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STRATEGIC GROUPS, ENTRY BARRIERS AND  
COMPETITIVE BEHAVIOR IN  
GROCERY RETAILING

by

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WP-81

September 1984

Testimony presented at hearings held by the Federal Trade Commission, Atlanta, Georgia, October 3, 1984.

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Strategic Groups, Entry Barriers and  
Competitive Behavior in Grocery Retailing

by

Bruce W. Marion

I am pleased to testify today concerning competition in grocery retailing. As a long-time observer of this industry, I am encouraged by the action of the Federal Trade Commission in conducting these fact finding hearings. Grocery retailing is a vital industry that affects the welfare of nearly all consumers and its thousands of employees, and can also have considerable influence over the farmers and food manufacturers that serve as suppliers.

I gather that the Commission staff is particularly interested in the growth of warehouse stores in this industry -- and the effects of these stores on competition. If the trade press is correct, these hearings were triggered, at least in part, by allegations of predatory pricing either by or in response to warehouse stores. In order to more clearly place this matter in perspective, I want to focus on two issues that are critical to any assessment of competitive behavior in food retailing:

- 1) the strategic groups or submarkets within food retailing that may constitute product markets for antitrust purposes.
- 2) entry conditions into the various strategic groups in food retailing.

I should acknowledge that I served as a pro bono expert economist for the government in challenges of two food retailing mergers: National Tea's acquisition of Applebaums, and Grand Union's acquisition of Colonial Stores. However, I testify today at the request of no one. What I have to say is based upon 25 years of studying and for several years working with this industry.

### Strategic Groups and Submarkets in Food Retailing

Those that labor on the marketing faculties of our schools of business have long recognized that businesses "segment" their markets and attempt to "position" their product-service-price offers so as to appeal to certain market segments. The existence of submarkets has also been recognized by the courts [Brown Shoe v. United States, 370 U.S. 294, 324 (1962); United States v. Philadelphia National Bank, 374 U.S. 321, 356-57 (1963); United States v. Hughes Tool Co., 415 F. Sup. 637, 641 (C.D. Cal. 1976)]. In recent years, academicians interested in business strategic planning or in industrial organization have attempted to develop a more comprehensive theoretical framework. Michael Porter has written extensively on the theory of strategic groups and mobility barriers. Together with his Harvard colleagues Richard Caves and Michael Spence, he has examined the implications of strategic groups and mobility barriers for strategic behavior. Although his concepts have received somewhat less attention in the economics profession than the theory of contestable markets proposed modestly by William Baumol as "an uprising in the theory of industry structure," Porter's theoretical framework holds much greater promise, in my opinion.

Porter's basic notion is relatively simple. In any given industry, there is continuum of firms with different strategies regarding products, prices and services. Some may appeal to customers desiring low prices; others may appeal to customers seeking high quality or services. In addition, firms are often clustered in groups along the continuum of strategies, hence the term strategic groups. Firms compete most directly with other firms in their "strategic group", and less directly with firms in other strategic groups. Strategic groups that are sufficiently

"distant" from one another are only indirect competitors; for antitrust purposes, they are in separate product markets. Porter and his colleagues also propose the notion of mobility barriers -- that is the extent to which barriers prevent the movement of firms from one strategic group to another. He argues that all firms strive to drive other firms out of their strategic territory and to create sustainable mobility barriers. Where there exist strategic groups with high mobility barriers, industry structure may be misleading. As Porter states: "An industry need not be concentrated for a particular strategic group to have enormous market power" (1981, p. 455-56).

Research that we are currently doing at the University of Wisconsin on strategic groups in food manufacturing is thus far consistent with Porter's contention. Let me give one example. In the ready-to-eat breakfast cereal industry, there are two primary strategic groups: manufacturers of advertised brands and manufacturers of private label and generic cereals. Advertised brands accounted for 95% of RTE cereal poundage in 1983, according to SAMI, and is clearly the dominant strategic group.

Of the top six RTE cereal manufacturers, which held 97% of the market in 1970 (Federal Trade Commission, 1981a, p. 66), Purina is the only one that makes private label cereals according to retail buyers interviewed. Trade estimates place Purina's share of the private label market at 75 to 90 percent. Since a minimum efficient size plant in cereal manufacturing required 2 to 3 percent of industry output in 1977 (estimate from Scherer (1982) updated to 1977 sales), there was only room for 2 MES plants in the private label strategic group. Therefore, economies of scale barriers into the private label submarket have been fairly high for firms outside the cereal industry. Mobility barriers are relatively low, however. That is, branded manufacturers could enter the private label market relatively

easily. However, the other major RTE cereal manufacturers have exhibited a definite disdain for the private label business (Federal Trade Commission, 1981a).

The advertised brand strategic group is highly concentrated and has emphasized advertising and product proliferation. Price competition has generally been avoided. Entry barriers into this strategic group are very high; profits are likewise high.

