turn the identifiableness of brands by the consumer tends to create maximum prices on widely recognized brands within a market. In addition, an incentive for the retailer to advertise the product at a still lower price and create the impression that his store offers numerous bargains may be present.

However, in areas that prohibit price advertising in the mass media, this normal functioning of the market place is restricted. The retailer is prevented from fully employing his retailing strategy. This prohibition of price advertising from the mass media certainly raises fundamental First Amendment questions concerning the right to advertise truthful, legal products.[37]

ENDNOTES FOR CHAPTER III

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[5]Ibid., p. 17.

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[15]Ibid.

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[17]The Brewing Industry, p. 59.

[18]Alison Masson and Russel C. Parker, Price and Profit Trends in Four Food Manufacturing Industries, Staff Report to the Federal Trade Commission, July, 1975.

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[41]Ibid.

[32]"How Miller Won a Market Slot for Lite Beer," Business Week, October 13, 1975.

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[34]The Brewing Industry, p. 86.

[35]Ferguson, pp. 78-80; Richard Schmalensee, On the Economics of Advertising (Amsterdam: North Holland, 1972).

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CHAPTER IV

METHODOLOGY

Overview of the Methodology

The study used an ad hoc matched pair design to investigate the hypotheses stated in Chapter II. The investigation consisted of comparing the average retail price for domestic beer in markets which allowed price advertising in the mass media and markets which prohibited price advertising in the mass media. The convenience product, domestic beer, was chosen because of its relatively minimal purchasing effort and general frequent and immediate consumption characteristics. Each market was matched on several demographic attributes and were as similar in all respects as possible. Matched market methods were employed because of the regulations regarding sales and promotional methods present throughout the universe of states. By matching the markets via relevant demographic items, it was the goal of the researcher to hold all variables within the markets chosen equal and measure the effect that price advertising of beer in the mass media had on the retail price of beer.

The study also used average prices for domestic beer from A. C. Nielsen Custom Beer Audits over a yearly period to alleviate any seasonal sales patterns and short term promotional or pricing

effects that may have been present. As can be noted from the previous discussion concerning the pricing policies of brewers, competitive pricing among certain brewers in a specific geographical location was a common form of rivalry. Typically, the brewer would reduce his price in a certain market for anywhere from two weeks to six months. In an attempt to neutralize the effects such practices would have on the total market price, the data were gathered over a time period of one year and reported every two months. In effect, any short term price cuts should tend to even out over the long run and reflect the true market price.

Recognizing that by using all brands of domestic beer in each market, brands available in one market might not be available in another. However, since the concern of the study was mainly the effect price advertising in the mass media had on the retail price of beer in each market, the inclusion of only beers available in each market would have biased the results toward either brands that appeared in one or more markets or in all the markets. Brewery economies of scale, varying transportation costs as well as promotional efforts would cause this market-by-market difference. A representative market price was considered a more accurate indicator of the effects of price advertising in each market.

Unit of Analysis

The initial phase of the data collection was the determination of units of analysis. Generally, since the beer offered for sale

in price advertising in the mass media was of the carryout variety, beer sold in kegs, barrels, and similar containers were eliminated from analysis. The most common sizes of beer sold as carryout are: 12 ounce, 16 ounce, and 32 ounce containers. The most popular size is twelve ounce containers, sold individually, in six packs, in twelve packs, and in twenty-four packs (see Table XV). Based on this analysis total twelve ounce cans and bottles were chosen as the unit of analysis, regardless of whether sold in six packs, in twelve packs, or twenty-four packs.

At this point it was also decided to exclude returnable bottles from the analysis for two reasons: (1) the relatively small share of the container production (13.5%), and (2) possible interaction effects the returnable feature might have on the price of beer sold in these containers. For example, the retailer's handling, stocking, and inventory costs for returnable bottles could conceivably affect the price of the beer sold in returnable bottles.

It was decided to obtain a total market price for domestic beer in each geographic market to alleviate any dominance in the market by either one or more brands of beer that might affect the retail pricing structure within the market. Imported beer was excluded because: (1) the small share of the total market occupied by imports, and (2) the relative premium pricing policies associated within that market segment.[1]

TABLE XV

Quantity and Value of Beer Shipments by All Producers (1977)

	Quantity (000)		Value Excluding Excise Tax (million $)
Cans			
12 ounce can	68,967	85%	3,029.6
16 ounce can	8,768	11%	355.6
other sizes	3,070	4%	147.6
Bottles			
Nonreturnable:			
under 12 ounce	4,918	15%	282.1
12 ounce	24,898	74%	1,120.9
32 ounce	3,165	10%	117.9
other	701	1%	26.7
Returnable:			
under 12 ounce	1,849	10%	78.5
12 ounce	13,949	77%	541.8
32 ounce	859	5%	29.1
other	1,282	8%	39.8

Source: The Brewing Industry, Brewers Almanac, 1979, U.S. Brewers Association, Inc., p. 38.

Pretest

Prior to the investigation, a pretest of the problem area was necessary in order to identify any potential problem areas prior to initiation of the study. The following discussion presents the methods of data analysis, findings, and conclusions for the pretest concerning beer price advertising. The general data analysis procedures are discussed initially followed by the findings and conclusions.

The first procedure required was the matching of markets from which to draw the sample. The markets needed to be as similar as possible to allow for the comparison. First, the U.S. Department of Commerce, Bureau of the Census was consulted for demographic comparison. Relevant measures were used to compare the two cities on population, per capita income, and wholesale trade. Major cities in Ohio and Indiana are listed in Table XVI. The next step involved examining the 1977 Census of Wholesale Trade for Ohio and Indiana and specifically the dollar volume of the category--beer, wine, and distilled beverages (see Table XVII). Based on this information, Columbus, Ohio and Indianapolis, Indiana were chosen as the two markets for comparison. The presence of price advertising in the mass media was the independent variable with Columbus being the treatment in which price advertising was absent and Indianapolis the treatment in which it was present.

The next step was to determine the brand that would be used in the comparison. The method of data collection (telephone) limited

TABLE XVI

Demographic Characteristics - 1977

City	Population[a]	Per Capita Income[b]	Manufact. Est.	Whol. Trd. (mil $)
Cincinnati	1,381,196	4,637	2,045	7,318.2
Cleveland	1,966,725	5,138	4,359	10,808.3
Columbus	1,068,514	4,603	1,199	3,207.2
Toledo	778,810	4,743	1,195	2,280.0
Fort Wayne	373,164	4,732	560	1,363.7
Indianapolis	1,138,753	4,837	1,505	5,477.5

[a]data for 1975. [b]data for 1974.

