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COMPETITION AND CONSUMER ALTERNATIVES IN THE AUTOMOBILE INDUSTRY

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FOR DISCUSSION PURPOSES ONLY

BACKGROUND OF THIS PAPER

This article is based on research done at the Bureau of Business Research, Graduate School of Business Administration, University of Michigan, under a grant from the Automobile Manufacturers' Association to support the project on Evolving Competitive Aspects in Major Industries.

Introduction

Economic theory has never been completely consistent in defining "competition." While classical economists viewed it as a force or process, neoclassical economists approached the issue from the point of view of a taxonomy of market structure, with perfect competition being the ideal organization. This dichotomy in approach has never been resolved, and it continues to be reflected in the current debate as to whether public policy should be predicated on behavioral aspects of competition or on structural benchmarks. [1/]

The automobile industry represents an excellent case in which to examine the contrasting views of competition. Some economists [2/] maintain that the industry represents extremely limited competition. They support their view by citing the oligopolistic nature of the industry, a structural criterion which they quantify by citing the high concentration ratio that exists. Industry spokesmen [3/] contend that the industry presents a picture of intensive competition in the behavioral sense. In their view, concentration ratios fail to show the breadth of the competitive challenge which firms face, the extent to which their behavior is controlled by the market, or the extent to which buyers have benefited as a result of the competition which firms face and resultant actions which they have taken.

If the manufacturers' views are correct, it should follow that the behavior of firms in the industry is formulated primarily as a response to the process of consumer choice. In other words, it is consumer perception of choice and alternatives which defines the true nature and extent of competition in the automobile market. Such a definition is much more compatible with a marketing approach than a theoretical economic one, and it is highly relevant to the question of whether competition should be viewed from the standpoint of structure or performance for purposes of consumer welfare deliberations.

It will be argued in this paper that in order to develop a meaningful view of competition in the automobile market there should be a more thorough examination of dynamic buyer demand characteristics and the purchase process itself. Thus, while economists might stop at structure in viewing competition, our approach takes us to the fundamental element of consumer choice. This approach stresses the need for measuring the nature and extent of alternatives which buyers consider in the purchase of automobiles.

Although automobile buyers have been the subject of many commercial surveys and scholarly studies of buying behavior, such studies have not generally been concerned with determining the extent to which consumers perceive competition in the auto market. Consequently, much of the available data do not provide answers to questions we consider important. An important task of this paper will be to show that additional empirical data are needed to establish a better understanding of a dynamic theory of competition.

The Issues

The study of competition in industrial organization theory has always concentrated on the price and output decisions of firms as these decision variables are assumed to be influenced by consumer demand. This has resulted in extensive arguments concerned with the performance evaluation of large firms such as GM, Ford, and Chrysler. The most sensitive issue is the extent to which firms in concentrated industries have been responsive to changing consumer demands. Some critics maintain that the auto industry has been slow to respond to the variety of needs in the market. 4/ Other critics argue that the problem is just the opposite--that resources have been allocated in such a way that there is a proliferation of makes and models in the market place. A popular view of this problem has been expressed by Alvin Toffler:

> The material goods of the future will be many things; but they will not be standardized. We are, in fact, racing toward "overchoice"--the point at which the advantages of diversity and individualization are cancelled by the complexity of the buyer's decision-making process. 5/

To attempt to resolve these issues requires more than debates between persons with differing value judgments and views of how they would like the world to be. It would appear rather logical to determine the extent to which consumers perceive these as important issues requiring drastic changes, such as divestiture or the creation of an omnipotent panel to determine when firms will be allowed to introduce new products.

In a national survey conducted for Newsweek by Lou Harris and Associates, it was reported that consumers viewed the auto industry as being competitive. [6] Critics could easily discount these results, however, because they know the consumer is ignorant. Edward Mason claims that "consumers' ignorance has opened up a wide field of economic opportunity for methods of non-price competition of dubious merit," [7] while Joe Bain has observed that "the automobile buyer's typical state of relative ignorance about the properties of what he buys..." [8] makes him reliant on the manufacturer. Both Mason and Bain would solve these problems by urging antitrust officials to force divestiture of the Big Three firms. There is another proposal, however, that is more consistent with the assumption of consumer ignorance. As proposed by Carl Kaysen [9] and by Richard Barber [10] this proposal is to establish institutions of professional critics who will pass judgment on such matters as whether or not a new car should be introduced.