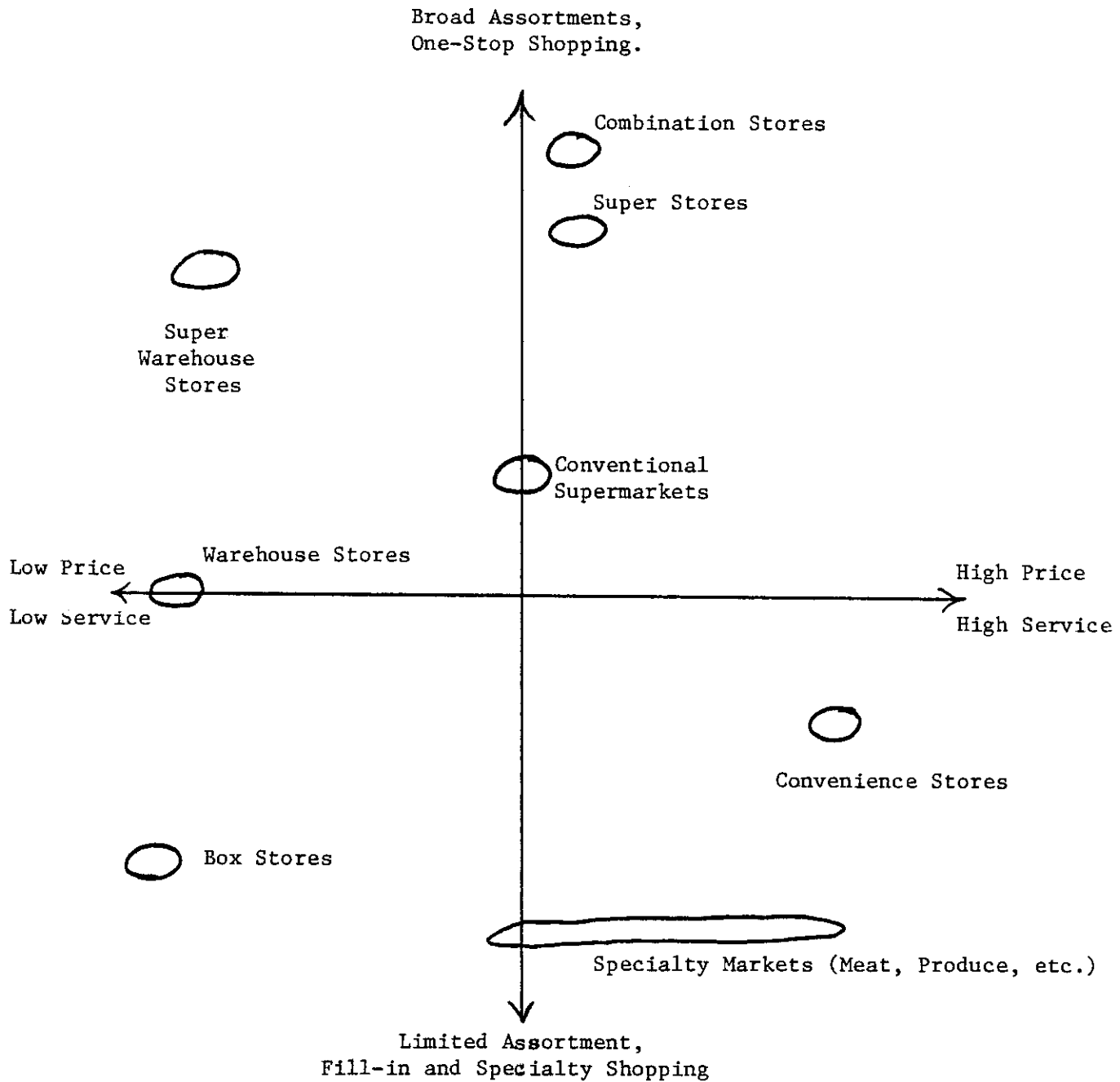
Thus, we have a situation where the oligopolistic advertised brand strategic group places a price umbrella over private label cereals. And, since Purina largely has the private label market to itself, profits are apparently very good (Federal Trade Commission, 1981a, p. 238; also interviews with industry personnel). Although it is conventional wisdom that competition in private label manufacturing is extremely keen, this is not always so.

#### Strategic Groups in Food Retailing

For illustrative purposes, I have identified eight retail store formats in Figure 1, classified by price and service levels and by breadth of product assortment. While stores might be classified by other attributes, these three are probably the most important in trying to visualize the "space" between different store formats. In general, low price stores have low service and vice versa, but this is not always the case. Included in "service" is the pleasantness of the shopping environment as well as customer services such as carry-out, check cashing, special departments, etc.

Each store format can be viewed as a strategic group. For each to survive in a market, there must be a segment of customers who prefer that

Exhibit II. Strategic Groups in Food Retailing



cluster of products, services and prices. For example, box stores have met with limited success in most markets and may not survive as a strategic group.

All these strategic groups compete to some degree with each other if they are located in the same geographic market. I can buy ground coffee at a conventional supermarket, a warehouse store, a convenience store, or at a specialized coffee-tea shop. However, does that mean they are in the same product market for economic analysis or for antitrust purposes?

The Department of Justice has proposed procedures for identifying relevant product markets in its 1982 Merger Guidelines.<sup>1</sup> The latter states: "...the Department seeks to identify a group of products such that a hypothetical firm that was the only present and future seller of those products could raise price profitably" (U.S. Dept. of Justice, p. 5). Thus, the Department's approach attempts to include all close substitutes within its market boundaries, but to exclude all poor substitutes. In trying to determine whether various products are close substitutes and hence should be included in the same market, the Guidelines state that particular weight will be given to the following factors:

- 1) Evidence of buyers' perceptions that the products are or are not substitutes, particularly if those buyers have shifted purchases between the products in response to changes in relative price or other competitive variables;

- 2) Similarities or differences between the products in customary usage, design, physical composition and other technical characteristics;

- 3) Similarities or differences in the price movements of the products over a period of years; and



4) Evidence of sellers' perceptions that the products are or are not substitutes, particularly if business decisions have been based on those perceptions.

In the case of food retailing, the "product" is the product-service-price bundle provided by various retail stores. Thus, the question becomes whether consumers perceive the "bundles" of various types of stores as close substitutes. For consumers, are convenience stores or meat markets close substitutes for supermarkets? Are warehouse stores close substitutes for superstores?

I believe most people would agree that specialty meat, bakery or confectionery stores are in separate markets from the remaining store formats in Figure 1. I suspect that there would also be general agreement that combination stores and super stores belong in the same product market. At least for today, I will argue that all five store formats on or above the horizontal line in Figure 1 compete directly enough to be placed in the same product market. All provide the breadth of assortment and price levels to compete for the major shopping trips of consumers. All would be classified by the trade under the general umbrella of "supermarkets."

In my judgement, however, convenience stores (and other small grocery stores) are in a distinct product submarket and do not compete directly with the five formats classified as supermarkets. The Administrative Law Judge in the Grand Union case (Federal Trade Commission, 1981c) concluded:

"The record in this case is replete with evidence that supermarkets, by and large, compete with other supermarkets..." (p. 204).

"Convenience stores are not generally price-checked by supermarket firm operators. They carry little, if any, produce and meat, and indeed, average only 500-3000 items. Supermarkets stock from 8-12,000 items. Convenience stores generally have only one employee per shift and they average sales of from \$1-3 per customer, as compared to the \$11-15 average sale for supermarkets. Convenience stores are generally not considered in supermarket expansions and store location

studies. Basically, the only competition they offer to supermarkets is in terms of hours of operation" (p. 204).

"The record evidence shows that the gross margins of supermarkets are 15-20% as opposed to 30% for non-supermarket grocery firms such as convenience stores" (p. 200).

"Grand Union's and Colonial's supermarkets averaged over \$3 million dollars in annual sales per store, while convenience stores averaged from \$140 thousand to \$325 thousand per store" (p. 201).

The Justice Department procedures can be used to help judge whether the supermarket submarket -- as I have defined it -- is an appropriate product market. Here we ask ourselves if one firm was the only present (and potential) operator of conventional supermarkets, super stores, warehouse stores, etc. in Madison, Wisconsin or Washington, D.C., could that firm profitably increase its prices? For example, could that firm raise prices by 2 or 3 percent and increase profits? Or, would customers transfer enough patronage to convenience stores, small grocery stores and specialty markets that the supermarket firm's profits would decline? Assuming supermarket gross margins of 20% of sales, a 2 percent price increase, would represent a 10% increase in gross margins. Since there would be no apparent change in costs, sales would have to decline by roughly 10 percent for no change to occur in profits. Given the much higher gross margin of convenience stores and the one-stop shopping appeal of supermarkets, I doubt that the supermarket chain in this example would lose much sales as a result of the price increase. The commission staff may want to solicit the opinions of some industry representatives on the likely outcome of such a hypothetical scenario.