Source: U.S. Department of Commerce, Bureau of the Census; County and City Data Book, 1977.

TABLE XVII

Wholesale Alcohol Dollar Volume
(000)

City	Beer and Ale	Beer, Wine, Distilled
Cincinnati	72,501	NA
Cleveland	156,965	268,708
Columbus	56,791	139,000
Toledo	44,583	71,015
Fort Wayne	NA	39,479
Indianapolis	NA	171,136

Source: 1977 Census of Wholesale Trade.

the actual number of different brands of beer that could be obtained. The criteria of availability in both states was the initial factor. Next, it was decided to examine the market shares of beer brands in each state. Consulting The Brewing Industry,[2] the top brands in each state as well as the surrounding states was determined. The top four brands in Indiana, Michigan, Illinois, and Ohio are listed along with the market shares in Table XVIII.

The next step was to determine the presence of any brewery in either Columbus or Indianapolis. No breweries were found in Indianapolis, but an Anheuser-Busch brewery was located in Columbus. This search for local breweries was undertaken because of the effect upon price the location of a brewery would have upon the price competition within a market.[3] Therefore, Anheuser-Busch products were excluded from the sample. It was then decided to standardize the type of container to cans and the unit of analysis to a six pack of 12 ounce cans.

It was the researcher's desire while comparing the two treatments of price advertising or no price advertising to also examine the results based on the type of outlet selling beer. The marketing literature has documented the existence of different strategies for varying types of retail outlets. For this analysis, the retailers were drawn from the population listed in the Indianapolis and Columbus telephone directory under the heading of: (1) grocery stores, and (2) beer carry-out. This would hopefully provide two distinct categories of retailers reflecting differing marketing and pricing policies.

TABLE XVIII

Beer Market Shares/State - 1977

Indiana	
Pabst	22.1
Stroh	22.2
A-B	14.3
Miller	19.5
Michigan	
Pabst	32.6
Miller	21.0
A-B	19.4
Stroh	11.8
Illinois[a]	
Schlitz	24.0
A-B	23.2
Heileman	11.3
Pabst	10.6
Ohio	
Pabst	20.8
A-B	19.5
Miller	17.8
Stroh	14.2

Source: The Brewing Industry, FTC 1978.

[a]data for 1973.

From each of these two headings in the telephone Yellow Pages, 15 telephone numbers were drawn using a random numbers table. Fifteen were drawn to complete the cell size of 10 for each treatment. Therefore, the total sample for Columbus consisted of twenty retail outlets--ten from the grocery heading and ten from the beer heading. The total sample size was 40.

Each of the stores was called Friday, February 28, 1981 between the times of 2:00 and 4:00 p.m. The question asked was: "What is your price for a six pack of cans for Miller, Pabst, and Strohs?" The price quoted was then entered on a coding sheet.

Next the amount of state tax added to the products at the wholesale level which could affect the retail price was determined. The tax on a six pack of beer in Indiana was 5¢ and the tax in Ohio was 18¢ per six pack. These taxes were then subtracted from the retail price obtained via telephone. The recalculated prices were then used for analysis.

The MSU CYBER 750 and SPSS was used to provide means, standard deviation, and variance for each group. Then an analysis of variance was run to test the difference between the group means. Following a visual inspection of the group means, another post hoc analysis was made after removing the beer carry-out classification. Therefore, the last analysis took place on just the grocery stores in each of the treatments.

Table XIX shows the findings of the pretest that the prices of Miller, Pabst, and Strohs when combined are not different in an

TABLE XIX

Average Beer Prices/State/Outlet
(in $'s)

	sum	mean	sd	var	N
Ohio	48.64	2.43	.114	.013	20
Grocery Store	24.39	2.43	.111	.012	10
Beer Carryout	24.25	2.43	.123	.015	10
Indiana	47.34	2.37	.193	.037	20
Grocery Store	22.81	2.28	.235	.055	10
Beer Carryout	24.53	2.45	.081	.006	10
	95.97	2.39	.159	.026	40

ANOVA Table

Between Groups	.0427	1	.0427
Within Groups	.9537	38	.0251
Total	.9964	39	

F = 1.7008 Sig. = .20

area that allows advertising of the price via the mass media and one in which it is prohibited. An examination of Tables XX through XXII further indicate that there were no differences between the prices of Miller, Pabst, or Stroh individually through the two treatments. Examination by type of outlet revealed a difference between the means of grocery stores by price advertising (Indiana) and no price advertising (Ohio) as shown in Table XXIII.

This pretest of beer pricing led to no clear conclusions. However, it did provide some helpful insight for further analysis. First, a more complete sampling of the brands of beer would be necessary to (1) reflect more the market price of beer, and (2) alleviate any bias regarding the possible competitiveness between specific brands within a market. To do this, a total market price of beer would be necessary containing different brands of beer. Second, a larger sample of outlets within markets would be needed to examine either (1) more locations within a state, or (2) additional states that both prohibited price advertising and states that allowed price advertising in the mass media. This pretest was also valuable in that the research question under investigation seemed to be a viable one and with the above modifications would be successfully completed.

Generally, the findings of the pretest can be summarized as no significant differences between markets that prohibited the price advertising of beer in the mass media and markets that allowed price advertising of beer in the mass media. However, specific post hoc analyses provided insight into where the potential differences might exist.

TABLE XX

Miller by State
(in $'s)

	mean	sd	se	N
Ohio	2.45	.13	.03	20
Indiana	2.39	.197	.04	20

ANOVA Table

Between Groups	.03	1	.03
Within Groups	1.06	38	.03

F = .931 Sig. = .3406

TABLE XXI

Pabst by State

	mean	sd	se	N
Ohio	2.39	.112	.03	20
Indiana	2.31	.201	.05	20

ANOVA Table

	SS	DF	MS
Between Groups	.058	1	.058
Within Groups	1.014	38	.027

F = 2.165 Sig. = .1494

TABLE XXII

Stroh by State

	mean	sd	se	N
Ohio	2.46	.113	.025	20
Indiana	2.39	.198	.044	20

ANOVA Table

	SS	DF	MS
Between Groups	.048	1	.048
Within Groups	.988	38	.026

F = 1.832 Sig. = .1839

TABLE XXIII

Beer Prices by Treatment/Grocery Stores
(in $'s)

	sum	mean	sd	SS	N
Ohio	24.39	2.44	.111	.111	10
Indiana	22.81	2.28	.234	.499	10
Total	47.2	2.36	.197	.736	20

ANOVA Table

Between Groups	.126	1	.1259
Within Groups	.609	18	.0039
Total	.736	19	

F = 3.72 Sig. = .0698

Selection of the Markets

This section presents the procedures used in selection of matched markets for inclusion in the sample. Recognizing the potential effects that size, demographic composition, and other similar characteristics could have on pricing structure and policies, the comparison should be made on markets as similar as possible. Substantial effort was spent on locating the markets that would be used in the study.