Needless to say, the auto industry opposes such drastic actions. Aside from their vested financial interests, manufacturers maintain a different view toward the extent to which the consumer is ignorant. Their point is that the market is composed of smaller, distinct submarkets. They maintain that they attempt to offer distinct products to these various market segments and that their responses have been rapid and extensive.

Market Segments

It would appear that the auto manufacturers as well as their critics are interested in a policy of market segmentation. Certainly this has been an important concept in economic and marketing literature since the historic article by Wendell Smith. [11/] The problem of determining market segments has existed in marketing for many years. [12/] Perhaps the problem is one of measurement--both of the extent to which different segments exist and how well products satisfy the desires of these segments. Some persons feel this problem has been due to the difficulty of separating cause and effect, or independent and dependent variables. The most popular approach to segmentation has been to use demographic characteristics in an attempt to split the market along the lines of socio-economic variables to explain differences in buyer behavior. While there have been cases where demographic variables are important determinants of behavior, the basic problem remains that demographic variables are essentially proxy variables for behavioral determinants. [13/] Thus, while many firms use the demographic approach exclusively and somewhat ritualistically, there is evidence that it is of limited usefulness as a basis for a segmentation strategy. [14/]

A different approach in analyzing consumer behavior is to start with the behavior process itself. [15/] This approach to segmentation, which is designed to establish the causal factors in buyer behavior, has been suggested by analysts such as Yankelovich [16/] and Haley. Haley proposes the concept of benefit segmentation, which he explains as follows:

> Each segment is identified by the benefits it is seeking. However, it is the total configuration of the benefits sought which differentiates one segment from another, rather than the fact that one segment is seeking one particular benefit. Individual benefits are likely to have appeal for several segments. In fact, the research that has been done thus far suggests that most people would like as many benefits as possible. However, the relative importance they attach to individual benefits can differ importantly and, accordingly, can be used as an effective lever in segmenting markets. 17/

The fact that buyers of products can be distinguished on the basis of the weightings that they apply to various criteria has always been recognized in marketing theory even though it presents challenging measurement problems. Although most economists have recognized this concept in their discussions, they have not, until recently, attempted to incorporate it into a theory of demand. The writings of Lancaster, Lipsey and Rosenbluth, 18/ and Palda 19/ reflect this new view. Lancaster's comment on the relationship of this benefit concept (he simply calls it product characteristics) to traditional demand theory is particularly encouraging:

> Many economists take a puritanical view of commodity differentiation since their theory has induced them to believe that it is some single characteristic of a commodity that is relevant to consumer decisions (that is, automobiles are only for transportation), so that commodity variants are regarded as wicked tricks to trap the uninitiated into buying unwanted trimmings. This is not, of course, a correct deduction even from conventional analysis, properly used, but is manifestly incorrect when account is taken of multiple characteristics. 20/

If economists came to accept this view, they would begin to recognize a need to ask consumers how they perceive products rather than merely assuming that they know the important characteristics which are, or certainly should be, used by consumers when making purchase decisions. Economists should be aware of some of the difficulties that arise when attempting to do this. These will be discussed below in the context of market share analysis.

Consumer Surveys

The problems that presently exist in the analysis of market shares and competitive behavior are due primarily to relying solely on the product definitions of automobile manufacturers. The product classifications usually used are subcompact, compact, intermediate, etc., and there is a tendency to treat each of these separately when industry competition is discussed. This tendency is illustrated by the recent work of Ralph Miller, a GM analyst:

> It is reasonable to suppose that what is important to a customer is in part a function of the type of car he is considering. A customer debating between a Volkswagen and a Toyota will weigh the attributes differently than a person debating between a Cadillac and an Imperial. For these reasons we have looked at the different car classes separately. We have developed importance weights for the foreign class, the sport compact class, the regular compact class, the intermediate class, the regular class, the high price class, and the high price sporty class. [21/]

