COMPETITION IN THE GROCERY RETAILING INDUSTRY

THESIS FOR THE DEGREE OF Ph. D.

MICHIGAN STATE UNIVERSITY

LYNN MILLER DAFT

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ABSTRACT

COMPETITION IN THE GROCERY
RETAILING INDUSTRY

By

Lynn Miller Daft

The principal aim of this paper is to gain an improved understanding of the relationship between the structural, behavioral, and performance dimensions of the grocery retailing industry. To do this, five structural and behavioral characteristics--relative size, absolute size, horizontal integration, vertical integration, and pricing practices--were isolated and examined for their performance implications. Because of the greater abundance of primary information and its importance in public regulatory decisions, the relative size (or market share) characteristic received particular attention.

The data used in testing the hypothesized relationships came from a variety of sources, mostly of a secondary nature. Information collected by the National Commission on Food Marketing was used extensively. A variety of methodological tools were employed, including simple correlation, ordinary least squares regression, and factor analysis.

Market share effects were examined from two viewpoints: (1) from the industry's position as a buyer and (2) from its position as a seller in the consumer market. On the buying side, it was found that

factors other than market structure are most important in determining the terms of trade between a grocery retailer and his suppliers. Of particular significance are: (1) the retailer's distributional proximity to the final consumer, (2) retailer pricing practices, (3) the threat of vertical integration, and (4) economies of scale in food processing.

In their selling markets, grocery retailers evidence considerable instability in market share through time. Firms with a relatively high share were found to suffer a loss while those with low initial shares gained.

Among the most revealing findings of the study were those stemming from an analysis of individual store data of the nation's nine largest food chains. The analytical tests generally indicated that market structure and net profit are positively related. Though this would seem to support the conventional structure-performance hypothesis, closer examination shows profits are high in high share markets because the retail facilities are fully utilized, causing per unit costs to be low--not because high prices are charged.

It is also rather clear from this analysis that large chains operating across several markets rely upon their profitability in higher share markets to subsidize their losses in lower share markets. Furthermore, a considerable amount of underutilized capacity is associated with operations in the latter markets. Though subject to further analysis, these findings suggest that the cost of this underutilized capacity is probably exceeded by the benefits of the constructive competitive tension it fosters.

From the standpoint of absolute size, store size appears to have relatively little effect upon technical efficiency. Its primary influence has been through its considerable consumer appeal. Economies of scale associated with firm size are largely exhausted below a $100 million volume, with some exceptions.

Grocery retailing firms have integrated extensively--both horizontally and vertically. Integration has played a key role in the chainstore movement, private labeling, and the development of the supermarket and the affiliated independent. In the vast majority of instances, this integration appears to have had a healthy effect. It has presented older, less efficient forms of distribution with a stiff competitive challenge. The consumer has usually benefitted through lower retail prices and expanded market alternatives.

Turning to price behavior, findings of the study indicate that retailer pricing practices often detract from an otherwise satisfactory performance. By their extensive use of loss leader pricing, grocery firms engage in a competitive display that is more apparent than real. Its principal effects are to: (1) motivate suppliers to exert influence over retail pricing, (2) place specialty shops at a competitive disadvantage, (3) introduce a distortion into the market allocation of resources, and (4) create confusion and uncertainty among consumers with regard to price information.

COMPETITION IN THE GROCERY RETAILING INDUSTRY

By

Lynn Miller Daft

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CHAPTER I

INTRODUCTION

As an industry, grocery retailing ranks among the largest in the U.S. economy. In 1966, food stores accounted for an estimated $66.3 billion in sales.[1] In terms of personal consumption expenditures, food purchases rank as the single most important expense item. Approximately 19.8 percent of the consumer's budget in 1965 went for the purchase of food, in food stores or eating establishments.[2] Thus, in terms of size alone the grocery retailing industry warrants the attention of those concerned with evaluating and guiding the performance of this nation's economy.

Yet, the dramatic changes that have taken place within grocery retailing over the past 30 years make it a doubly important subject of study. From 1939 to 1963, total grocery stores sales increased by nearly seven-fold while the number of stores in the industry fell by 37 percent.[3] The average size of new store jumped from about 800 square feet

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[1]Estimate by Bureau of the Census, Business and Defense Services Administration. Supermarket News, January 2, 1967, p. 17.

[2]U.S. President, Economic Report of the President (Washington: Government Printing Office, 1966), p. 219.

[3]U.S. Bureau of the Census, Census of Business, Retail Trade, Summary Statistics (Washington: Government Printing Office, 1940 and 1965).

in the 1920's,[1] to 20,000 square feet in 1964.[2] Many of the industry's leading firms, already large in the 1930's, grew even larger during the 1950's and 1960's--often through merger with smaller firms.

The immense importance of this industry, coupled with the vast change it has experienced in recent years, suggests that an assessment of the industry's performance is presently needed. It is to this purpose, therefore, that this study is dedicated. The remainder of this introductory chapter will be devoted to a brief historical accounting of government's commitment to the regulation of competition, a review of past research in the area of market structure analysis, and an outline of the plan of this study.

The History of Government Regulation

For over 70 years, the Federal Government has assumed a principal role in defining the "rules of the game" relating to competition in the American economy. In this role, the Government has enacted legislation designed to encourage forms of structure and conduct thought to be conducive to optimum economic performance.

The first major piece of legislation designed to promote a viably competitive economy was the Sherman Act of 1890. The Sherman Act contained two major provisions. The first sought to make "every contract, combination in the form of trust or otherwise, or conspiracy, in

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[1]Federal Trade Commission, Economic Inquiry into Food Marketing, Part I (Washington: Government Printing Office, January 1960), p. 56.

[2]Super Market Institute, Facts About New Supermarkets Opened in 1964.

restraint of trade or commerce" illegal. The second outlawed monopoly, "or attempt(s) to monopolize, or combine or conspire with any other person or persons, to monopolize any part of the trade or commerce."

The impreciseness of the wording of the Sherman Act left the courts with the major burden of interpretation. The Supreme Court, in its 1911 decision dissolving the Standard Oil Company, ruled that only "undue" or "unreasonable" restraints of trade were to be considered unlawful under the Act. As a result of this interpretation, the Sherman Act lost much of its force as a major ingredient of antitrust policy. Three years later, in 1914, Congress sought to fill the gap with enactment of the Clayton Act and the Federal Trade Commission Act.

The Clayton Act, though still somewhat ambiguous in wording, was far more specific than the Sherman Act. The Act's four major provisions were directed against price discrimination (Section 2.), exclusive dealer arrangements (Section 3.), mergers (Section 7,), and common directorates (Section 8.).

The Federal Trade Commission Act created an agency, independent of the Executive Branch, that would concentrate its efforts in the area of antitrust. In addition to being charged with enforcement of the Sherman and Clayton Acts, the Federal Trade Commission was directed to proceed against all other "unfair methods of competition." In the words of Thompson and Brady, "Congress recognized the ingenuity of businessmen in devising new and better ways to suppress or distort competition, and responded by creating an agency with general authority to take action against anticompetitive tactics not specifically prohibited."[1]

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[1]George C. Thompson and Gerald P. Brady, Antitrust Fundamentals (Belmont, California: Wadsworth Publishing Company, Inc., 1964), p. 17.

The next antitrust legislation, the National Recovery Act of 1933, was largely motivated by fears that the Great Depression had been stimulated by the harshness of previous antitrust action. Under conditions of the NRA, it became possible for industries to gain immunity from previous legislation, providing they formulated codes of fair competition that met with the President's approval. Although this Act softened antitrust enforcement for a short time, the Supreme Court's 1935 ruling that it was unconstitutional ended the Act's influence almost before it had begun.

In 1936, the Robinson-Patman Act was added to the now rapidly growing list of antitrust measures. With the growth in buying power of retail chains in the 1930's, Congress felt that Section 2 of the Clayton Act provided inadequate protection against wide-scale price discrimination. The Robinson-Patman Act was designed to correct this through an amendment of Section 2.

The most recent antitrust enactment was the Celler-Kefauver Act of 1950. This legislation amended Section 7 of the Clayton Act, increasing the stringency of the prohibition against mergers. The general purpose of this amendment was to make mergers unlawful when their effect "may be substantially to lessen competition, or to tend to create a monopoly."

As this review of antitrust legislation might suggest, Congress has never been entirely clear in what it was attempting to accomplish; at least not in terms of specifics. The lack of consensus on what constitutes optimum economic performance or which forms of conduct and structure are apt to foster such performance is obvious. The wording of

the legislation has nearly always been general and vague in meaning. As a result, the lawmakers have forfeited to the courts and the regulatory bodies the actual responsibility of deciding what encourages competition and what lessens it, what is fair and what is unfair.

Yet, whatever is said regarding the ambiguity of Congressional intent, it certainly cannot be said that the courts and regulatory agencies have shirked from the task of interpretation, particularly in recent years. In the thirteen-year period ending in 1964, the Federal Trade Commission issued 266 complaints and initiated 1,792 formal investigations involving market conduct in food distribution alone.[1] The Justice Department prosecuted seventy five cases involving food distributors between 1950 and 1965.[2] While grocery retailers figured prominently in thirteen of the former and four of the latter, they were involved in a far larger number of the cases.

Thus, the Federal Government, through a combination of its lawmaking, regulatory, and judicial functions, has defined and policed the boundaries within which competition is to take place. All major industries have felt the effects. In some industries, including those making up the food distribution system, the influence has been considerable.

Market Structure Theory

Interest in the performance of economic units lies at the very core of economic analyses. The performance of firms, families

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[1] National Commission on Food Marketing, Special Studies in Food Marketing, Technical Study No. 10 (Washington: Government Printing Office, June 1966), p. 172.

[2] Ibid., pp. 156-165.

industries, and the national and international economies are the major subjects of study of the economist. In his examinations of these entities, the economist is interested in finding that set of criteria which will result in "optimum" performance.

Classical economic theory offered the economist a definition of optimum performance and, at the same time, a set of criteria necessary for its attainment. Optimum performance, according to classicial theory, is the most efficient allocation of resources possible. The theory hypothesizes that consumers are motivated by a desire to maximize utility and that producers seek to maximize firm profits. To achieve optimum efficiency in the allocation of resources, the theory advances several preconditions: (1) There must be a large number of very small producers, no one of which is of sufficient size to be capable of affecting total output to an appreciable extent. (2) The products produced by these firms must be of a homogeneous nature. (3) The entry and exit of firms must be free of barriers. (4) Each individual must be completely informed with regard to all other offers in the market.

Though the rigor and logical consistency of the classical theory has great appeal, it does not take a particularly discerning economist to recognize that the theory's conditions do not come very close to approximating conditions as they actually exist. Many industries are composed of a relatively small number of firms; in some industries, four firms account for as much as 80 or 90 percent of total output. Very few industries produce a truly homogeneous product. It is a major purpose of a leading industry (advertising) to see that the products manufactured by their clients are not homogeneous, at least not in the consumer's

mind. Entry and exit is quite obviously not void of restrictions. Even farming, which might be viewed as the industry most nearly approximating the conditions of perfect competition, requires an initial investment of several hundred thousand dollars for entry on a commercial scale. And, the lack of complete information on the part of market participants is perhaps the most unrealistic condition of all.

Recognition of the inadequacies of classical theory led economists to the formulation of alternative theories, including those of monopolistic, imperfect, and workable competition. These formulations were aimed at introducing greater realism into economic theory. The effects as well as the reasons for such imperfections as product differentiation, barriers to entry and exit, and fewness of competitors have been explored by Robinson, Chamberlin, Mason, Nicholls, Triffin, and Clark, to mention only a few of the more prominent.[1]

From these attempts at reformulation evolved market structure analysis, a new analytical approach to the study of economic performance. Willard Williams has described the received doctrine of market structure analysts as "a blending of institutionalist thinking and concepts from neoclassical economics."[2] Market structure analysis hypothesizes that

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[1]Joan Robinson, The Economics of Imperfect Competition (London: MacMillan & Co. Ltd., 1933); E. H. Chamberlin, The Theory of Monopolistic Competition (Cambridge: Harvard Univ. Press, 1957); William H. Nicholls, A Theoretical Analysis of Imperfect Competition with Special Application to the Agricultural Industries (Ames: Iowa State College Press, 1941); Robert Triffin, Monopolistic Competition and General Equilibrium Theory (Cambridge: Harvard Univ. Press, 1940); and J. M. Clark, "Toward a Concept of Workable Competition," American Economic Review, June 1940.

[2]Willard T. Williams, "Toward Improved Performance in Agricultural Marketing Research," Journal of Farm Economics, Vol. 48, No. 3, Part II, August 1966, p. 44.

market performance is a function of market conduct which, in turn, is a function of market structure. Ultimate causation is traced to market structure.

Market structure has been defined by Joe S. Bain, a pioneer in the development of the concept, to mean the

> organizational characteristics of a market...those characteristics which determine the relations of sellers in the market to each other, of buyers in the market to each other, of the sellers to the buyers, and of sellers established in the market to other actual or potential suppliers of goods including potential new firms which might enter the market. In other words, market structure for practical purposes means those characteristics of the organization of a market which seem to influence strategically the nature of competition and pricing within the market.[1]

The major elements of market structure are normally defined to include:

(1) The degree of buyer and seller concentration.

(2) The degree of product differentiation.

(3) The conditions of entry.

The second element of this triad, market conduct, refers to

> the patterns of behavior which enterprises follow in adapting or adjusting to the markets in which they sell (or buy).[2]

Although market conduct, or behavior, may encompass many dimensions, the following elements are usually considered the most important:

(1) Practices used in determining price and output level.

(2) Product policy.

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[1]Joe S. Bain, Industrial Organization (New York: John Wiley and Sons, Inc., 1959), p. 7.

[2]Ibid., p. 9.

(3) Sales promotion policy.

(4) Degree of coordination of price, product, and sales promotion policies with competitors.

(5) Existence of predatory or exclusionary tactics.

Market performance measures the results of economic activity, the degree to which the economic system achieves its objectives. As might be expected, there is considerable disagreement over exactly what these objectives should be.[1] Still, Bain's concept of performance is probably the most widely accepted. He evaluates performance in terms of five principal dimensions:

(1) The height of price relative to the average cost of production, and thus the size of profits.

(2) The relative efficiency of production so far as this is influenced by the scale or size of plants and firms (relative to the most efficient), and by the extent, if any, of excess capacity.

(3) The size of sales-promotion costs relative to the costs of production.

(4) The character of the product, including choice of design, level of quality, and variety of product within any market.

(5) The rate of progressiveness of the firm and industry in developing both products and techniques of production, relative to evidently attainable rates and relative to the costs of progress.[2]

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[1]I will discuss some of the alternative objectives found in the literature in Chapter 4.

[2]Bain, p. 12.

This, in brief, is the theoretical scaffolding upon which market structure analysis has been formed.

Reviewing the Literature

In terms of the application of this theory, food retailing has not received the attention from agricultural marketing researchers that other more commodity-oriented phases of the marketing system have. The agricultural economists' traditional allegiance to the producer is apparent.

For an overview of research relating to all aspects of the agricultural marketing system, the report prepared by a Subcommittee of North Central Regional Research Committee NCR-20 is most useful.[1] The report includes a description of market structure analysis by Robert Clodius and Willard Mueller, a collection of abstracts of important books and articles, summaries of some recent market structure studies, a bibliography of market structure research publications, and a compilation of current or recently completed market structure research, as reported by experiment stations and the USDA. The Subcommittee's report leaves one with the general impression that its authors view the potential of market structure analysis with a mixture of hope and apprehension. The report finds that

> all aspects of market structure analysis rest on the basic assumption that market structure determines, in large part, the competitive conduct of firms in a market which in turn generates certain forms of industrial performance. But while market structure theory posits certain causal relationships between market structure and performance, much of this theory is still untested. Therefore, a major area of market structure research involves testing hypotheses as to

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[1]Subcommittee of North Central Regional Research Committee NCR-20, "A Report on Market Structure Research in Agricultural Economics," Journal of Farm Economics, Vol. XLIII, No. 3, August 1961, pp. 513-553.

the relationship between market structure, firm conduct, and industrial performance.[1]

In the late 1930's, the Temporary National Economic Committee (TNEC) undertook an extensive study of competition in the American economy. This study, which comprises several volumes, represents the first concerted attempt to evaluate competition in light of the revised theories of Robinson and Chamberlin. Although one of the TNEC monographs was devoted to the food industry,[2] its treatment of grocery retailing was limited.

Perhaps the most comprehensive analysis of the market structure of grocery retailing was the Federal Trade Commission's Economic Inquiry into Food Marketing.[3] This study, first initiated in 1958, was undertaken because:

1) a substantial percentage of all antimonopoly investigations by the Federal Trade Commission (was) of alleged violations of law by parties in the food industry;
2) the Commission (had) received many complaints that in the evolution of food distribution in recent years there (had) developed tendencies to concentration of economic power, to collusive price action, and to unfair competitive methods; and

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[1] Ibid., p. 529.

[2] A. C. Hoffman, Large-Scale Organization in the Food Industries, Temporary National Economic Committee Monograph No. 35 (Washington: Government Printing Office, 1940).

[3] Federal Trade Commission, Economic Inquiry into Food Marketing, Part I: Concentration and Integration in Retailing (Washington: Government Printing Office, January 1960).

> 3) there (was) broad public interest in preserving competitive free enterprise in the food industry and in preventing unfair methods of competition in that industry.[1]

Through questionnaires sent to chain stores, voluntary group wholesalers, and retailer-owned cooperative wholesalers, the FTC obtained information relating to about 90 percent of 1958 grocery store volume. The questionnaire, referred to by people in the trade as the "wallpaper questionnaire," delved into nearly every conceivable structural aspect of the industry. Major attention was devoted to changes in the concentration, absolute size, member composition, and vertical integration of corporate chains and affiliated groups. The ways in which these changes were effected, particularly the influence of mergers, was described in detail.

The report is highly descriptive. It deals almost exclusively with a single dimension: industry structure. Its only description of a performance measure is found in a short section devoted to the profits of 33 large food chains.

In summarizing this massive collection of data, the report's authors conclude that

> food marketing is characterized by increasing size of plants and firms, increasing efficiency, and a tendency toward concentration. Although the unaffiliated retailer is rapidly losing position, voluntary and cooperative distributors have shown a capacity for effective competition with the corporate chains.[2]

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[1] Ibid., p. 1.

[2] Ibid., p. 7.

The most comprehensive study of the structure of grocery retailing to come from university sources was conducted by Willard Mueller and Leon Garoian.[1] In it, the authors sought to:

(1) Measure the broad changes which have occurred in the market structure of food retailing since 1940.

(2) Study some of the methods of growth leading to these changes.

(3) Draw some theoretical inferences as to the impact of these changes in market structure on current and prospective competitive behavior and performance in food retailing and allied industries.[2]

The study, which was begun in 1958, covers much the same ground as the FTC inquiry. In the view of its authors the most important difference between this study and the FTC study is its

> attempt to analyze some of the market implications of the structural changes it measures (whereas) the FTC inquiry is content to stop with a description of these changes.[3]

As in the FTC study, the major share of attention is devoted to a description of trends in concentration, merger activity, and horizontal and vertical integration. Most of the data, covering the period from 1940 to 1958, were secured from secondary sources.

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[1]Willard F. Mueller and Leon Garoian, Changes in the Market Structure of Grocery Retailing (Madison, Wisconsin: University of Wisconsin Press, 1961).

[2]Ibid., p. 6.

[3]Ibid., p. viii.

On the basis of their examination of changes in market structure, Mueller and Garoian drew the following conclusions:

(1) Retailer advertising expense, expressed as a percent of sales, increased significantly between 1952 and 1957, probably as a result of the increase in retailer concentration.

(2) Firms operating across several markets possess a degree of economic power not shared by firms operating in a single market.

(3) Price leadership policies on the buying side of grocery retailing conform to the competitive "barometric" type of price leadership.

(4) Though retail chains are less concentrated than many of their suppliers, they have improved their economic power through actual or threatened vertical integration and the adoption of private labels.

(5) A trend toward the integration of food manufacturers and wholesalers into grocery retailing can be expected to continue as long as retailer earnings remain attractive.

(6) The increasing use of private labels motivated food manufacturers to almost double their advertising expense rate between 1947 and 1957.

Despite the author's declaration that their data are "not offered as conclusive proof of actual performance,"[1] it is clear from their closing remarks that they are convinced of the importance of the structure-performance relationship.

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[1] Ibid., p. 132.

> Although we have not attempted here an exhaustive study of the performance of the grocery-retailing industry, we do believe that economic theory, buttressed by industrial experience in other industries, warrants this generalization: The future performance of grocery retailing will depend, in large part, on the extent to which market concentration continues to increase, especially at the local level.[1]

An example of a quite different approach to the study of market structure is offered by Bob Holdren.[2] For his study, Holdren made an intensive examination of the structure, conduct, and performance of the supermarkets in a single city of about 50,000 population. His prime objectives were "the determination of the market structure of a particular form of food retailing and the development of an adequate model of the retail unit."[3] Holdren divided these into three mediate objectives:

(1) Determination of the nature of the retail unit's demand function.

(2) Determination of the nature of the factor markets in which the retail units purchase factors.

(3) Determination of the internal technology of the retail unit.[4]

On the basis of the data collected from firms within this market, Holdren describes its competitive nature. He concentrates particularly

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[1] Ibid., p. 158.

[2] Bob R. Holdren, The Structure of a Retail Market and the Market Behavior of Retail Units (Englewood Cliffs: Prentice Hall, 1960). A doctoral dissertation at Yale Univ., the study was published as a winner in the 1959 Ford Foundation Doctoral Dissertation Competition.

[3] Ibid., p. 8.

[4] Ibid.

on describing cost and production functions, price structures and price policies, nonprice aspects of the retailer's offer, and the retailer's demand function. Having cast each of these topics in the light of economic theory, Holdren proceeded to develop what he calls "the theory of the multiproduct firm." Simply stated, the theory hypothesizes that there is no unique set of prices that is compatible with optimization by multiproduct firms.

In attempting to categorize the nature of competition in grocery retailing, Holdren finds that the industry meets the criteria, formulated by Robert Bishop, of an oligopoly.[1] That is, where price elasticity divided by cross price elasticity is numerically small between any pair of firms in the market, Bishop expects to find oligopoly. Despite its satisfaction of these criteria Holdren concludes that grocery retailing is more nearly "monoplistically competitive" than oligopolistic for the following reasons: (1) ease of entry, (2) inability of some retailers to retaliate against lower prices, (3) retail complementarity makes price cuts attractive and agreement impossible to maintain, (4) differences in product-line width make it impossible to establish a single price structure that is satisfactory to all, (5) the prohibitive cost of duplicating a competitor's offer, (6) the long lag between the initiation of action and the time when its results are felt by competitors, and (7) the variation in margin costs among stores

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[1]Robert L. Bishop, "Elasticities, Cross Elasticities and Market Relationships," American Economic Review, Vol. XVII, No. 5 (December 1952), p. 780.

in the same market.[1] For all these reasons, the author concludes that oligopoly agreement by the grocery retailer is virtually impossible.

Since Holdren's analysis is based on a single market, and a relatively small market at that, due caution must be exercised in generalizing from his results. It would appear, from Holdren's description, that this market should not be considered representative in some respects. Yet, despite its shortcomings, the approach has considerable merit. By focusing on a comparatively small geographic area, Holdren achieved an integration of structure, conduct, and performance rarely found in other research.

Though it doesn't fit the mold of a conventional market structure analysis, M. A. Adelman's study of A&P's price-cost behavior, provides a wealth of information pertinent to the topic.[2] In making his study, Adelman relied primarily upon information made public in the Justice Department's case against A&P. For the most part, this information relates to that firm's operation from the latter 1920's through the early 1940's.

Though Adelman is primarily interested in evaluating the wisdom of the court's decision in the case, his description of the firm's policymaking process is filled with valuable insights. Much of the documentation comes from the files of A&P's internal correspondence,

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[1]Holdren, pp. 181-182.

[2]M. A. Adelman, A&P: A Study in Price-Cost Behavior and Public Policy (Cambridge: Harvard University Press, 1959).

directives, and meetings, thus providing the reader with a rare glimpse of the behind-the-scenes activities of corporate management in food retailing. Its chief contribution, like that of the Holdren study described above, is that it goes beyond a quantitative description of the industry's structure and attempts to improve understanding of firm behavior.

The most recent analysis of grocery retailing and one of the most comprehensive was conducted by the National Commission on Food Marketing.[1] For about 15 months in 1965-66, this temporary Commission assembled data relating to all phases of the marketing of agricultural commodities, including an updating of the 1960 FTC inquiry described above.

Though it contains some interpretative analysis, the Commission study is primarily descriptive. It provides detailed data on a wide range of topics including retailer operating expenses, profit levels, gross margins, concentration levels, entry and exist, vertical integration, and mergers. As a result of the author's participation in the Commission's work, data from this and other Commission technical studies will receive widespread application throughout the remainder of this study.

Orientation for Further Research

As a comparatively recent addition to the economist's bag of analytical tools, market structure analysis suffers from a general lack

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[1]National Commission on Food Marketing, Organization and Competition in Food Retailing, Technical Study No. 7 (Washington: Government Printing Office, 1966).

of precision and uniform application. For this reason, it is necessary to exercise care in its application. The hypothesized line of causation, extending from structure to conduct to performance, requires particularly careful handling. Although this hypothesis might reflect the true relationship in some cases, it is fairly evident that it does not always. In a very real sense, the line of causation is circular; "certain cross-circle effects as well as reverse flow(s)" can be observed.[1] This circularity stems in large part from the dynamic qualities of the market system. Most markets undergo constant change. In the process, structure, conduct, and performance become intertwined--sometimes beyond the point of separation.

To illustrate, the development of a more efficient method of production might make it possible for certain firms in an industry to lower their product prices. The lower prices may spur sales and, thereby contribute to an increase in both market concentration and firm profits. In this illustration, higher firm profits were not caused by the increase in concentration but occurred simultaneously and coincidentally. Both were caused by the adoption of a cost-reducing technology. The development of a new product which meets with widespread consumer acceptance could have a similar result.

Likewise, the process does not necessarily end with the attainment of higher profits and a larger share of the market. Because of the higher profits, a firm (or group of firms) might choose to alter its structure through horizontal or vertical integration. The determination

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[1]Williams, p. 48.

of cause-effect relationships under such circumstances takes on shades of Tweedledum and Tweedledee. Performance becomes cause and structure effect.

Identification of the relevant market boundaries is another source of confusion. A clean division of markets can rarely be made, either by product or by geographic area. Most consumer products and many producer goods have substitutes which, though not considered part of the industry in question, can exert an important influence upon the nature of the competition occurring within it. This is especially true in the food industry where, to some degree, nearly all products are substitutes.

Likewise, identification of the appropriate geographic market affects the interpretation importantly.

> The structural elements of a broadly defined industry are frequently matched with observed conduct in some particular market situation. The resulting relationships between structure and conduct may be completely meaningless, i.e. industry structure is not necessarily related to market conduct.[1]

Market identification is often dictated by the availability of data. Industry data are usually more readily available than are the data for individual markets. As a result, many analyses rely heavily upon industry statistics for information regarding structure.

The absence of empirical tests of the market structure hypotheses has caused no end of trouble, particularly in policymaking circles. The lack of testing is traceable to the difficulty of quantifying some variables and securing relevant data for others. Variables relating to

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[1]Frank J. Smith, Jr. and Dale C. Dahl, "Market Structure Research - How and For What?" Journal of Farm Economics, Vol. 47, No. 2, May 1965, p. 466.

conduct and performance are particularly difficult to deal with. As a result, much of our past research effort has been devoted to measuring and describing that aspect of the subject that could most readily be handled: the structural attributes of the market. A review of the literature therefore reveals a great mass of data describing industries and markets in terms of numbers and sizes of firms, market shares, concentration ratios, degree of integration, and perhaps some rudimentary performance measures such as profit levels and promotional expenditures.

In confronting the results of this research, the reader is left with two choices. (1) He may accept the results as input for additional testing of the relevant hypotheses, or (2) he may assume the existence of a structure-conduct-performance relationship and proceed to formulate conclusions. Unfortunately, many researchers demonstrate no timidity in directing, if not leading, their readers to the latter choice. The resulting body of knowledge offers the policymaker a great deal of information about the structure of particular markets but says precious little about its meaning, except in hypothesis form. But this does not deter the policymaker. Often having neither the time nor the patience to wait for more conclusive results, he tends to accept the hypotheses and to apply them in the formulation and execution of policy.

Some economists close to the policymaking process are willing to accept an implied relationship between structure and performance based upon the theoretical norm. In discussing Stephen Sosnick's view of operational performance criteria, Willard Mueller writes that

> a careful reading of Sosnick's chapter indicates that economists have precious little which they can say with precision about the relationship between most performance norms and their causes. Consequently, a public policy

> which would rely on economic measurement of numerous performance attributes of alternative courses of action turns out to be completely unworkable.[1]

After contrasting the success of American antitrust enforcement with the failure of the British experience, Mueller concludes that

> although economists have contributed much toward the development and enforcement of our antitrust laws, it is fortunate indeed that the development and enforcement of these laws did not await conclusive empirical verification of the relevant relationship between market structure and market performance.[2]

Many of Mueller's fellow economists don't share this view. Some members of the profession doubt the validity of the structural hypothesis and would prefer a reallocation of the research effort away from market structure analysis. Paul Baumgart, Safeway's chief economist, echos the attitude of such skeptics when he says:

> My observation is that the lawyers have absorbed and applied our present stage of economic structure theory much more rapidly and more profoundly than have economists grasped the legal and political implications of framing an incomplete (and perhaps inappropriate) guide for examining competition and efficiency in food marketing.[3]

Others feel that the technique is potentially useful but requires considerably more perfection if it is to be applied with any degree

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[1]Willard T. Mueller, "Discussion: Operational Criteria for Evaluating Market Performance," Market Structure Research, Paul L. Farris, Ed. (Ames, Iowa: Iowa State Univ. Press, 1964), p. 136.

[2]Ibid., p. 137.

[3]Paul A. Baumgart, "Competition and Efficiency in Food Marketing," Proceedings of the Western Farm Economics Association, San Luis Obispo, California, July 15-17, 1964, p. 124.

of assurance. The general purpose of this study is to explore this potential and, if possible, make some small contribution to its perfection.

Plan of Study

The central aim of this study, then, is to gain a better understanding of the relationship between certain structural and behavioral characteristics of the grocery retailing industry and that industry's level of economic performance. The study will be made in four steps:

(1) Identification and description of the structural and behavioral characteristics to be examined.

(2) Formulation of a concept of economic performance that can be used in qualitative, if not quantitative, evaluation.

(3) Analysis of the relationship between these characteristics and industry performance.

(4) Interpretation of the findings with special attention to implications for future public policy.

A single chapter will be devoted to each of the topics represented by steps (1), (2), and (4). Step (3) will entail several chapters, one for each characteristic examined.

The data used in testing the hypotheses will come from a variety of sources, mostly of a secondary nature. Some of the studies described above will yield useful information regarding the industry's structure. The recently completed study by the National Commission on Food Marketing should prove especially useful. A variety of methodological tools will be employed, including simple correlation, ordinary least squares regression, and factor analysis.

CHAPTER II

INDUSTRY BACKGROUND

Grocery Retailing Defined

Consumers secure their food needs through a variety of outlets, one of which--the grocery store--is the subject of this study. Most of this food (at least 93 percent) moves to the consumer through commercial retail outlets (see Table 1).