In order to test the hypotheses and achieve the purpose of the investigation, it was first necessary to determine which markets restrict price advertising in the mass media. Exhibit 1 lists the states that prohibit price advertising of alcoholic beverages in newspapers and magazines. This list comprised the starting point for determination of markets for use. Since the control of alcoholic beverages is a state-by-state decision, it was next important to determine if other existing regulations were present in these markets that could possibly affect the pricing structure in the markets.

In addition to consulting the United States Brewers Association, Inc. Legal Memo, personal telephone conversations were made to the alcoholic control commissions of each state identified in Exhibit 1 to verify the restrictions. The restrictions in Arkansas were removed as of January 1, 1981. Delaware, New Hampshire, New Jersey, North Carolina, Pennsylvania, and Rhode Island place restrictions on the type of retail outlets allowed to sell packaged beer. Ohio had in

EXHIBIT 1

States Prohibiting Price Advertising of Alcoholic Beverages in Newspapers and Magazines

Arkansas

Delaware

Georgia

Michigan

Minnesota

New Hampshire

New Jersey

North Carolina

Ohio

Pennsylvania

Rhode Island

Source: United States Brewers Association, Inc., Legal Department Memo--Special Information on Advertising, December 1979.

effect a minimum 20% markup over wholesale price for all brewed beverages. Georgia and Minnesota were found to have no other market restrictions except for the prohibition of price advertising. Exhibit 2 provides a summary of the findings. This procedure was done in an attempt to control for the market structures and its effect on pricing policies.

The two broad markets that were chosen for analysis in the advertising restrictive treatment were Minnesota and Georgia. It was then decided to further narrow the markets to facilitate data collection. Within the restrictive markets, the locations chosen for analysis were St. Paul/Minneapolis, Minnesota and Atlanta, Georgia both being major markets within the geographic regions.

The next step was to match non-restrictive markets to the restrictive markets. To accomplish this initially, variables such as population, per capita income, and the wholesale dollar volume of beer, wine, and distilled beverages were employed. Further information was used from A. C. Nielsen's Test Market Profiles 1981 to complete the matching process (see Exhibit 3). Following the accumulation and comparison of the information, Houston and Indianapolis were selected as matching non-restrictive markets. Therefore, the markets to be used to test the hypotheses were:

Restrictive--St. Paul/Minneapolis and Atlanta

Non-restrictive--Houston and Indianapolis

The presence of price advertising in the mass media was the independent variable with St. Paul/Minneapolis and Atlanta being the treatment

EXHIBIT 2

Market Selection Criteria
(restrictive states)

Arkansas	Restrictions removed 1/1/81
Delaware	Restriction as to type of retail outlet allowed to sell packaged beer
Georgia	Acceptable
Michigan	Bottle Law
Minnesota	Acceptable
New Hampshire	Restriction as to type of retail outlet allowed to sell packaged beer
New Jersey	Restriction as to type of retail outlet allowed to sell packaged beer
North Carolina	Restriction as to type of retail outlet allowed to sell packaged beer
Ohio	Minimum 20% markup over wholesale price
Pennsylvania	Restriction as to type of retail outlet allowed to sell packaged beer
Rhode Island	Restriction as to type of retail outlet allowed to sell packaged beer

Source: Telephone conversations with Liquor Control Commission in each of the markets--5/81.

EXHIBIT 3

Market Characteristics

		(restrictive)			(nonrestrictive)			
		Atlanta	St.Paul/Mi.		Houston		Indianapolis	
	%			%		%		%
Population (1975)[a]		1,790,128	2,010,841		2,286,247		1,138,753	
Per Capita Income (1974)[a]		$5,128	$5,206		$5,084		$4,837	
Beer, Wine, & Distilled [b] Wholesale $'s (000)		282,525	299,811		369,863		171,136	
Effective Buying Income (000)		19,205,672	22,042,932		27,983,919		17,487,974	
Effective Buying Income/Hshld		19,763	21,829		23,729		21,468	
Total Retail Sales		11,175,679	12,726,561		16,342,899		9,510,919	
Employed Adult Pop. (1980)	100	985,900	1,107,100	100	970,900	100	925,400	100
Prof & Wh Collar	49	473,900	556,300	50	488,500	50	406,500	44
Bl Collar	39	382,100	354,000	32	388,300	35	377,800	41
Service Wrkrs.	12	114,300	142,200	13	128,400	13	116,100	13
Farm Wrkrs.	2	15,600	54,600	5	15,700	2	25,000	3
Total Population Jan. 81		2,688,800	2,827,700		3,218,200		2,282,200	
Total Adult Pop. Jan. 81	100	1,976,300	2,093,500	100	2,330,400	100	1,686,300	100
Men	47	936,300	1,006,900	48	1,132,500	49	804,900	48
Women	53	1,040,000	1,086,600	52	1,197,900	51	881,400	52
Total Household Jan 81		971,800	1,009,800		1,179,300		814,600	
Age of Head of Hsld.								
Under 35	37	356,700	336,900	33	424,000	36	273,800	34
35-54	34	328,400	319,400	32	421,000	36	266,300	33
55+	30	286,700	353,500	35	334,300	28	274,500	34

EXHIBIT 3 (Continued)

	(restrictive)				(nonrestrictive)			
	Atlanta		St. Paul/Min.		Houston		Indianapolis	
	%			%		%		%
Education of Head of Hsld.								
High School Grad.	29	282,700	492,100	49	301,900	26	431,800	53
College-some	13	124,800	170,800	17	151,300	13	107,500	13
College-grad	14	137,000	170,900	17	160,000	14	116,800	14
Disposable $ Income								
0-4999	13	125,900	105,900	10	123,500	10	86,200	11
5000-9999	13	125,700	125,700	12	122,900	10	93,000	11
10000-14999	16	151,000	124,500	12	135,300	11	109,700	13
15000-19999	16	155,000	156,300	15	153,300	13	133,300	16
20000-24999	14	136,900	162,900	16	159,000	13	128,800	16
25,000+	28	276,600	341,500	34	485,300	41	263,600	32

Sources: [a]U.S. Department of Commerce, Bureau of the Census; County and City Data Book, 1977. Figures represent SMSA Totals.