The correct definition of relevant product markets and submarkets is obviously critical in antitrust cases. It is also critical in attempting to study structure-performance relations. For example, entry into the convenience store submarket is much easier than into the supermarket

submarket. Compared to supermarkets, desirable convenience store sites are more numerous, initial investment is much less, advertising is relatively unimportant, and zone pricing by incumbent retailers to deter entry is highly unlikely. In short, entry conditions into the convenience store submarket provide no indication of entry conditions into the supermarket submarket, and vice versa.

Measures of concentration may also be misleading if the appropriate product market is not used. Although I have argued for the use of supermarket concentration ratios for some time, these were not available for SMSAs until the 1972 and 1977 Censuses. Thus, I previously have used the trends in grocery store concentrations as a proxy for the trends in supermarket concentration. Data for 1972 and 1977 reveal that this was a hazardous assumption. In SMSAs in which supermarkets held less than 65 percent of all grocery store sales, supermarket four-firm concentration ratios declined, on average, by 1.9 percentage points during this five year period while grocery store CR4 increased 3.5 percent (Table 1).

For 240 SMSAs that were comparable in the two years, average four-firm supermarket concentration (SCR4) increased from 69.6 to 70.9; average four-firm grocery store concentration (CR4) increased from 52.6 to 56.1, the sharpest increase in the 20 year period for which we have data. The steady increase in grocery store CR4 since 1958 may reflect the shift in sales from small stores to supermarkets. Concentration within the supermarket submarket may have been relatively stable over these years. This may partially explain why the profits of supermarket companies exhibited no upward trend from the mid 1960s to 1981 -- a period during which grocery store CR4 steadily increased. During 1982-1984, net profits after taxes as a percent of sales for 22 large public chains jumped to a new plateau

Table 1. Change in Supermarket and Grocery Store Concentration in SMSAs by the Percent of Grocery Store Sales Accounted for by Supermarkets.

% of Grocery Store Sales Held by Supermarkets	Nr. of SMSAs	Average Change in SCR4, 1972-77	Average Change in SCR4, 1972-77
Less than 65	43	- 1.9	+ 3.5
65 < 75	77	+ 2.3	+ 4.5
75 < 85	101	+ 1.8	+ 2.8
≥ 85	19	+ 3.0	+ 3.5
Total	240	+ 1.4	+ 3.5

Source: Marion, Parker and Handy.

(Figure 2). Interestingly, this was a period when warehouse stores and super warehouse stores introduced keen price competition into several markets. In part, the recent increase in these profit figures is because the large losses sustained by A&P and Food Fair occurred prior to 1982. Still, the trend in profits provides no indication that warehouse stores are eroding the average profits of the largest chains.

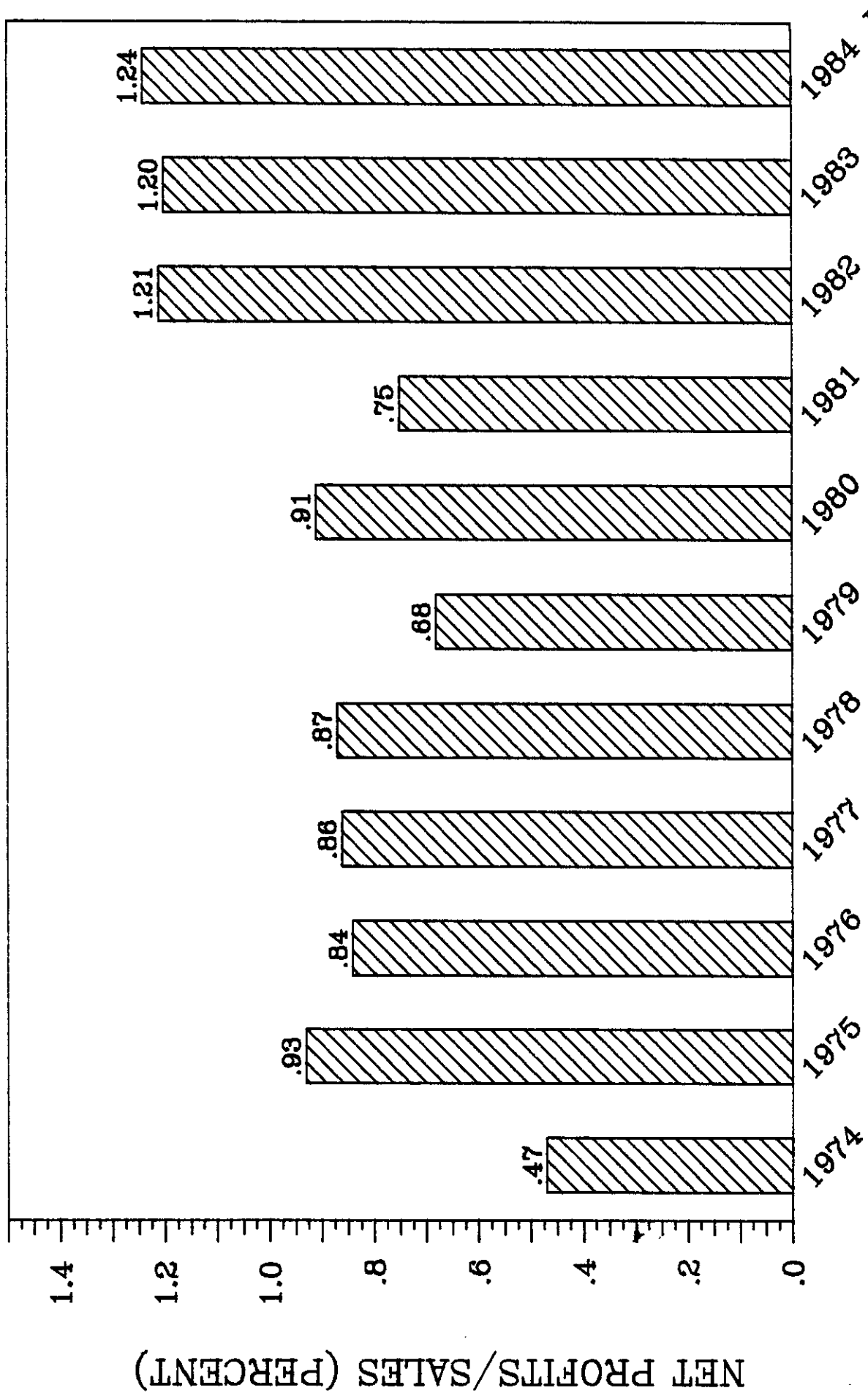
#### Entry Barriers Into Grocery Retailing

"Barriers to entry are the sine qua non of monopoly and oligopoly, for -- sellers have little or no enduring power over price when entry barriers are nonexistent" (Scherer, 1971).