The Bureau of the Census divides these establishments into two subgroups: food stores and eating places. Food stores are primarily engaged in selling food for home preparation and consumption while eating places primarily sell for consumption on their own premises. Food stores include: grocery stores, meat markets, fish markets, fruit and vegetable markets, candy stores, bakeries, dairy stores, and egg and poultry dealers. Included under the Census definition of an eating place are restaurants, cafeterias, refreshment places, and caterers. In 1963, food stores accounted for an estimated 75.1 percent of the total value of food consumed and eating places for about 18.3 percent. Both sources have steadily increased their share of total consumption over the past 15 years. In 1948, their respective shares were 67 percent and 14 percent with a combined share of only 81 percent.

TABLE 1.--Number and sales of food retailers and value of food furnished employees and value produced and consumed on farms, United States, 1963

Item	Number of establishments	Sales or value consumed in millions of dollars	Percent of total sales or value consumed
Food stores	319,433	57,079	75.1
Grocery stores	244,838	52,566	69.2
Meat markets	16,457	1,530	2.0
Fish markets	3,630	176	.2
Fruit and vegetable markets	8,874	412	.5
Confectionary stores	14,979	499	.7
Bakeries	18,631	1,080	1.4
Dairy stores	6,346	515	.7
Egg and poultry dealers	2,697	154	.2
Other food stores	2,981	147	.2
Eating places	223,876	13,919	18.3
Restaurants and lunchrooms	156,477	10,177	13.3
Cafeterias	6,643	892	1.2
Refreshment places	51,624	2,106	2.8
Caterers	9,132	745	1.0
Food produced and consumed on farms		949	1.2
Food furnished commercial and government employees[a]		1,342	1.8
Other sources		2,711	3.6
Total	543,309	76,000	100.0

[a]Food served to the military and employees of hospitals, state prisons, hotels, and other commerical food service establishments, and firms engaged in water transportation.

Source: National Commission on Food Marketing, Technical Study No. 7, p. 2.

Within the food store category, grocery stores are far and away the most important source of food sales, with 92 percent of the total. To qualify as a grocery store (SIC 541), an establishment must be primarily involved in selling

> (1) a wide variety of canned or frozen foods, such as vegetables, fruits, and soups; (2) dry groceries, either packaged or in bulk, such as tea, coffee, cocoa, dried fruits, spices, sugar, flour, and crackers; and (3) other processed food and non-edible grocery items. In addition these establishments often sell smoked and prepared meats, fresh fish and poultry, fresh vegetables and fruits, and fresh or frozen meats.[1]

In recent years, grocery stores have assumed an increasing share of total food store sales. As recently as 1948, they accounted for only 80 percent of total sales, compared with the 1963 level of 92 percent.

Historical Milestones

A review of the historical highlights of grocery retailing over the past 60 years is helpful in understanding the industry's present form. Since 1900, grocery retailing has undergone three rather distinct changes and appears destined to go through still more in the future. The paragraphs that follow will describe each of the past changes and how they affected industry structure and performance.

Chain Store Movement. At the turn of the century, grocery retailing was dominated by a large number of small, independently operated stores. Although some of the early food chains had been established in

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[1] U.S. Bureau of the Census, Census of Business, 1963; Retail Trade: United States Summary (Washington: Government Printing Office, 1965), p. 224.

the 1800's, they operated comparatively few stores.[1] Around 1910, chain organizations began growing quite rapidly. Between 1910 and the early 1930's the number of stores operated by firms with two or more stores jumped from around 1,000 to approximately 80,000. By 1930, A&P alone operated over 15,000 stores.

The success enjoyed by the early chains was due in large measure to the economies of integrating the wholesaling and retailing functions. By combining the operation of a warehouse with that of a network of local retail stores, the chains effected significant reductions in the cost of procurement, storage, and distribution.

At least a portion of this reduction appears to have been passed on to the consumer. Comparative pricing studies made around 1930 found that chains were charging retail prices substantially below those of the independent stores. An intensive FTC study of chain pricing in four large metropolitan markets between 1929 and 1931 revealed that in independent grocery stores prices were 6 to 10 percent higher than chain prices.[2] Other studies reviewed by A. C. Hoffman in his TNEC monograph reported similar findings.[3] Four studies made between 1930 and 1938 found chain prices 6 to 14 percent below independents operating in the

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[1]The definition of a chain has changed through time. At one time it included any firm operating two or more stores. This was eventually increased to four or more and now stands at 11 or more. Unless otherwise specified, the latter definition will be used in this paper.

[2]Federal Trade Commission, Chain Store Inquiry, Vol. IV: Prices and Margins of Chain and Independent Distributors (Washington: Government Printing Office, 1933).

[3]Hoffman, pp. 60-62.

same markets. The striking increase in chain sales during this period suggests that this differential was perceived and acted upon by many consumers.

Charvat provides an interesting comparison of operating measures, contrasting 1929 data collected from a sample of Louisville independents with that of the entire A&P firm for the same year.[1]

TABLE 2.--Independent-chain operating data, 1929
(percent of sales)

Item	Independents in Louisville	A&P
Gross margin	25.81%	18.36%
Expenses	18.29	15.52

Source: Frank J. Charvat, Supermarketing, pp. 22-23.

These data illustrate the comparative advantage the chains tended to hold during this period. Through a combination of improved operating efficiency and the full utilization of capacity, A&P was able to operate its retail and wholesale units combined at a lower rate of cost than the independents were able to operate their retail units alone.

In more recent years, chains have continued to grow though their rate of growth has not kept pace with that of the 1920's and 1930's. As Table 3 shows, chains were approaching 50 percent of total grocery store sales in 1963, up from less than 35 percent in 1948.

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[1]Frank J. Charvat, Supermarketing (New York: The MacMillian Company, 1961), pp. 22-23.

Supermarket Movement. Even as the chain movement was still in its early stages of growth, a new and perhaps more far-reaching change began: the evolution of the "supermarket."[1] The supermarket concept was first conceived and put into operation by independent grocers. Most chains didn't adopt the supermarket format until the independent's success convinced them of its value.

Creation of the supermarket mode of selling occurred for a variety of reasons. In the first place, the chain competition described above was putting a severe strain upon the independent. The lower chain prices were attracting customers in droves. This gave the independent a strong incentive to seek out ways by which he could lower his operating costs. The depressed condition of the general economy in the early 1930's added further impetus to the drive for cost reductions on the part of the independent retailer. The fall in personal income during this period made consumers extremely price conscious, thereby reinforcing the chain's competitive edge.

Added to these reasons were the changes that had taken place in private transportation and in the techniques of food preservation in the home. As automobile ownership increased, the consumer's shopping radius expanded. Instead of blocks, the market's dimensions began to be measured in miles. No longer was the housewife constrained to shopping within the neighborhood. Through use of the automobile, she could travel several miles in the same time and with less effort than it has formerly taken to shop at the neighborhood grocery store. The

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[1]Though "supermarkets" are usually defined in terms of their level of annual sales, this level varies from $250,000 to $1,000,000. In keeping with most contemporary definitions, I will use $500,000 as the minimum level, unless otherwise specified.

development and widespread adoption of mechanical refrigeration also contributed to changes in the consumers' shopping habits. More effective preservation of food in the home eliminated the need for daily visits to the store. Thereafter, most consumers began limiting their major food purchases to weekly shopping trips.

TABLE 3.--Grocery retailing firms: number of firms, number of stores, and sales, by size of firm, 1963

Size of firm by number of stores	Number of firms	Number of stores	Sales (millions)	Percent of total sales
1	215,129	215,129	$22,677	43.2
2-10	3,228	8,420	5,168	9.8
Subtotal	218,357	223,549	27,845	53.0
11-25	145	2,097	2,192	4.2
26-50	49	1,422	1,659	3.2
51-100	32	2,065	2,752	5.2
101 or more	32	15,705	18,118	34.4
Subtotal	258	21,289	$24,721	47.0
Total	218,615	244,838	$52,566	100.0

Source: Bureau of the Census, 1963 Census of Business, Retail Trade: Single Units and Multiunits, Table 2.

Some independent grocers saw the writing on the wall. If the independent were to survive, he would have to adapt and adapt quickly to the changes in his economic environment. Furthermore, the importance of price suggested that this adaptation, if it were to be successful, must result in substantial reductions in operating costs. And, unlike the

economies affected by the chains, the bulk of these cost-savings would have to be made within the retail outlet.

In the early 1930's, a few of the more imaginative independent operators began responding to the challenge. The key to their response was a combination of low fixed costs and high volume. To reduce their overhead expenses they eliminated credit and home delivery, they instituted the "self-service" concept, and they located in low rent facilities. The Big Bear Market of Elizabeth, New Jersey, for example, was located in an abandoned auto factory. Others set up operation in facilities that had once served as warehouses and rollerskating rinks.

To attract volume, these stores brought together under the same roof a far wider variety of food items than had ever been made available before. Prior to the establishment of these stores, consumers found it necessary to shop three or four different stores to satisfy the entire range of their food needs. At a minimum, this included visits to the meat market, the bakery, and the dairy store, in addition to the local grocery. The opportunity to meet these needs at a single stop understandably held great appeal to the consumer. In addition, the early supermarket operators undercut chain prices rather drastically. Although continuence of this price relationship was contingent upon the magnitude of the sales volume that could be attracted, it proved to be justified.

In its first year of operation, the Big Bear Market of Elizabeth, New Jersey experienced sales of $3,873,000--a phenomenal volume for stores of that era.[1] The store's gross margin and operating expenses

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[1]Rom J. Markin, The Supermarket: An Analysis of Growth, Development, and Change (Pullman, Washington: Washington State University Press, 1963), p. 12.

were less than half that experienced by most independents of conventional design. In 1932, Big Bear's gross margin was only 12.1 percent of sales; its operating expenses 8.5 percent.[1] The firm's net profit in this year was $167,000, or over 16 times the original $10,000 investment of its proprietors.[2]

Though at first the large grocery chains were reluctant to adopt the supermarket concept, the obvious success of these early innovators couldn't be ignored. Neither could the chains ignore the concerted efforts of many states to legislate chain-store taxes on a store-by-store basis.[3] Therefore, it was only a matter of time before the chains began replacing their small stores with supermarkets. In 1936, some four or five years after the opening of the first independent supermarkets, A&P was operating only 20 such stores.[4] Five years later, in 1941, this number had risen to nearly 1,400 while the total number of stores operated by the firm had been cut almost exactly in half. Over this same period of time, 1936 to 1941, the proportion of A&P's sales made through supermarkets soared from less than 0.1 percent to over 50.0 percent.

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[1] Ibid.

[2] Adelman, p. 60.

[3] Adelman argues that as a spur to the establishment of fewer and larger stores, the chain store taxes were a blessing to A&P. Ibid., p. 54.

[4] Charvat, p. 164.

The comparison of A&P's "economy stores" to its supermarkets of 1941, as depicted in Table 4, vividly points up the contrast between the two types of operations.

TABLE 4.--Comparison of operating data of the Great Atlantic and Pacific Tea Company's "economy stores" and its supermarkets in 1941

Item	Economy stores	Supermarkets
Number of stores	4,448	1,594
Average weekly sales	$6,276	$17,336
Gross margin	17.01%	12.47%
Total operating expense	15.39	10.51
Net profit	1.62	1.96

Source: Charvat, p. 166.

Although supermarkets were adopted at a fast pace during the late 1930's and early 1940's, the most significant increases took place in the 1950's. As Table 5 indicates, supermarkets made less than 30 percent of all grocery store sales in 1948. By 1958, they accounted for over 60 percent of the total. As can also be seen in Table 5, the proportion of supermarket sales made by large supermarkets (annual sales in excess of $1,000,000) has risen appreciably over the same period.

The supermarket, then, has had a most significant impact upon the structure and the mode of operation of the grocery retailing industry. And, the changes it has precipitated have all occurred within a relatively short span of time. In the 1920's, the average grocery store

TABLE 5.--Sales and share of total U.S. sales accounted for by supermarkets, census years, 1948-1963

(sales in millions of dollars)

Size of store in annual sales	1948	1954	1958	1963
$1,000,000 or more:				
Sales	$2,757	$10,723	$18,757	$26,405
Share of grocery store sales	11.9%	32.6%	45.5%	52.7%
$500,000 or more:				
Sales	$6,437	$16,017	$25,202	$34,460
Share of grocery store sales	27.8%	48.7%	61.2%	68.8%
Percentage of all $500,000 and over stores operated by firms of 11 or more stores		67.4	62.3	60.6

Source: NCFM, Tech. Study No. 7, pp. 34 and 160.

was about 800 square feet.[1] The average size of new store opened in 1964 by members of the Super Market Institute was 20,000 square feet.[2] In keeping with the larger size of store, the number of items stocked has

[1]Federal Trade Commission, Economic Inquiry, p. 56.

[2]Super Market Institute, Facts About New Supermarkets Opened in 1964.

also jumped dramatically. In 1928 the average number of items carried by grocery stores is estimated to have been 867; in 1963 it was 6,800.[1] Furthermore, the number of grocery stores has fallen sharply. This number reached a peak of over 387,000 in 1939.[2] Between that year and 1963, the total number of stores dropped by nearly 165,000.

Affiliated Retailers. The third major change to occur in grocery retailing is the development of the affiliated independent. In many respects, the affiliated retail group is the independent's answer to the chain store movement. As mentioned above, the rapid growth of food chains around the 1920's severely hurt the independent. A substantial portion of the chain stores' growth in sales came at the expense of the independent sector. As the chains extended their operations across the country, the number of independents facing economic ruin multiplied. But retailers were not alone in their suffering. Since most chains had integrated into wholesaling, grocery wholesalers had become increasingly dependent upon the independent retailer as an outlet for their merchandise. As the independent lost business, so did the wholesaler. It was this common interest which eventually led to the formation of affiliated groups.

The success of the chains was due in large measure to the economies realized from the integration of the retailing and wholesaling

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[1] National Commission on Food Marketing, Technical Study No. 7, p. 17.

[2] Ibid., p. 13.

functions. By combining these functions under a single management the chains had captured the benefits of large scale, standardized operations. With the pressure of chain competition bearing down upon them, independent retailers and wholesalers began exploring ways to reap the gains of integration without surrendering their full independence. From these explorations came the affiliated group concept.

Two types of affiliated groups evolved: the cooperative and the voluntary. Their major difference is in their forms of ownership. The cooperative group is owned and managed by its retail members while the voluntary group is serviced by a privately owned wholesaler. Groups of both types are composed of independent retailers who agree to affiliate primarily for the purpose of group buying. The retailer agrees to purchase the major portion of his merchandise through the wholesaler with which he is affiliated. In return, the wholesaler agrees to pass on a portion of the savings achieved through buying in carload lots. In the case of the cooperative group, the retailer ultimately receives the entire saving. In addition, these wholesalers often provide their affiliated retailers with a wide range of other low-cost services, including, bookkeeping, pricing, employee training programs, site selection, store engineering, private label programs, group advertising, and financing. The retailers, in addition to agreeing to comply with certain minimum purchase requirements, are customarily assessed a membership fee and are required to adopt the group's trade name.

As a result of their affiliation with these groups, independent retailers have gained many of the advantages associated with chain opertions while, at the same time, retaining their flexibility and independence. This has made it possible for the affiliated independent to

compete on fairly even terms with the corporate chain. In some markets the affiliated independents have not only stemmed the tide of chain growth but have even reversed it. The overall success of the affiliated independent since 1954 is reflected in the data appearing in Table 6.

TABLE 6.--Estimated share of grocery stores sales by chains, affiliated, and unaffiliated independents, census years 1948 through 1963

(percent of sales)

Organization type	1948	1954	1958	1963
Chains	34.4	39.4	44.0	47.0
Independents	65.6	60.6	56.0	53.0
Affiliated	35.4	34.1	40.9	43.9
Unaffiliated	30.2	26.5	15.1	9.1
Total	100.0	100.0	100.0	100.0

Source: NCFM, Tech. Study No. 7, Appendix Table 30.

Cooperative wholesalers are, on the average, over twice the size of voluntary wholesalers. In 1963, the average cooperative wholesaler accounted for sales in excess of $18 million while the average voluntary supplier had sales of about $7.6 million.[1] Yet, the considerably larger number of wholesalers sponsoring voluntary groups results in a total dollar sales volume nationwide that is nearly twice as large for the voluntaries.

[1] Ibid., p. 60.

Many of the wholesaler sponsors of affiliated groups have grown to the point that they rival even the largest corporate chains. The retail customers of Certified Grocers of California, the largest grocery wholesaler in the United States, experienced sales in excess of $1.1 billion in 1964.[1] This is comparable to the 1964 sales of the National Tea Company, the nation's sixth largest food chain. Each of the five largest wholesalers experienced a dollar sales volume (expressed in terms of the estimated sales of their retail customers) in excess of that of the 11th largest chain.[2]

Many of the voluntary group sponsors have organized on a national basis to secure the additional advantages of operating on this scale. About 40 percent of all voluntary retailers are affiliated with a national organization, according to one recent estimate.[3] The largest of these in 1958 were the Independent Grocers Alliance (IGA) and Red and White. These groups accounted for 12.5 percent and 6.3 percent, respectively, of all voluntary retailers.

Recent Developments. Although the three changes described here--the food chain, the supermarket, and the affiliated independent--are the most important to have occurred thus far, they are not likely to be the last. Since 1960, the industry has seen the development of two new forms of competition. They are the food discounter and the convenience store. While neither is of sufficient importance to account for a

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[1] Progressive Grocer, April 1965, p. 335.

[2] Ibid.

[3] NCFM, Tech. Study No. 7, p. 62.

The typical convenience store is extremely small by supermarket standards, averaging between 2,400 and 3,000 square feet of total store area. As their size would indicate, the convenience store can stock but a fraction of the number of items carried by their supermarket counterparts, usually between 1,500 and 3,000. Most items are national brands with very little size or brand variety. Although some stores offer a limited line of frozen meats, there is no fresh meat and only a very limited line of fresh produce.

The convenience store's stock in trade is, as its name implies, convenience. The stores are located in or near residential areas; the customer can park within a few steps of the store's entrance; there is seldom a waiting line at the check-out; and they are open from 7 a.m. to 11 p.m., seven days a week. In return for this convenience the consumer pays a somewhat higher price.

The Industry in Current Perspective

The developments described above have had a very considerable impact upon the industry's structure and mode of operation. And, their effects are still being felt. Most markets are still adapting to the supermarket while the competitive vitality of the affiliated groups has only recently emerged in many areas.

Grocery retailing in its present form is a large and important industry. Its leading firms are among the largest corporations in the nation. In 1966 grocery store sales reached approximately $61 billion.[1] In 1963, the most recent year for which comprehensive data are available,

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[1]Based on estimate by Bureau of the Census, Business and Defense Services Administration.

219,000 grocery firms operated 245,000 grocery stores.[1] These firms employed over 1 million persons, paying annual wages of $3.7 billion.

The changes which are still underway become more evident when one examines the current size distribution of grocery stores. Although the number of very small grocery stores (annual sales under $50,000) in 1963 was less than a third the number operating in 1939, this size category still accounted for nearly half (46.7 percent) the total number. In combination, these stores accounted for only 4.9 percent of total grocery store sales; and, their average sales per store was but $23,500. Assuming a gross margin of 25 percent, the operators of these stores were left with less than $6,000 to cover all operating costs, including labor. Many thousands of these firms are obviously not competitively viable. It can only be a matter of time before most of their number will be obliged to leave the industry.

An even wider disparity is found when comparing size of firms in the industry. Single store units account for around 98 percent of the total number of firms and nearly 90 percent of all stores, but only 43 percent of total sales (see Table 3). Chains (firms operating 11 stores or more), on the other hand, operated only 9 percent of all stores yet accounted for 47 percent of total sales. It should be noted that, within the chain category, over 70 percent of all sales were made by the 32 firms which operated over 100 stores each in 1963.

Turning our attention from the industry to the store, it will be recalled that the average size of store has increased several fold since

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[1] Bureau of the Census, Census of Business, 1963.

the 1920's. Yet, in recent years the average size of new stores seems to have stabilized at around 20,000 square feet, with about 68 percent of its area devoted to selling.[1]

The construction of a new supermarket requires an investment of between $17 and $27 per square foot of total store area; stores opened by members of the Super Market Institute (SMI) in 1964 averaged $21.36 per square foot.[2] Thus, the cost of a new 20,000 square foot supermarket is often in excess of $400,000.

Most chains and many independent operators lease their stores from an independent landlord. Over 80 percent of the stores opened by members of SMI in 1964 were operated on this basis;[3] in comparison about 41 percent of the new stores opened the same year by independent members of the National Association of Retail Grocers were leased.[4] The most common leasing arrangement is for 20 years and costs an average of 1.5 percent of sales.[5]

The rate at which new items are being added to the grocers' shelves offers no signs of subsiding. By 1965, the average number of

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[1]Super Market Institute, p. 4.

[2]Ibid., p. 11. These figures include the cost of land, building, leasehold improvements, and store equipment and fixtures. Parking lot and opening inventory expenses are not included.

[3]Ibid., p. 12.

[4]"16th Annual Forecast," NARGUS Bulletin, Vol. 52, No. 2, February 1965, p. 31.

[5]Super Market Institute, pp. 12-13.

items handled had reached an estimated 7,100.[1] And, manufacturers are reportedly attempting to push between 2,500 and 5,000 new items onto the market each year.[2] Thus far, retailers have held down the number of new products accepted for sale to between 250 and 1,000 per year.

There has, for at least the past 15 years, been a trend toward locating new grocery stores in shopping centers. In more recent years there has been a particularly distinct shift toward the smaller shopping center.[3] Over 60 percent of all new stores opened in 1964 by members of the Super Market Institute (SMI) were located within shopping centers.[4] The same source reports that 94 percent of those stores locating in large shopping centers and 97 percent of those in the smaller centers held "exclusives" (i.e. were free of direct grocery store competition from within the same shopping center). Despite the demise of the neighborhood mom and pop store, a healthy 23 percent of new SMI member-operated stores were opened in what was described as "neighborhood" locations.[5]

Although some variation exists between stores, the mix of broad product lines is relatively constant throughout the industry. Between 20 and 25 percent of sales are for meats with another 7 to 10 percent for produce. The remaining 65 to 73 percent is divided among bakery,

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[1] Progressive Grocer, April 1966, p. 56.

[2] Ibid., p. 281.

[3] A "small" shopping center is, by definition, one in which the combined selling area of all stores is less than 100,000 square feet.

[4] Super Market Institute, p. 7.

[5] Ibid.

dairy, frozen, nonfoods, and a wide assortment of various dry grocery categories.

The nonfoods component of the product mix has changed significantly over the past 10 to 15 years. Between 1954 and 1963 the proportion of total food store sales falling in the nonfood category rose from 11.0 percent to 18.6 percent.[1] Health and beauty aids have become a particularly important source of sales, as Table 7 shows. Grocery stores have become the major outlet for many items that were once purchased from other sources. Furthermore, nonfoods have become an important element in the grocer's marketing strategy. It has been estimated that some of these nonfood lines, accounting for about 5 percent of sales and principally including health and beauty aids, housewares, and soft goods, often produce as much as 20 to 25 percent of the net profit of the modern supermarket.[2]

Most contemporary grocery stores are open for business day and night. The number of hours open vary by geographical region, averaging 72 hours per week in the Eastern states and 81 in the Western states.[3] The longer hours in the West are primarily caused by the high proportion (71 percent) of stores open on Sunday.[4] In addition, some stores in the Los Angeles market have been experimenting recently with all day-all night, 24 hour operations.

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[1]Annual surveys by Food Field Reporter and Food Topics, 1954 through 1963.

[2]Progressive Grocer, April 1966, p. 62.

[3]Super Market Institute, p. 16.

[4]Ibid.

TABLE 7.--Sales of selected nonfood items by grocery stores as a percent of total domestic consumption, 1964

Item	Percent grocery sales to total consumption
Toilet soaps and detergents	75
Pet foods	73
Tooth paste	57
Aspirin	51
Razor blades	51
Shampoos	49
Cigarettes	34
Phonograph records	12

Source: Food Topics, September 1965.

Despite their long hours, a high proportion of the average grocery store's sales volume is compressed within a comparatively short period of time. An increasing number of consumers make but one grocery shopping trip each week.[1] And, the vast majority of them make their trip during the last three shopping days of the week--Thursday, Friday, and Saturday. Over 75 percent of the week's sales are made on these days. A recent study of Kroger stores operating in and around Cleveland, Ohio, found that over 30 percent of the week's sales were

[1]A study of stores operated by Colonial found that 47 percent of their customers make only one trip to the store each week. Progressive Grocer, Colonial Study, 1962, p. C88.

squeezed within the nine hour period from 9 a.m. to 6 p.m. on Saturdays.[1]

The expense of retailing groceries accounts for about 18.5 percent of their retail value. Labor expense alone is responsible for almost as much of this amount as all other items combined, as shown in Table 8. An increasing proportion of grocery store employees, 46 percent in 1964, work on a part-time basis.[2] While labor productivity has risen substantially in recent years, exactly doubling between 1948 and 1963,[3] employee wage rates have increased at an even faster pace. In 1964 nonsupervisory food store employees were paid an average of $1.97 per hour.[4] The increasing unionization of grocery store employees has, of course, been instrumental in causing wages to rise. A high proportion of the larger firms (96 percent of those with sales in excess of $100 million) are unionized,[5] while a smaller but increasing share of the smaller firms are so organized.

Administrative expense, the second largest expense category, consists largely of labor operating outside the store's selling area. With the combination of store and nonstore labor, the labor input quite easily accounts for over half of all operating expenses. It should be noted that the expense breakdown appearing in Table 8 is biased in the

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[1]Progressive Grocer, Consumer Dynamics in the Super Market, 1966, p. K104.

[2]Super Market Institute, The Super Market Industry Speaks, 1964, p. 25.

[3]NCFM, Tech. Study No. 7, p. 15.

[4]Ibid., p. 263.

[5]Super Market Institute, The Super Market Industry Speaks, p. 29.

TABLE 8.--Typical grocery store operating statement, 1964

Item	Percent of sales	Percent of expense
Store labor	8.5	45.9
Administrative	2.2	11.9
Rent and real estate	1.8	9.7
Trading stamps	1.3	7.0
Advertising and promotion (excl. trading stamps)	1.1	6.0
Miscellaneous expense	0.8	4.3
Equipment depreciation and rental	0.8	4.3
Store supplies	0.7	3.8
Utilities	0.7	3.8
Maintenance	0.4	2.2
Interest	0.2	1.1
Total operating expense	18.5	100.0
Net profit	2.1	-
Total gross margin	20.6	-

Source: Derived from Super Market Institute, Figure Exchange, 1964.

direction of medium and large chain operations. Therefore, the administrative expense category is necessarily more prominent than would be expected for the statement of an independent operator.

Trading stamp expense, the fourth largest item, is a comparatively recent addition to the grocer's list of operating expenses. Between

1954 and 1961, the proportion of supermarkets giving trading stamps is estimated to have jumped from 13 percent to 78 percent.[1] After 1961 this share declined slightly and in 1965 was estimated to be around 69 percent. Since the expense levels itemized in Table 8 are weighted averages of both stamp and nonstamp issuing firms, the stamp expense figure underestimates the true expense level of stamp-giving firms and overestimates the level of those not giving stamps. The cost of stamps generally runs between 2 and 2.5 percent of sales.

The net profit appearing in Table 8 is a before-tax figure. Net profit after taxes averaged 1.3 percent of sales for medium and large chains in 1965.[2] Although 1.3 percent might seem unusually low (and industry spokesmen never tire of citing it), it alone is not a meaningful indicator of industry profitability. Grocery retailing is characterized by a relatively high turnover rate. Data collected through Cornell University indicates that food chains experienced an average turnover of 11.68 in 1964-65.[3] For this reason, each dollar of retailer investment earns it's 1.3 percent net profit several times over in each 12-month period. As a percent of net worth, the grocery retailer's net profit is considerably more impressive; in 1965 it was measured at 12.5 percent, comparing favorably with the "all industry" average of 11.1 percent.[4]

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[1] NCFM, Tech. Study No. 7, p. 263.

[2] First National City Bank of New York, Monthly Economic Letter, April 1967.

[3] Wendell Earle and John Sheehan, Operating Results of Food Chains, 1964-65, (Ithaca, N.Y.: Cornell University, 1965), p. 51

[4] First National City Bank of New York.

This concludes our brief description of some of the major dimensions of the grocery retailing industry. Although the information presented in this Chapter provides little more than a cursory introduction to the subject; it should be a useful point of departure. One must have some understanding of a topic even before he can raise relevant questions. In the Chapter that follows I will formulate the basic hypotheses that will be tested throughout the remainder of the study.

CHAPTER III

CHARACTERISTICS TO BE STUDIED

The principal objective of this study, as briefly described in Chapter I, is to search for meaningful relationships between structure, conduct, and performance. Though this study will focus exclusively upon the grocery retailing industry, it is hoped the findings will have application in other contexts.

A secondary objective is to evaluate the grocery retailing industry's level of performance. To some extent, this will come as a natural by-product of the principal objective. Measurement of industry performance will, however, be subordinate to the documentation of structure-conduct-performance relationships. If the evaluation of industry performance were our chief concern, the study would, of necessity, take on a slightly different orientation. Stress would fall on results (performance) and how these results compare with those found in other segments of the economy. In contrast, the brunt of the analysis of this study will emphasize cause and causal relationships.

Criteria for Selecting Characteristics to be Studied

If one chooses to become specific enough, the number of industry characteristics which could be examined approaches infinity. Most

fields of study, particularly social study, are replete with narrow theories which claim to explain "everything" with one or another specific characteristics. There is, for example, in the literature of economic development a theory (called the "worm theory") which traces an economy's performance to the type of native footwear. If the natives wear no shoes at all or only thin coverings, they eventually become (according to the theory) afflicted with small parasites that enter their bodies through the unprotected soles of their feet. The resulting disease and poor health is said to drain the population of all vigor and initiative thus causing economic stagnation. If one were of the notion, a thousand other factors could be traced through with the same logical consistency.

To avoid becoming entangled in a web of countless factors which may or may not be causally associated with industry performance, this study will concentrate on a small number of fairly general factors or characteristics. In choosing the characteristics to be studied, a number of criterion have been considered. The most important were:

(1) The perceived likelihood of the characteristic being causally linked with performance.

(2) Its influence on current policymaking decisions.

(3) Its conduciveness to policy influence.

(4) Its relevance to other industries.

(5) Its hypothesized role in market structure theory.

On the basis of these considerations, five industry characteristics were selected for examination. Each of the five and the reasons for their selection are described below.

Introduction to the Characteristics

Relative Size. Market structure theory has conventionally emphasized relative size as an important determinant of conduct and, thence, performance. The concentration ratio (the proportion of total market sales accounted for by a given number of the largest firms) has been the most popular measure of relative size.

Although the simplicity of the concentration ratio has, no doubt, contributed to its popularity, the importance of relative size is well grounded in economic theory. Theories of both perfect and imperfect competition have laid great stress on the number and relative size of competitors. Economists have hypothesized that as conditions of perfect competition give way to less perfect circumstances, each firm perceives its own downward sloping demand function. Management's awareness of this price-quantity relationship can theoretically result in: (1) a lower output than would be experienced under the equilibrium conditions of perfect competition, (2) a product price level exceeding that of the competitive equilibrium, and (3) a profit level over and above which might be considered "normal."

Though most economic theories hypothesize that relative size is an important determiner of the level of competition and, as a result, economic performance, there has been very little quantitative testing of the hypothesis. Nevertheless, the lack of verification has not stopped the relative size hypothesis from figuring prominently in several recent and important policy decisions.[1]

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[1]Recent examples include FTC actions against National Tea, Winn-Dixie, Grand Union, and Dean Foods and the Justice Department's case against Von's Grocery of Los Angeles.