[b]1977 Census of Wholesale Trade.

Remaining information from Nielsen Test Market Profiles--1981 Designated Market Areas (DMA)

in which price advertising was absent and Houston and Indianapolis the treatment in which it was present.

According to The Brewing Industry, the location of breweries within a market could significantly affect the pricing policies within that market as transportation has been found to be an important element in determination of such policies. The researcher felt that the presence of a sufficiently large brewery in the market could, therefore, affect the price competition present in the market. Consulting Brewers Digest Brewery Directory-1977 yielded locations of three breweries--an Anheuser-Busch brewery in Houston (capacity 2,600,000 barrels per year), a Heilman brewery in St. Paul (capacity 1,500,000 barrels per year), and an Olympia brewery in St. Paul (capacity 3,000,000 barrels per year).

Additional search revealed two breweries located in San Antonio, Texas--Pearl (1,700,000 barrels per year) and Lone Star (1,500,000 barrels per year). It was felt that the relative closeness of these breweries to the Houston market would allow the brewers to compete on a price basis on a level of a brewery located within that market. Therefore, both St. Paul/Minneapolis and Houston were retained in the sample as their similarity was still present.

A measure of the market similarity was necessary in order to rule out the possible differences that market variables might have on the price of beer in markets. To this end, 22 variables were chosen from Exhibit 3. The pairs of two originally matched cities were then compared across these variables by use of correlation techniques.[4]

Therefore, the resulting r^2 would hopefully indicate the similarity between the two sets of variables.

The list of variables, their values, and r^2 values associated with the matched pairs are presented in Table XXIV. The results of this matching show that (1) the Houston and St. Paul/Minneapolis markets are highly similar on the 22 variables (r^2 = .9783), and (2) the Atlanta and Indianapolis markets are highly similar on the variables (r^2 = .9958). From this analysis, the markets appear to be very much alike and comparisons across the markets should indicate the actual effect of presence or absence of price advertising on the retail price of beer.

Retail Outlet Selection and Data Collection

The hypotheses will be tested using information from A. C. Nielsen's In-store Audits for the period of March, 1980 through February, 1981. A. C. Nielsen maintains 75 district field service departments through the U.S. The in-store audits are available across a wide range of retail outlets including food stores, drug stores, and alcoholic beverage outlets. Each retail outlet is visited once a week by a field representative to gather market and brand information including price, inventory, and sales figures. The information is then compiled and summarized every two weeks to one month intervals depending on specific audit criteria. An actual physical count of merchandise in store, including the backroom and basement, is made

TABLE XXIV

Comparisons Between Matched Pairs of Cities

	Atlanta		Indianapolis		St.Paul/Minn.		Houston	
Employed Adult Pop. (1980)	100	985,900	925,400	100	1,107,100	100	970,900	100
Prof & Wh. Collar	48	473,900	406,500	44	556,300	50	488,500	50
Bl Collar	39	382,100	377,800	41	354,000	62	388,300	35
Service Wrkrs.	12	114,300	116,100	13	142,200	13	128,400	13
Farm Wrkrs.	2	15,600	25,000	3	54,600	5	15,700	2
Total Population Jan. 81		2,688,800	2,282,200		2,827,700		3,218,200	
Total Adult Pop. Jan. 81	100	1,976,300	1,686,300	100	2,093,500	100	2,330,400	100
Men	47	936,300	804,900	48	1,006,900	48	1,132,500	49
Women	53	1,040,000	881,400	52	1,086,600	52	1,197,900	51
Total Household Jan. 81		971,800	814,600		1,009,800		1,179,300	
Age of Head of Hsld.								
Under 35	37	356,700	273,800	34	336,900	33	424,000	36
35-54	34	328,400	266,300	33	319,400	32	421,000	36
55+	30	286,700	274,500	34	353,500	35	334,300	28
Education of Head of Hsld.								
High School Grad.	29	282,700	431,800	53	492,100	49	301,900	26
College-some	13	124,800	107,500	13	170,800	17	151,300	13
College-grad	14	137,000	116,800	14	170,900	17	160,000	14
Disposable $ Income								
0-4999	13	125,900	86,200	11	105,900	10	123,500	10
5000-9999	13	125,700	93,000	11	118,700	12	122,900	10
10000-14999	16	151,000	109,700	13	124,500	12	135,300	11
15000-19999	16	155,700	133,300	16	156,300	15	153,300	13
20000-24999	14	136,900	128,800	16	162,900	16	159,000	13
25,000+	28	276,600	263,600	32	341,500	34	485,300	41

Atlanta-Indianapolis r^2 = .9958 St. Paul/Minn.--Houston r^2 = .9783

TABLE XXIV (Continued)

Sources: U.S. Department of Commerce, Bureau of the Census; County and City Data Book, 1977. Figures represent SMSA Totals. 1977 Census of Wholesale Trade.

Remaining information from Nielsen Test Market Profiles--1981. Designated Market Areas (DMA)

as well as returns, credits, and transfers completed during the period. This information is then forwarded to Nielsen field headquarters for final tabulation.

Nielsen's Custom Beer Audit Service provides participating brewers with relevant market information about specific geographic areas. Each audit is tailored to the client's needs and based on the following criteria.

Sample Design. Based on survey findings of the kind of business and/or store size, strata (cells) are defined for the market. Then the number of sample stores required for each cell is determined by optimum allocation procedures. Formulas are developed by Nielsen that indicate the sample for each stratum and will yield the most precise estimate for a particular total size of sample. Cell samples are designed to provide proper geographic and chain organization representation.

Kind of business coverage is tailored to individual market distribution patterns as determined by client specifications or Nielsen survey findings. The objective of measuring the major components of off-premise retail activity may necessitate inclusion of package liquor, grocery, and drug stores for one area while for another market a single outlet type such as grocery stores may be appropriate.

Specific breakdowns for the market chosen for the analysis were as follows:

Houston	40 Grocery Stores	
Indianapolis	22 Grocery Stores	Total 86
	24 Liquor Stores	
Minneapolis/St. Paul	40 Liquor Stores	
Atlanta	25 Grocery Stores	Total 90
	25 Liquor Stores	

The total number of stores included in the sample is 176. The reason no grocery stores were included in St. Paul/Minneapolis sample is the legal restriction allowing only liquor stores to sell beer over 3.2% alcoholic content. Therefore, to allow for comparison across markets, the generic product had to be held constant.