While Miller's analytical approach leads to what he calls a competitive ranking within an automobile class, it explicitly ignores buyer consideration of models in different classes. In so doing, his approach is also incapable of measuring the trade-offs which buyers make in terms of product characteristics as they compare models in different classes. This buyer choice behavior is one of the fundamental elements of our view of competition. In our approach, the extent to which buyers consider more than a single class of automobiles in their purchase deliberations is an important input to the measurement of competition in the market. To the extent that multiple classes are considered, competition is correspondingly broadened.

It is exactly this phenomenon which is so frequently overlooked in discussions of competition that center on the use of manufacturers' product classes. That it exists is supported by earlier work done by Miller, in which he states:

> General Motors faces a wide heterogeneous mass market. We also offer a wide array of products, but it would be foolish to pretend that we (or our competitors) offer exactly the product most desired by each and every single consumer. In fact, the constraints of manufacturing and distribution dictate that virtually every sale is going to involve some compromise on the part of the consumer. The marketing task is to array our products in such a fashion that these compromises are held to a minimum. 22/

Using General Motors data Miller showed that in 1968 less than 18 per cent of the persons considering a compact car would choose a compact car of another make, if they could not make a suitable deal--trade-in and price concession--on their choice of make. 23/ Thus, from these data it appears that more than 80 per cent of the competition for a compact car, which is a specific product class, came from outside the product class. It is the competition implied by this factor which is one of the areas of major interest in our approach.

Even when phenomena such as this are recognized, the problem of utilizing manufacturers' classifications remains complicated when we examine makes and models within the industry and try to use these as the basis for summarizing market survey results.

Table 1 illustrates this complication. Different sources use different classification schemes, both in terms of the number of classes (nine in the case of Newsweek; five in the case of Ford and U. S. News and World Report) and the descriptive basis for categorizing the classes. Certain makes are not treated consistently among the different classification schemes. More importantly, the underlying dimensions or logic of the classification schemes are not readily apparent in a consistent sense. While the classifications represented in Table 1 are based primarily on price, the underlying dimensions also have elements of value and style such as those indicated in Yankelovich's analysis. In fact, it appears that price classes--the most accepted view of market segmentation for automobiles--really serve as a method of categorization of products which represents certain "bundles" or product attributes.

Table 2 summarizes the relative importance of product and purchase attributes for each product class from the buyer's point of view. This table attempts to uncover the benefit configuration referred

TABLE 1

Comparative Classifications of Automobiles

Newsweek Magazine Buyer Survey *		U. S. News and World Report +		Ford Motor Company ++	
Category 1	Category 2	Compact and Intermediate	Low Priced	Popular Value	Stylish Economy
Chevy II	Buick Special	Barracuda	Chevrolet	Galaxie 500	Ford Custom 500
Chevrolet Corvair	Chevrolet Chevelle	Buick Special	Dodge	Torino 500	Torino 6
Dodge Dart	Dodge Coronet	Camaro	Ford Custom	Torino V-8	Mustang 6
Ford Falcon	Ford Custom	Chevelle	Ford LTD	Mustang V-8	Maverick
Plymouth Valient	Ford Fairlane	Chevy II	Ford Station Wagon		Pinto
Rambler American	Mercury Comet	Corvair	Galaxie		
	Oldsmobile F-85	Cougar	Plymouth		
	Plymouth Belvedere	Dart			
	Pontiac Tempest	F-85			
	Rebel	Fairlane			
		Falcon			
		Firebird			
		Javelin			
		Montego			
		Mustang			
		Rambler			
		Rambler American			
		Tempest			
		Valient			

*Source: Newsweek, 1967 Census of New Car Buyers (no publication information given).

+ Market Research Division, Advertising Dept., U. S. News and World Report, The Buyers of New 1968 Automobiles. (Princeton, New Jersey, U. S. News and World Report, 1968).

++ Ford Motor Company, Full Line Merchandising 1971 (no publication information given).