The Supreme Court decision in the Justice Department case against Von's Grocery Company of Los Angeles is a noteworthy example.[1] In the spring of 1960, Von's Grocery (30 stores) acquired the capital stock and assets of another Los Angeles area chain, Shopping Bag (36 stores). The Justice Department immediately brought action against Von's, charging them with violation of Section 7 of the Celler-Kefauver Amendment to the Clayton Act. The District Court, after concluding that there was "not a reasonable probability" that the merger would tend "substantially to lessen competition" or "create a monopoly," ruled in favor of the defendents. The Justice Department then appealed directly to the Supreme Court. After hearing arguments in May 1966, the Supreme Court reversed the lower court's ruling and directed the District Court to order divestiture "without delay."

The concept of market concentration was central to both decisions. Although Von's and Shopping Bag together accounted for only 7.5 percent of the total Los Angeles market in 1960, both Courts gave close consideration to the merger's effect on the overall trend in market concentration. Upon examination of the evidence, the District Court concluded that

> there has been no increase in concentration in the retail grocery business in the Los Angeles Metropolitan Area either in the last decade or since the merger. On the contrary, economic concentration has decreased.[2]

Justice Black, author of the Supreme Court's majority opinion, disagreed. In his view, the District Court's conclusion was "completely contradicted by...the steady decline in the number of individual

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[1]United States vs. Von's Grocery Company, U.S. Supreme Court, No. 303, October Term, 1965 (decision handed down May 31, 1966).

[2]Ibid., p. 2.

grocery store owners."[1] Justice Black further observed that the District Court has apparently

> used the term "concentration" in some sense other than a total decrease in the number of separate competitors which is the crucial point here.[2]

Thus, both Courts laid major stress on the trend in market concentration; both implicitly assumed a meaningful relationship between the trend in market concentration and market performance; and, significantly, each defined "concentration" in a different way. The Court's opinion in this case generally reinforced its past actions. Yet, in addition to ruling against high levels of concentration, variously defined, the High Court had now demonstrated an inclination to move against even relatively low levels of concentration if they demonstrated an increasing tendency.

Justice White, in concurring with the majority, was even more specific when he commented that

> given a trend towards fewer and fewer sellers which promises to continue, it is clear to me that where the eight leading firms have over 40 percent of the market, any merger between the leaders or between one of them and a lesser company is vulnerable under Section 7, absent some special proof to the contrary.[3]

Under this criterion, the leading firms in only 2 of the 218 SMSA's in 1963 would qualify for uncontested merger.

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[1] Ibid., p. 3.

[2] Ibid.

[3] Ibid., Justice White's Statement, pp. 1 and 2.

Since retailers operate under different market conditions when they buy and when they sell, concentration must be examined on two levels. In studying the concentration of purchases of food retailers, a national or regional market is usually appropriate. Concentration at the seller level, however, is most meaningful when studied in a context of the local market. This study will examine the effect of varying concentration at both levels.

Absolute Size. Absolute size of firm, as distinguished from relative size, has not been given serious consideration in the formulation of competitive theory. Firm size has been considered important only as it relates to the size of the entire industry or market or to within-firm technical efficiency. Yet, there would appear to be evidence that size alone, irrespective of its share of the total activity, affects both behavior and performance.

Larger firms are often in a better position to integrate--horizontally and vertically. The larger firms' geographic and product diversification frequently permit them to employ merchandising strategies not available to smaller, less diversified firms. And, the retailer's position vis-a-vis his suppliers (of everything from merchandise to labor to shopping center locations) is unavoidably influenced by absolute size.

There are equally compelling reasons to suspect that the absolute size of store affects performance. In terms of technical efficiency, larger stores would seem to offer an excellent opportunity for the realization of economies of scale. In addition to the lower prices that might accrue from economies of scale, store size would appear to

have other fairly important benefit-cost implications for the consumer. Larger stores provide the benefits of a broader selection of merchandise and a convenient source for one-stop shopping, for example. On the other hand, there are the costs and inconvenience of having to travel further to reach the store and the increased opportunity for the retailer to use "loss leader" pricing practices.

In another sense, absolute size is also a measure of performance--firm performance. Baumol has argued that growth and expension are among the most important goals sought by businessmen.[1] To those who regularly read the financial pages or who have witnessed the pride of a chairman of the board of a large corporation as he announced the record sales of the previous year, this is probably belaboring the obvious. However, in the present analysis we are concerned not with firm performance but with industry or market performance. As a result, absolute size--of firm and of store--will be treated as a potential determinant of performance.

Pricing Practices. To the extent pricing practices have been considered at all in the formulation of economic theory, they have been viewed as a result or function of market structure that eventually influence performance. In this particular section of the analysis I propose to treat pricing practices as a cause of performance, largely independent of structural considerations.

Grocery retailing is characterized by pricing systems unlike that found in any other industry in our economy. The grocer's pricing policy is perhaps the single most important element of his entire merchandising strategy. This importance stems from the unique environment in which

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[1]William J. Baumol, Business Behavior, Value and Growth (New York: Macmillan Co., 1959).

the grocer merchandises his mix of products: an extremely wide range of products--usually numbering between 6,000 and 8,000; an unstable wholesale price structure, often requiring weekly (and sometimes daily) changes in retail price; an exceedingly high rate of product turnover; a comparatively low per item value (most items are priced under one dollar and many are under 25¢); and relatively low consumer price awareness.

As a result of this combination of circumstances, food retailers have found it advantageous to employ so called "loss leader" merchandising strategies. This is accomplished by selling 40 to 50 items at unusually low prices each week, prices that often fail to cover the full cost of the merchandise itself. These low priced items are heavily advertised with the intent of attracting customers who will purchase other nonspecialed items as well. The costs not covered by the specialed items are added to the retail prices of other nonspecialed merchandise.

In addition to their use of loss leaders, food retailers exercise considerable discretion in the setting of "normal" gross margins. Very few retailers set their prices through use of a constant margin for all items or even for all items within a fairly narrow product line.

The implications of these pricing policies are both numerous and far reaching. To the consumer, retail food prices are often confusing. Consumer price awareness is extremely limited. From the standpoint of the individual consumer, the cost of more perfect information is prohibitively high.

Beyond their influence on consumer welfare, these pricing policies also affect other economic units. The self-interest of agricultural

producers, for example, is intertwined with the selection of commodities used for price specialing. Not only are specialed products likely to clear the market with greater ease but a wider preference base for their future consumption is formed, as well.

In terms of the retailer's competitive stance vis-a-vis his suppliers, these practices afford the retailer an important advantage. It is within the retailer's power, as a final price setter, to influence the quantity demanded of any specific brand, including, if he so desires, his own private brand.

Horizontal Integration. Integration, as the term is used by economists, denotes the combination or coordination of separate economic activities. The activities may occur at the same stage of production (e.g. two retail organizations) or at separate stages (e.g. a retailer-wholesaler relationship). The former is referred to as "horizontal" integration, the latter as "vertical" integration. Both are basically structural attributes.

The widespread existence of horizontal integration in food retailing, in combination with the rather important competitive implications associated with it, are the principal reasons for including it in this study. With almost 56 percent of all grocery store sales in 1963 accounted for by firms operating two or more stores and 47 percent by firms operating 11 or more stores, the importance of horizontal integration is self-evident. Furthermore, many single store firms, though maintaining independent ownership, have achieved partial integration (horizontal and vertical) through membership in affiliated groups.

Horizontal integration is important both in terms of the way in which it is achieved and, once accomplished, the performance it fosters. Much of the growth of larger chains has occurred through expansion into new markets. Although internal growth (i.e. the construction of new stores) is still the most popular form, growth by merger is a close second. In the face of a rising tide of mergers, the antitrust enforcement arms of the Government have taken steps to curb future mergers. In examining this topic, an attempt will be made to compare the relative costs and benefits of such a policy.

Beyond the relevance of the way in which it is achieved, horizontal integration is also important for the firm behavior it elicits. I am thinking particularly of the ramifications for those firms that operate in many geographically separated markets. These organizations experience rather unique merchandising opportunities. Their geographic diversification allows them, for instance, to bear prolonged financial losses in a portion of their markets if the prospect of future profits makes this course of action seem worthwhile. This was the substance of the antitrust charge brought against Safeway in 1955 by the Justice Department.

Therefore, horizontal integration will be examined both because of its suspected importance to the nature of competition and because of the attention it is receiving in regulatory agency decisions.

Vertical Integration. Vertical integration, the coordination of different stages of production, is the fifth and final characteristic to be studied. Historically, vertical integration has played an influential role in the evolution of grocery retailing. Integration into

grocery wholesaling by the early chains afforded them the basis of their competitive edge over the independent. As a result, large numbers of multistore firms integrated into warehousing. Most present-day chains of 30 stores or more operate their own warehousing unit. On balance, retailer integration into food processing has been more moderate, though a few large firms have integrated rather extensively.

Retailer private labeling is another form of vertical coordination with important competitive implications. Though private labeling does not qualify as a form of pure vertical integration, as a close substitute, it will receive attention in this study.

It is fairly evident that vertical integration, actual or threatened, gives the retailer a strong hand in his dealings with suppliers. The possibility of retailer integration often tends to discourage excessive profits and inefficiencies on the part of the processor. The extensive use of private labels has also had an important effect on retailer-supplier relations. And, their use has made it possible for firms of all sizes (including independent members of voluntary and cooperative wholesale groups) to provide their customers with a choice between advertised and nonadvertised merchandise.

Summary

Of the five characteristics just described, four--relative size, absolute size, horizontal integration, and vertical integration--relate to industry structure. The fifth characteristic, pricing practices, is behavioral. These particular dimensions of the industry were chosen for a variety of reasons, including: their role in market structure theory, their application by the policymaker, and the author's

assessment of the industry and the important forces acting upon it. Before attempting to test these relationships, the performance standards to be used will be examined. The following Chapter is devoted to this purpose.

CHAPTER IV

PERFORMANCE CRITERIA

Defining Performance

As George Stigler has observed, economists have traditionally defined competition in terms of requisites rather than results.[1] From the earliest days of Classical theory, emphasis has centered on the requirements for perfect competition (free entry and exit, a large number of small firms, homogeneous products, etc.) with a minimum of attention to defining the desired outcome (optimum allocation of resources). With the passage of time, the Classicists' hypothesized requirements have tended to become identified as ends in themselves. Economic systems are judged by at least some members of the economics fraternity, not on the basis of results, but on how closely they pattern the assumptions of perfect competition.

The theories of "imperfect competition," "monopolistic competition," and "workable competition" set forth more appropriate assumptions but largely failed to clarify what the system was expected to provide in terms of results.

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[1] George J. Stigler, The Theory of Price (New York: The MacMillan Company, 1952), p. 12.

Jesse Markham's definition of workable competition is illustrative.

> An industry may be judged to be workably competitive when, after the structural characteristics of its market and the dynamic forces that shaped them have been thoroughly examined, there is no clearly indicated change that can be effected through public policy measures that would result in greater social gains than social losses.[1]

Though Markham's restatement of workable competition is worthwhile, his definition of objectives in terms of the net of "social gains" and "social losses" is not very operational.

More recent attempts to formulate a theory of industrial organization have tried to deal with performance in less abstract terms. Market structure theory, in particular, has followed this course. In hypothesizing testable relationships between market structure, behavior, and performance, market structure theorists have adopted or tried to adopt variables that can be quantified. Still, even among the structuralists, performance criteria are found in widely varying stages of generality. Richard Caves' "economic goals" or "performance traits" are among the more general (and less testable).[2] He advances four goals: (1) economic efficiency, (2) full employment, (3) progressiveness, and (4) an equitable distribution of output. These objectives don't differ materially from those that have been advanced by economists for at least the past 30 years.

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[1]Jesse W. Markham, "An Alternative Approach to the Concept of Workable Competition," The American Economic Review, Vol. XL (1950). Reprinted in Readings in Industrial Organization and Public Policy, Ed. by Richard B. Heflebower and George W. Stocking (Homewood, Illinois: Richard D. Irwin, Inc., 1958), p. 94.

[2]Richard Caves, American Industry: Structure, Conduct, Performance (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1964), p. 95.

Bain's criteria are more representative of those used in contemporary market structure research. He divides performance into seven dimensions: (1) efficiency as affected by scale of operation and utilization of capacity, (2) rates of profit on owner's investment, (3) sales promotion cost, (4) technological progressiveness, (5) product performance, (6) conservation performance, and (7) price flexibility.[1] In his own research, Bain concentrates on the first five of these standards.

Stephen Sosnick, in his excellent critique of market performance criteria, considers twelve norms.[2] They are: (1) production efficiency, (2) technological progressiveness, (3) product suitability, (4) profit rates, (5) level of output, (6) exchange efficiency, (7) cost of sales promotion, (8) unethical practices, (9) participant rationality, (10) conservation, (11) external effects, and (12) labor relations. The general tone of Sosnick's paper is that each of these measures suffers from one or more weaknesses. Some, such as technological progressiveness and product suitability, defy definitive measure. Others, such as promotional costs and profit rates, can be measured but require exceedingly careful interpretation. In short, Sosnick seems to be arguing that, though these criteria are filled with flaws, they are the best available. And, as such, they must be used, but used with generous measures of thoughtfulness and flexibility.

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[1]Bain, pp. 340-405.

[2]Stephen H. Sosnick, "Operational Criteria for Evaluating Market Performance," Market Structure Research, ed. Paul H. Farris (Ames, Iowa: Iowa State University Press, 1964), Chapter 6.

Beyond the differences of opinion over identification of the appropriate performance criteria, there is some disagreement over the broad meaning of market performance, irrespective of its component parts. Bain views market performance as "the strategic end results of market adjustments engaged in by sellers and buyers."[1] Sosnick registers dissent over this definition, arguing that performance measures are neither "final" nor "results" in the truest sense of the words.[2] In his estimation, the cause-effect relationships in market structure research are much too tenuous and given to circularity to allow for the objective use of such terms. On the basis of past research, there is little or no assurance that the path of causality doesn't run from performance to structure rather than vice versa. To the contrary, some of the evidence that will be presented in this study strongly suggests that performance is a very important determinant of industry structure. Sosnick therefore defines market performance to include "the attributes of production and exchange in a segment of the economy that directly influence the welfare of the participants and the society."[3] Although this statement is every bit as general as the one by Markham, Sosnick does not, as we have seen, stop with this declaration, but goes on to list specific criteria.

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[1]Bain, p. 340.

[2]Sosnick, p. 84.

[3]Sosnick, p. 85.

Despite these differences, there is general agreement among contemporary market structure researchers on one point; namely, that each industry must be studied on its own terms.

> The particular set of performance dimensions which are analytically significant varies from industry to industry; each industry is potentially, in some degree, a special or unique case requiring "tailor-made" appraisal of a sort not fully applicable to other industries.[1]

The next step, therefore, is to develop a list of criteria that will be operationally relevant to the topic of this study.

Criteria Used in This Study

After considering the nature of the grocery retailing industry and the type of data available to this study, seven performance criteria were selected. Though these criteria are subject to weaknesses of varying degrees, they are deemed the best available. It will not be possible to quantify each as fully as would be desirable for purposes of hypothesis testing. The picture that results will in many respects resemble a puzzle, with pieces of evidence fit in here and there. But, this is nothing new in economic research--especially research that is attempting to poke beyond the confines of accepted theory.

The remainder of this Chapter is devoted to a general description of the criteria to be used, the nature of the supporting data, and some of the problems that are likely to be encountered.

Technical Efficiency of Distribution. There is general agreement that improvements in technical efficiency are desirable ends of

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[1]Bain, p. 340.

productive and distributive activity. To the extent that a given function can be performed using fewer resources, it becomes possible to divert the unutilized resources into other forms of productive endeavor. If anything, the technical efficiency criterion is plagued by an over-acceptance by professional and layman alike. There is a strong tendency for many individuals and many groups of the Classical persuasion to equate economic performance with technical efficiency--and nothing else. Cost minimization thereby becomes the sole criterion of satisfactory performance. It becomes so at the expense of other equally important but less easily handled criteria.

Various measures of technical efficiency (defined as the value of output per unit value of input) will be employed. These include dollar operating expenses per dollar of sale, sales per man-hour, sales per square foot of physical plant, turnover rates, dollar value per transaction, and tons handled per man-hour.

Technological Progressiveness. In many respects, technological progressiveness is part and parcel of technical efficiency. The major aim of technical progress is to improve the ratio of output to input, i.e. technical efficiency. Yet, in one very important respect these criteria measure different dimensions of performance. For this reason, they are being treated separately.

Technical efficiency, as it is used in this paper, reflects the degree to which firms or industries are able to maximize their output-input ratios, using current technology; technological progressiveness reflects the gain in efficiency that comes from the development and adoption of new technology. That is, technological progressiveness is

meant to measure innovative efficiency as opposed to imitative efficiency. The distinction is important for two reasons: (1) through comparisons with benchmark firms, the capacity for imitative efficiency can be evaluated with relative ease. In the case of innovative efficiency there are no benchmarks. (2) The benefits of innovative efficiency are of a different and, I suspect, more far-reaching nature in terms of their total impact upon economic performance.

By its very nature, technological progressiveness will be difficult to handle quantitatively. Nonetheless, it will be woven into the analysis whenever feasible.

Product Improvement. Although retailers do not usually play a direct role in the design and development of new grocery products, their control of the final outlet has an important influence on those who do perform this function. Furthermore, the term "product," as used in this study, will include both goods and services. The retailer is directly responsible for the "service" portion of this bundle.

Product improvement has long been viewed as a crucial element of the competitive process within a capitalistic system. Schumpeter saw the replacement of existing products and techniques by improved versions (which he labeled "the process of creative destruction") as "the essential fact about capitalism...the powerful lever that in the long run expands output and brings down prices."[1]

Product improvement is not without its problems of identification and measurement, however. It is often difficult to know where to draw

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[1]J. S. Schumpter, Capitalism, Socialism and Democracy, (3rd Edition; New York: Harpers 1950), pp. 82-85.

the line between a genuinely improved product and one which is but a slight modification of an already existing product. Proliferation of new products of the latter type can, in fact, be worse than no new products at all.

Responsiveness to Consumer Wants. Despite the soundness of Galbraith's arguments concerning what he labels the "dependence effect," it is in the nature of our present system of resource allocation that production decisions are initiated at the producer level. The consumer expresses her will through the pattern of her spending in the market place. If she approves of the producer's decision, she buys his product; if she disapproves, sales volume lags. Promotional effort can and does influence her decision, but not without limit. In a smoothly functioning system the producer perceives these responses and adjusts his production schedules accordingly. Yet, the system does not always function smoothly.

Again, there are problems of definitive measurement. The evidence is fragmentary. To the extent producers influence demand through persuasive (as opposed to informative) advertising, the task is further complicated. Although some market structure economists treat sales promotion costs as an entirely separate performance criterion, I consider the measure far too ambiguous to be used in this manner.

Supply Alternatives. The existence of a "satisfory" number of supply alternatives for both the retailer and the consumer will be viewed as a positive contribution to performance. Supply alternatives are not necessarily reflected in the absolute number of stores or firms. A given market may contain many stores operated by many different firms;

however, if all stores in the market issue trading stamps, for example, the consumer has no real alternative but to accept them.

A retailer may encounter similar problems in dealings with suppliers. For example, a retail organization may have several alternative sources of corn flakes. But each processor also markets a complete line of "fad" cereals, the promotional costs of which are partially borne by the established varieties, including corn flakes. A retailer desiring to merchandise corn flakes at a price that reflects their cost of production has no source of supply that is willing to sell on that basis. Thus, it must be said the retailer has more alternative sources of supply than supply alternatives.

How many supply alternatives are needed to qualify as "satisfactory" cannot, of course, be answered with any degree of precision. Nevertheless, it should be recognized that, within broad bounds, there can be either too many or too few.

Consumer Information. In much the same way that an informed electorate is essential to the success of democratic government, an informed consumer is essential to the success of a capitalistic economy. Unless consumers' actions in the market place are predicated on relatively accurate information about alternative products, their prices, quality specifications, and sources of availability, these actions cannot serve as a reliable barometer of consumer wants and needs. Rather, they provide the producer with erroneous signals that are translated into misallocations of economic resources.

This is not meant to imply that anything short of "perfect knowledge" reflects failure. The costs associated with additional increments of information might exceed the prospective gains. This is especially

true from the standpoint of the individual consumer who places a high value on the time required to obtain such information.

Profit Rates. Despite their frequent abuse, profit rates can provide a valuable indication of industry performance if properly applied. A clear understanding of exactly what is being measured is the most essential requirement.

There is, of course, no clearly defined line separately acceptable rates of profit from unacceptable rates. The best that can be said is that profits should not be "excessively high" or "excessively low" (in comparison with other investment opportunities) over prolonged periods of time, unless they can be explained by some extenuating circumstances. If the profit mechanism is functioning as it should, occasional excesses of temporary duration are to be expected--even desired.

Several different measures of profit will be used in this analysis, depending upon the availability of data and the use to which the measures are put. After-tax profits per dollar of sale, for example, can be used in making intraindustry analyses but are of very limited value in comparing the profitability of different industries. After-tax profits per dollar of capital investment, though providing a more meaningful measure of profitability, must be carefully defined with respect to the inclusion of capitalized leases, other long-term obligations, and the like.

Industry performance will be measured in terms of these seven criteria. Although these measures are fairly rough, they should provide useful points of reference for evaluating the direction of performance, if not its level. It should be noted that the criteria are not mutually exclusive. There is, instead, a rather marked degree of interdependence,

often negatively correlated. For example, the consumer's desire for a new service (e.g. greater shopping convenience) may come into direct conflict with technical efficiency. An improvement in one dimension of performance is thereby at least partially offset by deterioration in another. As we proceed with the analysis, we will discover that such cross-currents are not uncommon. Industry characteristics are, more often than not, associated with a mixture of performance outcomes--some desirable, some undesirable.

This concludes the introductory section of the study. The remaining Chapters will be devoted to probing for meaningful relationships between the characteristics described in Chapter 3 and the performance criteria described above.

CHAPTER V

RELATIVE SIZE

Introduction

Economic theorists have long held that relative firm size and competitive performance are intimately related. Classical theory assumed the presence of a large number of relatively small firms, none of which were of sufficient size to single-handedly affect the welfare of its competitors. A change in the quantity supplied by any one firm or group of a few firms would be too small to affect the equilibrium price level. Thus, in the view of each seller, the demand for his product was completely elastic at the current market price. No amount of withholding or deluging of the market by him alone would alter this price. He was, in the strictest sense of the term, a price taker.

Although the assumption of many small producers, none of whom were large enough to affect price, was probably realistic in the day of Smith and Ricardo, it has long since passed from the stage of economic reality. Agriculture is one of the few contemporary industries that comes at all close to approximating the conditions of this assumption. And it doesn't come very close.

With industrialization came the birth of many new products and new industries to produce these products. With industrialization also came

vast changes in the technology of production, changes that were not well suited to application in the small plants and shops of the 19th century. Adam Smith himself must surely have anticipated the great changes that lie ahead. His stress on the division of labor and its contribution to a more efficient production tended toward conflict with the classical concept of the competitive norm. Applications of the division of labor principle eventually led to the concentration of greater quantities of resources in fewer hands.

Most contemporary industries are characterized by a relatively small number of firms, at least small in comparison with the assumptions of perfect competition. The proportion of total output accounted for by, say, the largest 20 firms of an industry, varies considerably from one industry to another. In 1958, the 20 largest manufacturers of breakfast cereals in the United States produced over 99 percent of their industry's total output while the 20 leading fabricators of women's suits, coats, and skirts accounted for a bare 11 percent of the total output of these garments.[1] The nation's 20 largest wheat growers produced an almost imperceptible share of the total crop.

As the number of firms facing a given competitor declines, the opportunity for that firm to influence market price rises. If management's major objective is to maximize profits, with few competitors it will become obvious that this can be achieved by producing at a specific

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[1] U.S. Congress, Senate, Subcommittee on Antitrust and Monopoly of the Committee on the Judiciary, Concentration Ratios in Manufacturing Industry, 1958, Report prepared by the Bureau of the Census, 87th Congress, 2d Session, 1963, Table 2.

level of output. In contrast to the producer operating under conditions of perfect competition, the oligopolist perceives that the demand for his product is not completely elastic at the current market price. As a result, members of the oligopolistic industry find it to their profit advantage to offer consumers a low output at higher prices than would be expected under conditions more nearly approximating the competitive norm.

In addition to producing a lower output that sells at higher prices, the oligopolistic market tends to give rise to other forms of firm behavior that are thought to have an undesirable effect on industry performance. When a relatively high proportion of total output is accounted for by a small number of firms, it becomes evident that the action of any one firm affects all its competitor firms. If one firm lowers the price of its product and the others do not follow, the now relatively higher priced firms are likely to lose business to the price cutter. How much business is transferred among firms is, of course, dependent upon the nature of the price-quantity relationship. Recognizing their interdependence, firms become reluctant to initiate price changes, causing prices to become sticky and unresponsive to changes in supply-demand conditions.

Graphically, this behavior gives rise to what is called the "kinked demand curve." Since the demand function facing a firm is somewhat dependent upon the ratio of its price to that of its competitors, the demand function is said to be kinked at the point of current market price. This condition is caused by the manner in which firms respond to changes in their competitors' prices. If a given firm raises its price, most of its competitors will not follow. However,

if the firm lowers its price, its competitors will reciprocate by lowering their price too. As a result, the demand curve develops a kink, indicating that the firm loses business by increasing its prices but gains little, if any, by lowering its prices. Inertia is thus rewarded.[1]

Fewness of sellers can also lead to other patterns of firm behavior that have important ramifications with regard to industry performance. Given that most firms recognize their interdependence with other firms in the same industry, there is an opportunity for various forms of collusion to occur. Collusion does not, of course, have to be overt. The intent to collude can have equally damaging results.[2] Collusion may take many forms, including agreements on the setting of retail prices, the division of markets, production levels, and the allocation of customers.

Another behaviorial aspect that owes its existence to the conditions of oligopoly is the differentiation of products. In addition to recognizing that the demand function they face is downward sloping to the right, firms operating under conditions of oligopoly also realize that it is within their power to change the location and the slope of

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[1]Informal discussion with executives of food chains generally verifies this behavior. However, it turns out to be somewhat dependent upon the size of the competing firm. If the price reducing firm is relatively small, its larger competitors are not likely to follow its lead in lowering price. Thus, relative size, even within the oligopolistic core, becomes a factor of some importance.

[2]Sometimes referred to as "conscious parallelism." See Mark S. Massell, Competition and Monopoly (Washington, The Brookings Institution, 1962), p. 209.

this function. Through differentiation of their products, these firms can influence the price the consumer is willing to pay and her responsiveness to changes in price.

Finally, fewness of sellers can lead to the creation and exercise of what is sometimes termed "economic power." Economic power commonly evolves from situations in which there are wide disparities in the sizes of a relatively limited number of firms. By taking advantage of their relatively larger size, some firms possess the ability to inflict considerable damage on their small competitors. This is not to say that the exercise of economic power is a frequent occurrence or that it is even within the long run interest of most firms to exercise. Nevertheless, the numerous opportunities for its occurrence are indisputably apparent.

Before proceeding to evaluate the effects of relative size, we must give consideration to the study's geographic and industrial frame of reference. An early step in any study of competitive behavior is the delineation of appropriate market boundaries.

Competition takes place within a setting identified as a "market." A market is comprised of "a closely interrelated group of sellers and buyers."[1] A market has both geographic and functional dimensions. Geographically, a market encompasses that area containing buyers and sellers who are actively engaged in the exchange of goods and services. The geographic market of the popcorn vendor at the Saturday afternoon football games is limited to the confines of the stadium and its ramps and parking lots. In contrast,

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[1]Bain, p. 7.

Hudson's Department Store of Detroit serves a market comprising several hundred square miles while Sears, Roebuck and Company measures its total market in terms of countries.

Geographic markets are not clearly and unambiguously defined. Market boundaries are flexible. They contract and expand as conditions change. A lowering of rail rates, for example, might result in an expansion of the market within which Pittsburgh's giant steel mills would look for sources of fuel. An increase in the average steelworker wage may have the opposite effect. Likewise, the price of the product itself is an important determinant of effective market boundaries. As the ratio of a firm's price to that of its competitors (or potential competitors) falls, the firm's market expands in size. Thus, a discount toy store in Fairfax County, Virginia, a densely populated suburb of Washington, D. C., commonly draws customers from 10 to 12 miles away. If it were to raise its prices to a level approximating those charged in the several stores that must be passed in traveling to reach it, this store's geographic market would quickly contract.

The functional dimension of a market relates to the product's physical form and the ease with which it can be replaced by another product. In its broadest form, a market is described as being synonymous with an industry. There are, of course, many different levels of industry aggregation. The Bureau of the Census in its Standard Industrial Classification scheme adheres to a system of three industry levels (2, 3, and 4-digit) and two product levels (5 and 7-digit).

Regardless of the level of aggregation at which the industry or the product is viewed, it is subject to some degree of replacement by

other industries or products, if price conditions are appropriate. Cane sugar (SIC 2062) for example, can be replaced in many of its uses by beet sugar (SIC 2063) and vice versa and aluminum (SIC 3334) can replace steel (SIC 3323) and vice versa.

Since most products can be replaced, it becomes important to define a market in terms that go beyond the specific product. Product substitution becomes a consideration of some importance. If a product has a relatively large number of good substitutes (as do most food items, for example), one must consider the relationship between these products when judging the nature of competition. If there is a high degree of substitution at prices near those currently in effect, the producer of any one product is forced to look upon the producers of these substitutes as competitors. Although a given firm might achieve a substantial share of the total sales in its narrow product category or might even succeed in becoming the sole source of the product's supply, it is restrained in its policies with regard to price making and production levels by the potential competition of other products.

The latter point will not be of great importance in defining the appropriate market for grocery retailing. Although alternative sources of purchases of food for home consumption do exist, they are not of major significance and account for a declining share of the total. These alternative sources, commonly called "specialty food stores," accounted for approximately 20 percent of total food sales in 1948; but by 1963, their share had fallen to only 8 percent.

Although restaurants and cafeterias might be viewed as alternative sources of food purchases, they are not likely to be close substitutes under price relationships approximating those now in existence.

The geographic dimension of a market does have a bearing on the way in which we examine competition within the industry, however. This arises chiefly from the variation in the buying and selling markets of the grocery retailer.

As a buyer, the grocery retailer competes with firms over a rather broad geographic area. Many food products are purchased within the context of a national market.

In his selling capacity, the grocery retailer operates within a strictly local market environment. At retail the individual store becomes the focal point of competition. Stores separated by as many as 25 or 30 miles are rarely in direct competition. Thus, a firm's share of its buying market is not directly related to its share in any particular selling market. These markets will, therefore, be treated separately.

The Grocery Retailer as a Buyer

Identification of the Appropriate Market. With the widespread integration of large food retailing firms into warehousing, most of the larger organizations buy directly from processors and manufacturers. The growth of affiliated groups (voluntary and cooperative) over the past 15 years has further increased the exposure of the retailer to the process of buying in quantity lots directly from the processor. Thus, in this section we will be examining the buying stance of three types of retail organizations: (1) the large chain which operates its own warehousing and transportation network and deals directly with the processor, (2) the independent retailer who is closely tied to a wholesaling establishment, either through part ownership or written purchase

agreement, and (3) the unaffiliated independent who deals with a local independent wholesaler.

The unaffiliated independent does almost all his buying at the local level. Those products which are not delivered to the store by processor-distributors are purchased from local wholesalers.

In contrast, the large chains and affiliated independents deal directly with the processors and manufacturers. In some cases, these transactions take place locally but for many products the firm must go beyond the immediate locale.

The extent of the geographic dispersion of suppliers is determined by a wide range of factors including: perishability of the product, scale economies of processing, extent of raw product shrinkage, areas of farm production, and the weight and bulkiness of both the raw product and the finished product.

Fluid milk and bread are two products that are usually purchased locally. It has been estimated that most bread is distributed within 50 miles of its point of production, although the outer boundary extends to 150 to 300 miles.[1] Fluid milk is distributed in an even more restricted area.