Universe Information. Local or state license lists, Census reports, client account listings and existing Nielsen retail store data were utilized in the design of special surveys conducted to develop sampling and projection control information. Among the key classification data obtained from the survey were kind of business, store size, beer distribution and geographic patterns.

In this case, the survey sample was drawn from licensed lists of specified outlets currently operating in the areas. Each area had its own unique licensing agency, and every effort was made to obtain the proper list. When the list was received, it was cleaned of obviously out-of-scope outlets per store type definition for each area.

Each survey market was visited to determine if it was in-scope and to obtain all pertinent information about the store. By compiling this information, Nielsen was able to develop projection controls and make decisions concerning the disproportionality of the operating sample.

Since each market is different, a unique definition of the Nielsen Alcoholic Beverage Service sample strata exists for each area. Report precision was also increased through the use of optimum allocation, which results in greater representation of larger size outlets. Unique projection factors were used for each cell to produce reports in which all cells are weighted to their true importance.

Once the cell structures for each segment surveyed have been determined, the qualified stores were listed in zip code order and sampled using a random start; the same sampling rate for each cell having been determined by use of the optimum allocation formula. The 'field' was then given this list of stores to be secured along with several alternates, which have similar size, ethnic and geographical characteristics of the specified stores.

Tax Rates. The next step is to determine the amount of state tax added to the product at the wholesale level which could affect the retail price. The Liquor Control Commissions were called to obtain the tax rate. The amount of tax added to 12 ounce containers of beer for each market was:

Atlanta	9.5¢ per 12 ounces
St. Paul/Minneapolis	1.21¢ per 12 ounces
Houston	1.51¢ per 12 ounces
Indianapolis	.88¢ per 12 ounces

These taxes were added together to obtain the total for restrictive (10.71¢) and non-restrictive (2.39¢). The totals were subtracted from the retail prices obtained from Nielsen data before analysis was undertaken.

Data Analysis Procedures. The first hypothesis was tested by using six mean prices of domestic beer in each of the four markets.

> Hypothesis I: There is no difference in the average retail price for a "convenience" product in markets where there is not price advertising in the mass media and in markets where there is price advertising in the mass media.

Therefore, for each treatment twelve means were combined to produce the total for each treatment--restrictive and non-restrictive. The six mean prices were for six different time periods--(1) March/April 1980, (2) May/June 1980, (3) July/August 1980, (4) September/October 1980, (5) November/December 1980, and (6) January/February 1981.

The applicable state and local taxes were then subtracted from these means. The resulting figures were then used for analysis for both bottles and cans. An analysis of variance was then run using each of the files.[5] A summary table was produced and used to complete the analysis of the first hypothesis.

The third hypothesis was tested by using six mean prices for Budweiser, Miller High Life, and Miller Lite in each of the four markets.

> Hypothesis III: There is no difference in the average retail price for a "convenience" product Brand A in markets where there is not price advertising in the mass media and in markets where there is price advertising in the mass media.

For each treatment, twelve means were combined to produce the total for each treatment--price restrictive and non-restrictive. The six mean prices were for the same time periods used in Hypothesis I.

The applicable state and local taxes were then subtracted from these means. The resulting figures for Budweiser, Miller High Life, and Miller Lite were analyzed separately for bottles and cans. An analysis of variance was run.[6] A summary table was produced and used to complete the analysis of Hypothesis III.

The second hypothesis used the variance of domestic beer price over the period March/April 1980 to January/February 1981.

> Hypothesis II. There is no difference in the dispersion of retail prices over time for a "convenience" product in markets where there is not price advertising in the mass media and in markets where there is price advertising in the mass media.

It was tested by use of Cochrans C, this being a measure of difference between variances.[7] A C value significant at the .05 level was used to reject the null hypothesis.

The fourth hypothesis used the variance of Budweiser, Miller High Life, and Miller Lite respectively over the period March/April 1980 to January/February 1981.

> Hypothesis IV. There is no difference in the dispersion of retail prices over time for a "convenience" product Brand A in markets where there is not price advertising in the mass media and in markets where there is price advertising in the mass media.

This hypothesis was tested using Cochrans C and a C value significant at the .05 level was used to reject the null hypothesis.

Statistical Tests. A simple one-way analysis of variance assumes (1) normality, (2) independent random samples, (3) equal

population standard deviations, and (4) the null hypothesis will be that the population means are equal. The test used in analysis of variance involves a comparison of the two separate estimates of population variance rather than means and standard errors. A ratio of the second estimate to the first is calculated. If the null hypothesis is correct, then both estimates will be unbiased and the ratio should be approximately unity.[8]

Cochrans C is a test for homogeneity of variance. It uses the statistic:

$$C = \frac{s^2 \text{ largest}}{s_j^2}$$

The parameters of the sampling distribution of this statistic are K, the number of treatments, and n-1, the degrees of freedom of each of the variances. Since Cochrans C uses more of the information in the sample data compared to other tests for homogeneity of variance, it is generally somewhat more sensitive than other similar tests.[9]

ENDNOTES FOR CHAPTER IV

[1]The Brewing Industry, p. 15.

[2]Ibid.

[3]Ibid.

[4]B. J. Winer, Statistical Principles in Experiment Design, Second Edition, McGraw-Hill, 1971, p. 208.

[5]Norman Hull Nie, C. Hadlai, Jean G. Jenkins, Karin Steinbrenner, and Dale H. Bent, Statistical Package for the Social Sciences, Second Edition, 1975, p. 423.

[6]Ibid.

[7]Nie, p. 423.

[8]Hubert M. Blalock, Jr., Social Statistics, Revised Second Edition, McGraw-Hill Company, 1979, pp. 336-338.

[9]Winer, p. 94.

CHAPTER V

FINDINGS OF THE STUDY

This chapter presents an evaluation of the research hypotheses under investigation in the study. Each hypothesis is restated and evaluated in accordance with the methodology described in Chapter III. In addition, the final section of this chapter presents findings supplementary to those reported in hypothesis testing. The conclusions and implications suggested by the findings are presented in Chapter VI.

Hypothesis I

> There is no difference in the average retail price for a "convenience" product in markets where there is not price advertising in the mass media and in markets where there is price advertising in the mass media.

Average Domestic Beer Price

12 Ounce Can. Table XXV shows that the average price for domestic beer in the restrictive market is 37.03¢ and the average price in the non-restrictive market is 37.28¢. The average price in restrictive markets is .25¢ lower than in the non-restrictive markets. This difference is not significant at the .05 level. This finding did not support the hypothesis.