Recently, the theory of contestable markets has placed great emphasis on entry and exit conditions. If we could only do a better job of measuring entry barriers, I suspect we would see an outpouring of Ph.D. dissertations on this aspect of market structure.

The height of entry barriers are measured in terms of the cost or selling price advantages that established firms have relative to the least disadvantaged outside firms. The least disadvantaged "potential entrants" into the supermarket submarket of an SMSA are usually supermarket chains

FIG.2 NET PROFITS AS A PERCENT OF SALES  
22 LARGE SUPERMARKET CHAINS



SOURCE: VALUE LINE JUNE 1, 1984  
E=ESTIMATE. ESTIMATES ARE FROM VALUE LINE  
NOTE: PROFITS ARE NET OF TAXES

that operate a warehouse within about 200 miles and are a "competitive factor" in a nearby city.

My previous comments hopefully illustrate the necessity of accurately defining the relevant product market(s) before entry barriers can be properly assessed. I believe it's also helpful to examine entry barriers for the various strategic groups (or store formats) shown in Figure 1. The ease of de novo entry into a strategic group is likely to depend upon the extent to which incumbent firms in that group have fully exploited the market potential. For older strategic groups, such as conventional supermarkets, they have probably gained about as much of the market as they can in most SMSAs. There may be little easily gained sales for a new conventional supermarket.

By contrast, the warehouse and super-warehouse store strategic groups are far short of their market potential in many SMSAs. Apparently a sizeable segment of consumers in some markets prefer these store formats. If allowed to enter, warehouse stores will attract this segment of consumers. At some point, these strategic groups will also achieve their market potential -- at which point, new entry will be more difficult.

Significant new strategic groups emerge only rarely in food retailing. When they do -- as in the case of warehouse and super warehouse stores -- denovo entry into that strategic group may be easier than it is into older strategic groups. Where the new strategic group poses a substantial threat to other strategic groups, entry deterring action can be expected. This is particularly likely when the new strategic group is expected to introduce non-trivial price competition.

Thus, warehouse stores and super warehouse stores represent a sufficiently better "mouse trap" that they have entered some markets with

relative ease. For example, in my home of Madison, Wisconsin, a new Cub super warehouse store reputedly garnered over 10 percent of grocery store sales in its first six months of operation. As the first warehouse store on the west side of Madison, it filled a market vacuum -- an unmet consumer demand. During the last year, another super warehouse store (Woodmans) has been built near Cub. Whereas Cub found entry easy, Woodmans has found it difficult since a significant portion of its sales had to be taken from Cub. With a new strategic group, there are important first mover advantages.

Let me turn my attention now to entry conditions into the supermarket submarket. I will comment particularly on the barriers to de novo entry by conventional supermarkets, superstores and combination stores. The barriers faced by these firms may be similar to the barriers faced by warehouse stores in a few years as they approach their potential.

The Federal Trade Commission, in reversing the Administrative Law Judge's (ALJ's) opinion in the Grand Union case, concluded that grocery retailing was the relevant product market for that case and that entry barriers into grocery retailing are low. As the above discussion indicates, I believe the ALJ in that case was correct in defining the supermarket submarket as the relevant product market. Using this as the relevant market, what evidence would we expect to find if entry barriers are low?

If entry barriers are low into the supermarket submarket, there is no opportunity for sustained monopoly prices or profits. We would expect to find no relationship between market concentration and prices. We would expect to see few instances of predatory behavior; the main incentive for predation is the expectation of future supra competitive prices and profits. These are only possible where significant barriers exist. If entry

barriers are low, we would expect to observe new entry into large SMSAs as often (or more often) as into small SMSAs. We also would expect to see all sizes of firms entering various SMSAs; with low barriers, there are many firms that can successfully hurdle the barriers. Finally, if entry barriers were low, we would expect to see no medium or large SMSAs with persistently high levels of concentration and profits. Economies of scale do not require high levels of concentration except in small markets. With low entry barriers, new entrants would be expected to erode high concentration and profits in medium or large markets.

As I examine the facts, they don't support the above scenario. First -- at least four different studies have found a significant positive relationship between retail food prices and supermarket (or grocery store) concentration (Marion et al 1979; Lamm 1981; Hall, Schmitz and Cothern 1979; Cotterill 1984). The relationship holds both in studies that have examined SMSAs and studies that have examined small cities. The results are consistent with approximately 20 studies of concentration-price relationships in products/services such as gasoline retailing, auto loans, commercial loans, life insurance, drug retailing, and securities. Greer (1984) concludes from these various studies: "...prices and concentration are positively related" (p. 296).

Although Demsetz, Peltzman and others have argued that the positive relationship between concentration and profits in many studies is due to the lower costs not higher prices of firms in concentrated markets, the results of the price studies provide a strong counter case. They also tell us that entry barriers exist in at least some markets.

To what extent do we see predatory behavior in food retailing? My colleague, Willard Mueller, has already testified before this group



concerning the incentives for predation and the standards by which to judge predation. Without getting into the question of what constitutes predation, I do want to comment briefly on zone pricing. I believe there is ample evidence that zone pricing is widely used -- particularly by certain chains -- to deter or limit the success of a new entrant. The basic concept of zone pricing means that it can only be employed by multi-store firms. When used to deter entry, prices are normally dropped in the 2 or 3 stores closest to the new entrant while the remaining stores of the chain maintain normal prices. Because it can be employed very selectively against a firm entering with one, two or three stores, the incumbent chain can cross-subsidize the losses or lower profits from its stores near the new entrant by normal profits from its remaining stores.

The long-run profit incentives for a leading incumbent chain to employ zone pricing to deter new entry are substantial if the new entry is likely to become a competitive "factor in the market". Although Willard Mueller demonstrated the economic incentives for retailers in his testimony, I want to emphasize an additional point: firms with large market shares have a much greater incentive to deter new entry than firms with a small market share. They also have a greater capacity to use zone pricing and cross-subsidization to deter entry.

The following example, based upon the regression results of the Marion, Mueller, et al, study, illustrates the profit incentives for established firms to block a new entrant from becoming established. In the example the entrant is assumed to achieve a moderate 8 percent market share in a market in which the top 4 firms have an initial 70 percent combined share. It is assumed that the market share lost to a new entrant is proportional to the market share of established firms. The size of market

assumed for the example is \$1,000,000,000 of annual grocery store sales which is about the size of Memphis presently or Washington D.C. in the early 1970s.