Within a given product category, there is a tendency for the smaller processing firms to serve a more restricted marketing area. For example, "in a 1962 survey of 58 (poultry) processing plants, plants slaughtering under 50,000 birds weekly marketed 69 percent of their volume within 50 miles of the plant and 31 percent between 50 and 100

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[1]NCFM, Organization and Competition in the Milling and Baking Industries, Technical Study No. 5, (Washington: Government Printing Office, 1966), p. 51.

miles. Larger plants marketed most of their birds over 100 miles away."[1] The trend toward fewer and large poultry processing plants since 1960 has thereby contributed to a widening of the geographic market in which retailers buy their poultry products.

In contrast, many nonperishable food products are distributed on a national scale. A processor of canned tomatoes in Northwestern Ohio competes with a California processor for the shelf space of a store in Kansas City. Of the total production of canned and frozen fruits and vegetables processed within the Pacific region in 1964, only 34 percent of the canned goods and 32 percent of the frozen foods were marketed within the region.[2] The remainder moved to other parts of the country.

Of course, retail firms do not always buy at the processor-manufacturer level. Some firms, particularly the very largest, are integrated into the processing function. In these instances, producers or assemblers are the retailers' initial sources of supply. In 1963, the 40 largest retail chains manufactured food accounting for about 8.8 percent of the total retail sales of these firms.[3] Although some firms are integrated into the processing of everything from spices to soft drinks, most processing activity is concentrated in a few lines. Bread, fluid

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[1]NCFM, Organization and Competition in the Poultry and Egg Industries, Technical Study No. 2, (Washington: Government Printing Office, 1966), fn. p. 50.

[2]NCFM, Organization and Competition in the Fruit and Vegetable Industry, Technical Study No. 4, (Washington: Government Printing Office, 1966), pp. 196 and 235.

[3]NCFM, Tech. Study No. 7, p. 78.

milk, meat packing, and coffee accounted for nearly 60 percent of the total value of food products manufactured by these 40 chains in 1963.[1] In that year,

> 30 of the 40 largest chains manufactured 57 percent of their sales of bread products and 55 percent of their sales of white bread. Eighteen chains processed almost 50 percent of their sales of ice cream, and 14 chains manufactured 65 percent of their sales of package milk. Three chains processed 60 percent of the beef they sold.[2]

To assist in their purchases of fresh fruits and vegetables, many of the larger firms operate buying offices near major producing areas. Each of the three largest chains (A&P, Safeway, and Kroger) maintains a central buying division supported by an extensive network of shipping point branch offices.

> In 1958 it was estimated national chainstores purchased 70 percent of (fresh fruit and vegetables) supplies direct from shipping point markets; regional chainstores, 52 percent; retail cooperative groups, 21 percent; and retail voluntary groups, 30 percent.[3]

The trend toward more retailer purchases at the shipper level has persisted for many years. Its most noticeable effect upon the channels of distribution of these products has been a general lessening of activity in the wholesale terminal markets.

As this discussion would suggest, food retailers buy within markets of vastly different geographic configurations. The specific market is dependent upon both the type of product and the size of the retail firm. There is no single, neatly defined market area upon which we can focus our analytic attention.

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[1] Ibid., pp. 82-83.

[2] Ibid., p. 81.

[3] NCFM, Tech. Study No. 4, p. 95.

Trends in the Concentration of Retailer Purchases. Since most of the available concentration data relate to either the local or the national market, we will confine our description to these markets.

Concentration in the local market has generally increased over the past 10 to 12 years. The top four firms in each of 218 SMSA's (Standard Metropolitan Statistical Areas) averaged just over half (50.1 percent) of total grocery store sales in their markets in 1963.[1] The next four largest firms accounted for another 11.9 percent of the total and the next 12 largest accounted for an additional 12.3 percent. Thus, the largest 20 firms in these markets were, on the average, responsible for nearly 75 percent of total grocery store sales.

There has been a steady upward trend in local market concentration since 1954. Average SMSA concentration levels for the census years 1954, 1958, and 1963 appear in Table 9. The average market share of the largest 4 increased sharply between 1954 and 1958 but only slightly between 1958 and 1963. A similar pattern emerges when one examines the trend in concentration for the largest 8 and the largest 20.

However, when one separates the largest 4 firms from the next 16 largest, a different pattern emerges. In terms of percentage growth, these firms outpaced the largest four in both periods, but particularly between 1958 and 1963. Thus, while the 5th through 8th largest firms increased their share by 12.3 percent, on average, and the 9th through 20th largest firms increased theirs by 10.8 percent, the top 4 firms averaged an increase of only 1.6 percent.

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[1]The Standard Metropolitan Statistical Area is defined to be an integrated economic and social unit containing at least one city of at least 50,000 inhabitants. As of February 1, 1965, the Bureau of the Census had designated 225 such areas.

TABLE 9.--Average concentration ratios of grocery retailers in 218 Standary Metropolitan Statistical Areas, 1954, 1958, and 1963

Item	1954	1958	1963
Market share of:			
Largest 4	45.4	49.3	50.1
Largest 8	54.4	59.9	62.0
5th through 8th	9.0	10.6	11.9
Largest 20	64.5	71.0	74.3
9th through 20th	10.1	11.1	12.3
Percentage change in market share from previous census year of:			
Largest 4	-	+ 8.6	+ 1.6
Largest 8	-	+10.1	+ 3.5
5th through 8th	-	+17.8	+12.3
Largest 20	-	+10.1	+ 4.6
9th through 20th	-	+ 9.9	+10.8

Source: NCFM, Tech. Study No. 7, Table 2-6.

In terms of the national concentration of purchases of grocery products, the same general pattern is found. Concentration ratios of the retail sales of the 40 largest grocery chains and members of the 30 largest affiliated groups appear in Table 10. Most of the affiliated groups have experienced a substantial increase in share since 1948. In combination, these organizations more than doubled their share of total grocery sales between 1948 and 1963.

The concentration level of the four largest grocery chains is the only major exception to this general trend. The lagging growth of these firms is attributable in large measure to the declining relative importance of the industry leader, The Great Atlantic and Pacific Tea

Company. From 1954 to 1963, A&P's share of the market fell from 11.3 percent to 9.4 percent, thereby canceling the increase in share experienced by the other three firms in this group.

Two offsetting sources of bias should be mentioned with regard to these data. Figures for the affiliated groups reflect the total sales of member firms. Inasmuch as these firms do not buy all of their purchases through these wholesalers, the resulting market share overstates their effective buying strength. The Federal Trade Commission has estimated that members of the cooperative wholesale groups purchase about one-third of their merchandise through the buying offices of the group.[1] Although the more complete merchandise lines offered by the larger groups can be expected to result in a larger share being supplied by the affiliated warehouse, the total sales figures are still overestimated by perhaps one-third to one-half.

This does not mean that the buying power of the affiliated groups is overstated across all product lines, however. The affiliated independent does not purchase all the merchandise he sells through the group warehouse because some products do not lend themselves to a centralized type of distribution. Thus, affiliated wholesalers buy a very small proportion of those products which are conventionally delivered to the store by the processor. Bread, fresh milk, soft drinks, and beer are examples. In other product lines (e.g. most canned goods) the group wholesaler accounts for a substantial share of total purchases. To assess the buying power of affiliated groups, one must therefore take care to discriminate among products.

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[1]Federal Trade Commission, Economic Inquiry into Food Marketing, Part I, January 1960, p. 178.

TABLE 10.--National concentration ratios of grocery chains, retailer-cooperative food wholesalers, and voluntary group wholesalers, 1948, 1954, 1958 and 1963

Item	1948	1954	1958	1963
Grocery chains:				
1st to 4th largest	20.1	20.9	21.7	20.1
5th to 8th	3.6	4.5	6.0	6.9
9th to 20th	3.3	4.7	7.3	8.6
21st to 40th	1.8	2.8	4.5	5.0
Total	28.8	32.9	39.5	40.6
Retailer-cooperative group wholesalers:				
1st to 4th largest	3.2	4.5	6.0	5.0
5th to 8th	1.1	1.4	1.5	2.4
9th to 15th	1.0	1.6	1.9	1.9
Total	5.2	7.5	9.5	9.4
Voluntary group food wholesalers:				
1st to 4th largest	1.3	2.5	3.5	4.7
5th to 8th	0.9	1.3	1.6	1.9
9th to 15th	1.0	1.4	1.7	1.7
Total	3.3	5.1	6.7	8.3
Total for 70 largest chains and groups	37.3	45.5	55.7	58.3

Note: Sales include retail sales of own stores, retail sales of affiliated stores, and retail value of food products sold to other grocery retailers and wholesalers.

Source: NCFM, Tech. Study No. 7, Appendix Table 20.

The absence from this list of Topco Associates, Inc., a buying organization representing 32 large and medium size chains, tends to result in an underestimation of the concentration of buying power among

grocery distributors. The retail value of products purchased through Topco exceeded $160 million in 1965.[1]

In summary, the concentration of buyers of grocery products at the local and national market levels has risen in recent years. The increasing share of purchases accounted for by the medium size chains and the affiliated wholesale groups has been particularly pronounced.

Implications of the concentration of purchases in grocery retailing. We have found that concentration in grocery retailing at both the local and the national level is moderately high and increasing. What are the implications of this with regard to competition within the industry?

Buyers do not operate in a vacuum. It takes both a buyer and a seller to effect an exchange. Thus, it is necessary to examine the strength of the seller's bargaining position as well as that of the buyer.

Strictly in terms of levels of concentration, the manufacturers and processors of food products are often in a stronger position than their retailer customers. The nation's 20 largest meat packers, for example, accounted for over 50 percent of all meat sales in 1963 but their 20 largest buyers accounted for only about 32 percent of the total civilian purchase.[2] The same relationship is found in the sale of fluid milk. A 1963-64 study of some 69 Federal milk order markets revealed that the four largest fluid milk handlers averaged 73.4 percent of total market sales while the four largest retail grocery firms averaged only 51.0

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[1]NCFM, Tech. Study No. 7, p. 69.

[2]NCFM, Organization and Competition in the Livestock and Meat Industry, Technical Study No. 1 (Washington: Government Printing Office, 1966), p. 49.

percent.[1] In the case of fresh bread, buyer-seller concentration levels are more evenly balanced. Even so, the bakers (especially the top eight) frequently account for a larger share than the retailers. An examination of selected metropolitan markets indicated that in 1963 the top four bakeries held a share exceeding that of the top four retailers in 10 of 15 markets.[2] Looking at the largest eight firms, the bakery share exceeded the retailer share in 13 of the 15. A similar relationship exists between the concentration levels of retailers and the processors of many other food product lines.

Thus, in terms of market concentration alone, retailers do not appear to hold a superior bargaining position. To the contrary, it would appear that they might be at a slight disadvantage. But market concentration levels do not fully reflect the bargaining situations of individual firms. This is especially true for processors below the level of the top four.

In meat packing, for instance, the five largest customers of the top four packing firms accounted for an average of 15.3 percent of the beef sales of these firms in 1964-65.[3] In contrast, the five largest customers of the smallest packers (under one million pounds monthly) accounted for 63.8 percent of their sales of beef, on average. It is not unusual to find small packers who depend upon a single retailer customer for 25 percent or more of their output.

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[1]NCFM, Organization and Competition in the Dairy Industry, Technical Study No. 3 (Washington: Government Printing Office, 1966), p. 120.

[2]NCFM, Tech. Study No. 5, p. 54.

[3]NCFM, Tech, Study No. 1, p. 45.

On average, the largest customer of the large dairy companies accounted for only about 16 percent of the wholesale sales of these firms, in 1964.[1] Yet, there are instances in which a particular customer accounts for a substantially larger share. The Jewel Tea Company reportedly accounts for over 60 percent of the fluid milk sales of Dean Foods Company, a leading dairy firm in the Chicago market.[2]

The harm that can befall a company that relies upon one or a few firms for a large portion of its sales is exemplified by the Jewel Tea-Dean Foods relationship. Jewel recently elected to build and operate its own dairy plant. This left Dean Foods in a somewhat precious position. Since learning of Jewel's decision to withdraw its purchases, Dean has acquired Bowman Dairy, one of its leading competitors. Although this acquisition might permit Dean Foods to continue operation as a viable competitor in the industry, many smaller firms faced with a similar prospect would probably have been forced out of business.

Still, in most markets, concentration ratios and firm market shares do not appear to be the major determinants of a superior bargaining position. There is considerable evidence that retailers, despite their lower levels of concentration, are frequently able to impose their will upon the firms from which they buy. In the sale of meat products, for example, the staff of the NCFM found that

> exchange practices have reflected the stronger bargaining positions of buyers. When concessions or allowances were made, they usually have flowed in one direction - from

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[1]NCFM, Tech. Study No. 3, p. 122.

[2]Federal Trade Commission, News Summary, No. 32, September 14, 1966.

> seller to buyer - not from buyer to seller. Allowances have taken a variety of forms: quantity discounts to larger buyers, advertising allowances, and price reductions. ... The buyer, rather than the seller, spells out strict and careful specifications on such details as product characteristics and delivery conditions. Most retailers will only buy fresh meat that conform to certain specifications for weight and quality, with the right to reject upon delivery any that fails to meet agreed upon standards.[1]

Many of these practices are commonplace in other product lines as well. When retailers are not represented at the point of shipment, they often exercise the right to set the terms-of-trade of fresh fruits and vegetables at the point of delivery. This includes the right to refuse delivery of inferior merchandise. Also, retailers not infrequently condition their purchases upon the supplier's ability or willingness to provide a full line of products. The larger chains may also request that the processor provide a line of private label items, as well as a full line of processor brands.

The strength of the retailers' bargaining position is further reflected in the number of formal complaints issued by the Federal Trade Commission (FTC). In the thirteen year period ending in 1964, FTC issued approximately 95 formal complaints and carried out around 1,300 investigations relating to discriminatory preferences granted by grocery manufacturers to retail distributors.[2]

In its surveillance of competitive behavior, FTC directs most of its attention toward the larger firms. Therefore, most of these complaints involved large chains.

> Each of the 9 largest corporate grocery chains of 1963...were cited as recipients of unlawful discriminatory preferences from suppliers in a total of 34 instances in 16 separate Federal

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[1] NCFM, Tech. Study No. 1, pp. 49 and 54.

[2] NCFM, Tech. Study No. 7, p. 417.

> Trade Commission cases in which cease and desist orders were entered between July 1, 1954 and July 30, 1965. Eight of these same 9 top grocery chains are mentioned as recipients of unlawful preferences from suppliers on 31 occasions in 24 separate formal complaints, which subsequently were settled by the consent order procedure.[1]

While retailers actively sought preferential treatment in some of these cases, in the majority of the cases, it was the supplier who was held in violation of the law. Thus, despite his inferior position with regard to levels of concentration, the brunt of the evidence suggests that the retailer holds an edge when it comes to bargaining with his suppliers.

There are several possible explanations for the retailers' superior bargaining position. The four that follow seem to be among the more important.

1. The retailers' proximity to the final consumer. As the final assembler and distributor of food products for home consumption, the retailer occupies a position of strategic importance. The retailer, through his contact with the consumer, is in a position to influence consumer choice. He can do this in a number of ways.

To begin with, it is the retailer's decision as to whether the item will even be stocked. The opportunity for this decision first arises when the product is offered for sale to the retailer. If adopted, the products success is periodically evaluated to see if it merits the space it occupies on the retailers' shelf. At any one of these points of decision the retailer is in a position to deny the product an outlet.

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[1] NCFM, Tech. Study No. 7, p. 419.

The number of new grocery products coming on the market each year is truly phenomenal.

> In one large chain which may be deemed typical of the industry, buyers were offered 125 new or improved items a week or about 6,500 a year. From these, 800 were added to the chain's inventory.[1]

The retailer cannot, of course, continually add new products without making room for them by dropping already established products. This same chain reported that

> in the course of a year's time 600 items were discontinued for a net gain of 200 items.[2]

Of course, this does not mean the retailer has complete discretion over the adoption and discontinuation of product lines. Consumers expect to find a wide variety of products at their local grocery store. In particular, the consumer expects to find those products brought to her attention through advertising by the manufacturer. The customer who does not find several of the items she is looking for is not likely to long remain a customer if she can find them on competitors' shelves.

Once committed to stocking an item, the retailer may choose to encourage sales of the product through advertising. In 1964, retailers spent an estimated $673 million on advertising.[3] About half (52 percent) of this was spent on newspaper advertising with the remainder

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[1] Progressive Grocer, "New Products: $11 Billion New Business Since 1954," April 1965, p. 101.

[2] Ibid.

[3] Fred L. Henson, "An Analysis of Advertising Expenditures by Corporations Marketing Food and Kindred Products," Marketing and Transportation Situation, USDA, August 1965, p. 25.

being spent among salesbills, in-store displays, radio, T.V., and billboards.[1] Most grocery retailers of any size carry at least one newspaper ad per week. For the more prominent retailers, these ads are usually one or two-page spreads.

Despite the magnitude of retailer advertising, only a small fraction of the total 6-8,000 items offered for sale can be included in these ads. It is not unusual to find full page ads containing fewer than 50 items and only infrequently does the number of items exceed 150.[2] The advertising space available to manufacturer-branded products is reduced still further by the space devoted to unbranded-perishable products. Fresh meats and produce items normally receive a substantial chunk of the total advertising space--about one-third according to a recent study.[3]

Recognizing the importance of consumer advertising at the store level, suppliers openly vie for space. A favorite method of gaining this space is through the granting of advertising allowances by suppliers. Under this arrangements, the supplier agrees to discount each

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[1] Progressive Grocer, "Food Advertising-Billions to Motivate Consumers," April 1965, p. 121.

[2] Lee Preston found that stores in a Northern California market averaged 38 items per store-week. See: Lee E. Preston, Profits, Competition and Rules of Thumb in Retail Food Pricing (Berkeley: Univ. of California Institute of Business and Economic Research, 1963).

[3] John H. Weber and William F. Foly, "How Food Retailers Use Newspaper Advertising," Progressive Grocer, April 1965, p. 129.

case of merchandise by a specified amount, upon the condition that the retailer advertises the supplier's product. In addition to insuring that their products receive maximum consumer exposure, suppliers are attracted to these arrangements because: (1) local advertising rates are about half the national rates and (2) retailer advertising tells the consumer where she can buy the product, as well as informing her about the product and its utility.

Some retailers reportedly defray their entire advertising expense by means of these allowances. But most firms limit their use. Advertising allowances accounted for an average of 31 percent of the total advertising budgets of larger retailers, according to a Progressive Grocer survey.[1] Edward Brand has estimated that the typical is nearer 50 percent.[2]

In addition to the use of advertising, the retailer's techniques in displaying the product within the store can have an important effect on sales. Four aspects of product display are crucial in this regard: (1) where the product is located within the store's layout, (2) the product's shelf position, (3) the number of facings the product is allowed, and (4) the speed with which depleted shelves are restocked.

Each of these factors is recognized by both the retailer and his supplier as being an important determinant of any product's sales potential.

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[1]"Food Advertising - Billions to Motivate Consumers," p. 124.

[2]Edward A. Brand, Modern Supermarket Operation (New York: Fairchild Publications, Inc., 1963), p. 77.

Yet, the retailer does not normally assign product space on the basis of concessions granted by the supplier. The retailer, instead, is highly consumer oriented. To achieve his objective of maximizing long-run profits, the retailer responds to his perception of consumer behavior. It is the retailers' lack of knowledge concerning consumer behavior that makes him easy prey for supplier influence. That is, it permits the supplier to sell his product to the retailer on the basis of forecast consumer response.

Selected areas of any store, depending upon its particular layout, are exposed to substantially more customer traffic than other areas. In most stores, the perimeter aisles are by far the most heavily traveled. Although the number of customers passing a display is not always indicative of the number making a purchase, most suppliers are interested in maximizing their product's exposure.

Likewise, it has been shown that moving a product to a higher shelf position (i.e. from floor level to waist level to eye level) is likely to result in an improvement in sales.[1] Suppliers therefore have an interest in seeing that their products are displayed as near eye level as possible.

The number of facings (number of units visible to the consumer) of a product is thought to be positively associated with sales volume. Here again, the supplier is motivated to seek as many product facings as he can get.

Finally, the retailer's attention to keeping his shelves fully stocked and his backroom inventory filled can have a significant effect

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[1] Progressive Grocer, "Colonial Study," 1962, p. C127.

on a product's sales.[1] "You can't sell from an empty wagon." On this point, the interests of the retailer and the supplier coincide. Once the retailer has decided exactly where the product is to be displayed and how many facings it will be allotted, it is in his best interest, as well as that of his supplier, to see that the shelves are kept fully stocked.

Although the retailer is not immune from accepting concessions from suppliers in return for better product display, the retailer is primarily interested in consumer response. If the increase in revenue generated by changing product A's display more than offsets the loss in revenue suffered by the product that gave up space for A, the switch is considered worthwhile by the retailer. Unfortunately, there is a paucity of information concerning these relationships. The trade press is filled with claims and counterclaims regarding the profitability of different products. Thus, in the end, the retailer is left to his own designs in allocating space.

2. Retailer pricing practices. Another factor contributing to the superiority of the retailer's bargaining position is his responsibility in setting retail prices. To begin with, the retailer is charged with the responsibility of setting prices for a range of several thousand food items. Thus, the sales of any particular product are influenced not only by the price at which the retailer chooses to sell that particular item, but also by the prices he sets on countless other products, some of which are substitutes and others of which are compliments of the

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[1] Ibid., pp. C122-C124.

single product. This function accrues to mass merchandisers of all sorts of goods. But, the food retailer makes extensive use of "loss leader" pricing, which introduces additional ramifications.

In loss leader pricing, the retailer selects a small number of items to be priced low enough that the consumer will perceive it as an attractive bargain. This price seldom covers all operating expenses and often fails to even cover the cost of the merchandise to the retailer. The retailer's purpose in setting prices at this level is to attract customers into the store. If these shoppers buy only the specials, the store is in trouble. But, loss leader pricing is done with the expectation that the customer will buy other nonspecialed items as well. By charging a slightly higher price on some of the nonspecialed items, the retailer is able to recoup the losses associated with his specials.

Thus, the retailer's objective is to maximize overall store profit. It is not important to him that each product "pay its own way." Insofar as low or negative profits on particular products contribute to the maximization of store profits, the practice is acceptable to management.

Although it is fairly obvious to the retailer that many products would not make good loss leaders, the range of alternatives is still quite wide. Thus, through his selection of products to be specialed, the retailer is in a position to exert significant influence over the sales volume of a particular product. The volume of fresh meat sold on special has been found to be three to five times as great as the volume

sold at regular prices in weeks of no specials.[1] As a result of his ability to affect sales in this manner, the retailer's bargaining position is further enhanced.

Despite the existence of this power in the hands of the retailer, the supplier is not in a terribly good position to influence its use. In selecting products to be specialed, retailers commonly seek to avoid the embarrassment of being underpriced by their competitors through avoiding use of the items their competitors feature. For this reason, many of the products selected for specialing are differentiated in some respect. Fresh meats, produce, and private label items are sufficiently differentiated to make it difficult for consumers to compare between stores.

When national brands are specialed, every effort is made to see that the same item is not specialed by the firm's major competitors. As a result, the suppliers' ability to influence the selection of products is severely limited. The most obvious way in which a supplier can encourage the specialing of his product is to grant the retailer a special discount. But, if the supplier is to avoid violation of the Robinson-Patman Act, he must be careful to avoid discriminating among retailers. If all retailers thereby have the same incentive to feature the product, its value as a special is undermined and none of the firms are likely to use the product as a loss leader.

3. The threat of vertical integration. The threat of retailer integration into the processing or packaging of a product is a third cause of the superior bargaining position the retailer enjoys.

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[1]NCFM, Tech. Study No. 1, p. 72.

Vertical integration, as discussed here, may take either of two forms: (1) outright ownership of a processing facility or (2) a contractual arrangement with a processor to supply products meeting specifications set forth by the retailer and identified by the retailer's label. The latter form of integration is commonly called "private (or distributor's) label."

The threat of either type of integration is more real for the processors of some products than others. The most likely candidates for type (1) integration are products that have a high rate of turnover and can be efficiently processed in plants of the size dictated by the retailer's needs. Fast moving, high margin products are favored for private labeling.

The value of food manufactured by retail firms has increased in recent years. Between 1954 and 1963, the value of food manufactured by the 40 largest food chains increased by 50.9 percent while the shipments of all U.S. food manufacturing plants increased by only 34.0 percent.[1] A portion of this increase, particularly for the largest firms, reflects integration into different product lines. In 1963 the four largest chains were integrated into an average of 33.5 Census products (5-digit); the 5th thru 8th largest chains each manufactured an average of 22.8 (5-digit) products.[2] Most of the integration of the smaller chains (21st through 40th), on the other hand, represented the firms' first involvement in manufacturing.

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[1] NCFM, Tech. Study No. 1, p. 78.

[2] Ibid., p. 80.

Though there is no accurate indication of the trend in private labeling, all signs point to increased activity. Small and medium chains and affiliated groups have expanded their private label lines in the recent past. Many firms are experimenting with private labels in different lines. In general, it appears that more private label lines are being adopted than dropped. Retailers added almost twice as many private label products to their shelves between 1960 and 1965 as they discontinued, according to a recent survey of 419 major food distributors.[1]

Thus, integration through both ownership and the adoption of private labels provide the retailer with alternative sources of supply. These alternatives serve to keep suppliers in line. Suppliers realize if they press their demands beyond a given threshold, they risk the loss of a customer coupled with the entry of a competitor.

4. Economies of scale in processing. Finally, the economies of scale of processing certain products has tended to strengthen the retailer's bargaining position by providing suppliers with an increased incentive to expand sales. In some industries, such as fluid milk processing, the economies of operating at full capacity have caused the processors in some markets to compete with great vigor for retailer business. To the extent that retailers become more heavily involved in their own manufacturing, the excess processing capacity that results is likely to heighten the degree of competition for the retailer's business.

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[1]NCFM, Tech. Study No. 10, pp. 53-55.

Summary. While concentration cannot be dismissed as being unimportant in the determination of competition between retailers and their suppliers, the foregoing description would suggest that its effect can be counteracted by other forces. In many instances, processor concentration exceeded that of the retail firms. Still, all available evidence indicates that the retailer bargains from the stronger position.

To explain this, we turned our attention elsewhere. Four characteristics of the retailer-supplier relationship were suggested as possible causes of the retailer's domination: proximity to the consumer, retail pricing practices, vertical integration by retailers, and economies of scale for processors. Two of these characteristics--pricing practices and vertical integration--will be explored at greater length in later Chapters.

The Grocery Retailer as a Seller

Introduction. As discussed in the introduction to this Chapter, the relevant selling market of the grocery retailer is much more restrictive than is the market in which he buys. Though political boundaries are seldom entirely satisfactory, the selling market corresponds roughly to the metropolitan area of a town or city. While most consumers purchase their groceries within their neighborhoods, several factors, including areawide advertising and pricing practices and ease of consumer mobility, cause the effective market to be substantially larger than a neighborhood.

And, of course, for the purpose of statistical analysis, most of the relevant data are only available on the basis of incorporated population centers. Much of the more detailed information that will be used in the analyses that follow are only available by SMSA.

As described in the preceding section, grocery retailer concentration in SMSA markets has generally been increasing within the past 10 to 12 years (Table 9, p. 85). In the most recent census year, 1963, the largest four firms accounted for just over half (50.1 percent) of all sales, on average. At the same time, the 20 largest firms in these markets accounted for nearly three-quarters (74.3 percent) of total sales.

Despite the overall tendency for concentration in local markets to increase, there has been a significant variation in the rate of increase within the largest 20 groups. The largest 4 firms have made relatively slight gains in share, especially within the 1958-63 period, while the 5th-20th largest have grown at a substantially faster pace.

Before turning to an analysis of the influence of market share upon industry performance, let us consider the relationship between market characteristics and concentration levels. If we can identify certain market characteristics that are generally associated with different levels of concentration or patterns of change in concentration, our ability to evaluate performance and make policy recommendations will be enhanced.

Explaining local market concentration. In making its study of competition in grocery retailing, the National Commission on Food Marketing contracted with the Bureau of the Census for a special tabulation of grocery store market shares by SMSA. This tabulation provides the market shares of the largest four, largest eight, and largest 20 retail grocery firms in each of 218 SMSA's for 1954, 1958, and 1963.[1]

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[1]NCFM, Tech. Study No. 7, pp. 44-51.

With these data, it was possible to test hypotheses concerning the relationship between market share and selected market characteristics. Through use of multiple linear regression, variations in market share in 1954 and 1963 and variations in the percentage change in market share between 1954 and 1963, were studied. The following 21 variables were included in the analysis (X denotes independent variables; Y denotes variables used in both independent and dependent capacities).

X_1 - Chain density (number of grocery stores operated by firms with 51 or more stores as a percentage of the total number of stores in the market, 1963)

X_2 - Supermarket density (number of grocery stores with $1 million or more annual sales as a percentage of the total number of stores in the market, 1963)

X_3 - Population (1960)

X_4 - Small store incidence (number of grocery stores with annual sales of less than $50,000 as a percentage of the total number of stores in the market, 1963)

X_5 - Population growth (percentage change in population between 1950 and 1960 with adjustment for SMSA boundary changes)

X_6 - General merchandise sales (food sales by general merchandise stores as a percentage of total grocery sales in the market, 1963)

X_7 - Affiliated independents (sales of affiliated independents as a percentage of total grocery store sales in the market, 1964)

X_8 - Population density (population per square mile, 1960)

X_9 - Median age (1960)

X_{10} - Median family income (1959)

X_{11} - Major retail centers (population per major retail center, 1963)

X_{12} - Changes in SMSA definition (effect of SMSA definition changes coded as follows:

Code	percentage change in population resulting from change in SMSA definition
1	greater than - 10%
2	-5.0 to -9.9
3	-4.9 to 4.9
4	5.0 to 9.9
5	10.0 to 19.9
6	20.0 to 29.9
7	greater than 30.0

Y_1 - Market share of top 4, 1954

Y_2 - Market share of 5th-8th, 1954

Y_3 - Market share of 9th-20th, 1954

Y_4 - Market share of top 4, 1963

Y_5 - Market share of 5th-8th, 1963

Y_6 - Market share of 9th-20th, 1963

Y_7 - Percentage change in market share of top 4, 1954-63

Y_8 - Percentage change in market share of 5th-8th, 1954-63

Y_9 - Percentage change in market share of 9th-20th, 1954-63

The general absence of past studies of this type made the choice of variables somewhat uncertain. Although each was selected on the basis of an hypothesized relationship, empirical support for the hypotheses was meager.

Total market population and the incidence of very small stores were both hypothesized to be negatively related to the market share of all three classes within the largest 20. However, the relationship between market size and market share could have been anticipated with greater assurance had markets of less than SMSA-size been included in the analysis.

Population growth, general merchandise sales, affiliated independents, and median income were all hypothesized to have a negative relationship with the market share of the top four firms and a positive relationship with those firms having a lesser share of the market. Each of these variables is thought in some way to be associated with a competitive challenge to the markets' leading firms. Food sales by general merchandise stores was used as a proxy for the prevalence of grocery discounting, though its value for this purpose is undetermined. Food departments are often operated as part of general merchandise discount stores; approximately 29 percent of all discount houses had such food departments in 1965.[1]

Chain density, supermarket density, population density, median age, and major retail centers were hypothesized to be positively associated with the market share of the top four and negatively related to the remainder. The higher the proportion of stores operated by chains of 51 or more stores and the higher the proportion of stores that are of supermarket size, the greater the opportunity for a few firms to capture a relatively large share of the market. The same hypothesis holds for population density. As the density of population increases, the opportunity for a given firm to attract a high volume through a relatively small number of stores increases. In general, these variables were thought to have the opposite effect on small firms, those below the top four.