TABLE XXV

Average Domestic Beer Price by Market (Cans)
(in ¢'s)

	mean	sd	se	var.	min.	max.
Restrictive	37.03	.7012	.2863	.492	35.95	37.8
Non-Restrictive	37.28	.3951	.1613	.156	36.8	37.7
Total	37.16				35.95	37.8

ANOVA Table

Source	DF	SS	MS	F-ratio	F prob.
Between Groups	1	.1776	.1776	.548	.4760
Within Groups	10	3.2389	.3239		
Total	11	3.4165			

Cochrans C .759 P = .234

Kolmogorov-Smirnov D = 1 p > .05

12 Ounce Bottles. Table XXVI shows that the average price for domestic beer in the restrictive market is 40.07¢ and the average price in the non-restrictive markets is 39.63¢. The average price in the non-restrictive markets is .44¢ lower than in the restrictive markets. This difference is not significant at the .05 level. This finding did not support the hypothesis.

Hypothesis II

> There is no difference in the dispersion of retail prices over time for a "convenience" product in markets where there is not price advertising in the mass media and in markets where there is price advertising in the mass media.

Average Domestic Beer Dispersion

12 Ounce Cans. Table XXV shows that the dispersion of retail prices over time for domestic beer in the restrictive market is .492 and the dispersion in the non-restrictive markets is .156. The dispersion in the restrictive markets is .336 greater than the non-restrictive markets. This difference has a Cochrans C value of .759 and is not significant at the .05 level. This finding did not support the hypothesis.

12 Ounce Bottles. Table XXVI shows that the dispersion of retail prices over time for domestic beer in the restrictive market is .761 and the dispersion in the non-restrictive markets is 1.29. The dispersion in the restrictive market is .529 lower than the

TABLE XXVI

Average Domestic Beer Price by Market (Bottles)
(in ¢'s)

	Mean	sd	se	var.	min.	max.
Restrictive	40.07	.8722	.3561	.761	39.2	41.25
Non-Restrictive	39.63	1.136	.4638	1.29	38.8	41.79
Total	39.85				38.8	41.79

ANOVA Table

Source	DF	SS	MS	F ratio	F prob.
Between Groups	1	.5633	.5633	.549	.4757
Within Groups	10	10.2569	1.0257		
Total	11	10.82			

Cochrans C 6292 P = .576

Kolmogorov-Smirnov D = 1 p > .05

non-restrictive markets. This difference has a Cochrans C value of .576 and is not significant at the .05 level. This finding did not support the hypothesis.

Hypothesis III

> There is no difference in the average retail price for a "convenience" product Brand A in markets where there is not price advertising to the mass media and in markets where there is price advertising in the mass media.

Average Budweiser Price

12 Ounce Cans. Table XXVII shows that the average price for Budweiser beer in the restrictive markets is 38.08¢ and the average price in the non-restrictive markets is 38.84¢. The average price in the restrictive market is .76¢ lower than in the restrictive markets. This difference is not significant at the .05 level. This finding did not support the hypothesis.

12 Ounce Bottles. Table XXVIII shows that the average price for Budweiser in the restrictive markets is 39.99¢ and the average price in the non-restrictive markets is 41.37¢. The average price in the restrictive markets is 1.38¢ lower than in the restrictive markets. This difference is not significant at the .05 level. This finding did not support the hypothesis.

Average Miller High Life Prices

12 Ounce Cans. Table XXIX shows that the average price for Miller High Life in the restrictive market is 38.7¢ and the average

TABLE XXVII

Budweiser Price - 3/80-2/81
12 Ounce Cans
(in ¢'s)

	Mean	sd	se	var.	min.	max.
Restrictive	38.08	1.06	.4337	1.13	36.85	39.6
Non-Restrictive	38.84	1.85	.7539	3.41	36.66	42.2
Total	38.46				36.66	42.2

ANOVA Table

Source	DF	SS	MS	F ratio	F prob
Between Groups	1	1.718	1.718	.757	.4047
Within Groups	10	22.692	2.269		
Total	11	24.41			

Cochrans C .7513, P = .25

Kolmogorov-Smirnov D = 2 p > .05

TABLE XXVIII

Budweiser Average Price - 3/80-2/81
12 Ounce Bottles
(in ¢'s)

	Mean	sd	se	var	min	max
Restrictive	39.99	1.42	.579	2.02	37.4	41.4
Non-Restrictive	41.37	2.46	1.000	6.05	38.6	45.39
Total	40.68				37.4	45.39

ANOVA Table

Source	DF	SS	MS	F-ratio	F prob.
Between Groups	1	5.658	5.658	1.403	.2635
Within Groups	10	40.318	4.038		
Total	11	45.976			

Cochrans C .7501 P = .253

Kolmogorov-Smirnov D = 1 p > .05

TABLE XXIX

Miller High Life Average Price - 3/80-2/81
12 Ounce Cans
(in ¢'s)

	Mean	sd	se	var	min	max
Restrictive	38.7	.8931	.3646	.798	37.85	40.3
Non-Restrictive	39.58	1.567	.6397	2.456	38.06	42.49
Total	39.1425				37.85	42.49

ANOVA Table

Source	DF	SS	MS	F ratio	F prob.
Between Groups	1	2.314	2.314	1.423	.2605
Within Groups	10	16.265	1.627		
Total	11	18.579			

Cochrans C .7548 P = .243

Kolmogorov-Smirnov D = 3 p > .05

price in the non-restrictive markets is 39.58¢. The average price in the restrictive markets if .88¢ lower than in the restrictive markets. This difference is not significant at the .05 level. This finding did not support the hypothesis.

12 Ounce Bottles. Table XXX shows that the average price for Miller High Life in the restrictive markets is 39.89¢ and the average price in the non-restrictive markets is 39.96¢. The average price in the restrictive markets is .07¢ lower than in the non-restrictive markets. This difference is not significant at the .05 level. This finding did not support the hypothesis.

Average Miller Lite Prices

12 Ounce Cans. Table XXXI shows that the average price for Miller Lite in the restrictive markets is 39.29¢ and the average price in the non-restrictive markets is 39.37¢. The average price in the restrictive market is .08¢ lower than in the non-restrictive markets. This difference is not significant at the .05 level. This finding did not support the hypothesis.