<u>Market Share of Established Chain</u>		<u>Firm's Profit Rate</u>			Annual Profit Reduction due to entry
before entry	after entry	before entry	after entry	change	
10%	9.2%	1.45%	1.39%	-.06	\$166,000
30%	27.6%	2.94%	2.76%	-.18	\$1,312,000

Under these assumptions, a firm with a 10 percent initial share stands to lose \$166,400 in profits per year if the new entrant gains an 8% market share. However, a firm with an initial share of 30 percent would suffer profit reductions nine times as great. Although this illustration only holds under rather narrow assumptions, it does indicate the strong incentive which an established firm may have to prevent the successful entry of a new firm. The stakes are particularly high for the market leader.

Thus, without dealing with the question of when zone pricing constitutes predation, I conclude that there are strong incentives for the leading firms in a market to deter new entrants through zone pricing (and possibly other actions such as increased advertising and promotions). In addition, zone pricing appears to be frequently used as a response to a new entrant. However, this is a matter that I suspect the Commission staff will want to explore with others appearing at these hearings.

An additional piece of evidence concerning barriers is the extent to which entry is observed in large and small SMSAs, and by large, medium, or small firms. The FTC policy statement on horizontal mergers states:

"evidence of actual entry, especially recent and frequent new entry, is highly probative, as is evidence of failed entry or the absence of entry over long periods of time. Besides mere entry, effective

competition might also depend upon a firm's achieving a certain scale of operation. Evidence of substantial expansion by firms already in an industry, especially non-dominant firms, may persuasively indicate that barriers to larger scale are not high. Conversely, evidence of frequent entry, but on a small scale, without significant expansion by fringe firms, may also suggest the existence of barriers to larger scale" (U.S. Department of Justice, 1982).

Independent operators may be satisfied to enter and operate 1 or 2 stores in certain trading areas. Their entry will affect competition in those areas but will affect competition market-wide only in small cities. When a supermarket chain enters a metropolitan area, however, they are usually interested in gradually penetrating all or most of the market. If they are successful in entering and building market share, they influence competition first in the trading areas directly affected by their stores; at some point as they expand, their competitive influence is sufficient to affect competition at the market level. In the jargon of the trade, they have become a competitive "factor" in the market.

Thus, de novo entry by supermarket chains is of particular interest. In addition, the entry must be "effective" in the sense of developing a sufficient beachhead that it affects competition. The Court held in *Marine Bancorporation* (418 U.S. at 636-37) that for actual potential entrant analysis, the only entry that is significant is that which has a "realistic hope of ultimately producing deconcentration" or of having a "meaningful effect on the economic behavior" of the major market participants.

In most markets, a market share of 5 percent or more is needed to be a competitive "factor," although this may not be true for particularly threatening entrants such as a warehouse store. A major chain that is entering the market may also be a factor. Eugene Walters, President of Commonwealth Foods, testified:

"Anybody the size of Winn Dixie that wants to come into a market, if you do not think that they are a factor in the market, you are making

a crucial mistake. They have the assets and they have the resources the same as any other substantial company to come in. You better consider them, because they are not coming in there for one store" (Federal Trade Commission, 1981b, p. 36).

Time does not permit a comprehensive analysis of "effective" entry activity. However, I have examined the 13 SMSAs included in the Grand Union case. Only de novo entry by supermarket chains between 1975 and 1983 was considered. Table 2 summarizes my findings. Using a 5% market share as the threshold, there were 7 cases of effective entry into the 13 SMSAs in the nine year period. Three firms accounted for the 7 instances: Foodtown (now Food Lion), Albertson and Kroger. All three rank among the 30 largest supermarket chains. In these markets, large chains were clearly best able to overcome the barriers to denovo entry. Only Fayetteville, N.C. had two effective entrants. Seven of the 13 SMSAs had no effective entrants during this period although all but one had ineffective entry. The entry into the Atlanta SMSA is misleading since it involved two BiLo stores on the fringe of this 13 county SMSA. There has been no effective entry into the Atlanta SMSA since Winn Dixie in the late 1950s. Given the relatively high concentration of supermarket sales in this market (SCR4=79 in 1977) and the frequent characterization of Atlanta as a soft market with high prices in the Grand Union case, the lack of effective entry suggests that some type of barrier exists. The Grand Union proceedings provide abundant evidence that entry barriers are particularly high in a large SMSA such as Atlanta.

Finally, if entry barriers are low, why has there been persistently high levels of concentration in many markets? Table 3 indicates the change in concentration that occurred between 1972 and 1977. Although the very highly concentrated SMSAs experienced a slight decline in supermarket

Table 2. Denovo Entry into 13 Southeastern SMSAs, 1975-1983.

SMSA	Census 1977 Grocery Store Sales (mil. \$)	Supermarket <sup>a</sup> Sales as % of Groc. Store Sales 1972	Firms Entering <sup>b</sup>	Year <sup>b</sup>	Market Share <sup>c</sup> 1983	Effec- tive Entry (X)
Atlanta, GA	1,227	70	BiLo	1978	0.8	
Augusta, GA	194	65	Harris Teeter	1977	0	
Charlotte, NC	455	68	Kroger	1978	12	X
Fayetteville, NC	118	54	Food Lion Kroger	1975 1977	15 15	X X
Gainesville, FL	102	72	Albertson	1975	10	X
Greenville-Spartan- burg, SC	397	73	Food Lion	1977	3	
Jacksonville, FL	470	66	Albertson	1975	5	X
Macon, GA	165	60	None			
Newport News-Hampton, VA	228	69	Winn Dixie	1978	3	
Norfolk, VA	481	71	Winn Dixie	1978	3	
Orlando, FL	471	78	Albertson	1975	14	X
Raleigh-Durham, NC	366	65	Food Lion Harris Teeter Food World Lyon	1975 1977 1975 ?	11 4 2 2	X
Richmond, VA	434	76	Winn Dixie	1978	4	

<sup>a</sup> Provided by special tabulation of Bureau of Census and included in Marion et al, 1979, appendix D.

<sup>b</sup> From Complaint Counsel's Answering Brief, In the Matter of Grand Union et al, Atlanta Regional Office, Federal Trade Commission, March 12, 1982, p. 24-25, plus trade magazines, newspapers and directories.

<sup>c</sup> Metro Market Studies, "1984 Grocery Distribution Analysis and Guide," Weston, MA, 1984.

Table 3. Comparison of Four-firm Grocery Store and Supermarket Concentration Figures, 240 SMSAs, 1972 and 1977.

Grocery Store Concentration in 19/2 (CR4)	Nr. of SMSAs	Grocery Store Conc.		Supermarket Conc.	
		Mean CR4 in 1972	Mean CR4 in 1977	Mean CR4 in 1972	Mean CR4 in 1977
< 30	5	27.86	32.20	38.40	41.42
30 < 40	17	35.07	40.02	48.65	51.51
40 < 50	81	44.90	49.71	61.84	64.87
50 < 60	77	54.69	58.05	72.12	73.30
60 < 70	45	65.72	66.02	83.44	82.52
≥ 70	15	74.93	76.89	90.40	88.49
Total	240	52.58	56.09	69.55	70.93

Source: Marion, Parker and Handy.

four-firm concentration (SCR4), the vast majority of the SMSAs had an increase in SCR4.