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[1] NCFM, Tech. Study No. 10, p. 25.

Older, slower growing markets generally have a population with a higher median age. It was hypothesized that such markets are characterized by a lack of competitive vigor and, therefore, particularly vulnerable to a few firms acquiring a sizable share of the market.

The major retail center (MRC) variable is a measure of the average population size of the major retail centers in each market. The major retail centers of a market provide a rough approximation of the area's pattern of submarkets. The 1963 Census of Business provides information about the MRC's in 116 SMSA's. The number of MRC's per market varies from 1 in several of the small markets to 74 in the Chicago SMSA. Given the population of a market, it was hypothesized that the more fragmented the market, the more difficult it would be for a few firms to gain a large share of total sales.

The coded X_{12} variable was employed as an adjustment factor for changes in market share attributable to changes in the market's boundaries. It was thought that boundary changes leading to sizable increases in market size would have a depressing effect on changes in market share.

Since data for some of the independent variables was not available for all markets, three runs were made including varying numbers of markets. In the initial run, 88 SMSA's were examined, using all the independent variables described above. The small store incidence and major retail center variables were excluded from the second run, which included data for 159 SMSA's. In the third and final run the affiliated group variable was also dropped, making it possible to examine 192 SMSA's.

Simple correlation coefficients of the 21 variables are shown in Table 11. A pattern of relationships very similar to this was found when the data for 159 and 192 SMSA's were examined. The coefficients reflect a rather weak relationship between most variables. The strongest associations are between the market share and the changes in the market share of the top 4 and the 9th-20th largest firms and between population and average size of major retail center, the share of grocery sales by general merchandise stores, and small store incidence.

Results of the regression analysis appear in Tables 12 and 13. Partial correlation coefficients significant at the 0.05 level or below are listed in the tables. The coefficient of partial correlation measures the importance of each variable by determining how much it reduces the variation after all other variables are taken into account.

The results of the analyses appearing in both tables are generally the same. The independent variables "explained" from just under half (48 percent) to 80 percent of the variation in the dependent variables. They did the best job in "explaining" the market share of the 9th-20th largest and the percentage change of the top 4.

The most important relationships were between the three market share categories and the percentage changes in each of these categories between 1954 and 1963. An almost identical pattern emerges from the two runs.

In both 1954 and 1963, the market share of the top 4 is negatively related to the share of the 9th-20th while the share of the 5th-8th is positively associated with that of the 9th-20th. Thus, the larger the share of the market accounted for by the top 4 firms, the smaller the

TABLE 11.--Simple correlation coefficients of 21 selected variables, 88 SMSA's

Item	9 - 20	5 - 8	% Δ 1954-63 Top 4	9 - 20	5 - 8	1963 Top 4	9 - 20	5 - 8	1954 Top 4	Δ in SMSA def.
Chain	-.07	.00	.26	.06	.02	-.08	.13	-.01	-.24	-.07
Supermarket density	.06	.04	-.03	.09	-.01	-.16	.05	-.06	-.11	-.06
Population	.12	-.12	.07	-.28	-.18	.02	-.37	-.06	-.04	-.19
Number of small stores	.18	-.05	.05	-.41	-.28	.13	-.56	-.21	.09	-.22
Population growth	-.11	-.06	.06	.18	.26	.03	.29	.32	-.02	-.13
Groc. sales by g.m. stores	.11	-.07	.07	-.16	-.07	-.02	-.22	.02	-.07	-.22
Affiliated independents	.29	.14	-.18	.33	.09	-.38	.16	-.05	-.24	.00
Population density	.03	.07	-.03	.04	.17	-.13	.00	.04	-.12	-.14
Median age	.20	.09	-.16	-.22	.02	.05	-.40	-.09	.19	-.05
Median family income	.11	.01	-.02	-.01	-.04	-.08	-.04	-.01	-.04	.09
Major retail centers	.11	-.13	.04	-.27	-.13	.02	-.36	.01	-.01	-.17
Δ's in SMSA def.	-.11	-.19	-.18	.01	-.12	-.09	.07	.10	.04	
1954 - Top 4	.21	.15	-.40	-.43	-.25	.65	-.61	-.32		
5 - 8	-.32	-.54	.17	.27	.46	-.15	.54			
9 - 20	-.34	-.18	.17	.67	.40	-.45				
1963 - Top 4	-.39	-.22	.42	-.76	-.48					
5-8	.08	.41	-.29	.50						
9-20	.42	.18	-.40							
% Δ 1954-63 - Top 4	-.68	-.43								
5-8	.44									

TABLE 11.--Continued

Item	Major retail centers	Median family income	Median age	Population density	Affiliated independents	Groc. sales by g.m. stores	Population growth	Number of small stores	Population	Supermarket density
Chain density	-.06	.11	-.21	-.07	.00	.00	.01	-.06	-.04	.11
Supermarket density	-.20	-.38	-.14	-.09	-.09	-.24	-.30	-.06	-.18	
Population	.95	.41	.28	.30	.04	.89	-.06	.87		
Number of small stores	.77	.20	.32	.21	.01	.65	-.21			
Population growth	-.02	.13	-.33	.25	.04	.12				
Groc. sales by g.m. stores	.90	.40	.22	.30	.06					
Affiliated independents	.00	.06	-.07	.17						
Population density	.29	.00	-.08							
Median age	.26	.19								
Median family income	.40									
Major retail centers										
△'s in SMSA def.										
1954 - Top 4										
5 - 8										
9 - 20										
1963 - Top 4										
5 - 8										
9 - 20										
% △ 1954-63 - Top 4										
5 - 8										

△ = Change in variable.

TABLE 12.--Multiple linear regression of selected independent variables on concentration level of largest 20 grocery retailers in 88 SMSA's, 1954, 1963, and percentage change between 1954 and 1963, partial correlation coefficients shown for those variables significant at 0.05 level or below (XXX indicates variable not included in run)

Dependent Variable / Independent Variables	1954			1963		
	Top 4	5th-8th	9th-20th	Top 4	5th-8th	9th-20th
Chain density						
Supermarket density						
Population						
Small store incidence			-.26			-.33
Population growth		.28			.30	
General merchandise sales						
Affiliated independents						
Population density						
Median age		.28	-.29		.32	-.24
Median family income						
Major retail centers		.23	-.28			-.26
Changes in SMSA definition	XXX	XXX	XXX	XXX	XXX	XXX
1954, top 4	XXX		-.59	XXX	XXX	XXX
5 - 8		XXX	.40	XXX	XXX	XXX
9 - 20	-.59	.40	XXX	XXX	XXX	XXX
1963, top 4	XXX	XXX	XXX	XXX		-.61
5 - 8	XXX	XXX	XXX		XXX	.31
9 - 20	XXX	XXX	XXX	-.61	.31	XXX
Percentage change 1954-63 - top 4	-.49		-.28			
5 - 8		-.53			.49	-.29
9 - 20	-.27		-.32		-.38	.50
R^2	.65	.61	.78	.72	.58	.80

TABLE 12.--Continued

Dependent Variable / Independent Variables	Percentage change between 1954 and 1963		
	Top 4	5th-8th	9th-20th
Chain density			
Supermarket density			
Population			
Small store incidence			
Population growth			
General merchandise sales			
Affiliated independents			
Population density			
Median age			
Median family income			
Major retail centers			
Changes in SMSA definition	-.42	-.28	-.31
1954, top 4	-.52		-.31
5 - 8		-.50	
9 - 20	-.33		-.36
1963, top 4	XXX	XXX	XXX
5 - 8	XXX	XXX	XXX
9 - 20	XXX	XXX	XXX
Percentage change 1954-63 - top 4	XXX	-.35	-.69
5 - 8	-.35	XXX	
9 - 20	-.69		XXX
R^2	.74	.55	.68

TABLE 13.--Multiple linear regression of selected independent variables on concentration levels of largest 20 grocery retailers in 192 SMSA's, 1954, 1963, and percentage change between 1954 and 1963, partial correlation coefficients shown for those variables significant at 0.05 level or below (XXX indicates variable not included in run)

Dependent Variable / Independent Variables	1954			1963		
	Top 4	5th-8th	9th-20th	Top 4	5th-8th	9th-20th
Chain density						
Supermarket density	-.24			-.27		
Population			-.28	-.17		-.33
Population growth	.23			.20		
General merchandise sales						
Population density	-.18			-.20		
Median age			-.26			-.29
Median family income						
Changes in SMSA definition	XXX	XXX	XXX	XXX	XXX	XXX
1954, top 4	XXX		-.34	XXX	XXX	XXX
5 - 8		XXX	.51	XXX	XXX	XXX
9 - 20	-.34	.51	XXX	XXX	XXX	XXX
1963, top 4	XXX	XXX	XXX	XXX		-.44
5 - 8	XXX	XXX	XXX		XXX	.49
9 - 20	XXX	XXX	XXX	-.44	.49	XXX
Percentage change 1954-63 - top 4	-.45			.15		
5 - 8		-.55			.42	-.40
9 - 20	-.31		-.33		-.33	.42
R^2	.50	.62	.67	.55	.48	.69

TABLE 13.--Continued

Independent Variables \ Dependent Variable	Percentage change between 1954 and 1963		
	Top 4	5th-8th	9th-20th
Chain density			
Supermarket density			
Population		-.20	
Population growth			
General merchandise sales			
Population density			
Median age		.17	
Median family income			.19
Changes in SMSA definition	-.32	-.17	-.23
1954, top 4	-.48		-.34
5 - 8		-.55	
9 - 20	-.18		-.36
1963, top 4	XXX	XXX	XXX
5 - 8	XXX	XXX	XXX
9 - 20	XXX	XXX	XXX
Percentage change 1954-63 - top 4	XXX	-.25	-.65
5 - 8	-.25	XXX	
9 - 20	-.65		XXX
R^2	.63	.51	.58

share held by the 9th through 20th largest firms, and vice versa. However, the 5th-8th and 9th-20th categories complemented one another. When the share of one category was higher, it was also higher for the other--and vice versa.

The share held by each of the three categories in 1954 was found to be negatively associated with the percentage change in the share of the respective categories between 1954 and 1963. The lower the share in 1954, the greater the tendency for the share to increase over the 1954-63 period; and, the higher the 1954 share, the greater the tendency for the share to decrease.

As might be expected from the relationships described above, the results also indicate that the percentage change in market share of the top 4 category between 1954 and 1963 was negatively associated with the percentage change of both other categories over the same period. That is, the greater the increase in share of the top 4, the lesser the increase of the next 16 largest (5th-20th) and vice versa.

The remaining independent variables have a weaker association with the dependent variables; a large share of the relationships were not significant at the 0.05 level.

Total market population was generally negatively related to market share, as hypothesized, while population growth was positively associated with the market share of the largest 8 firms. Population density was negatively related to the share of the top 4, counter to the hypothesized relationship.

Supermarket density was negatively related to the share of the top 4 in the final run, again counter to the initial hypothesis. Both median age and major retail centers demonstrated a positive association

with the market share of the 5th-8th and a negative association with the share of the 9th-20th. Small store incidence was negatively related to the market share of the 9th-20th largest firms in the market.

As expected, the dummy variable reflecting changes in SMSA definition was negatively related to changes in the market share of each of the three firm size categories. Thus, the greater the increase in population arising from changes in SMSA definition, the smaller the increase (if any) in market share.

Three major conclusions can be drawn from the results of this analysis. First, variations in many of the most common market parameters--population size, population growth, population density, age, and income are not closely associated with variations in the local market share of leading grocery retailing firms within SMSA's. Likewise, several characteristics of grocery retailing that were thought to have an important influence on market share and changes in market share were only weakly associated with the dependent variables, if at all. These included chain density, supermarket density, the importance of affiliated independents, and food sales by general merchandise stores.

A second major finding is the indication of a rather strong interrelationship among the three market share categories. The coefficients suggest that the major interaction is between the top 4 firms and the 5th-20th largest. Each group gains in its share of the market at the expense of the other.

The third significant finding concerns the relationship between *market* share and change in market share. In each case, the change in *share* between 1954 and 1963 was negatively related to the group's 1954

share and positively related to the 1963 share. That is, the larger the categories share in 1954--regardless of its rank within the top 20--the lesser its tendency to gain a larger share in the period 1954-63, and vice versa.

On the basis of this analysis, therefore, it would appear that the market setting (at least within the group of SMSA markets) has a rather unimportant influence over levels of concentration. These results suggest that most of the explanation for variations in concentration must eventually be traced to the merchandising behavior of the competing firms.

Changes in the Market Share of Individual Firms. Though we now have a fairly complete picture of the changes that have occurred in concentration ratios in recent years, this measure leaves a great deal unsaid. The concentration ratio, as commonly employed, abstracts from specific firms. There is, for example, no assurance that the concentration level of the largest four firms in a given market measures the relative sales volume of the same four firms through time.

It can be argued, of course, that the individual firm composition of a group of leading firms, say the largest four, is of secondary importance. The crucial point, according to this line of reasoning, is that four firms, any four firms, account for a given share of total sales. If the combined share of these firms is sufficiently large, it is hypothesized that they have the capacity to exercise control over the terms-of-trade within the market and thereby influence market performance.

Yet, through failure to consider the firm composition of the various size categories, one misses a useful piece of information. The

stability or absence of stability in firm composition is a valuable indicator of the strength of smaller competitors, as well as the vulnerability of the large firms. If market shares are found to be relatively volatile, it might also help explain why firms are willing to operate at low or negative rates of return in low share markets.

The contrast in interpretation that can be drawn from studying concentration ratios for categories of firms versus individual firm market shares is illustrated in the findings of two NCFM case studies.[1] The Commission's studies were conducted in Portland, Maine and Topeka, Kansas. Concentration ratios for the top 4 firms in the Portland market increased slightly between 1958 and 1963, though remaining below the national SMSA average. While this slight change in concentration might leave one with the impression that the market's leading firms experienced relative stability over the period, this would be highly misleading. In actual fact, the market experienced considerable internal change between 1960 and 1965. In this short span of time, a new and highly successful firm entered the market and rapidly rose to the second highest sales volume. The second ranking firm thereupon dropped to 4th, the 4th to 5th, and the 5th to 6th. And, though national chains operated within the market, none of the rapidly growing firms were among their number.

In the case of Topeka, the 4 leading firms in the market suffered a very slight decline in concentration between 1958 and 1963, falling from 32.6 percent to 32.3 percent. But again, there was substantial

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[1] NCFM, Tech. Study No. 7, pp. 313-334.

evidence of intense competition and a constantly changing internal market share relationship.

One of the principal reasons individual firm local market share data are not readily available is, of course, their confidential nature. Though the Bureau of the Census collects data of this type, it is prohibited by law from publishing it in a form that would permit firm identification. To avoid this restriction,the NCFM contracted with the Census Bureau for individual firm shares by SMSA, unidentified by firm or SMSA. Census supplied market share figures for 1954, 1958, and 1963 for all multistore (two or more stores) firms ranking among the largest eight firms in any one of the three census years. The shares were arrayed by 193 unidentified SMSA's. Stores operated by firms ranking among the largest 20 nationally in 1963 were identified as belonging to that group. Information was provided for firms that ranked among the largest eight in any one of the three census years but ranked below this in other years, as long as the firm remained among the largest 20.

Despite the severity of these restrictions, it is possible to gain some additional insight into the competitive process through various manipulations of the data. The proportion of firms experiencing changes in market share between 1954 and 1963 is shown in Table 14. As can be seen from the table, the split between those increasing and those decreasing is roughly proportional. Over the period 1954-58, a higher proportion experienced an increase in share; between 1958 and 1963, the ratio moved in the opposite direction.

Table 15 permits us to examine the change in market share by size of initial share. There is an obvious relationship between size of initial share and direction of change, one that is consistent throughout

TABLE 14.--Change in market share, 1954-63

Item	Percent of firms experiencing:		
	increase in share	decrease in share	no change in share
1954-58			
All firms	51.2	44.7	4.1
Large chains	47.9	48.5	3.6
All others	56.5	38.7	4.8
1958-63			
All firms	47.9	49.0	3.1
Large chains	42.5	55.5	2.0
All others	54.1	41.5	4.4
1954-63			
All firms	45.5	51.1	3.4
Large chains	43.5	53.3	3.2
All others	49.7	46.5	3.8

Source: Based on Bureau of the Census data contracted for by the NCFM.

the 1954-63 period. About two-thirds of all firms having a share of 0.1 to 5.0 percent of their respective markets in 1954 experienced an increase in share over the succeeding 9 years. In contrast, less than 20 percent of those firms with a market share of 25.1 to 35.0 percent achieved a higher share over the same period.

The matrices shown in Table 16 permit one to compare the direction of change in market share for the periods 1954-58 and 1958-63. Examination of the first matrix shows that although 51.7 percent of all the

TABLE 15.--Change in market share by size of initial share, 1954-63

Size of initial market share	Period	Percent of firms experiencing:		
		increase in share	decrease in share	no change in share
0.1 to 5.0	1954-58	59.8	36.4	3.8
	1958-63	63.7	32.1	4.2
	1954-63	64.3	34.2	1.5
5.1 to 10.0	1954-58	57.4	41.1	1.4
	1958-63	52.4	47.2	0.4
	1954-63	54.0	44.4	1.6
10.1 to 15.0	1954-58	52.5	41.8	5.7
	1958-63	35.3	60.0	4.7
	1954-63	41.0	53.0	6.0
15.1 to 20.0	1954-58	40.4	51.5	8.1
	1958-63	34.5	63.8	1.7
	1954-63	29.5	66.3	4.2
20.1 to 25.0	1954-58	31.1	68.9	0.0
	1958-63	25.4	71.2	3.4
	1954-63	25.0	70.5	4.5
25.1 to 35.0	1954-58	19.1	76.1	4.8
	1958-63	5.0	85.0	10.0
	1954-63	17.4	78.3	4.3

Source: Based on Bureau of the Census data contracted for by the NCFM.

TABLE 16.--Relationship between market share changes in two time periods, 1954-58 and 1958-63
(Percent of total)

All Firms

Change between 1954 and 1958	Change between 1958 and 1963			Totals
	gain	loss	none	
gain	22.9	27.9	0.9	51.7
loss	17.2	28.6	0.6	46.4
none	0.2	1.5	0.2	1.9
Totals	40.3	58.0	1.7	100.0

524 observations

Largest 20, nationally

Change between 1954 and 1958	Change between 1958 and 1963			Totals
	gain	loss	none	
gain	21.4	26.1	0.5	48.0
loss	18.4	31.7	0.0	50.1
none	0.3	1.6	0.0	1.9
Totals	40.1	59.4	0.5	100.0

369 observations

TABLE 16.--Continued Local Firms

Change between 1954 and 1958	Change between 1958 and 1963			Totals
	gain	loss	none	
gain	26.4	32.3	1.9	60.6
loss	14.2	21.3	1.9	37.4
none	0.0	1.3	0.7	2.0
Totals	40.6	54.9	4.5	100.0

155 observations

Source: Based on Bureau of the Census data contracted for by the NCFM.

observed firm-market combinations gained in market share between 1954 and 1958, less than half (44.3 percent) of these extended their increase into 1958-63. Thus, only 22.9 percent of all firm-market combinations achieved a higher market share in both periods. About 28.6 percent of the total suffered a loss in both periods while 45.1 percent realized a gain in one period and a loss in the other.

The same general pattern emerges when distinguishing between the largest 20 national chains and all others. The one notable exception in this comparison is that a smaller proportion of the large chains realized a gain in both periods while a substantially higher proportion suffered a loss in both. A decline in share in one or both periods occurred in over three-quarters of the instances involving the large chains.

With these data it is also possible to approximate changes in the internal composition of the leading firms in a market. Since complete information for the eight leading firms is not provided for each SMSA, there is no assurance that the, say, four largest shares provided in the Census tabulation correspond to the four largest firms operating in the market. A firm's share could have been excluded from the tabulation in a given year for either of two reasons: (1) if the firm operated only one store in the market, or (2) if Census personnel could not identify the firm.

By limiting the markets examined to those having at least six observations in both census years, this bias is thought to be minimized, though certainly not eliminated. Results of an analysis of the markets satisfying this criterion are shown in Table 17. Though the results are not entirely consistent among the three time periods studied, they suggest a tendency toward instability of firm composition. In only six percent of the cases studied did the composition of the largest four firms in the market remain identical between 1954 and 1958. In exactly half of the cases, two or more of the firms that were among the largest four in 1954, fell from that category by 1958.

In contrast, for the period 1958-63, the top four firms maintained their relative standing in 40.2 percent of the instances studied while only 17.4 percent lost two or more of their beginning members. For the entire 1954-63 period, the change in composition roughly parallels that described for 1954-58.

Finally, utilizing the same data, an effort was made to describe changes in the internal structure of the largest four category. Indexes designed to measure the tendency of market shares to cluster about either the largest or smallest share or to be evenly dispersed are shown in

TABLE 17.--Changes in the composition of largest four firms in local markets between 1954, 1958, and 1963
(Percent)

Number of firms among top four at beginning and end of period	Period		
	1954-58	1958-63	1954-63
0	1.4	0.0	2.8
1	12.9	2.2	11.4
2	35.7	15.2	40.8
3	44.3	42.4	40.8
4	5.7	40.2	4.2

Source: Based on Bureau of the Census data contracted for by the NCFM.

Table 18. As the index approaches 100.0 for each measure, it nears its extreme. The accuracy of these results are, of course, subject to the same possible biases described above. The general trend, as evidenced by these measures, is toward a slight clustering of the largest two at one end of the continuum and the third and fourth largest at the other end. Yet, as the smallest share becomes an increasing proportion of the largest, the range over which they are scattered tends to diminish.

Market Share Data for the Large Chains. As part of its study of the nature of competition in food retailing, the NCFM obtained 1963 operating data for more than 6,000 stores operated by the nation's nine largest

TABLE 18.--Indexes of clustering by largest four firms in local markets, 1954, 1958 and 1963

Item	1954	1958	1963
Clustering about largest share	72.6	77.0	77.5
Clustering about smallest share	135.1	131.5	125.6
Evenly dispersed	78.2	77.9	75.4
Percent smallest share of the largest	27.3	34.2	38.1

Source: Based on Bureau of the Census data contracted for by the NCFM.

retail food chains.[1] These data provided information for 16 operating measures on a store-by-store basis.

Because of the confidential nature of the information, the raw data could not be made public. However, by studying results of analyses made by the Commission staff and by making additional analyses of the coded summary data that have been published, it is possible to piece together a rather complete picture of the relationship between market share and several dimensions of market performance.

Analysis of Individual Store Data. Individual store data were analyzed separately by the Commission for each of the 9 firms. Average

[1] In order of their 1963 sales volumes, these chains are: A&P, Safeway, Kroger, Acme, Food Fair, National Tea, Winn Dixie, Jewel, First National, and Grand Union. The 6,000 stores included in the sample represent about half the total number of stores operated by these firms in 1963. The sample was composed of all stores operated by each firm within selected divisions. The sample contains no data for stores operating in the three Pacific Coast States.

correleation coefficients for the operating measures and selected market variables, appear in Table 19.

When examined on this basis, market share is not closely related to any of the other variables. It is rather weakly related in a positive way to sales per square foot and net margin and negatively related with similar intensity to city size, advertising expense, and store expense.

However, several other variables are relatively closely correlated. Net margin is positively associated with sales per square foot and gross margin and negatively associated with labor expense. Store expense, exhibiting a high negative correlation with net margin, and sales per square foot, not surprisingly has the opposite relationship to labor expense. In addition, total store sales are rather highly correlated in a positive direction with both sales per square foot and the dollar value of the average customer purchase.

In its analysis of these data, the Commission focused on explaining variations in gross margin and net margin. It was particularly interested in studying the effect of market share on these variables. A separate step-wise multiple regression analysis was made for each of the 9 firms, first using gross margin as the dependent variable, then net margin.

The average R^2 of the analyses using gross margin as the dependent variable was only .45, a rather low level considering the comprehensive array of independent variables. Inventory shrinkage, sales per square foot, sales per store, clerk wage rates, and trading stamps contributed most to the "explanation," in that order. With the exception of the

TABLE 19.--Average of simple correlations of selected operating measures of individual stores, nine largest chains, 1963

Item	Sales per chain	Sales per super	Sales per sq. ft.	Sales per store	Age of store	Size of city
Market share	-.23	-.26	.33	.27	.02	-.33
Sales per chain		.23	-.03	.02	.06	.33
Sales per super			.04	.10	-.03	.08
Sales per sq. ft.				.60	.05	.04
Sales per store					-.35	.06
Age of store						.13
Size of city						
Distance from w'house						
# stores in county						
Special facilities						
Labor expense						
Clerk wages						

TABLE 19.--Continued

Item	Distance from warehouse	# stores in county	Special facilities	Labor expense	Clerk wages	Inventory shrinkage
Market share	-.10	.12	-.03	-.18	.06	-.10
Sales per chain	-.06	.04	.08	.06	.01	.01
Sales per super	.07	-.14	.12	.02	.06	.02
Sales per sq. ft.	-.17	.24	.06	-.34	.19	-.15
Sales per store	-.08	.07	.35	-.45	.10	-.09
Age of store	-.20	.22	-.23	.38	.09	.03
Size of city	-.26	.39	.10	.13	.02	.10
Distance from w'house		-.47	-.02	-.17	-.30	-.03
# stores in county			-.00	.11	.15	.06
Special facilities				-.11	.09	.04
Labor expense					.30	.17
Clerk wages						-.02

TABLE 19.--Continued

Item	Ave. cust. purchase	Adver-tising expense	Stamps	Consumer income	Union-ization	Gross margin	Net margin	Store expense
Market share	.23	-.34	.10	.10	.01	.16	.34	-.35
Sales per chain	-.08	.01	-.01	-.17	-.14	-.04	-.04	.04
Sales per super	.04	.14	-.00	-.03	.06	.02	-.02	.07
Sales per sq. ft.	.36	-.34	-.03	.29	.14	.30	.64	-.65
Sales per store	.64	-.14	-.05	.20	.08	.29	.53	-.51
Age of store	-.42	-.12	.01	.04	.06	-.01	-.04	.04
Size of city	-.16	-.06	-.03	-.16	.07	-.06	-.05	.03
Distance from w'house	.05	.34	.02	-.30	-.26	-.07	-.07	.06
# stores in county	-.08	-.34	-.02	.15	.21	-.02	.06	-.13
Special facilities	.19	.01	-.05	.10	.01	.07	.09	-.08
Labor expense	-.47	.04	-.08	.06	.18	-.13	-.62	.68
Clerk wages	.09	-.16	-.12	.33	.31	.11	-.03	.04
Inventory shrinkage	-.10	.14	.05	.08	.04	-.26	-.28	.23
Ave. customer purchase		-.07	.04	.22	.03	.14	.37	-.39
Advertising expense			-.08	-.26	.04	-.19	-.40	.38
Stamps				-.00	-.01	.28	.02	.11
Consumer income					.12	.34	.17	-.05
Unionization						.03	-.08	.10
Gross margin							.60	-.19
Net margin								-.85

Source: NCFM, Tech. Study No. 7, pp. 182 and 183.

first variable, each demonstrated a net positive association with gross margin.

The analysis of net margin yielded an average R^2 of 0.60. Over two-thirds of the variation accounted for by this model was attributable to one variable, sales per square foot. Sales per store, store age, inventory shrinkage, and clerk wage rates were of succeeding importance. The first three variables were generally positively associated with net margin; the latter two were negatively associated. In neither analysis did market share evidence a strong net relationship with the dependent variable.

Analysis of Market-Wide Data. Since market share is a market-wide phenomenon, the Commission study next turned to an analysis of the data aggregated by SMSA. Some of the variation in individual store operating measures reflects store to store differences--such as those arising from differences in the merchandising ability of the manager or the locational advantages of a particular site. These differences cannot be expected to be causally related to the firm's share of the total market. By aggregating across all stores in a given market, the unique influences of these and other individual store characteristics tend to cancel out.

Average correlation coefficients for the variables used in this analysis appear in Table 20. As a result of the market-wide aggregation of the data, market share is more highly correlated with two of the remaining variables--average sales per store and average sales per square foot. In both instances, the association is positive. The two average sales measures, per store and per square foot, continue to be relatively highly correlated. In addition, trading stamp expense

TABLE 20.--Average of simple correlations of selected market-wide operating measures, eight largest chains, 1963

Item	Average sales per store	Average inventory loss	Average sales per square foot	Average clerk wages	Stamp expense
Average sales per store	1.00	-.03	.63	-.01	.02
Average inventory loss		1.00	-.17	-.02	-.44
Average sales per sq. ft.			1.00	.15	-.03
Average clerk wages				1.00	-.01
Stamp expense					1.00
SMSA sales					
Market share					
Concentration of top 4					
Average gross margin					

TABLE 20.--Continued

Item	SMSA sales	Market share	Concentration of top 4 firms	Average gross margin
Average sales per store	.12	.46	.20	.30
Average inventory loss	.10	-.06	-.12	-.26
Average sales per sq. ft.	.20	.51	.04	.23
Average clerk wages	.18	.09	.09	.04
Stamp expense	-.05	.14	.07	.51
SMSA sales	1.00	.04	-.07	.03
Market share		1.00	.32	.33
Concentration of top 4			1.00	.05
Average gross margin				1.00

Source: NCFM, Tech. Study No. 7, pp. 204-207.

(expressed as a percent of total sales) is positively related to the average gross margin and negatively related to average inventory loss. Most of the remaining variables are weakly correlated.

Applying step-wise multiple regression with gross margin as the dependent variable, the Commission study found relatively few significant (at the .99 level of confidence) associations. Trading stamp expense, sales per store, and market share contributed most to "explaining" the variation in gross margin. All three exhibited a positive association. The average R^2 was not reported.

Restricting its examination to those SMSA observations in which four chains had market shares greater than 10 percent in each market, the Commission made one final regression analysis. Again there were relatively few significant associations and no R^2 values were reported. Market share, trading stamp expense, and clerk wage rates were positively associated with gross margin while sales per square foot was negatively associated.

Analysis of Firm Data Arrayed by Market Share Category. Though no analyses were made of the data, the Commission prepared and published summary tabulations for each of the nine test firms, stratifying the data for each operating measure by seven market share categories. To protect against disclosing the identity of specific firms, these data are presented in index form--as a percent of each firm's overall average for each operating measure. The average of each operating measure within each category was computed weighting the measure by the respective store's sales.

By aggregating across all stores that operate within markets wherein the test firm's market share falls within a given range, the variability of most operating measures is reduced, even beyond the reduction that resulted from aggregation across stores within SMSA's. Differences between both stores and markets falling within a given market share range tend to cancel out. Table 21 provides an indication of the effect aggregation has on the variation of six of the variables being studied.

TABLE 21.--Average coefficients of variation[1] for selected variables by extent of data aggregation, large chains, 1963

Variable	Aggregated by:[2]			
	individual store	SMSA	SMSA with share greater than 10 percent	market share category
Market share	60.7	60.7	--	64.5
Gross margin	6.9	6.7	5.8	3.3
Net margin	136.0	--	--	93.6
Sales per square foot	38.3	32.5	22.9	21.9
Sales per store	52.6	31.7	26.1	21.5
Inventory loss	106.0	56.3	47.1	50.7

[1]The coefficient of variation is the standard deviation expressed as a percent of the mean.

[2]The number of firms included vary by extent of aggregation. The individual store calculations include the data for all nine firms; the SMSA aggregations include data for four firms, the aggregation by market share category includes data for all nine firms with two exceptions--net margins were computed for eight firms; inventory loss for four. Due to the changing composition of the sample, differences in variation cannot be entirely attributed to the increasing degree of aggregation.

Source: Calculations based on data published in NCFM, Tech. Study No. 7, Chapter 10 and Supplement No. 2.