TABLE 2

Reasons for Selection of Make Purchased (by Category)
Rated "Very Important"
(Percentage in 1968)

Reason	High-Priced	Luxury-Sports	Medium-Priced	Low-Priced	Compacts and Intermediate
Performance, handling, roadability	83.4	83.1	78.1	66.3	69.9
Quality of workmanship	77.6	64.0	59.4	56.3	63.0
Reputation for quality construction	75.0	52.1	58.2	50.1	52.6
Interior roominess and comfort	66.2	44.6	57.0	48.6	32.2
Dealer's ability to service car	64.3	47.5	56.2	56.1	52.8
Dealer's reputation and interest	52.9	45.9	52.2	50.5	49.3
Warranty	52.6	41.3	45.4	49.7	45.1
Safety features	51.0	35.5	37.5	37.2	39.9
Styling	50.3	63.6	42.6	37.4	50.7
Re-sale value	49.4	39.3	44.2	49.3	38.6
Owned some make before	48.7	28.9	28.7	28.7	NA
Power, pick-up, and get-away	29.9	35.1	27.5	22.2	26.1
Price or deal made	24.7	33.1	42.2	54.5	44.7
Economy of operation	13.3	8.7	22.3	33.7	36.3
Credit terms	2.9	5.4	5.6	11.2	14.2

Source: Market Research Division, Advertising Dept., U.S. News and World Report, The Buyers of New 1968 Automobiles (Princeton, New Jersey: U.S. News and World Report, 1968).

to earlier. It also illustrates the difficulty involved in categorically defining product benefits. A number of these benefits appear to be similar enough to be related in buyers' minds. On the other hand, a concept such as economy of operation may have varying specific meanings and components for individual buyers; a concept such as performance almost certainly does. What is needed here is a collection of data geared more specifically to discovering just what buyer benefits are.

Again, we must remember that relative rankings are most significant in Table 2, since it can be assumed that buyers generally prefer more of everything in terms of product attributes. We have attempted to use only "very important" ratings by buyers in order to get the clearest picture of relative significance. This does, however, raise the question of how data such as these should be interpreted. As in any similar case, the assumption as to the scaling involved is critical. How individual buyers conceive of the difference between "important" and "very important" has a bearing on the significance attributed to the data.

In Table 2, we note that "room" varies in importance when we compare high-priced with compact buyers, with considerations of "operating economy," "style," and other factors having a differential effect on buyers of different classes. Thus, data such as these are useful in developing an understanding of buyer perception of product classes and related benefits. What would be even more useful would be data which indicated the related trade-offs which buyers make in selecting one class for purchase relative to another.

Tables 3 and 4 attempt to show the extent to which buyers consider different classes of cars in the purchase decision. Table 3 shows the price classes which they consider, while Table 4 shows specific makes. In both cases, the size of the data cells along the main diagonal supports the assumption that individuals remain in a single class in the purchase decision. These data, however, are open to criticism. There is no way of knowing what operational definition of "consideration" was employed in the studies. Is "consideration" to be conceptualized as an internal cognitive process on the part of the buyer, or should we insist on some overt action (e. g., visit to dealer) as a manifestation of serious buyer consideration? We lean toward the latter approach, and in our data collection we will stipulate behavioral criteria for the measurement of "consideration."

Conclusion

We have attempted to examine certain constructs of market segmentation in order to arrive at a classification scheme for automobiles that is consistent from both the viewpoint of marketing strategy and economic analysis. Such a classification scheme would be useful in examining issues of market behavior and the extent of competition in the automobile market. Unfortunately, however, we are not completely satisfied with these attempts to establish market segment classifications. The problems of defining market segments are similar to the problems of trying to distinguish between market segmentation and product differentiation as operational strategies. Such attempts have not been particularly helpful in either economics or marketing theory.