Why is it that markets such as Washington, D.C. and Denver have had very high levels of concentration for years? Why is it that Kroger has dominated the Cincinnati market for at least the last 20 years? Surely, if entry were easy, there must be other firms whose stores would catch the fancy of Cincinnati, Washington and Denver consumers.

So much for what I consider the "circumstantial" evidence that entry barriers are significant into the supermarket submarket. Let me now comment on five of the most important barriers to effective entry. These are:

- 1) Economies of store size
- 2) Multi-store economies, including advertising
- 3) Capital costs and risk
- 4) Store sites
- 5) Entry forestalling practices by incumbent supermarket chains

Economies of Store Size. Because of the sharp increase in the number of items carried and consumer preference for store features such as service delicatessens and wide aisles, the minimum desired size of supermarkets has steadily increased. Larger stores require large capital expenditures and substantial sales to break even.

Supermarkets averaged \$6 million in annual sales in 1981 (Progressive Grocer, 1982). A city of 25,000 people could support four supermarkets of this size; a small SMSA of 50,000 people could support about eight. Thus, in small cities and SMSAs, a new entrant faces the challenge of taking substantial sales from existing firms (a "displacement" effect). In general, the larger the displacement effect of a new entrant, the stronger the resistance from incumbent firms. Because the average cost curve of supermarkets is sharply downward sloping at low volumes, new entrants are usually at a substantial cost disadvantage unless they are able to achieve the desired store volume. For the new entrant, sales volume is the key to survival.

Research on store level cost functions indicate that capacity utilization is the most important determinant of operating costs (National Commission on Food Marketing (NCFM); Marion et al., p. 135; Mallen and Haberman). Operating costs per dollar of sales exhibit a curvilinear relationship to sales per square foot, dropping sharply at first and gradually levelling off as sales per square foot increase. Store size (in square feet) affects the ability of different types of stores to attract customers, which determines capacity utilization, which affects operating costs. The size of store required varies by store format and the competitive appeal. For example, "barebones" warehouse stores carry a moderate number of items, have restricted perishable departments and can effectively

implement their low price-low amenity strategy in stores that are 10,000 to 20,000 square feet in size. However, superstores and combination stores carry a large number of items (including many non-food items), feature extensive departmentalization and emphasize spacious stores and a pleasant shopping environment. To effectively carry-out this strategy, stores exceeding 30,000 square feet are generally required. Super warehouse stores, such as Cub and Edwards, are often even larger (40,000 to 80,000 square feet). When these stores enter a market, the displacement effect is many times that of a conventional supermarket entrant. Whereas the latter may take \$6 million per year in sales from incumbent firms, some super warehouse stores do \$25 to \$50 million in sales per year.

The displacement effect of a new warehouse store in a relatively small SMSA is documented in the Shoppin' Bag v. Dillon case (U.S. District Court for Colorado, No. 81-Z-1548, (1979)). In March 1979, Shoppin' Bag opened a warehouse store in Pueblo, Colorado. As the first warehouse store in Pueblo, it had little difficulty attracting sales with its substantially lower prices. With annual sales of approximately \$30 million, King Soopers was the market leader in the Pueblo SMSA with a 30 percent market share. Safeway was number two with 27 percent of the market. Assuming no price response by incumbent firms, King Soopers estimated the Shoppin' Bag store would take 14% of their sales, 11% of Safeway's sales and 26% of Albertson's sales. This proved to be a greater sales loss than King Soopers was willing to take. Nine weeks after the Shoppin' Bag store opened, King Soopers lowered prices on thousands of grocery items to meet or beat Shoppin' Bag prices. Shoppin' Bag sales dropped by about one-half, resulting in substantial losses. It was on the verge of closing the store when an FTC investigation led King Soopers to raise its prices.



Multi-Store Economies, Including Advertising. Industry witnesses in the Grand Union case testified that multiple store entry was necessary for a supermarket chain that intended to become a competitive "factor" in an SMSA. The size of the SMSA is positively related to the number of stores necessary for effective entry. William Stewart, a former president of Colonial and former vice president of Grand Union, estimated the number of stores necessary for denovo entry into each of the 13 SMSAs involved in the Grand Union case. "His estimate of the number of conventional supermarkets necessary for profitable entry ranged from a low of two in Fayetteville, North Carolina, to a high of twelve in Atlanta, Georgia ..." (Federal Trade Commission, 1981b). Bert Thomas, President of Winn-Dixie Stores, also provided estimates; the number of stores he considered necessary for successful denovo entry were generally 1/2 to 3/4 those of Stewart.

Multi-store economies accrue from the costs and effects of advertising in medium and large SMSAs. In addition, the reactions of incumbents, such as zone pricing, is better borne by stores entering with multiple stores. In those cases where a new entrant provides a combination of products, prices and services that fill an unmet need in the market, it may have little difficulty attracting customers from established stores. In the normal situation, however, advertising is a major vehicle to attract the sales necessary for an entrant to operate its stores at low unit costs. However, area wide newspaper advertising (or television) is very expensive, particularly in large metropolitan areas. New entrants can expect to spend as much as 5 percent of sales on advertising for their first year(s) in such a market, placing them at a substantial cost disadvantage relative to established firms, which are more likely to spend about 1 percent of sales on advertising. New entrants must rapidly increase store numbers and total

sales if they are to eliminate this cost disadvantage. But, to do so requires taking sales from incumbent firms. Thus, economies of scale in advertising requires new entrants to have a significant displacement effect, particularly in large SMSAs.

In addition, the leading firms in a market can more fully take advantage of advertising allowances offered by manufacturers than fringe firms or new entrants. This accentuates the advertising cost disadvantage faced by entering firms. Alternative advertising media, such as hand bills and direct mail, can be used but are often considered to have less consumer impact per dollar of cost.

The advertising costs and difficulty of quickly building a sufficient sales base over which to spread these costs can be a major reason why regional chains will not attempt to enter a large SMSA. This was the main reason given by the General Manager of Ingles Markets for not attempting to enter Atlanta (Federal Trade Commission, 1981b, p. 40). Grand Union executives indicated that advertising per dollar of sales in their expansion areas (Baltimore and west coast of Florida) were  $2\frac{1}{2}$  times that in areas where Grand Union was established (Federal Trade Commission, 1981b, p. 41).

Capital Costs and Risk. In order to open a new 25,000 to 30,000 square foot supermarket in 1980, between \$500,000 and \$1 million was required to equip and stock the store (Federal Trade Commission, 1981c, p. 216). In addition, supermarket firms must obligate themselves for leases on new stores; this liability is approximately \$3.0 to \$3.5 million per store. Thus, a total of roughly four million dollars per new store is at risk.