To obtain a specific measure of the association between each operating variable and market share, ordinary least square regression was initially employed. Each operating measure was estimated as a function of market share. The form of the preliminary scatter diagrams suggested that the best fit, for at least some of the variables, would be a curvilinear function. As a result, three separate functional formats were used: linear, square, and cubic.

The independent variable, market share, was assigned numerical values equal to the midpoints of the seven market share ranges, with one exception. The open-ended nature of the largest market share category, 35 percent and over, made it necessary to estimate the average of this range. Based on the shape of the curve fitted to the observations of the other six market shares, an estimate of 52.5 was made. The accuracy of this estimate, however, is not of crucial importance to the analysis that follows. Use of alternative mean values did not alter the outcome significantly.

Results of the regression analysis are shown in Table 22. The proportion of the variances of the various operating measures associated with the variance in market share (as indicated by the R^2 value) is surprisingly high. The R^2 value exceeds 0.50 in six of the 12 equations.

However, the close association between market share and several of the dependent variables strongly suggests that some of these variables might be rather highly correlated among themselves. As a result, the market share variable may only be serving as a proxy for another highly

TABLE 22.--Results of multiple regressions of local market share on various operating measures of nine largest food chains, 1963

Dependent variable is:	Estimated equation where the independent variable "X" is market share	R^2
Gross margin	$Y = 99.996 + 0.250^{**}X - 0.003\ X^2$ (0.902) (0.082) (0.001)	.30
Net margin	$Y - 44.355 + 9.762^{**}X - 0.114^{**}X^2$ (16.120) (1.472) (0.025)	.63
Store sales	$Y = 66.841 + 2.058^{**}X - 0.017^{**}X^2$ (3.703) (0.338) (0.006)	.72
Sales/sq. ft.	$Y = 60.693 + 2.510^{**}X - 0.026^{**}X^2$ (3.469) (0.317) (0.005)	.75
Store age	$Y = 92.448 + 0.406X - 0.006X^2$ (7.488) (0.684) (0.012)	.01
Labor expense[1]	$Y = 111.600 - 0.805^{**}X + 0.010^{**}X^2$ (1.674) (0.153) (0.003)	.47
Occupancy expense	$Y = 152.931 - 3.630^{**}X + 0.045^{**}X^2$ (5.755) (0.525) (0.009)	.59
Average customer purchase	$Y = 79.404 + 1.540^{**}X - 0.018^{**}X^2$ (3.648) (0.333) (0.006)	.51
Average inventory	$Y = 132.086 - 2.233X + 0.020X^2$ (17.736) (1.619) (0.028)	.15
Trading stamp expense	$Y = 100.569 - 0.075X - 0.000X^2$ (6.156) (0.562) (0.010)	.00
Store size	$Y = 114.365 - 1.104^{*}X + 0.017^{*}X^2$ (5.328) (0.486) (0.008)	.08
Advertising expense	$Y = 219.338 - 8.113^{**}X + 0.105^{**}X^2$ (13.989) (1.277) (0.022)	.58

Note: Standard error of regression coefficient appears in parentheses immediately below coefficient.

**Coefficient significant at the .01 level.

*Coefficient significant at the .05 level.

[1]Labor expense adjusted by average clerk wage rate.

Source: Based on data in NCFM, Tech. Study No. 7, pp. 191-199.

correlated variable. By introducing additional independent variables into the analysis, we might gain a clearer indication of the net association between market share and the dependent variables.

Furthermore, it is not entirely obvious at this point that the line of causation runs from market share to the assorted operating measures. It is quite conceivable, at least in certain cases, that it runs in the reverse direction. Thus, such factors as gross margin, store age, store size, and the use of trading stamps and advertising might, in fact, be the cause of market share--not the result.

Since data were not available for all variables from each firm, it was necessary to exclude some firms from certain computations. The number of firms included ranged from four (providing 28 observations) to nine (63 observations).

Correlation coefficients of the variables included in the analyses at each end of this range are shown in Tables 23 and 24. As can be seen, the coefficients, particularly those in the four-firm matrix, are relatively high. This is not surprising since correlations based on group averages tend to be higher than those based upon individual observations.[1] A higher correlation occurs because, in the process of averaging by groups, the reduction in standard deviation is proportionally greater for some variables than others. A change in the ratio of standard deviations of two variables causes their correlation to change. Though group averaging usually causes the correlation

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[1] Martin E. Abel and Frederick V. Waugh, "Relationship Between Group Averages and Individual Observations," Agricultural Economics Research, Vol. XVIII, No. 4, October 1966, pp. 105-115.

TABLE 23.--Correlation coefficients for variables arrayed by market share, four large chains, 1963

Item	Mkt. share	Gross margin	Net margin	Firm code	Ave. sales	Sales/ sq. ft.	Store age
Adv. exp.	-.72	-.63	-.85	.03	-.77	-.83	-.21
Store size	-.32	-.42	-.51	-.09	-.05	-.53	-.78
Trading stamp exp.	-.38	.07	-.36	-.04	-.36	-.46	-.05
Ave. inven. loss	-.34	-.30	-.23	-.16	-.34	-.32	.19
Clerk wage	.71	.44	.72	.07	.63	.83	.30
Ave. cust. pur.	.79	.48	.82	.09	.86	.81	-.21
Occ. exp.	-.72	-.33	-.80	.09	-.80	-.78	.03
Labor ex.	-.44	-.24	-.39	-.07	-.63	-.38	.59
Store age	.13	.27	.23	.00	-.12	.26	1.00
Sales/sq. ft.	.90	.69	.92	.10	.85	1.00	
Ave. sales	.89	.59	.83	.09	1.00		
Firm code	.00	.17	.07	1.00			
Net margin	.85	.64	.100				
Gross margin	.61	1.00					
Mkt. share	1.00						

TABLE 23.--Continued

Item	Labor exp.	Occ. exp.	Ave. cust. pur.	Clerk wage	Ave. inven. loss	Trading stamp exp.	Store size
Adv. exp.	.32	.81	-.68	-.58	.13	.35	.38
Store size	-.29	.18	-.16	-.56	-.02	.11	1.00
Trading stamp exp.	.12	.49	-.36	-.39	.25	1.00	
Ave. inven. loss	.55	.24	-.33	-.09	1.00		
Clerk wage	-.09	-.67	.66	1.00			
Ave. cust. pur.	-.59	-.77	1.00				
Occ. exp.	.43	1.00					
Labor exp.	1.00						
Store age							
Sales/sq. ft.							
Ave. sales							
Firm code							
Net margin							
Gross margin							
Mkt. share							

28 observations
.45 = 0.01 significance level

Source: Based on data in NCFM, Tech. Study No. 7, pp. 191-199.

TABLE 24.--Correlation coefficients for variables arrayed by market share, nine large chains, 1963

Item	Market share	Gross margin	Firm code	Ave. sales	Sales/ sq. ft.	Store age	Labor exp.	Occ. exp.	Clerk wage	Store size
Store size	-.17	-.14	-.09	.17	-.41	-.64	-.10	.23	-.24	1.00
Clerk wage	.21	.12	.11	.30	.42	.10	.12	-.36	1.00	
Occ. exp.	-.71	-.40	-.01	-.73	-.81	-.13	.50	1.00		
Labor exp.	-.61	-.24	-.04	-.63	-.52	.31	1.00			
Store age	.07	.15	.08	-.14	.25	1.00				
Sales/sq. ft.	.84	.61	.11	.79	1.00					
Ave. sales	.84	.60	.04	1.00						
Firm code	.00	.12	1.00				63 observations			
Gross margin	.53	1.00					.32 = 0.01 significance level			
Market share	1.00									

Source: Based on data in NCFM, Tech. Study No. 7, pp. 191-199.

coefficient to rise, it can under certain circumstances, have the opposite effect.

In general, these matrices indicate the following. Market share is negatively associated with expense items, particularly advertising and occupancy, and positively associated with sales per square foot, sales per store, average customer purchase, net margin, and clerk wage. Net margin, sales per store, and sales per square foot are each related to this same list of variables in about the same way. Store age is negatively related to store size and occupancy expense is correlated positively with advertising expense and negatively with average customer purchase.

To learn more about the interrelationships between and among these variables, they were examined in a series of step-wise multiple regression analyses. Results of these analyses are shown in Table 25. Nine of the variables were alternatively introduced as the dependent variable with a portion of those remaining introduced as independent variables.

Gross margin was largely "explained" by sales per square foot, occupancy expense, and average sales per store, all being positively associated with the dependent variable. The two highest ranking variables in the net margin equations were average sales per store and store size. A higher net margin was associated with a larger sales volume per store and a smaller store. Market share did not appear as a significant variable in either of these equations.

In making an interpretation of the results of these regressions, one should not neglect the possible effects of intercorrelation. The rather high correlations measured for these variables strongly suggests that at least some degree of intercorrelation occurs. As a result, some

TABLE 25.--Results of step-wise multiple regression for variables arrayed by market share, nine large chains, 1963

Dependent variable	Number of observations	R^2	Rank	Independent variable[1]	Sign
Gross margin	28	.82	1	sales/ sq. ft.	+
			2	trading stamp expense	+
			3	occupancy expense	+
			4	advertising expense	-
			5	average inventory loss	-
	49	.61	1	sales/sq. ft.	+
			2	occupancy expense	+
			3	average sales	+
	56	.57	1	sales/sq. ft.	+
			2	occupancy expense	+
			3	average sales	+
			4	labor expense	+
			5	net margin	+
	63	.51	1	average sales	+
			2	store size	-
			3	labor expense	+
			4	clerk wage	-
Net margin	28	.95	1	average sales	+
			2	store size	-
			3	occupancy expense	-
			4	clerk wage	-
			5	average customer purchase	+
	49	.80	1	average sales	+
			2	store size	-
			3	labor expense	-
			4	advertising expense	-
	56	.70	1	average sales	+
			2	store size	-
			3	clerk wage rate	-
Market share	28	.86	1	sales/sq. ft.	+
			2	average sales	+

TABLE 25.--Continued

Dependent variable	Number of observations	R^2	Rank	Independent variable[1]	Sign
	49	.80	1	average sales	+
			2	store size	-
	63	.80	1	average sales	+
			2	store size	-
Average sales	28	.93	1	market share	+
			2	store size	+
			3	advertising expense	-
			4	average customer purchase	+
	42	.92	1	market share	+
			2	store size	+
			3	gross margin	+
			4	occupancy expense	-
	63	.90	1	market share	+
			2	store size	+
			3	occupancy expense	-
			4	gross margin	+
Sales/sq. ft.	49	.95	1	average sales	+
			2	store size	-
	63	.93	1	average sales	+
			2	store size	-
Labor expense	49	.63	1	sales/sq. ft.	-
			2	store age	+
			3	clerk wage	+
	63	.62	1	sales/sq. ft.	-
			2	store age	+
			3	clerk wage	+
Occupancy expense	49	.64	1	sales/sq. ft.	-
	63	.68	1	sales/sq. ft.	-
			2	average sales	-

TABLE 25.--Continued

Dependent variable	Number of observations	R^2	Rank	Independent variable[1]	Sign
Average customer purchase	49	.59	1	market share	+
			2	store age	-
Advertising expense	35	.55	1	sales/sq. ft.	-
	49	.56	1	average sales	-
			2	store size	+

[1]All variables are statistically significant at the 0.95 confidence level.

Source: Based on data in NCFM, Tech. Study No. 7, pp. 191-199.

of the variables that fail to rank high in terms of their contribution to R^2 might have been eliminated because of their close association with other measures. Considering the high correlation between market share and the two measures of sales volume--average sales per store and sales per square foot--it is possible that intercorrelation contributed to the poor showing of market share in the gross margin and net margin equations.

As a dependent variable, market share was most closely associated with sales per square foot, sales per store, and, oddly enough, store size. High sales per square foot, high sales per store, and smaller stores were associated with high market shares.

When average sales per store was introduced as the dependent variable, market share and store size contributed most to explaining its variation. Results of the remaining equations were consistent with previous findings.

Analysis of Data Arrayed by City Size. Data for one of the firms included in the preceding analysis were stratified by size of city as well as by market share. Five city size categories were identified on the basis of total grocery store sales in 1963. Translated to a population basis, the smallest category includes stores operating in towns of less than around 9,000 population and the largest category in towns over approximately 90,000.

A correlation matrix and results of step-wise multiple regressions using these data are shown in Tables 26 and 27. The findings roughly parallel those of the preceding analysis. City size was not extremely highly correlated with any of the variables. However, in the step-wise regressions, it ranked as one of the leading contributors to the explanation of the variation in several measures--average sales per store, average customer purchase, advertising expense, and market share.

Factor Analysis. Factor analysis is another multivariate procedure designed for analyzing intercorrelations within a set of variables.[1] It is a particularly useful statistical device for identifying the minimum number of independent dimensions needed to account for most of the variance in a given set of variables. By grouping variables according to the closeness of their associations with one another, the task of isolating the major forces at work in a group of several variables can be made somewhat easier.

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[1] William W. Cooley and Paul R. Lohnes, Multivariate Procedures for the Behaviorial Sciences (New York: John Wiley & Sons, Inc., 1962), Chapter 8; A. Williams, Factor Analysis, Michigan State University Computer Institute for Social Science Research, Technical Report No. 31, October 21, 1966.

TABLE 26.--Correlation coefficients for variables arrayed by city size and market share, large national chain, 1963

Item	Store size	City size	Mkt. share	Trading stamp exp.	Adv. exp.	Ave. cust. purchase	Occ. exp.
Store age	-.70	-.17	-.39	.34	.18	-.76	.26
Clerk wage	.49	.12	.17	-.22	-.47	.54	-.44
Inventory loss	-.01	.11	-.43	.36	.27	-.16	.31
Gross margin	.03	-.17	.05	.59	-.20	.04	.05
Net margin	.57	.22	.80	-.61	-.64	.73	-.89
Average sales	.81	.63	.66	-.55	-.31	.83	-.65
Sales/sq. ft.	.72	.36	.74	-.62	-.58	.86	-.86
Labor exp.	-.49	-.32	-.58	.43	.12	-.55	.42
Occ. exp.	-.42	-.07	-.71	.60	.72	-.62	
Ave. cust. pur.	.92	.40	.58	-.54	-.39		
Adv. exp.	-.12	.30	-.60	.24			
Trading stamp exp.	-.48	-.36	-.32				
Mkt. share	.34	-.08					
City size	.66						

TABLE 26.--Continued

Item	Labor exp.	Sales/ sq. ft.	Ave. sales	Net margin	Gross margin	Inven. loss	Clerk wage
Store age	.65	-.47	-.44	-.49	.05	.31	-.10
Clerk wage	.28	.51	.38	.23	.27	.43	
inventory loss	.61	-.20	-.21	-.48	-.31		
gross margin	.35	-.07	-.05	-.05			
Net margin	-.71	.89	.79				
Average sales	-.61	.90					
Sales/sq. ft.	-.55						
Labor exp.							
Occ. exp.							
Ave. cust. pur.							
Adv. exp.							
Trading stamp exp.							
Mkt. share							
City size					34 observations .42 = 0.01 significance level		

Source: Based on data appearing in NCFM, Tech. Study No. 7, pp. 200-201.

TABLE 27.--Results of step-wise multiple regression for variables arrayed by city size and market share, large national chain, 1963

Dependent variable	R^2	Rank	Independent variable[1]	Sign
Gross margin	.86	1	trading stamp expense	+
		2	net margin	+
		3	labor expense	+
		4	average customer purchase	+
		5	sales/sq. ft.	-
		6	advertising expense	+
Net margin	.98	1	occupancy expense	-
		2	labor expense	-
		3	gross margin	+
		4	trading stamp expense	-
		5	advertising expense	-
		6	sales/sq. ft.	+
		7	clerk wage	-
Average sales	.96	1	market share	+
		2	city size	+
		3	average customer purchase	+
		4	store age	+
Sales per square foot	.93	1	average sales	+
		2	advertising expense	-
		3	average customer purchase	+
		4	gross margin	-
Labor expense	.82	1	sales/sq. ft.	-
		2	clerk wage	+
		3	store size	-
Occupancy expense	.81	1	sales/sq. ft.	-
		2	average sales	+
Average customer purchase	.97	1	store size	+
		2	market share	+
		3	city size	-
		4	trading stamp expense	-
		5	advertising expense	-
Advertising expense	.51	1	average sales	-
		2	city size	+

TABLE 27.--Continued

Dependent variable	R^2	Rank	Independent variable[1]	Sign
Market share	.85	1	average sales	+
		2	city size	-
		3	labor expense	-

[1]All variables are statistically significant at the 0.95 confidence level.

Source: Based on data appearing in NCFM, Tech. Study No. 7, pp. 200-201.

The individual store data examined in the foregoing tests were subjected to factor analysis for this purpose. Since the basic input requirement is the correlation matrix for the relevant variables, it was possible to examine these data without having access to the individual observations. Results of an analysis of the correlation matrix appearing on pages 128-130 are shown in Table 28.

Six factors have been isolated. Each of the 21 variables is associated with that particular factor on which it was highest loaded (i.e. most closely associated). The communality of each variable is the proportion of its variance accounted for in the factor solution. The proportion of the variance of the correlation matrix accounted for by each of the six factors is shown in the last row of the table.

Identification of the element common to each of the variables associated with a particular factor is unavoidably subjective. Thus, the factor titles appearing at the head of Table 28 reflect this researcher's intuitive interpretation of the results. They form an interesting pattern.

TABLE 28.--Results of varimax rotation factor analysis of 21 grocery retailing characteristics, individual store data for nine leading national chains, 1963

Variables	Factors						
	Communalities	Merchandising skill	Store appeal	Urbanization	Affluence	Classical norm	Promotional effort
Market share	.55					-.63	
Sales/chain store	.52					.69	
Sales/supermarket	.52					.64	
Sales/sq. ft.	.68	.73					
Sales/store	.78		.68				
Store age	.60		-.71				
City size	.73			.64			
Distance from warehouse	.58			-.63			
Number of stores in county	.67			.79			
Special facilities	.40		.57				
Labor expense	.76	-.58					
Clerk wages	.63				.78		
Inventory shrinkage	.43	-.52					
Average customer purchase	.66		.69				
Advertising expense	.54			-.52			

TABLE 28.--Continued

Variables	Factors						
	Communalities	Merchandising skill	Store appeal	Urbanization	Affluence	Classical norm	Promotional effort
Trading stamp expense	.76						.83
Consumer income	.57				.62		
Unionization	.34				.56		
Gross margin	.76						.68
Net margin	.89	.90					
Total store expense	.87	-.86					
Proportion of variance	--	.18	.11	.10	.10	.09	.07

Source: Based on data in NCFM, Tech. Study No. 7, pp. 182-3.

The factor accounting for the highest proportion of matrix variance has been titled "merchandising skill." It generally reflects the degree to which a store has achieved merchandising success. This is represented by a positive association with sales/square foot and net margin and a negative association with labor expense, inventory shrinkage, and total store expense.

The factor accounting for the next highest share of total variance has characteristics that might be associated with "store appeal." It is positively related to sales volume/store, special store facilities, and the dollar value per customer purchase while negatively related to store age.

The third factor generally reflects a tendency toward increasing urbanization (e.g. a larger population, a higher number of stores per county, declining distance between store and warehouse, and a declining rate of advertising expense). The fourth factor suggests a relatively high level of market affluence. Clerk wage rates, consumer income, and unionization are positively related to it.

The fifth factor, titled "classical norm," is associated with an especially interesting group of variables. Its composition tends to reflect the structural assumptions underlying the type of competition described by the classicist, that is, a large number of firms none of which are of sufficient size to influence the level of market price. Thus, this factor is positively associated with sales/chain store and sales/supermarket (both of which increase as the number of their respective store types decline) and negatively associated with firm market share.

The least influential of the six variables in terms of its association with the variance of the matrix appears to reflect "promotional effort." As such, it is positively associated with both trading stamp expense and gross margin.

To summarize, this interpretation identifies six major forces at work within the competitive environment of the grocery retailing

industry. Three of these forces function at the store level (merchandising skill, store appeal, and promotional effort); the other three are rooted in the environment of the market (urbanization, affluence, and resemblance to the classicial norm).

Interpreting Results. Though the results of some of these analyses are at variance, most are complementary. In general, they show that a higher market share is associated with lower occupancy, advertising, and labor expenses; higher per unit sales including higher sales per store, sales per square foot, and sales per customer transaction; a slightly higher gross margin; and a significantly higher net margin. There is little doubt but that this is the basic pattern of relationships. The uncertainty arises in attempting to sort out the cause-effect relationships and the relative importance of the respective variables. The high intercorrelation among several of the key variables underscores the need for careful interpretation.

Considerable attention has been devoted to statistically explaining the relationship between gross margin and market share. It is fairly obvious that there is a statistically significant, positive relationship between them. Most of the findings suggest that the relationship is somewhat weaker than that of several of the other variables that interact with market share, though it strengthens with increasing aggregation.

The strongest association between market share and gross margin was measured in the Commission analysis of the high share markets of four chains. However, even in this analysis the association was

statistically significant (at the .99 level) in only two of the four tests and the proportion of variation explained is thought to have been low, though it was not reported. This, plus the uniqueness of the market situations sampled, provides reason to partially discount the significance of these results.

To the extent that the gross margin-market share relationship is relatively weak, it tends to refute the hypothesis that firms charge higher prices by widening store margins as their dominance of a market increases. However, even a relatively strong positive relationship between these variables does not constitute sufficient evidence of higher prices in high share markets. To understand why, one must consider the item composition of the sales of an individual store.

The average grocery store sells around 6,000 to 7,000 items, many of which have widely different margins attached. For instance, examination of the "canned baked beans" category of one grocery firm's order books reveals a variation in gross margin ranging from a low of 10 percent to a high of 38 percent. The same variation can be found in most other grocery categories. And these gross margins are associated with regular, nonspecialed prices. For specialed items, the gross margin frequently nears zero, sometimes becoming negative.

Because of the wide variation in gross margin, a change in the item composition of total sales (product mix) can result in a marked change in the overall gross margin of any given store, though margins on each individual item within the store might remain perfectly

constant. The next question, therefore, is what relationship, if any, does product mix have to market share? If there is a logical relationship, it might partially explain the association between gross margin and market share.

There are a wide variety of circumstances that result in changes in product mix. Seasonal differences in eating habits and weekly consumer shopping patterns cause product mix to change through time. Likewise, variations in disposable personal income, ethnic characteristics of the clientele, or even the internal structure of retail grocery prices affect product mix. Of greater relevance to the subject of this study, however, is the relationship between product mix and the sales volume of an individual store.

The extremely wide variation in individual item gross margins described above reflects a fundamental element of the merchandising strategy now employed by most grocery retailers. Applying this strategy, retailers attract customers through the selective use of price specials (causing low margins) which are balanced by slightly higher prices (and higher margins) spread across a large number of other products. For the successful store, the store that attracts a sizable volume of sales, this strategy is one of proven effectiveness. Yet, to achieve this success a store must necessarily account for a sizable share of the total grocery purchases of each of its customers. It is the flexibility of being able to maneuver prices (and, consequently margins) over a wide assortment of items that makes this strategy effective.

For the low volume store, however, the loss leader strategy can be and often is a curse. Lower volume stores tend to do an unusually high proportion of their business in two product areas: (1) convenience goods (e.g. bread, milk, and tobacco products) and (2) price specials (or loss leaders). It is hypothesized that this occurs when a significant share of a store's potential clientele are dissatisfied with the store as a source of major purchases but are willing to patronize it when other appeals, such as conevenience and price, are overriding.

Since convenience goods and price specials are both characterized by below average gross margins, low volume stores are likely to experience a lower gross margin, simply because of the nature of their product mix.

The empirical findings of the proceeding statistical analysis would appear to lend support to this hypothesis. Perhaps the most persuasive evidence is found in the behavior of the average customer pruchase variable. It is something of a proxy for the conditions described above. When customers patronize a store for their major grocery purchases, the average dollar value of purchase tends to be significantly higher than when the store is a source of only occasional purchases.

As shown in Table 23, the average customer purchase of four of the large chains is highly correlated with several key variables, including market share, net margin, sales per store, and sales per square foot. In each case the relationship is positive. Furthermore, in the stepwise multiple regression of variables arrayed by market share, average customer purchase ranked high in the analysis of variation of both

average sales and net margin. In turn, as a dependent variable it was most closely associated with market share (positively) and store age (negatively), one of the two dependent variables toward which market share made a significant contribution.

The decline in three major expense categories--occupancy, advertising, and labor--as market share increases, indicates that high share firms enjoy significant scale economies. The average difference between the total of these expenses in the lowest market share situations and the highest market share situations is an estimated 4.12 percent of sales.[1] This is the equivalent of over one-fifth total operating expenses.

The decline in two of these expense categories--occupancy and labor--is attributable to the more intensive utilization of individual stores. The association between market share and the utilization of store capacity will be discussed in greater detail below.

Advertising expense, the other major expense item that falls as market share increases, is affected more by total sales per market than by sales per store. Assuming a constant market size, advertising expense as a percent of sales is likely to fall as sales increase, regardless of the number of stores operating within the market.

Having found that an increase in market share is accompanied by a slight increase in gross margin and a sizable decline in operating expense, it comes as very little surprise to find that higher market

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[1]Estimated using average expense levels expressed as a percent of sales as follows: occupancy - 1.8 percent, advertising - 1.1 percent, and labor - 8.5 percent. See NCFM, Tech. Study No. 7, p. 234.

shares are also accompanied by significantly higher net margins. In fact, the estimated difference between the operating expenses under the lowest share situations and the highest share situations (4.12 percent of sales) is almost exactly matched by the estimated difference in net margin (4.18 percent of sales.)[1]

The closest association of all was between market share and the rate of utilization of individual stores, as measured by sales per square feet of selling space and total store volume. This suggests that a large portion of the scale economies experienced by high share firms is attributable to the more efficient utilization of facilities at the store level. Thus, retailers apparently do not gain a large share of total sales by simply saturating a market with stores. If the firm is to be profitable, each store must make relatively efficient use of its fixed resources.

Explaining Market Share

Thus far in this Chapter, market share has been employed primarily as a determinant of various operating characteristics. That is, it has been introduced in most equations as one of several independent variables affecting a given dependent variable. Results of the statistical tests suggest, however, that market share is as much a result as a cause of the observed pattern of competitive behavior.

The single instance in which market share was employed as a dependent variable failed to yield any very revealing insight. Though

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[1]Estimate based on an average net profit before taxes of 2.1 percent. This is equal to the median of 19 Super Market Institute member firms with sales in excess of $100 million in 1964. See NCFM, Tech. Study No. 7, Supplement No. 1.

sales per store and sales per square foot were both highly associated with market share, this says nothing about the cause of the firm's sales success except that it occurred on an individual store basis as well as on a firm basis.

Thus, before drawing performance implications from these findings, it should be instructive to consider some of the possible causes of market share. Market share per se is not, after all, the ultimate source of our concern. Market share is little more than a proxy for the relative success of a firm. As an index of relative sales volume, market share indicates nothing about the manner in which the sales were achieved, about the length of time the share has been held, or about the length of time it is likely to be maintained in the future. For purposes of understanding the nature of competition, these are important considerations.

What then are the possible causes of a high market share? There would appear to be at least four possible explanations: (1) the high share firm might simply outcompete its rival sellers, (2) the high share firm might attain volume through the exercise of market power, (3) there might be a general absence of effective competition within the market, or (4) a combination of these factors.

Let us consider these possibilities in greater detail. One explanation is that a firm, through its merchandising skill, its advertising effectiveness, through the construction of pleasant and convenient stores, comes closer than most of its competitors to offering more consumers what they want. There are numerous examples in which this factor must be given credit as a leading contributor to high market share.

The nature of competition in food retailing is highly dynamic. Given this setting, there is a tendency for the most successful store to be the one that does the best job in attracting customers. This is accomplished through various forms of differentiation of the firm's offer. Means of effective differentiation include price, cleanliness, product quality (particularly with regard to perishable products), convenience of location, variety of merchandise, promotional programs (trading stamps, double stamp days, free dishes, lucky bingo, etc.), employee attitude, store hours, and the offering of supplemental services (check cashing, credit, carry-out, utility bill payments, etc.).

To accomplish an effective differentiation, however, a firm must set itself apart from its competitors in a manner that is both recognizable and appealing to the consumer.

Most of the methods of effective differentiation listed above can be adopted with relative ease.[1] As a result, successful forms of differentiation are frequently imitated. Yet, as more and more firms within a given market become imitators, the practice loses its differentiation and, therefore, its effectiveness. The innovative firm then seeks other avenues that will provide a new and unique offer to supplement or replace the imitated practice.

This continual modification of the firm offer for the purpose of achieving a more highly differentiated product has a noticeable effect upon structural stability. The firm that has successfully differentiated

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[1]Their discontinuance, once the consumer has become accustomed to them, is not as easily accomplished. In some markets, this has resulted in a "layering effect" as one source of differentiation is piled on top another.

itself from its competition increases its sales volume and its share of the market. However, it is under constant pressure from its competitors. As a result, it must be continually receptive to new forms of differentiation. This is a difficult task for the most innovative of firms. Consequently, as the analysis of individual firm market share data demonstrated, most markets undergo a constant realignment. At any particular point in time, some firms are losing their competitive edge while others are gaining new advantages.

In some respects, this view of competition resembles the "wheel of retailing" hypothesis advanced by M. P. McNair several years ago.[1] Professor McNair hypothesized that retail competition moves in a recurring cycle. He argued that the innovative firm gains a place in the industry by realizing cost savings that can be passed on to the consumer in the form of lower prices. However, as these firms mature, they add frills in the form of additional services and more elaborate facilities. Eventually their price levels rise to the point that they become vulnerable to the competition of low cost operations based on price appeal. It is not clear whether the operators of the mature firms fail to perceive their vulnerability because of its near imperceptible gradualism or whether they see it coming but are unable to adjust in time.

Eugene Beem and A. R. Oxenfeldt have recently developed a similar theory to assist in explaining the nature of competition in food

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[1] M. P. McNair, "Significant Trends and Developments in the Post-war Period," in A. B. Smith (ed.), Competitive Distribution in a Free, High-Level Economy and Its Implications for the University (Pittsburgh: Univ. of Pittsburgh Press, 1958), pp. 1-25.

retailing.[1] The nucleus of the Beem-Oxenfeldt concept, which they call "diversity theory," consists of six interrelated hypotheses.

(1) Sellers in any market possess different resources and capabilities, enjoy dissimilar opportunities, and have different objectives.

(2) Buyers are heterogeneous in their wants, both as to products and as to stores.

(3) Sellers seek a differential advantage with particular classes of customers.

(4) Seller opportunities for differential advantage are continually changing.

(5) Rival sellers cooperate rather than compete when none perceive an opportunity for differential advantage.

(6) The sales and profits of sellers are continually in jeopardy.[2]

Although the "diversity theory" does not place as much emphasis on retail price as does Professor McNair's hypothesis, the results are similar. Both hypotheses picture retailing, and particularly food retailing, as dynamic and constantly tending away from a condition of stable equilibrium.

Turning to another possible avenue of achieving a high market share, it is conceivable that some firms do so through the exercise of

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[1]Eugene R. Beem and A. R. Oxenfeldt, "A Diversity Theory for Market Processes in Food Retailing," Journal of Farm Economics, August 1966, Part II, pp. 69-95.

[2]Ibid., p. 70.

economic power. Each of the firms reflected in the data examined in the previous section of this Chapter is backed by a total net worth of at least $100 million. A&P, the largest of the nine firms, has a total net worth in excess of one-half billion dollars. In 1963, this firm alone accounted for over 9 percent of all grocery store sales made in the United States.