TABLE 3 +

Shopping by Price Group
(Based on cars bought new in 1960-61)

	Price groups of cars bought new in 1960-61					
	Total	Imports	Compacts	Low	Medium	High
	100.0%	100.0%	100.0%	100.0%	100.0%	---
Considered more than one make	47.8%	49.2%	54.4%	40.7%	48.7%	---
Price group of other makes considered	47.8=100.0	49.2=100.0	54.4=100.0	40.7=100.0	48.7=100.0	---
Imports	11.3	81.0	9.7	0.8	4.5	---
Compacts	38.4	49.2	73.1	24.1	11.0	---
Low	39.4	14.3	31.7	62.9	32.9	---
Medium	33.1	---	8.8	44.-	69.7	---
High	6.1	---	0.4	1.2	21.3	---
Other	6.6	---	6.2	3.3	3.9	---
TOTAL	134.9*	144.5*	129.9*	136.4*	143.3*	---
Did not consider any other make	52.2%	50.8%	45.6%	59.3%	51.3%	---

*Totals more than 100.0% because some people shopped more than one price group.

+ This table should be read as follows: Among 1960-61 new car buyers, 47.8% considered more than one make. Of those buyers considering more than one make, 11.3% shopped Imports, 38.4% Compacts, etc.

Source: Alfred Politz Research, Inc., for Look Magazine, The 1961 National Automobile and Tire Survey (no publication information given.)

TABLE 4

Make of New Car Bought by Prospects who Considered Each Make

New Car Buyers who Considered Buying this Make of Car +	New Car Bought by Persons who Considered Car on the Left										
	Chev.	Ford	Plym.	Pont.	Dodg.	Olds.	Buick	Chry.	Merc.	Ramb.	Volk.
Chevrolet	68%	8%	2%	3%	5%	2%	3%	*	1%	4%	2%
Ford	10	66	4	2	6	1	1	*	6	2	1
Plymouth	10	9	60	2	10	3	*	*	*	2	*
Pontiac	3	3	*	79	3	2	4	*	*	5	*
Dodge	7	6	7	4	63	4	*	2	*	3	2
Oldsmobile	7	6	2	8	3	59	7	3	6	*	*
Buick	7	6	3	6	4	7	59	2	3	2	*
Chrysler	5	5	8	10	5	5	5	51	*	*	*
Mercury	3	6	*	*	9	*	3	*	78	*	*
Rambler	5	5	3	2	4	*	3	*	2	73	*
Volkswagen	6	*	*	*	3	*	*	*	*	*	77

+ For each motor company listed on the left, the base figure for 100% includes buyers of that make who did not consider buying any other car.

Source: The Pittsburgh Press and Pittsburgh Post-Gazette, *A Study of Automobile Purchase* (Pittsburgh, Pa.: The Pittsburgh Press Company, 1968).

*Less than one percent.

We would prefer the concept of "consumer choice." This is known to have meaning in the study of consumer behavior and should be considered more explicitly in economic theory dealing with consumer welfare. Such an approach is consistent with the attempts of manufacturers to minimize the compromises in the purchase decision. This would also be consistent with economic theory. The measure of the extent to which segmentation goals have been achieved can then be measured by the extent to which consumers actively consider alternatives.

It seems that one possible avenue of future research would involve the evolution of a strictly buyer-oriented classification system. Thus, instead of fitting buyers into automobile classifications imposed by the analyst or manufacturer who use criteria such as price, size, or style, a classification based on buyer perception of similarities and differences among automobiles would be employed. Such a classification would be more consistent with our whole approach of defining competition from a viewpoint of buyer choice.

The success of research efforts along the lines discussed here would be an important step toward solving the basic conflicts between business and its critics. Such research would facilitate the development of a better understanding of the extent to which the market encourages more rational decision making on the part of consumers, and the determination of how this is influenced by industry structure.

FOOTNOTES

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20/ Kelvin J. Lancaster, "A New Approach to Consumer Theory," Journal of Political Economy, LXXIV (April, 1966), 150.

21/ Ralph L. Miller, slides and notes to an untitled speech which was never given, Nov., 1970. (Type written.)

22/ Ralph L. Miller, "Operations Research Models for Marketing Automobiles" (address to the Industrial Mathematics Society, Oct. 17, 1968), p. 6.

23/ *Ibid.*, p. 25.