Drawing on the estimates of industry members in the Grand Union case, I will assume nine stores are necessary for effective de novo entry into

the Atlanta SMSA core; nine times \$4 million is \$36 million at risk. These are not all sunk costs. If attempted entry is unsuccessful, these commitments have some salvage value. Unfortunately, the barriers to exit were not explored in the Grand Union proceedings. Contestable market theory had not yet arrived on the scene. Perhaps some of the others testifying will be able to provide a ball park estimate of the loss on equipment, merchandise and lease commitments when entry is unsuccessful. The above figures do not include advertising and promotional expenditures incurred during entry. These are sunken costs.

The magnitude of capital costs and investment risk are generally a direct function of the SMSA size. Whereas Atlanta may require an at risk commitment of \$36 million  $\pm$ , Fayetteville or Gainesville may require only \$4 to \$8 million for effective entry.

Store Sites. A major element in attracting sales to a store is a good location. Store sites for supermarkets are mostly made available through developers. The best sites are usually in or adjacent to shopping centers where customer traffic is concentrated. It is a typical practice for developers to sign a supermarket tenant before they attempt to recruit other tenants and often before obtaining financing. The supermarket may be used as a selling point. The leading chain in the market is the most proven traffic builder in that area. New entrants are often uncertain traffic builders and represent substantial risk. If a new entrant fails, leaving its site in the shopping center closed for a time, the entire shopping center will be hurt. Because of this risk, a new entrant able to get a site in a shopping center is likely to pay higher rental costs than the leading chains in the market. Where the new entrant has something unique to offer that has proven highly successful in other markets, the

above may not be true (e.g., a warehouse store in a market without any). However, this is relatively rare.

Entry-Forestalling Practices of Established Chains. Established firms lose sales and profits if a new firm enters the market and becomes established. The seriousness of the perceived threat will largely determine how established firms respond. If the new entrant fills a relatively small niche in the market and is not perceived as a major threat to conventional supermarkets, the response may be relatively mild. However, if established firms perceive the new entrant as a strong threat to their sales, they may attempt to forestall its successful entry or cause it to incur large costs, thereby impeding subsequent expansion. A new entrant is particularly vulnerable to an aggressive competitive response during its entry phase because its stores are on the sharply declining section of their average cost curves. If the established firms can successfully limit an entrant's sales growth in the initial phase, they can impose heavy losses on the entrant.

The costs and benefits to the established firms of undertaking aggressive action are generally related to its market position and the extent to which the entrant is expected to affect its sales. The table on page 15 of this testimony indicates the strong profit incentives incumbents have to deter or limit entry. There are two entry forestalling practices that deserve comment. One is zone pricing, increased advertising and other tactical responses immediately prior to or after a new entrant opens its stores. The second is to prevent access to preferred new sites by building stores ahead of sales. The latter is a general preemptive strategy that is aimed at all new entrants. The former only takes place when a new entrant has one or more sites and has taken definite action to enter the market.

The action taken by incumbents depends upon the strategic group of which the entrant is expected to be a part. In some cases, incumbents may decide store remodellings are a better response than reducing prices. However, increased advertising and promotions and reduced prices are frequent tactics used to counter a new entrant. This is particularly likely in SMSAs with one or more dominant chains. These chains have a strong incentive to deter entry, and can employ zone pricing in stores near the new entrant to force the new entrant to carry low prices and sustain large losses while it tries to attract sales. Multi-store entry by large chains are less likely to be subjected to zone pricing by incumbents because the new entrants have the financial resources to withstand such actions; in addition, incumbents would have to drop prices more broadly in the market and possibly trigger a price war. Occasionally, a price war results from new entry. Bill Saporito describes Kroger's entry into the San Antonio market:

"Like a thunderstorm off the Gulf of Mexico, it rolled in with 14 stores and a warehouse in two years. It was betting an estimated \$100 million that it could take a big bite of the market... Lo and behold, H.E. Butt Grocery Co. the then and present market leader, knew how to play defense Kroger-style. ... (it) matched Kroger new store for new store, price for price, precipitating a price war the like of which the city had never seen. Two smaller chains went to the bottom" (Saporito, p. 80).

Importantly, four years later Kroger only held 11 percent of this market compared to H.E. Butt's market share of 26 percent (Metro Market Studies, 1984).

Entry forestalling tactics of this type raise the cost of entry and when used against a less formidable entrant than Kroger, may very well prevent successful entry (see earlier discussion of Shoppin' Bag's entry into Pueblo). These tactics can also serve an important strategic role in signalling other potential entrants that the incumbent firm greets new

entrants like a grizzly bear. Thus, zone pricing, massive advertising campaigns and other aggressive responses to new entrants may not only be aimed at the entrant in question but intended as warning to future potential entrants (Spence 1981).

Another tactic to forestall entry in the supermarket industry is geographic preemption (Mallen and Haberman). Simply put, this is building stores ahead of sales. Since the growing parts of metropolitan areas are most susceptible to entry, it may be profitable in the long run for a leading firm to build stores in prime locations in anticipation of future population growth. Although substantial losses may be incurred for a year or so, this practice makes new entry more difficult and enables a leading firm to protect its market position.

Large chains can overcome all of these five barriers more easily than small. For example, "Grand Union management, in outlining a Florida West Coast Development Program for 1976-1980, anticipated operating their eighteen stores on the West Coast of Florida at a substantial loss for at least five years" (Federal Trade Commission, 1981c, p. 216). Large chains can cross subsidize from other markets and have greater total resources on which to rely during an entry attempt.

Because de novo entry can be slow, costly and uncertain, entry via acquisition is often preferred by chains when antitrust laws and enforcement permit. "The surest route around other San Antonios led to the acquisition of Dillon, the 11th largest U.S. chain, which has a lock on established markets, much like Kroger's own. At some \$600 million in Kroger stock, Dillon was the priciest supermarket acquisition in history. But Everingham figures it was a bargain. To crack Denver from scratch, as it

did in San Antonio, Kroger would have had to lay out \$500 million, facing price wars and no guarantee of market share" (Saporito, p. 80).

Entry barriers are clearly higher in large SMSAs. All else the same, entry barriers are also higher in SMSAs in which: a) a high percentage of grocery store sales are held by supermarkets indicating that there is little unmet demand for supermarkets; b) supermarket sales are highly concentrated; c) there is one or more dominant supermarket chain in the market; d) there is little or no growth in SMSA grocery store sales. In empirical studies of structure-price relationships in food retailing markets, variables measuring supermarket concentration and the distribution of market shares (e.g., relative firm market share) capture, at least to some degree, the height of entry barriers.