This gives some indication of the potential influence these firms are capable of wielding in their dealings with other economic units. Beyond the conventional quantity discounts obtainable from suppliers, these chains are in a position to extract additional concessions, if they are offered any firm. Their ability to capture choice shopping center sites for their new stores, for example, is widely recognized. Their capability to outlast competitors in the battle of below cost pricing is also apparent. Their ability to integrate in nearly any line they choose keeps suppliers on constant guard against taking any action that might encourage integration in their direction. The opportunity for large chains to improve their market shares through the exertion of economic power would therefore seem considerable.

Yet, there are several reasons to suspect this influence is not a determinant of major importance. There is no strong empirical support for either the hypothesis that high share firms consistently charge higher prices in taking advantage of their dominant positions or the hypothesis that firms sell at below cost prices to attain a high market share.

As previously described, results of the statistical analysis show that the variation in market share is associated with a comparatively

small portion of the total variation in gross margin. Gross margin in the highest share situations averaged an estimated 1.2 percent of sales greater than that in the lowest share situations.[1] As previously noted, there is reason to believe that differences in gross margin of this magnitude are at least partially explained by differences in product mix, rather than by differences in retail price.

Other studies have resulted in similar findings. Hiroshi Mori and William D. Gorman of Purdue University recently completed a study of retail food pricing in 22 midwestern cities.[2] They collected monthly retail prices on a 151-item sample over a 5-month period from stores representing at least 90 percent of the supermarket sales volume in each market.

In their research, Mori and Gorman could find no significant association between retail price level and market share, either within markets or between markets. They did find, however, that the presence of grocery discounters in a market tended to hold price levels down. The prices of one large chain operating in 20 of the 22 markets studied was found to be about 2 percent lower in those markets in which the firm faced discount competition.[3]

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[1]Estimate based on average gross margin of 20.5 percent of sales.

[2]Hiroshi Mori and William D. Gorman, "An Empirical Investigation into the Relationship Between Market Structure and Performance as Measured by Prices," Journal of Farm Economics, August 1966, Part II, pp. 162-171

[3]Ibid., p. 170.

The NCFM made a similar study, comparing the relationship between retail price levels and market shares of leading national chains.[1] On the basis of some 30 comparisons in markets throughout the United States, the Commission concluded that no significant relationship between market share and retail price level existed.

Thus, it does not appear, on the basis of current empirical evidence, that large firms exercise influence in such a way as to cause retail price to vary with market share.

The data being examined in this analysis, it will be recalled, have been collected from the nation's nine largest food chains. It is not entirely appropriate, however, to assume that the vast economic power of these firms is always pitted against that of smaller, less powerful firms. The largest nine often face one another; and, in recent years, the number of these confrontations has risen. In 1963, for example, A&P met its nine largest competitors in 301 out of a possible 362 meetings within SMSA's. In 1963, Food Fair, Colonial, Jewel, and Winn Dixie, faced A&P in every single SMSA in which they operated. Jewel Tea faced A&P and Kroger in every one of the nine SMSA's in which it operated in 1963, and it faced National Tea in seven of the nine. At least three of the large nine were operating in about half (49 percent) of the 1953 largest metropolitan areas in 1963.[2]

On the basis of this information, it would not appear that these firms are normally in positions to exercise their power unchallenged.

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[1] NCFM, Tech. Study No. 7, pp. 208-211.

[2] Metro Market Studies, Inc., 1964 Grocery Distribution Analysis and Guide (Dobbs Ferry, New York: 1964).

The countervailing power of firms of comparable size must frequently serve as a restraining influence.

Still another reason to suspect that these particular chains are not gaining sales volume through the exercise of economic power is the attention they received from Federal regulatory agencies. With resource limitations restricting the scope of their surveillance, these agencies have concentrated on the activities of industry leaders. Between 1950 and 1965, six of the nine largest chains have been recipients of Federal Trade Commission antimonopoly complaints and two of the nine have been involved in Justice Department antitrust cases.[1] The threat of involvement in legal actions of this nature undoubtedly conditions the manner in which these firms compete with their smaller rivals.

The absence of effective competition is a third possible explanation for the occurrence of high market shares. Although this is not likely to be an important factor in the large metropolitan markets, it is a plausible explanation for many small towns and villages. In 1963, per capita grocery store sales were $277.51. At this rate, a community of 5,000 population would support an annual grocery sales volume of approximately $1.39 million. Grocery sales in this amount will not support many stores of efficient size. In fact, the average sales per store of the nine largest firms was $1.4 million in 1963.[2]

Given the nature of the cost function facing supermarket operators, it is to be assumed they will consciously strive to avoid dividing small markets into many pieces. Unless a new entrant can

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[1] NCFM, Tech. Study No. 10, pp. 156-165 and 179-189.

[2] NCFM, Tech. Study No. 7, Supplement No. 2, p. 15.

capture a sizable share of the total market, it is not likely he will achieve the operating economies required of a profitable operation. Thus, small market size could serve as a deterrent to the entry of all but a handful of firms, insuring that the few firms that become established command a sizable portion of the total market.

This is especially likely to be true for the large chains. Although these firms continue to operate a few very small stores, most of their small stores have been replaced. In recent years, these firms have gone almost entirely to the construction of facilities of supermarket-size. Although the newly entering independent can open a store of nearly any reasonable size, the large chains, for purposes of standardization, stay fairly close to their firm's prototype. As a result they are likely to seek larger shares than the independents, on average.

Results of the regression analysis shown in Table 22 provide inconclusive evidence regarding the relationship between market share and city size. Although their simple correlation coefficient (Table 21) is quite weak, it is possible that this is at least partially attributable to the nature of the data. Since the raw data were arrayed by market share within five city size ranges, no meaningful indication of the association between the variables could be expected.

By estimating the mean market share of each of the five city size categories, a rough indication of the relationship can be gained. This calculation yields the following association:

City size	Estimated mean market share
1 (largest)	15.1 percent
2	17.0
3	25.1
4	26.6
5 (smallest)	23.7

Though the general tendency is toward smaller shares in the larger markets, the relationship is not entirely obvious.

It will also be recalled that in the analysis of concentration levels by SMSA no strong association between city size and concentration or change in concentration was detected. Likewise, size of city did not appear to be of major significance in the early Commission analyses.

Having examined some of the possible causes of high market share, let us now turn to the low share situations. It is assumed that the major cause of low share is the antithesis of the cause of high share. Namely, firms account for a relatively minor share of total market sales whenever they fail to satisfactorily meet consumer demands.

Yet, a question is raised here as to why these firms continue to operate unprofitable stores in their low share markets. Several possible explanations may be offered.

(1) Low share markets may not remain low share very long. Thus, through proper management, the low share market may increase its share to the point that it makes a positive contribution to firm profits. This hypothesis receives support from earlier findings.

(2) Once a firm is committed to a market, it is not in a position to withdraw when the going gets rough. As previously indicated, a substantial portion of store operating costs are fixed through prior commitment. Store leases form part of this commitment and most of the large chains lease. In recent years, these leases have averaged around 20 years.[1]

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[1]Super Market Institute, Facts About New Supermarkets Opened in 1964 (Preliminary Report), p. 13.

The operation of a warehouse unit in or near the market further contributes to a firm's inflexibility. To maintain an efficient warehousing system, the firm must maintain a given sales volume. If the warehouse serves both high share and low share markets, store operating losses in the low share markets may be more than matched by the warehousing economies made possible by their contribution to overall volume.

(3) Although high share markets offer a more attractive return on investment, the opportunity to employ additional capital is limited. Once a firm has attained 35 or 40 percent of a market (of say 50,000 population or more), it becomes difficult to expand. At this point, the danger of placing one's own stores in competition with one another as a result of expansion becomes possible.[1]

There is also a tendency in most markets, depending upon the heterogeneity of the population, for different types of retail operations to appeal to different segments of the consumer market. Some consumers are attracted by the appeal of a high quality image, others by low price, still others by convenience or the provision of delivery service or credit, and so forth. It is rare when one firm can embody all these attributes under a single corporate identity. The high rate of individual store utilization documented in the findings of the analysis suggest that the very large chains have not been lured into overinvestment in the majority of their high share markets.

(4) The low share markets might be heavily weighted by newly opened stores. Most new stores, particularly those opened over the past

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[1]See testimony of L. V. Eberhard before the NCFM in Washington, D.C. on May 5, 1965.

5 years, have taken at least 12 months after opening to build an efficient volume.[1] However, for this to be an important reason for financial losses in low share markets, one would have to assume that an expansion in store volume (with age) is accompanied by an increase in market share. This does not appear to be the case. Results of the regression analysis indicate no significant relationship between market share and store age.

Summary

The findings of the analyses reported in this Chapter tend to confirm the hypothesis that market share and market performance are related. The line of causation is not clearly documented, though the evidence suggests that at least some performance characteristics are as much cause as effect.

The results show that grocery retailers tend to earn a significantly higher rate of profit under conditions of high market share. As a result, there is a strong incentive for these firms to expand their share of any given market, at least to a point. However, the results also suggest that the profits associated with operating under conditions of high market share are attained through reductions in the cost of operation, not through higher retail prices. These cost-savings are made possible largely through the fuller utilization of a given retailing capacity. Variation in the rate of utilization suggests the existence of considerable excess capacity in the industry.

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[1]The sales per square foot of new supermarkets opened by members of the Super Market Institute (SMI) in 1964 averaged $2.69 while the sales per square foot of all SMI stores combined, old and new, averaged $3.52. Ibid., p. 6.

The findings also reveal a tendency toward market share instability. Thus, much of the redundant capacity might have to be viewed as the inevitable cost of a competitive, rapidly changing industry.

CHAPTER VI

ABSOLUTE SIZE

Introduction

There is a tendency in market structure analysis to equate large relative size with large absolute size. Though this can be true under certain circumstances, it can also be highly misleading. For an entire industry or collection of industries, relative size provides a reasonably accurate indication of absolute size.

In the case of grocery retailing, however, most markets are local in character, at least from the standpoint of retailer sales. Since local markets vary widely in absolute size, the individual firm market share-absolute size relationship also varies. Though Big Bear, the leading firm in the Columbus, Ohio market, accounts for an estimated 25 percent of total sales, for example, its absolute sales are substantially lower than those of Waldbaum, a New York City firm accounting for less than 3 percent of that market's total business. When smaller markets are considered, the disparity becomes still larger.

Furthermore, many retail grocery chains operate in a number of different markets. By so doing, a chain can achieve considerable absolute size without gaining a significantly large share of the sales in any given market or in the national market.

Since absolute size might therefore be an independent determinant of industry performance, this Chapter is devoted to isolating and examining this relationship. The examination will focus on two levels: (1) absolute size of store, and (2) absolute size of firm.

Absolute Size of Store

Measurement Criteria. Store size can be measured using any of several alternative yardsticks. The choice depends somewhat upon the purpose of its use. From the standpoint of examining ease of entry, initial investment requirements might be most appropriate. On the other hand, if one is examining the optimal spatial distribution of stores within a market, each store's total sales and its sales coverage would be a more relevant measure. Finally, if the chief concern is one of measuring the technical efficiencies associated with scale, store size might be most appropriately measured in purely physical terms. In one way or another, all of these measures are relevant to this study, though major attention will be given to examining the economies of physical size.

Regardless of the measure employed, average store size has increased markedly over the past 20 to 30 years. As will be recalled from the discussion in Chapter 2, this trend started in the 1930's when the supermarket movement first got underway on a significant scale. In the 1920's, before supermarkets made their appearance, the average grocery store was less than 1,000 square feet in size. Average store sales were below $25,000 annually.

As the supermarket grew in popularity, more and more firms converted their small stores to supermarket-size operations. Still, the

trend did not reach full stride until well into the 1950's. By 1963, the average new supermarket was nearly 20,000 square feet and average annual sales per store for all grocery firms was $215,000. Large supermarkets--those with annual sales of at least $1 million--experienced annual sales of over $1.8 million per store in 1963.

Capital investment per store has exhibited a parallel rise. Though specific documentation of capital requirements for the construction of stores of 20 or 30 years ago is not readily available, there is evidence that these requirements have increased at least as fast as the increase in store size. Within the period from 1955 to 1964 alone, two of the nation's largest chains reported an approximate doubling of new store investment requirements.[1] In 1964, members of Super Market Institute reported that the cost of building, land, and equipment averaged $21.36 per square foot for the new stores they opened that year.[2] For a 20,000 square foot store this translates to $427,200. This falls between Jewel Tea's estimate of $510,000 per store opened in 1964 and A&P's estimate of $405,000.[3]

The evidence is clear. Store size, regardless of the measure used, has risen substantially in recent years. What then are the performance implications of this trend? Is the increased size primarily motivated by a desire to realize the economies of operating a larger facility or do other considerations exert an influence?

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[1] Donald S. Perkins, President, Jewel Tea Company and Harold D. Hoag, Vice President, the Great Atlantic and Pacific Tea Company, testimony before the National Commission on Food Marketing, Washington, D.C., May 5 and 6, 1965.

[2] Super Market Institute, Facts About New Super Markets, 1964.

[3] Perkins and Hoag testimony.

Technical Efficiency. Using individual store data collected from the nation's nine largest retail grocery chains, the National Commission on Food Marketing examined the relationship between store operating cost and both store size and store utilization. These results provide the most authoritative evidence presently available.

The data are the same as those used in the analysis of the nine leading chains described in the preceding Chapter. Data for each of the nine firms were examined independently to accommodate differences in definition and bookkeeping techniques. In total, over 3,000 stores were included in the analysis. The number of store observations per firm varied between 121 and 684, with an average per test of 364.

Store operating cost was expressed as a percent of total store sales for the year. Store size was measured in terms of square feet of selling area while store utilization was measured in terms of sales per square foot of selling area per week. Adjustments for the influence of wage rates and unionization upon operating costs were made by their inclusion in the regression model. Adjustments for the effect of trading stamp expense were made in the data prior to making the analysis. Coefficients were derived through use of the following equation:

$$AC=a+b_1SF+b_2S/SF+b_3WR+b_4V+b_5(SF)^2+b_6(S/SF)^2$$

The square feet and sales per square foot terms were squared to pick up curvilinear relationships.

Results of the nine analyses were quite similar. The independent variables accounted for about 70 percent of the variation in store operating expense, on average. By holding wage rates, degree of unionization, and store utilization constant, it was possible to quantify the

relationship between store size and operating expense. In general, the results indicated a slight negative association--as scale increased, average expense fell. Still, the relationship was comparatively weak. The total range of variation typically covered less than 2 cents in going from stores of 4,000 square feet of selling area to stores of 16,000 square feet of selling area. This compares with an average operating cost of 17.3 cents per dollar of sale.

In three of the seven tests for which reliable information was obtained, the squared term was statistically significant, verifying the existence of a curvilinear relationship. In two of these three tests, costs declined to a minimum of about 10,000 to 12,000 square feet, then rose slightly. In the third test costs rose slightly, then gradually receded. However, the deviation from a straight-line relationship was not pronounced in any of these instances.

In contrast to the relatively weak relationship measured between operating expense and store size, differences in rate of store utilization were associated with sizable differences in operating expense. Variation in costs attributable to utilization frequently exceeded 10 cents over the observable range in sales per square foot. This, it should be recalled, is the equivalent of 58 percent of the average operating cost. The relationship was curvilinear in all cases, as evidenced by the statistical significance of the squared terms. However, on the basis of plotted observations, it is fairly clear that once costs hit a minimum, there was very little tendency for them to turn upward. The general relationship, therefore, regardless of store size, is for costs to fall sharply as utilization increases, gradually leveling out near the maximum observable utilization.

These relationships are not too surprising, considering the structure of retail operating costs. Though, as we have seen earlier, labor accounts for roughly half of all expenses, it is not a variable expenditure in the way labor employed on a production line tends to be. That is, the level of output is not directly dependent upon its employment. A modern supermarket cannot open its doors without employing the services of several specialists--a butcher, a produce manager, two or three stock boys, a cashier, and a manager. These are minimal fixed requirements, irrespective of the level of store sales. As sales expand, additional employees can be added. Thus, the labor input is fixed with respect to variation in output though subject to managerial decisions within the functional time period known as the short run.

Bob Holdren has referred to this sort of expense as a "discretionary fixed cost."[1] In his case study of a small Midwestern market, Holdren estimated that no more than 4 or 5 percent of the total labor expense in grocery retailing could be described as truly variable. Thus, the basic labor requirements of a store of a given size are rather narrowly fixed, regardless of the store's sales volume.

Under these circumstances then, utilization exerts a strong influence over expenses per unit of sale. The strength of this relationship is further illustrated by the following information taken from the 1958 Census of Business.

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[1]Holdren, p. 38.

TABLE 29.--Grocery store sales per worker by store sales class, 1958

Store sales size	Sales per worker
Over $1,000,000	$55,356
$300,000 to $999,999	45,658
$50,000 to $299,999	37,308
Under $50,000	14,167
All stores	37,545

Source: Bureau of the Census, Census of Business, 1958.

Consumer Appeal. If increasing store size is not associated with sizable operating economies, as the evidence strongly suggests, what motivated the rush toward larger stores? In retrospect it appears that a complex of several factors were responsible, though most were related, directly or indirectly, to the consumer appeal of large stores. Among others, these appeals included a much wider selection of merchandise, self-service, low price, the inclusion of all major grocery departments--meat, seafood, produce, dairy, bakery, and dry groceries--under one roof, and a more expeditious checkout system. Provision of these appeals obviously necessitated the larger store.

The early supermarkets enjoyed all the fruits that normally befall the innovator of a successful merchandising strategy. The sales volume of these stores soared, proportionately outdistancing the increases in store size. Most of the cost savings experienced by the early supers were, therefore, directly associated with store utilization rather than the larger physical scale. Yet, it was the larger store that attracted

the volume. Thus, during this particular period, it is likely that store size, rate of utilization, and average operating cost were highly intercorrelated.

If this relationship had existed among the data used in the Commission analysis, it would have prohibited separation of the influences of utilization and store size. Fortunately, from the standpoint of achieving an accurate statistical measure, this relationship did not exist among these data. In fact, the overall correlation between utilization and store size was negative and surprisingly weak. The average of the correlation coefficients of the nine firms was -0.14. In six of the nine tests, variation in store size "explained" less than one percent of the variation in store utilization.

The weakness of this association is, of itself, revealing. In opening a supermarket in the 1930's and early 1940's, it was reportedly hard to make a mistake. Most of the new openings of that era were practically guaranteed at least partial sales success. Yet, as the degree of supermarket saturation increased, the opportunity to make large profits faded. The competitive climate gradually changed from one of supermarket versus small, limited-line grocery store to one of supermarket versus supermarket. As this occurred, the close association between store size and rate of utilization was slowly destroyed.

Since the trade customarily defines a "supermarket" on the basis of sales volume, there is only scattered documentation of the trend in physical size of grocery stores. However, the trend in sales size is suggestive of the trend in physical size. In 1929, fewer than 500 grocery stores had an annual sales volume of $300,000 or more. By 1954,

the number of stores in this sales class exceeded 20,000 and by 1963 it neared 35,000. The share of total sales accounted for by this sales class rose from less than 4 percent in 1929 to over 75 percent in 1963.

Thus, in its initial stage of development the supermarket offered its customers a double benefit. It provided them with a wide variety of merchandise in a one-stop location in addition to the economies of high volume, some of which were passed on in the form of lower retail prices. Yet, as the number of supermarkets approaches the point at which the competitive field will be almost exclusively composed of supermarkets, the ease of achieving a high rate of store utilization diminishes.

Another important side effect of the increase in store size has been its influence upon ease of entry into the industry. As the number of stores required to satisfy a given sales volume has fallen, so has the opportunity to enter the industry. Increases in capital investment have had a similar effect. At the same time, the replacement of small, limited-line stores by supermarkets has left a void that is now being filled by the convenience store, a new breed of retail grocery outlet. Growth in store size and the average number of customers, in addition to more restrictive hours of operation, have made the supermarket a relatively inconvenient source for small, spur-of-the-moment purchases. As a result, new stores designed for the specific purpose of meeting these needs have recently entered the industry at a fast pace. It is estimated that their number rose from 1,500 in 1960 to 6,000 in 1965. The leading operator of convenience stores, Southland Corporation, had around 2,500 stores in 1967 and is opening 300-400 stores each year.[1]

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[1] Supermarket News, October 16, 1967.

Larger stores have also influenced retail pricing techniques. As the number of items stocked and the range of product lines offered has risen, the opportunity to employ a "loss leader" pricing strategy has become greater. The implications of this and other pricing strategies are discussed in a later Chapter.

Having explored some of the implications of an increasing size of store, let us now consider the effects of firm size.

Absolute Size of Firm

Measurement Criteria. As in measuring size of store, several alternative measures can be used in gauging firm size. A firm's size can, for instance, be measured in terms of its total sales, its total assets, the number of stores it operates, or the number of markets within which it operates. For different purposes, different measures are relevant.

By most of these criteria, firm size has increased in recent years. Perhaps the single exception is the number of stores' criteria. For many of the firms operating prior to the 1940's, the replacement of small stores by supermarkets caused an absolute decline in the number of stores operated. For instance, the number of stores operated by A&P fell from 14,446 in 1936 to 5,751 in 1943.[1] Yet, in recent years the trend has reversed. Though A&P presently operates fewer than 5,000 stores, the number is rising.

In terms of sales, firm size has risen rapidly. In 1922, annual sales of the eight largest retailers averaged $56 million. The leader, A&P, had sales of $247 million. The top eight firms in 1963, six

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[1] Charvat, p. 164.

of which were among the top 8 of 1922, had annual average sales of over $1.7 billion while A&P's sales reached $5.1 billion.

In 1965, there were 6 firms with sales of at least $1 billion, 40 firms with sales of at least $100 million, and 50 firms with sales of $50 million or more. National chains were largely confined to the over $500 million level. Most firms with sales below this level operated in a single region.

Another important dimension of firm size is the number of markets in which a firm sells. The number of markets has generally been increasing though the rate of increase has varied considerably, depending upon the firm and the way in which markets are defined. In 1948, each of the 20 leading chains operated in an average of 174 counties in seven States.[1] By 1964, this average had risen to 188 counties in 11 States. Despite the gradual overall increase, some of the larger chains, including A&P and Kroger, operated in fewer counties in the latter year.

A more substantial rate of increase is observed when attention is restricted to the number of metropolitan areas in which the 9 leading chains operate. Between 1948 and 1963, the average number of metropolitan markets rose from 392 to 518.[2] Likewise, those firms which have been actively engaged in merger activity have expanded their market base more rapidly than the average. Of those 13 chains that acquired retail stores with combined total sales of more than $100 million from 1949 to 1964, the average number of counties of operation rose from 104 in 1948 to 146 in 1964.[3]

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[1]NCFM, Tech. Study No. 7, p. 349.

[2]Ibid., p. 161.

[3]Ibid., p. 123.

Technical Efficiency. Within firm efficiencies are realized at several different operating levels. They are not all associated with size of the entire firm. The first stage at which scale economies begin coming into play is within the local advertising market.

Newspaper advertising plays a central role in grocery merchandising. Since the absolute cost of advertising is independent of the level of firm sales within a given market and since the rate of advertising space used varies within a relatively narrow range, advertising is essentially a fixed cost. To the extent advertising space varies, advertising rates fall as linage increase. By spreading a near-constant advertising expenditure over increasing sales, a retailing firm is able to cut costs per dollar of sale.[1] If the market is large, these savings can be substantial. The wide disparity in advertising expense is reflected in the relatively high coefficient of variation--over 55 percent--for the 6,000-odd stores included in the NCFM study.

Grocery retail firms can also achieve efficiencies through operation of their own warehouses. Though information on the economies of warehousing is fragmentary, there appears to be little economic justification for a firm with sales below $50-$75 million operating its own warehouse. The management of some of the larger chains report they would be reluctant to operate a warehouse for sales of less than $75 million. Still, there are small chains operating warehouses with gross sales of less than half this amount.

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[1]Grocery retailers are highly sensitive to this opportunity to reduce costs. In personal interviews conducted for the NCFM in the summer of 1965, I sought to identify what advantages the executives of leading food chains saw in capturing a large share of any given market. Their inevitable response was that it resulted in a lower advertising expense per dollar of sale.

The extent of the cost-saving made possible by combining the retail and wholesale functions is difficult to ascertain. It depends in large measure upon the efficiency of nonintegrated wholesalers serving the market. In localities where large, modern wholesaling establishments operate, retailers are increasingly reluctant to commit capital to the construction and operation of warehousing facilities. It would thus appear that the economies associated with warehousing, especially where low cost alternative sources are available, are not very sizable.

Comparatively little is known about the optimum size of warehouses. Average costs would seem to fall until retail sales reach $75 million to $100 million. Beyond this level costs do not seem to decline appreciably. Inventory turnover rates generally tend to fall with increasing size, though little information is available for very large operations.

The optimum size of warehouse is determined by more than the operational characteristics of the warehousing process. The transportation of merchandise between warehouse and store is an integral part of the function. Thus, the time-space dimension of the relationship between warehouse and store becomes an important determinant of total cost. Though warehouses serve stores located 100 or more miles distant, most are located much nearer. Of the 6,000 chain stores surveyed in the NCFM study, the average distance from warehouse was 50 miles.

Warehousing economies can also influence a firm's attitude toward entering a market through merger. For a chain wishing to enter a market that lacks suitable wholesaling outlets, the only feasible alternative is to establish its own warehouse. Yet, to operate its warehouse on anything approaching an economically feasible scale, the warehouse must be

able to serve several stores, 15 or 20 at the minimum. Few firms have the resources or the ability to enter a market on this scale with all new stores. Thus, there is a considerable incentive to acquire an established group of stores with a sales volume sufficient to support a reasonably efficient warehousing operation from the outset. To the extent antitrust policy discourages mergers of this type, it also discourages the entry of chains into some markets.

Absolute size also influences a firm's capability to integrate into nondistributional activities. Several of the nation's larger chains are integrated into food processing and manufacturing. In 1963, the value of food manufactured by the 40 largest chains equaled an estimated 8.8 percent of the total retail sales of these chains.[1] Most of this integration is limited to the largest chains. In 1958, the 40 largest chains accounted for nearly 95 percent of all integrated food manufacturing establishment shipments.[2] And, the top 4 chains were responsible for almost exactly half of this.

Though there is considerable variation among products, most food manufacturing operations must be of considerable size to attain optimum efficiency. Yet, any one particular product normally accounts for an extremely small share of the total sales of a retail firm. As a result, if a firm is to account for sufficient sales to warrant its own manufacturing operation, its total sales must be relatively large. For fast

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[1] NCFM, Tech. Study No. 7, p. 78.

[2] Ibid., fn. p. 77.

moving items such as bread and milk, total firm sales of $100 million might be satisfactory. In contrast, such products as jams and jellies, mayonnaise, peanut butter, and spices might require the support of a total retail sales level in excess of half a billion dollars. Thus, only the very largest firms have sufficient sales volume to support a widespread involvement in food manufacturing.

Size alone is not, of course, the only factor determining entry into food manufacturing. Many firms do not engage in food manufacturing even though their sales volume is of sufficient size to support such activity. As long as these firms have access to supplies that meet their specifications, they are reluctant to become involved in a new and strange enterprise. This is especially true for those firms experiencing a satisfactory rate of return on their retail operation.

This and other forms of vertical integration will be discussed in greater detail in a later Chapter.

Larger scale also permits firms to perform many of the administrative and promotional tasks that smaller firms have traditionally had to pay to have done outside the firm. This includes such functions as bookkeeping, employee training programs, store site selection, store design and construction, pricing of competitors, advertising layout, legal counsel, and economic analysis. There is no single size threshold beyond which it becomes feasible for a firm to perform these internally. Some can be performed by firms of only two or three stores.

Accessability to Shopping Center Locations. With the growing importance of the suburban shopping center market, access to sites within these centers has taken on important competitive implications.

The number of new stores built in free-standing locations has declined rapidly in recent years. Of all new stores opened by members of the Super Market Institute in 1954, 37 percent were located in shopping centers; in 1964, shopping center locations accounted for 61 percent.[1]

For the most part, shopping center developers obtain their long-term capital from insurance companies, savings banks, and similar institutions. These sources usually require, as a measure of protection for the funds of their policyholders or depositors, that most of the space in a center be leased to tenants with AAA credit--a rating based on a minimum net worth of $1 million.[2] One independent retailer interviewed by the National Commission on Food Marketing estimated that the minimum in his market was nearer $3 million. Independents generally see little hope in assistance from the Small Business Administration since it is reportedly slow in acting and its programs are limited to retailers with sales of $2 million or less.[3]

Since most multistore firms lease their facilities, a firm can account for rather sizable sales and still have a comparatively low net worth. In 1965, the net worth of 53 leading retail chains averaged just

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[1]Super Market Institute, Facts About New Super Markets, 1954 and 1964.

[2]U.S. Congress, Senate Select Committee on Small Business, Feasibility of a Program of Federal Guarantees for Small Business Leases, 87th Congress, 1st Session, Hearings December 18 and 19, 1961.

[3]John R. Moore, "The Effect of the Financial Arrangements of Shopping Centers on Concentration in Food Retailing," Journal of Farm Economics, Vol. XLIV, No. 1, February 1962, p. 181

over 10 percent of their sales.[1] Thus, retailers qualifying for a AAA rating will normally have retail sales approach $10 million.

The effect of these credit requirements upon the size of firms gaining access to shopping center sites is predictable. While the 20 largest retail chains accounted for 34 percent of total grocery store sales in 1965, these firms opened over half (52 percent) of all supermarkets opened in shopping centers that year.[2] In contrast, independent retailers operating 1 to 3 stores accounted for 48 percent of total grocery sales but only 19 percent of the 1965 supermarket openings in shopping centers. Moore's survey of 1959 supermarket data showed that the trend was well underway even then.[3] He found that single-store independents operated 30.8 percent of all supermarkets located outside shopping centers but only 4.3 percent of those in centers. It is interesting to note that the very largest firms--those operating over 500 stores--operated almost as many stores outside shopping centers as did the single-store independents. It was instead the newer, more rapidly growing regional chains, operating between 101 and 500 stores that had the highest shopping center-nonshopping center location ratio.

In his study, Moore surveyed 347 shopping center managers and 24 large insurance companies to determine how their supermarket tenants were chosen. The two most important criteria were found to be financial

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[1] Supermarket News, July 11, 1966.

[2] NCFM, Tech, Study No.7, p. 480.

[3] Moore, p. 179.

backing and local consumer acceptance, neither of which was sufficient of itself. As one respondent put it,

> from a pure dollar and cents standpoint, we favor the national or regional chains. They may not be as versatile as a local, or have the buyer appeal the local has, but they have a history of successful operations and attractive financial position.[1]

Effects of Market Diversification. As firms grow larger, they frequently expand into additional markets. They do this for a variety of reasons. The danger of a firm oversaturating a market, causing its stores to compete with one another is an important reason. A particular market will accommodate only a finite number of stores operated by a given firm. The smaller the market, the smaller the number.

The firm that operates in several markets also enjoys the customary advantages of diversification against locational risk. Though hazards to a commercial enterprise can take several forms, most are economic. Any single market, particularly if its employment base is dominated by one firm or one industry, is vulnerable to economic depression. By operating in several markets, a firm can reduce the risk of local economic depression.

A firm that operates in several markets is also able to spread the risk of an overall merchandising failure in a particular market. Competition within any given market goes through a constant state of evolution, as described in Chapter V. New merchandising appeals are adopted, less effective ones are abandoned. In the process, some firms gain a sales advantage over others. Though the advantage might be temporary, it can, in the short-run, cause some firms to fail to meet

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[1] Ibid.

operating costs. Since merchandising strategy is normally formulated on a marketwide basis, this is yet another incentive to diversify.

Finally, the desire of chains to operate in rapidly growing areas further contributes to the trend. The fastest growth of 10 or 20 years ago did not occur, in most instances, in the same localities in which today's rapid growth is found. Though a firm seldom withdraws from a market because its rate of growth has diminished, it is encouraged to look elsewhere if it intends to continue expanding.