12 Ounce Bottles. Table XXXII shows that the average price for Miller Lite beer in the restrictive markets is 40.24¢ and the average price in the non-restrictive markets is 40.62¢. The average price in the restrictive market is .38¢ lower than in the non-restrictive markets. This difference is not significant at the .05 level. This finding did not support the hypothesis.

TABLE XXX

Miller High Life Average Price - 3/80-2/81
12 Ounce Bottles
(in ¢'s)

	mean	sd	se	var	min.	max.
Restrictive	39.89	.669	.273	.447	39.15	41.1
Non-Restrictive	39.96	1.12	.458	1.258	38.66	41.8
Total	39.92				38.66	41.8

ANOVA Table

Source	DF	SS	MS	F ratio	F prob.
Between Groups	1	.0127	.0127	.015	.9054
Within Groups	10	8.5284	.8528		
Total	11	8.5411			

Cochrans C	.7377	P = .281
Kilmogorov-Smirnov	D = 2	p > .05

TABLE XXXI

Miller Lite Average Price - 3/80-2/81
12 Ounce Cans
(in ¢'s)

	mean	sd	se	var	min	max
Restrictive	39.29	.476	.1943	.226	38.55	39.9
Non-Restrictive	39.37	1.08	.4422	1.17	37.7	40.99
Total	39.32				37.7	40.99

ANOVA Table

Source	DF	SS	MS	F ratio	F prob.
Between Groups	1	.0161	.0161	.023	.8823
Within Groups	10	6.99	.699		
Total	11	7.015			

Cochrans C .8382 P = .095

Kolmogorov-Smirnov D = 4 p > .05

TABLE XXXII

Miller Lite Average Price - 3/80-2/81
12 Ounce Bottles
(in ¢'s)

	mean	sd	se	var	min.	max.
Restrictive	40.24	.895	.365	.800	38.95	41.35
Non-Restrictive	40.62	1.341	.5475	1.800	38.56	42.69
Total	40.43				38.56	42.69

ANOVA Table

Source	DF	SS	MS	F ratio	F prob.
Between Groups	1	.4294	.4294	.33	.5781
Within Groups	10	12.9953	1.2995		
Total	11	13.4247			

Cochrans C .6920 P = .395

Kolmogorov-Smirnov D = 2 p > .05

Hypothesis IV

> There is no difference in the dispersion of retail prices over time for a "convenience" product Brand A in markets where there is not price advertising in the mass media and in markets where there is price advertising in the mass media.

Budweiser Retail Price Dispersion

12 Ounce Cans. Table XXVII shows that the dispersion of price over time for Budweiser beer in the restrictive markets is 1.13 and the dispersion of prices in the non-restrictive markets is 3.41. The dispersion of prices in the restrictive market is 2.28 lower than the non-restrictive markets. This difference has a Cochrans C value of .7513 and is not significant at the .05 level. This finding did not support the hypothesis.

12 Ounce Bottles. Table XXVIII shows that the dispersion of prices over time for Budweiser beer in the restrictive market is 2.02 and the dispersion of prices in the non-restrictive markets is 6.05. The dispersion of prices in the non-restrictive markets is 4.03 lower than the non-restrictive markets. This difference has a Cochrans C value of .7501 and is not significant at the .05 level. This finding did not support the hypothesis.

Miller High Life Retail Price Dispersion

12 Ounce Cans. Table XXIX shows that the dispersion of prices over time for Miller High Life beer in the restrictive market is .798 and the dispersion of prices in the non-restrictive markets

is 2.456. The dispersion of prices in the restrictive markets is 1.658 lower than the non-restrictive markets. This difference has a Cochrans C value of .7501 and is not significant at the .05 level. This finding did not support the hypothesis.

12 Ounce Bottles. Table XXX shows that the dispersion of prices over time for Miller High Life beer in the restrictive markets is .447 and the dispersion of prices in the non-restrictive markets is 1.258. The dispersion of prices in the restrictive markets is .881 lower than the non-restrictive markets. This difference has a Cochrans C value of .7377 and is not significant at the .05 level. This finding did not support the hypothesis.

Miller Lite Retail Price Dispersion

12 Ounce Cans. Table XXXI shows that the dispersion of prices over time for Miller Lite beer in the restrictive markets is .226 and the dispersion of prices in the non-restrictive markets is .226 and the dispersion of prices in the non-restrictive markets is 1.17. The dispersion of prices in the restrictive markets is .994 lower than the non-restrictive markets. This difference has a Cochrans C value of .8382 and is not significant at the .05 level. This finding did not support the hypothesis.

12 Ounce Bottles. Table XXXII shows that the dispersion of prices over time for Miller Lite beer in the restrictive markets is .8 and the dispersion of prices in the non-restrictive markets is 1.8.

The dispersion of prices in the restrictive markets is 1.0 lower than the non-restrictive markets. This difference has a Cochrans C value of .692 and is not significant at the .05 level. This finding did not support the hypothesis.

Supplementary Findings

In addition to findings presented directly relating to the hypotheses of the study, additional analysis was undertaken to test the relationships presented in the information processing perspective concerning the effect of price advertising on convenience product prices. From an analysis of the relationships presented in information processing, the prohibition of price advertising for a convenience product should have no effect on the price of the product compared to markets in which price advertising is permitted. Therefore, the price of a convenience product should remain the same regardless of the presence or absence of price advertising in the mass media.

A Kilmogorov-Smirnov two-sample goodness of fit test was used to test this hypothesis.[1] A D value significant at .05 level was used to reject the null hypothesis that prices are not the same.

Tables XXV, XXVI, XXVII, XXVIII, XXIX, XXX, XXXI, and XXXII indicate the calculated D values and significance levels. In each case, the D value was not significant at the .05 level. This, therefore, indicates the prices are not significantly different.

ENDNOTE FOR CHAPTER V

[1]Sidney Siegel, Nonparametric Statistics for the Behavioral Sciences, McGraw-Hill Book Company, 1956, p. 127.

CHAPTER VI

CONCLUSIONS AND IMPLICATIONS

This chapter is divided into four sections. The first section indicates the conclusions suggested by the study. In the second section, the implications of the findings concerning the theoretical perspectives are discussed. The third section presents a discussion of the assumptions and limitations of the study and the final section describes several areas which warrant further research.

Conclusions

Hypotheses. With respect to Hypothesis I, the findings led to the following conclusions: The null hypothesis was not rejected based on the results of average market price of a convenience item. With respect to Hypothesis II, findings led to the following conclusions: The null hypothesis was not rejected based on the results of average market price dispersion over time for a convenience item. With respect to Hypothesis III, the findings led to the following conclusions: The null hypothesis was not rejected based on the results of average market price of a convenience item, Brand A. With respect to Hypothesis IV, the findings led to the following conclusions: The null hypothesis was not rejected based on the results of average market price dispersion over time for a convenience item, Brand A.