### Conclusions

Taken in total, I believe there is relatively strong evidence that the barriers to effective entry into the supermarket submarket are substantial. This is particularly true in large SMSAs. Entry forestalling behavior makes little sense if there are low barriers; a firm would be unable to gain the benefits of entry deterrence without attracting new entry. The positive relationship between price and seller concentration found in several empirical studies is also difficult to explain if there are low barriers.

Entry conditions vary for different strategic groups and different markets. As a new "mousetrap", warehouse and super warehouse stores have enjoyed a welcome response by consumers in several markets. As their share of the market increases, entry by new warehouse stores will become more difficult. For example, a new warehouse store entrant into Minneapolis or Milwaukee will find it tougher to attract sales than the first entrants.

With nearly half of the sales in these markets, warehouse type stores may be approaching their market potential. For at least some consumers, low prices are not the primary criteria for selecting a store. For example, Byerly's and Lund's, operators of large, luxurious superstores in Minneapolis report that their business has been unaffected by the growth of super warehouse stores in that market (Supermarket News, p. 32).

Although super warehouse stores and warehouse stores have had a significant impact on several markets, there remain many markets which they have not invaded. For some reason, the upper Midwest seems to be the hot bed of warehouse store activity. It may be useful for these hearings to explore why certain SMSAs have not yet felt the presence of warehouse type stores.

The success of warehouse and super warehouse stores in some markets indicates that a sizeable group of consumers prefer the product-service-price mix represented in these stores. Those vested with the responsibilities of enforcing our antitrust laws should be concerned that these stores are given a fair market test in various metropolitan areas in the U.S. If conventional supermarkets or superstores are allowed to price below average total costs for sustained periods in order to prevent warehouse stores from effectively entering certain SMSAs, consumers will be the losers in the long-run. Since many warehouse stores are operated by independents or small chains, they do not have the financial resources to survive a no-holds barred battle with medium and large chains. As an economist who is concerned about the long-run performance of food retailing markets, I hope that the future of these markets will not be determined solely on the basis of the bankroll held by different companies.



Footnotes

<sup>1</sup> The Court in Brown Shoe (p. 325-28) outlined criteria by which product submarkets can be established. These are:

industry or public recognition of the submarket as a separate economic identity, the product's peculiar characteristics and uses, unique production facilities, distinct customers, distinct prices, sensitivity to price changes, and specialized vendors.

## References

- Baumol, William J. (1982). "Contestable Markets: An Uprising in the Theory of Industry Structure," Am. Econ. Rev. 72:1-15.
- \_\_\_\_\_, John C. Panzar and Robert D. Willig (1982). Contestable Markets and the Theory of Industry Structure, New York: Harcourt Brace Jovanovich.
- Caves, Richard E. and Michael E. Porter (1977). "From Entry Barriers to Mobility Barriers," Q.J. Econ. 91:241-61.
- Cotterill, Ronald, "Market Structure-Price Relationships in Vermont Food Retailing Markets," NC117 Working Paper, University of Wisconsin, forthcoming.
- Demsetz, Harold (1974). "Two Systems of Belief About Monopoly," in Industrial Concentration: The New Learning, edited by Harvey J. Goldschmid, H. Michael Mann, and J. Fred Weston, 164-84. Boston: Little, Brown.
- Federal Trade Commission (1981a). In the Matter of Kellogg Co., General Mills, Inc., and General Foods Corp., FTC Docket 8883, Initial Decision, Washington, D.C.: Federal Trade Commission.
- \_\_\_\_\_. (1981b). In the Matter of the Grand Union Co. et al, FTC Docket No. 9121, Proposed Findings of Fact, Conclusions of Law and Order, June 8, 1981, Atlanta, Ga.
- \_\_\_\_\_. (1981c). In the Matter of the Grand Union Co. et al, FTC Docket No. 9121, Initial Decision, October 30, 1981, Washington, D.C.
- \_\_\_\_\_. (1983). In the Matter of the Grand Union Co., FTC Docket No. 9121, Final Order, July 18, 1983, Washington, D.C.
- Greer, Douglas F. (1984). Industrial Organization and Public Policy, 2nd Ed., Macmillan Publ. Co., N.Y., p. 294-321.
- Hall, Lana, Andrew Schmitz and James Cothorn (1979). "Beef Wholesale-Retail Marketing Margins and Concentration," Econometrica 46:395-300.
- Lamm, McFall (1981). "Prices and Concentration in the Food Retailing Industry," J. Ind. Econ. 30:67-78.
- Mallen, Bruce and M. Haberman (1975). "Economies of Scale: A Determinant of 'Overstoring and Superstoring'?" in Canadian Assoc. of Administrative Sciences Conference Proceedings, Edmonton, Alberta.
- Marion, Bruce W., et al. (1979). The Food Retailing Industry: Market Structure, Profits, and Prices. New York: Praeger.
- Marion, B., R. Parker and C. Handy. "Organization and Performance of Food Distribution Industries," chapter in The Organization and Performance of the U.S. Food System, forthcoming.

- Mueller, Willard F. (1984). "Alleged Predatory Conduct in Food Retailing," NC117 Working Paper 78, University of Wisconsin, September.
- National Commission on Food Marketing (1966). Organization and Competition in Food Retailing, Technical Study No. 7, Washington, D.C.
- Peltzman, Sam (1977). "The Gains and Losses from Industrial Concentration," J. L. & Econ. 20:229-64.
- Porter, Michael E. (1976). Interbrand Choice, Strategy, and Bilateral Market Power, Harvard Univ. Press, Cambridge, Mass.
- \_\_\_\_\_ (1979). "The Structure Within Industries and Companies' Performance," Rev. Econ. & Stat. 61:214-27.
- \_\_\_\_\_ (1981). "Strategic Interaction: Some Lessons from Industry Histories for Theory and Antitrust Policy," in Strategy, Predation and Antitrust Analysis, ed. by Steven Salop; Federal Trade Commission, Washington, D.C., p. 449-506.
- Progressive Grocer. "Annual Report of the Grocery Industry," April 1982.
- Saparito, Bill (1983). "Kroger, The New King of Supermarketing," Fortune, Feb. 21, 1983, p. 74-80.
- Scherer, F.M. (1971). Industrial Market Structure and Economic Performance. Chicago, Ill.: Rand McNally.
- \_\_\_\_\_ (1982). "The Breakfast Cereal Industry," in The Structure of American Industry, 5th ed., edited by Walter Adams. New York: Macmillan.
- Spence, Michael (1981). "Competition, Entry and Antitrust Policy," in Strategy, Predation and Antitrust Analysis, ed. by Steven Salop; Federal Trade Commission, Washington, D.C.
- Supermarket News (1984). "Market Profiles '84," Section Two, July 30.
- U.S. Dept. of Justice (1982). Merger Guidelines, Washington, D.C., June 14.