The conclusions can be summarized as follows: (1) The presence of price advertising via the mass media for a convenience product had no effect on the price of the convenience product within that market compared to the price for the convenience product within a market that prohibited price advertising via the mass media. (2) The presence of price advertising via the mass media had no effect on the price dispersion over time for a convenience product within that market compared to the price dispersion over time for a convenience product within a market that prohibited price advertising via the mass media.

Implications

The findings and conclusions of this study indicate several useful implications to the theoretical perspectives presented as well as the recent empirical work. The price and dispersion of price over time for a convenience product--domestic beer--is unaffected by the presence or absence of price advertising in the mass media within a market.

When examined in light of the advertising information theory, this finding generally could be explained by the fact that when a product is relatively inexpensive, the consumer's cost of search outweighs any savings associated with search. In the case in which the product characteristics are those of either a shopping or specialty good, empirical work has demonstrated that the presence of price

advertising in a market has generally lowered the price of the product. However, when the product exhibits characteristics of a convenience good, the presence or absence of price advertising has no effect on the price of the product.

Applying these findings to the relationships presented in the information processing perspective reveals several interesting implications. First, considering the multiattribute nature of products expressed in this theory, these findings indicate that price appears to be an attribute that has little importance for a convenience product--domestic beer. The importance of price advertising in relation to the product type, therefore, may play an important role. With beer exhibiting characteristics associated with a convenience good, price inclusion in advertisements is of little value to the consumer. Perhaps location or hours of operation of the retail outlet might be more salient attributes in the consumer's purchase decision for the product. Recognizing a certain amount of homogeneity in retail sales outlets within a market brought on by regulation, emphasis on divergent store policies in regard to location and hours of operation may be more important components of the advertising message.

Second, the consumer's use of internal memory as described in the information processing perspective may also be an important reason why price advertising has no effect on the price of convenience products. The consumer may have sufficient information stored in memory without even activating his external search process to arrive at a purchase decision. Research has shown that if a consumer is

satisfied with his choice and the interpurchase time is relatively short, which would be the case in convenience products, the consumer may never engage in the external search process. Instead, he may rely on previous experience in the form of stored information concerning brand, location, and price to make his decision.

Third, the nature of the user's segment may be an important element in the information processing perspective as well as the advertising market power theory. With approximately 30% of the beer drinkers consuming 70% of the beer sold, perhaps the heavy user is insensitive to price. Because of the emphasis of national advertising on brand promotion, de-emphasizing price, the attribute that has been emphasized and is now salient to the consumer is brand image.

For example, in a case study of two beer drinkers, the heavy drinker was found to be highly brand loyal while the light beer drinker was found to be more price sensitive.[1] This finding was seen to vary somewhat with the setting in which the product was consumed. When consumed in a non-social setting, the light beer consumer's sensitivity to price increases. However, when consumed in a social setting the brand of beer chosen was most critical. This, therefore, may point to the importance image promotion plays in these social settings.

Assumptions and Limitations

This study used an ad hoc matched pair design to examine the effect of price advertising on the retail price of a convenience

product. The nature of the experimental design is limited concerning the generalization of the results to the population from which the original groups were drawn and to additional product types.[2]

The brands of beer examined was allowed to vary according to availability in each market. Ideally, comparison of markets which had the same brands of beer would have been preferred; however, such conditions were not possible.

The research project used the average price for domestic beer in each market as the relative measure of the effect of price advertising. It was assumed that this average price accurately reflected the true market price for beer within that geographic area. Furthermore, no attempt was made to determine the amount a consumer would spend in each area on beer. Therefore, while the results showed no difference in mean market prices between treatments, an analysis of consumer purchasing habits would reveal segments of the market and their respective consumption habits.

Areas for Future Research

The present investigation suggested five areas which should provide meaningful avenues for future advertising research. These general areas are briefly described along with suggestions for improving the present study.

First, an analysis at the functional level concerning determination of the consumer's evoked set would provide the attributes on which the product is evaluated and the salience of each attribute. Through this information, a more accurate prediction and understanding of the systems effect of price advertising could be ascertained. As price increases in importance in the consumer's evaluation of the attributes and salience of those attributes, the more of a role price advertising is likely to play.

Furthermore, an analysis from the consumer perspective would also provide information concerning the use of external search function. Perhaps, only internal search is used and information stored in memory would be sufficient for certain classes of products. With information obtained from the consumer's perspective, an accurate prediction and increased understanding of the aggregate would emerge.

Second, the analysis of price within a market in the previous empirical studies concerning the effect of price advertising on the price of products has been measured by consumer purchase instead of the market price of the product. This would be helpful in isolating segments of the consumers using particular products and consumption trends.

Third, in conjunction with the measurement of price actually paid for the product from consumer purchasing records, the type of retail outlets could be noted. This would be beneficial in determining if economies of scale were present in the marketplace. As suggested by Steiner, large discount stores may use the product as a

'loss leader'.[3] Furthermore, analysis of this type would determine if in fact the large discount stores selling at lower price than convenience stores actually return higher profits with lower prices because of the volume created.

Fourth, research concerning the brands of beer that are most or least affected by price advertising would be helpful. Through this type of analysis additional insight would be provided into the relationships between price sensitivity and advertising.

Finally, while the unit of analysis in this study was 12 ounce cans and non-returnable bottles sold singly, in six packs, twelve packs, and cases, future research could determine which methods of packaging would be most sensitive to pricing promotions. Perhaps an analysis based on each of these categories of packaging would be helpful in determining if there are differences between geographical areas across package types. Typically, retail price promotions can be noticed on six packs, twelve packs, and cases. These suggested areas should provide further insight into the effect of price advertising on the retail price of beer and lead to better understanding and prediction of the effect of price advertising on the price of convenience products.

ENDNOTES FOR CHAPTER VI

[1]Arch G. Woodside and Robert A. Fleck, Jr., "The Case Approach to Understanding Brand Choice," Journal of Advertising Research, Volume 19, Number 2, April, 1979, pp. 23-29.

[2]Benton J. Underwood, Experimental Psychology, Second Edition, (Appleton, Century, Crofts, 1966), p. 125.

[3]Robert L. Steiner, "Does Advertising Lower Consumer Prices?", Journal of Marketing, Volume 37, October, 1973.

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