These are a few of the underlying factors that cause firms to diversify their bases of operation. But what implications does this have for industry performance?

An independent retailer cannot remain in business long if his costs exceed his revenues. Likewise, the operator of a small chain of grocery stores cannot permit any one store to operate at a loss for an extended period of time if the firm is to avoid financial ruin. The large chain, however, does not have this restraint, at least in the same degree. By operating many stores in several different markets, it becomes possible for a large chain to operate some of its stores at a loss over relatively long periods of time. This is feasible insofar as the profits of the firm's other stores are large enough to keep the overall operation on a sound financial footing. Since its sales are spread across several markets, a firm of this size can tailor its merchandising strategy to the unique competitive climate of a particular market.

Thus, the stores of a large chain are not necessarily subjected to the same accounting discipline facing the small independent. In this

respect, the individual stores of a large chain can be likened to individual grocery items. It is the overall net profit of the firm that is maximized, not that of a particular store or a particular item.

Having shown that the opportunity for interfirm subsidization exists among large chains, the relevant question is, does it actually occur and if it does, is it widespread? Existing documentation provides rather convincing evidence that the answer to both questions is "yes."

The large chain data analyzed in the preceding Chapter is perhaps the most persuasive evidence. The average before-tax net margin of the 6,000-odd stores included in the study was 2.3 percent of sales. An average coefficient of variation of 136 percent gives an indication of the large deviation about this mean. Although we have no assurance that the distribution is normal, if it were, some 23 percent of these stores would have been operating at a loss.

Information concerning the relationship between market share and net margin provides additional evidence. When the operating data of all stores within each chain are combined and arrayed by market share, six of the nine firms were found operating at a loss in their lowest share markets (4.9 percent of total market sales and under) in 1963.[1] Three of the six were operating at a loss, on average, in markets of the next highest share (5.0 to 9.9 percent).

Most of the major antitrust cases involving large grocery chains have been founded upon similar evidence. In the A&P case of the 1940's, this chain was found to have established a system of zone pricing whereby the price levels of a particular market were assigned on the basis of

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[1] NCFM, Tech. Study No. 7, pp. 191-199.

the strength of the competition it faced. In the words of an A&P sales manager in the Southern Division,

> in most units there are certain towns or territories where, because of competition or unsatisfactory sales progress, lower than average gross profit rates can be beneficially used. In other towns or territories, it may be possible to get a little higher...where stores need special attention because of unusually active competition or some other conditions beyond our control, we felt that the stores in those towns should be put into a special zone and given the benefit of lower than average prices. In other towns, where the conditions may not be quite as pressing, a little better gross profit rate can be obtained with the result that the total for the unit will be in line with the program.[1]

In the National Tea case, the Federal Trade Commission charged the chain with violating Section 7 of the Clayton Act by its acquisition of other firms during 1951-59. It was argued that National Tea's expansion into three major markets--Memphis, Tennessee; Davenport, Iowa; and Detroit, Michigan--was subsidized through profits earned in other markets. Between 1953 and 1959, National Tea stores in these markets experienced a net loss of over $6 million.[2]

In the case against Safeway, the Government charged that Safeway had attempted to monopolize the Dallas and El Paso markets by engaging in price wars. In summation of the case against the chain, Government counsel stated that Safeway, by its below-cost selling operations, had incurred a 15-month loss of about $4 million in the two divisions.[3]

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[1]U.S. vs. New York Great Atlantic and Pacific Tea Company, 67 F. Supp. 626 (1946), transcript of hearing, vol. 46, p. 9983.

[2]NCFM, Tech. Study No. 7, pp. 378-383.

[3]U.S. vs. Safeway Stores, Inc., et al., Criminal No. 9584, transcript, November 1, 1955, pp. 73-74.

None of these firms suffered a severe financial repercussion on the national level as a result of these policies. Though Safeway's after-tax net profit as a percent of net worth fell in 1954 and 1955, it remained above the firm's profit level of two and three years earlier. National Tea's profits dropped sharply in 1951, but rebounded thereafter. While neither of these firms ever regained the rate of profit they had earned in the late 1940's, neither did any of the other large chains. The days of supermarket domination by large chains were coming to an abrupt end and profits were beginning to show it.

On the basis of this evidence, it is fairly clear that a large number of the stores operated by at least the leading chains are subsidized by the profits of these firm's more successful stores. The manner in which it is done is less clear. There can be little doubt but that it has occasionally been stimulated, if not caused, by selective pricing cutting. Yet, none of the several studies that have examined the topic have found a significant association between market share and price levels, though the Commission data show a highly significant relationship between market share and net profit. This suggests that the frequent losses do not normally occur as a result of below-cost selling. They more likely reflect a lack of merchandising success, as hypothesized in the previous Chapter.

Disadvantages of Large Size. Thus far we have described only the benefits of large scale. There are also significant disadvantages. The disadvantage probably having the greatest influence is also the least susceptible to finite measurement. Its symptoms are called by various names, including bureaucratic layering, managerial rigidity, and administration block. It stems largely from the indivisibility of the

entrepreneurial function. The major decisionmaking apparatus of any firm must necessarily include no more than a handful of key executives. With increasing size, it becomes increasingly difficult for this core of decisionmakers to maintain close contact and managerial control over the system's many parts. This is particularly true of a grocery retailing firm since its individual units are so widely scattered. The industry leader, A&P, operated over 4,500 stores in 1964, located in 1,100 counties and 37 States.

Evidence of the problems of large scale takes several forms. Ambitious young executives are hard to find and harder to hold. Employee morale sags. The firm acquires an impersonal image. Firm policies become more rigid and less sensative to the unique conditions of local areas. Mistakes in managerial policymaking become more frequent and more obvious. Those persons who know the grocery retailing industry well have no trouble in assigning the names of specific corporations to these symptoms. The evidence abounds.

Within a specific market, the drawbacks of large size take more specific forms. The degree of consumer mobility found in most markets constrains a firm operating several stores in a locality to adhere to a uniform merchandising program throughout the market. Newspaper circulation is generally marketwide, thus necessitating a standard advertising format for the entire market. Other advertising media (e.g. radio and television) usually reach the same audience.

Likewise, to maintain control over pricing policies from the top--a right that most large enterprises guard closely--requires a standard pricing structure for relatively large areas. These price structures

are established at the warehouse level. Each warehouse will often have no more than three of four price structures for the several markets it serves. A metropolitan area of SMSA size will normally fall within a single price zone.

Store managers are authorized to initiate changes in price only under extenuating circumstances. Most of the large chains grant store managers authority to lower prices if (1) a perishable product is in danger of spoilage or (2) a competitor lowers his price on either of two product lines--bread or milk. In the latter case, the manager is normally required to notify his regional office of the change, at which time this change will either be affirmed or rescinded. All other price changes must originate at the warehouse and are, therefore, directed toward the entire market.

There are, of course, exceptions to these policies. I learned of one such instance during a visit to the Phoenix, Arizona market in 1965. An independent firm (Food City) operating a single store in that market had achieved a phenomenal volume through use of a low overhead, low margin, everyday discount price policy. Its customers came from throughout the greater metropolitan area. On average, the stores operated by the market's 3 leading chains (Bayless, El Rancho, and Safeway) had sales volumes of about one-quarter that of Food City.[1]

Safeway reportedly decided to capture a portion of the independent's sales. To do so it constructed a new supermarket within a block of the independent and, through a detailed price comparison project, adopted an identical price structure. As word spread throughout the

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[1]Supermarket News, Distribution of Food Store Sales in 292 Cities (New York: Fairchild Publications, Inc., 1966), p. 5.

market (they obviously couldn't advertise under the firm name), usually by way of the employees in other Safeway stores, the new store began attracting volume. Yet, its sales came almost exclusively from the other higher-priced Safeway stores in the Phoenix area. Within a short time, Safeway closed its new store to avoid further losses.

Though such confrontations seem to be rare, this illustration points up the inflexibilities that afflict a firm operating several stores in a single market. Their vulnerability to an aggressive competitive fringe is widely recognized within the industry.

As further evidence of a lack of overpowering economic strength, small firms rarely complain of being disadvantaged by the mammoth size of their large chain competitors. To the contrary, they will invariably argue that the disadvantage runs in the opposite direction. The large chains are seldom seen as a threat. Most smaller firms, in fact, prefer to compete against them rather than against other small chains or independents.

An additional disadvantage facing the large firm is its vulnerability to unionization and the affect this can have upon the firm's cost structure. All large chains are unionized, at least in part. Some of the larger independents are also organized.

The wage differential that can be attributed soley to unionization is difficult to measure, since wages can be influenced by several other factors as well. Data gathered from members of the Super Market Institute show that large chains pay higher wages than either smaller chains or independents. Yet, the differential is not always large. In 1964, chains with sales in excess of $100 million paid an average wage

of $2.37.[1] This compares with $1.85 for chains with sales below $5 million and $2.06 for single-store firms with sales in excess of $2.5 million.

The Oesterle-Downey study of midwestern independents compared wage levels of nonunionized, partially unionized, and fully unionized stores.[2] Their findings provide evidence of rather sizable wage differentials. For instance, the average meat cutter wage in the nonunionized stores of the largest sales class was $1.96,ccompared with a wage of $3.07 in the fully unionized stores.

The higher wages associated with unionization should not, of course, be taken as evidence of poor industry performance, per se. Though unionization might result in higher retailing costs if prior to unionization the human input was being paid less than its value in alternative employment, the increase might be justified on social or humanitarian grounds.

Role of the Affiliated Group. With the growth of the affiliated group since the early 1950's, the importance of absolute firm size has greatly diminished. By affiliating with one of these groups, an independent or small chain can realize most of the benefits associated with large scale without becoming entanged in the several disadvantages.

Affiliated wholesalers customarily offer their customer-members an extensive array of benefits and services. They include quantity discounts, retail pricing strategies, cooperative advertising, promotional materials, new product evaluation, bookkeeping services, personnel

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[1]Super Market Institute, Figure Exchange, 1964.

[2]Oesterle and Downey, p. 125.

training schools, and often a full line of private labels. Some groups are integrated into food processing--mainly milk processing, baking, and coffee roasting--though not on a scale comparable to that of the large chains.

Since over four-fifths (83 percent) of all independents were affiliated with these groups in 1963, it is clear that most grocery firms have access to at least some of the benefits of large size, whether the firm itself is large or not.

Conclusions

From the standpoint of technical efficiency, store size is now of fairly minor importance. From the standpoint of attracting sales volume, relatively large size is a virtual necessity. It is the latter function that is chiefly responsibile for the growth in store size over the past 30 years. Though this trend has had the effect of discouraging entry, its overall contribution to industry performance has probably been positive.

Its positive influence has been at least two-fold. First, by attracting high volume, the supermarket made possible a much lower cost of retailing. In the late 1920's and early 1930's, gross margin increased steadily. The average gross margin of three leading chains--Safeway, Kroger, and American Stores--hit 23 percent in 1933.[1] With the introduction of the supermarket, the trend reversed. By 1948, the average gross margin of these firms had fallen to 13.8 percent, a decline of 40 percent.

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[1]NCFM, Tech. Study No. 7, p. 539.

As markets became saturated with the supermarket, the cost-savings made possible by a high rate of store utilization began to disappear. Since 1948, the average gross margin of the three chains mentioned above has slowly inched upward, reaching 20.7 percent in 1964. This, it will be noted, is still 2.3 percentage points below their 1933 average.

The relationship between the trend in store size and industry response to consumer wants should also be considered. Clearly, the larger store enjoyed widespread customer acceptance. Industry response to this acceptance was both prompt and widespread.

The performance implications of firm size are more difficult to evaluate. There are both benefits and costs associated with large firm size. On the positive side, a large firm can realize economies through integration into wholesaling and processing and by spreading promotional expenditures across a large sales volume. In this regard, it appears that large market share is probably incidental to large absolute size, from the viewpoint of firm management. When these savings are passed on to the customer in the form of lower retail prices, they represent a positive contribution to performance.

On the negative side, it appears that most significant economies are realized before a firm reaches the size of some current industry leaders. Though the evidence is fragmentary at best, there is some indication that very large firms experience internal diseconomies.

Large size also tends to place firms in positions whereby they can challenge the existing competitive structure. Under some circumstances, this results in an improvement in industry performance; under other circumstances the result is quite the opposite.

The growing strength of the affiliated independent is a sign of continuing vitality and evolution within the industry's competitive structure. This unique organizational form has, in some manner, given the independent the best of both worlds and the worst of neither. While preserving most of his managerial independence and flexibility, he has attained most of the economies of large size.

Absolute size per se can be neither condemned nor commended. Its influence upon industry performance is a mixture of the positive and the negative, depending upon how it is used or misused.

CHAPTER VII

HORIZONTAL INTEGRATION

Introduction

Thus far we have examined two structural characteristics of the grocery retailing industry--relative size and absolute size. We now turn to a characteristic that is both structural and behavioral, depending upon the vantage point from which it is examined. Horizontal integration can refer either to the organizational structure of a firm that is integrated beyond a single retailing unit or to the process by which a firm achieves this integration. Horizontal integration, as distinguished from vertical integration, is restricted to the operation of separate units performing the same function. In the case of grocery retailing, any firm that operates more than one retail outlet is horizontally integrated.

Not surprisingly, the extent of horizontal integration is closely correlated with absolute size of firm. Since the ramifications of absolute firm size were explored in the preceding Chapter, they will not be repeated here. Instead, attention will be focused on the integration process itself, particularly the role of the merger.

Integration can be achieved in either of two ways: (a) through the construction of new facilities, or (b) through acquisition of or combination with the facilities of an already existing firm. As will

become evident, the performance implications associated with horizontal integration are somewhat dependent upon the circumstances surrounding its application.

Integration through internal expansion is largely self-explanatory. Most established chains conduct a continual expansion program--identifying areas of future market growth, acquiring potential store sites, and building new stores. It is not uncommon for the industry's largest chains to open 30 or 40 new stores per year. The internal expansion of smaller chains is less systematic, though nearly all successful (in terms of average or above average profitability) chains, regardless of size, plan for near continuous expansion. Firms of 10 stores or fewer expand only periodically, when and if circumstances permit.

Of perhaps greater interest to this inquiry is that integration which is accomplished through purchase of existing stores. This can take either of two forms, though the results are essentially identical. If one firm retains its corporate identity after combining with another, a merger or acquisition is said to have occurred. If both firms lose their identity and an entirely new corporation is formed, the combination is termed a consolidation or amalgamation. Since the latter form of combination has seen limited application in grocery retailing, the central focus of the remainder of this Chapter will be upon the role of the merger.

Trends in Merger Activity

Historical Perspective. Historically, mergers have played an important role in forming the structure of grocery retailing markets. Several of the larger chains engaged heavily in merger activity prior to

1930. Of the more than 31,000 stores operated by the seven leading chains of 1930, 18.9 percent had been acquired from other firms.[1] Over two-thirds of the stores operated by Grand Union and half of those run by National Tea in 1930 had been obtained through merger.[2]

This of course was a period during which the large national chains were still reaping the initial rewards of a vastly more efficient merchandising technique, the integration of retailing and wholesaling. Efficiencies of the individual retail unit were of secondary importance to the economies that could be gained from forming a system of retail units which could be readily integrated with a central warehousing unit. Since all the stores of that era were quite small and carried a rather restrictive line of merchandise by today's standards, the widespread acquisition of existing firms offered an appealing opportunity to build warehouse volume (and, thereby, merchandising economies) with relative haste.

During the 1930's and 1940's, the merger pace slackened. Almost two-thirds of all stores acquired by the 10 leading food chains between 1931 and 1948 were accounted for by a single firm, Safeway.[3] During this period, Safeway acquired over 2,000 stores, helping it increase its share of total U.S. grocery store sales from 2.9 percent in 1929 to 5.2 percent in 1948.

Suddenly, in 1955, merger activity quickened again. And it has remained active to the present. The magnitude of the change is reflected in the fact that total grocery chain acquisitions from 1949

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[1] NCFM, Tech, Study No. 7, p. 98.

[2] Ibid.

[3] Ibid., p. 100.

through 1954 never exceeded $100 million in any given year, yet, since 1954 have never gone below $300 million.[1] Over the period 1949-64, grocery chains made 621 acquisitions having total sales of $4.5 billion.[2]

Acquiring Firms. Most of the detailed information regarding mergers within grocery retailing is for the period 1949-64. About six-tenths (61 percent) of all acquisitions occurring during this period--measured in terms of the sales of acquired retailers--were made by 14 chains, each of which had annual sales in excess of $250 million.[3] These firms are among, roughly, the leading 20 firms, nationally. At the opposite end of the size range about one-fifth (18 percent) of the sales of acquired firms were accounted for by 95 acquiring chains, each having annual sales below $100 million.

Acquisitions made by large chains have had a strong impact upon their recent growth patterns. The Federal Trade Commission has estimated that about 40 percent of the sales growth of the 10 most active acquiring chains was directly attributable to the sales of the acquired stores.[4] Likewise, over one-third of the growth of the 30 most active acquiring chains was traced to their acquisitions.

This merger-induced growth is also, of course, reflected in changes in market share. The 20 largest chains of 1963 increased their combined share of U.S. grocery sales from 26 percent in 1948 to 34 percent in 1963. Had these 20 firms grown only by the amount of their internal

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[1] Ibid., p. 102.

[2] Ibid., p. 103.

[3] Ibid., p. 105.

[4] Ibid., p. 110.

growth (the equivalent of about two-thirds their total realized growth), their combined market share would have increased by less than 1 percentage point over the 1948-63 period.

On the basis of these estimates, the Federal Trade Commission concludes that without the merger movement of the 1950's and early 1960's, the national market share of the 4 largest firms would have declined while that of the 20 largest would have remained about constant.[1] Though the absence of mergers would probably have dampened the increase in market share, FTC's statement of a constant share seems unwarranted. At least a portion of the capital used in making these acquisitions would likely have been diverted to internal expansion.

The location of the acquired firm relative to the location of the acquiring firm has important competitive implications. If both firms operate in the same market, the number of actual competitors is reduced by one as a direct result of the merger. If they operate in distinctly separate markets, only the number of potential competitors is reduced by one. In neither case is there any guarantee that the operator of the acquired firm will not reenter the market under a new banner.

From 1949 through 1964, about 42 percent of all acquisitions (measured in terms of sales volume) involved movements into new markets.[2] In another 30 percent of the cases, some of the acquired stores were in different markets and some in markets in which the firms had previously operated. In the remaining 28 percent of the cases both firms operated all of their stores in the same market.

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[1] Ibid., p. 117.

[2] Ibid., p. 118.

The distribution between market extension and horizontal mergers has changed markedly over this 15-year period. In the period 1945-54, horizontal mergers accounted for 45 percent of the total.[1] By 1960-64, this share had been nearly halved to 24 percent.

Acquired Firms. Most of the firms acquired through merger in recent years have been small to medium size chains. Over half (53.5 percent) had annual sales of less than $25 million prior to acquisition between 1949 and 1964; 87 percent were under $100 million.[2]

On the basis of limited information made available by the FTC, it appears that the premerger growth rate of acquired chains has been about the same as that of all chains, though there is evidence of substantial variation. The weighted average annual sales growth during the 5 years prior to acquisition of 27 chains acquired during 1949-64 was 9 percent.[3] All grocery chains grew at the slightly higher annual rate of 10.3 percent over the same period. However, the unweighted annual average of the 27 chains was 19 percent, indicating that the smaller acquired chains grew relatively fast prior to their merger.

Mergers by Affiliated Wholesalers. Merger activity over the past 15 or 20 years has not been confined to the retailing sector. The large affiliated groups, particularly voluntary groups, have been expanding by merger at a relatively fast pace. During the 1949-63 period, the 15

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[1] Ibid.

[2] Ibid., p. 106.

[3] Ibid., p. 107.

largest voluntary groups of 1963 acquired 27 other food wholesalers with combined sales of $435 million.[1] The sales of these acquisitions equaled 24 percent of the growth of the acquiring firms over this period. During the 1958-63 period, acquisitions of these firms equaled 41 percent of their growth in sales volume.[2]

Recent Federal Antimerger Policy

Fearing that several of the larger grocery chains were growing too large too fast, the Federal Trade Commission and the Justice Department have taken increasingly stronger stands against chain mergers. In early 1959, the FTC started taking legal action under Section 7 of the Clayton Act. The first case challenged several acquisitions made by National Tea. Cases against Kroger, Grand Union, Consolidated Foods, and Winn-Dixie followed. Meanwhile, the Justice Department filed against Von's, a Los Angeles chain, for its acquisition of another Los Angeles chain. Each of these cases, with the exception of the Kroger case, has been settled largely in the Government's favor. Each has required the acquiring company either to divest itself of a portion of its acquisitions or to enter into a consent agreement prohibiting further acquisitions for a specified period in the absence of FTC approval.

In January 1967, the FTC released guidelines for its enforcement policy with respect to mergers in the food distribution industries.[3]

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[1] Ibid., p. 126.

[2] Ibid., p. 127.

[3] Federal Trade Commission, Enforcement Policy with Respect to Mergers in the Food Distribution Industries (Washington: Federal Trade Commission, January 3, 1967).

The guidelines indicated that all acquisitions by food chains or wholesalers resulting in combined sales of more than $100 million would be investigated and those involving combined sales of $500 million or more would come in for particularly close scrutiny. Furthermore, under Section 6 of the Federal Trade Commission Act the guidelines stated that every food retailer and wholesaler with annual sales in excess of $100 million would be required to notify the Commission at least 60 days prior to the consummation of any merger, acquisition, or consolidation involving any food retailer or wholesaler.

The principal effect of the issuance of the guidelines was to make FTC's enforcement intentions explicit and to give FTC an opportunity to pass judgment on the legality of a merger before it was consumated. In effect, this moved antimerger policy into a stronger preventative position.

It would appear from recent trends that the relatively tough stand that has been taken against mergers is influencing merger patterns. Though the number of retail units involved in mergers rose sharply in 1967, the total number of mergers fell by 30 percent.[1] Furthermore, the number of acquisitions made by the top 10 chains fell from 16 in 1963 to three in 1966 and only one in 1967. Nongrocery firms seem to have taken their place. In 1967, three of the largest acquisitions (accounting for nearly 40 percent of the total number of stores involved in mergers) were made by general retail firms. Likewise, the large acquisition-minded grocery chains are turning to diversification in other merchandising fields, including department stores and restaurants.

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[1] Supermarket News, January 1, 1968, p. 16.

Performance Implications

Horizontal integration in itself is neither beneficial nor harmful to the competitive climate though it can lead to both types of results, depending upon its application. On the negative side, the Federal Trade Commission and the Justice Department fear it is being used by large chains as a means of attaining larger market shares as well as reducing the number of competitors. Though it cannot be denied that it serves this purpose in some measure, the more important question is, how does this effect performance?

Though the Federal Trade Commission has argued that most of the large chains toward which their prohibitions have been directed are of sufficient size to have realized most of the economies of large scale, this would seem to be an oversimplified view. Warehousing economies are primarily determined by the size of the firm's local market. Regardless of a firm's sales volume outside this market, if it does not attain a volume of the order of $75 to $100 million within that particular market it has not realized all potential economies.

Several years would be required for a firm starting from scratch to attain a sales volume of this magnitude through internal expansion alone. Thus, the appeal of acquiring an already established sales base upon which to build additional volume is obvious. To discourage large firms from entering new markets in this manner might have the undesirable consequences of fostering chain units of inefficient size.

To the extent that mergers facilitate market expansion by large chains, they tend to increase the frequency with which large chains meet in competition. Thus, between 1948 and 1963, a period of considerable

merger activity, the number of instances in which one of the 10 leading chains met another of this group in a major metropolitan area increased by nearly 550 meetings.[1] As a result, there were far fewer instances in which a leading national chain faced only local competition.

Another factor to be considered is the role of the acquired firms. Many are single-owner, family enterprises. Some are only 3 or 4 store firms; others have attained a 30 or 40 store size. Often, the owner wants to improve his financial flexibility in anticipation of either a transferal of assets to his heirs or to shifting his investment elsewhere.

Industry spokesman have argued that recent FTC policies limiting mergers by the large chains will discourage the entry and growth of small chains.[2] They claim these policies will reduce the ease of exit of small chains thereby discouraging their entry into the industry.

Finally, the investment reactions of the would-be-acquiring firms must be considered. Past merger decisions have generally been motivated by a desire to reinvest past earnings in food retailing. If these firms continue to do this, replacing merger growth with internal expansion, the results could be contrary to the FTC's aims. Further additions to what already appears to be a sizable redundant grocery retailing capacity could occur. Whether this affects industry performance positively or negatively depends on the net effect of several tradeoffs. To the extent excess capacity fosters competitive tension, it is beneficial; to the extent it adds to the overall costs of distribution, its effect

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[1]NCFM, Tech. Study No. 7, p. 355.

[2]Supermarket News, September 25, 1967, p. 1.

is detrimental. It will be interesting to see how the recent FTC guidelines affect the pattern of chain growth.

In conclusion, it is clear that horizontal integration has played an important facilitative role in the formation of industry structure. What is much less clear, however, is the effect this has had on industry performance. In some cases it has contributed to improved efficiency and better customer service; in other cases the effect has probably been in the opposite direction. A determination of the net effect will have to await more sophisticated analysis than is presently available. Until then, each case will have to be evaluated on its own merits.

CHAPTER VIII

VERTICAL INTEGRATION

Introduction

A fourth attribute that has exerted an important influence upon the performance of this industry has been the form and magnitude by which various distributional functions have become integrated. Vertical integration is the term used to describe the combining of distinctly separate functions of a production or marketing process that have by convention been accomplished separately. It is distinct from horizontal integration in that it concerns the combining of different, vertically related functions while horizontal integration involves a combining of two or more units that perform the same function.

Vertical integration can take a wide variety of forms. It can be either forward or backward, depending upon its course of linkage within the marketing channel. In the case of retailing, most opportunities for integration obviously extend back into the distribution system. However, as we shall find, there is also some opportunity for lateral movement within the marketing system of which grocery retailers have taken considerable advantage.

The relationship between vertical integration and industry performance is of interest and importance for the same reason that the

horizontal integration-industry performance relationship was of interest and importance. Public policy, particularly that policy implicit in the decisions of antitrust regulatory bodies, influences the form and extent of integration of both types. An enlightened policy is dependent upon the depth of understanding of this relationship.

Furthermore, as we shall discover, vertical integration has played an unusually prominent role in the shaping of this particular industry. Few major industries have experienced the variety and pervasiveness of vertical integration forces that grocery retailing has.

Reasons for Vertical Integration

There are many motives for integrating related functions though they commonly fall under one of two general types: (1) a desire to realize efficiencies, or (2) a desire to achieve an improved product at the same cost. In essence, vertical integration transfers a portion of the responsibility for the allocation of resources from the market mechanism to the entrepreneurs of the integrated firm.

A case can be made for integration whenever the benefits of using the market as an allocator of resources is exceeded by its costs. The crucial question, however, and the one that gives rise to the need for antitrust surveillance is whose benefits and whose costs? The integrating firm is understandably interested in its internal profit-cost picture. Yet, when the advantage to the firm is shared with the consumer, the benefits of integration attain social value. We are interested, therefore, not only in the benefits associated with vertical integration but also in the way in which they are distributed.

Specific motives for vertical integration by grocery retailing firms include a desire to:

* Avoid unnecessary costs of selling and distributing grocery products.
* Capture the relatively high profits of related industries.
* Gain control over the power of product differentiation.
* Attain greater control over product quality.
* Reduce risk and uncertainty of access to product and factor markets.

Past and Present Trends

Vertical integration in grocery retailing has taken a wide variety of forms, some of which have been described in detail in preceding Chapters. These forms are generally of three types. One involves the integration of retail and wholesale functions. A second concerns the combining of the retail and manufacturing functions. The third brings dry grocery retailing together with other retail food lines.

Grocery Chains. The early chain store movement which was described in Chapter II gained much of its momentum from the cost savings made possible by the integration of retail and wholesale functions. Until chains came upon the scene in the later 1800's, very few retailers owned their own warehousing facilities. The chains saw integration as an opportunity to standardize and better coordinate distribution, thereby improving marketing efficiency. This they did, and with considerable success. By 1929, A&P was operating its combined retail-wholesale operation cheaper than most independent retailers were performing the retail

function alone.[1] And, in large measure, the savings were being passed on to the consumer in the form of lower retail prices.

Though this form of integration has gained widespread acceptance and is practiced by most large chains, there is evidence it no longer holds the attraction it once did. An increasing number of moderate and large chains are utilizing the services of independent wholesalers, with indications that others will do so in the future. This is largely a result of significant improvements in the efficiency and quality of service offered by independent wholesalers in recent years.

Supermarkets. A second form of integration that has also had lasting effect upon the form of contemporary grocery retailing is the supermarket, though it is not completely accurate to describe the supermarket as a product of vertical integration alone. It is more nearly a combination of vertical and horizontal integration with conglomerate overtones.

As described before, the combining of the retail functions of several commodity lines under a single roof was largely prompted by the competition of the grocery chains. Lacking the means to affect economies at wholesale to match those of the chains, independent operators conceived the concept of the supermarket. Its success was nearly instantaneous, among chains as well as independents.

The Affiliated Independent. Again, largely because of the successful integration of retail and wholesale functions by the chains, independent retailers and wholesalers were motivated to find new means of coordination that would yield comparable efficiencies. Two new forms

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[1]Charvat, pp. 22-23.

of retailer-wholesaler relationship evolved...the voluntary group and the cooperative group, both of which are described in Chapter II. Affiliation in the former type is through association only while in the latter it is through common ownership.

The affiliation approach has proven relatively successful. Though it has not permitted the independent operator to realize all the warehousing economies accruing to the chains, the arrangement has left him with a degree of managerial autonomy and flexibility that often more than compensates for the slight cost disadvantage. The increasing share of grocery store sales by affiliated independents is, in part, a reflection of their competitive vigor. In 1963, affiliated independents accounted for 43.9 percent of total sales.

Food Processing and Manufacturing. Still another form of vertical integration found within this industry is the combining of the retail and manufacturing functions, usually linked by an integrated wholesaling system as well. Since this topic has not been treated here before, it might be useful to explore the nature and extent of its occurrence in some detail.

Several of the larger chains have been integrated into manufacturing for many years. The FTC chain store inquiry of 1929 found 25 chains engaged in some form of food manufacturing. The TNEC studies of the late 1930's noted that grocery chains, "more than any other type of large-scale food concern,...furnish examples of vertically integrated and diversified enterprises."[1]

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[1]TNEC Monograph No. 35, p. 11.

The total dollar value of these manufacturing operations has increased through time. In updating their earlier studies of the subject, the FTC found that in 1963, the 40 largest chains manufactured food products having a wholesale value of $1.8 billion or about 90 percent of the total food manufactured by all chains.[1] All but 5 of the 40 were engaged in some form of food manufacturing. The four largest chains accounted for approximately half the manufacturing output of the entire group.

The value of food manufactured by the 40 largest chains in 1963 equaled 8.8 percent of the retail value of the total food store sales of these firms.[2] However, since about 25 percent of the manufactured output of these firms is sold to other wholesalers and retailers, their internally manufactured output accounted for only 6.2 percent of total sales--down from 6.5 percent in 1958.[3] Most of the recent increase in food manufacturing by the large chains has been concentrated in the nine to 20 largest firms. Between 1958 and 1963, the value of manufactured food shipments by this group of firms nearly tripled. In contrast, the value of shipments by the largest four dropped by around 6 percent.

Though chains are engaged in the manufacture of a wide variety of food products, most of their output is concentrated in a few product lines. Bread products, fluid milk, meat packing, and coffee accounted for nearly six-tenths (58.9 percent) of the total value of shipments by the top 40 in 1963. Thirty of these firms manufactured 57 percent of

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[1] NCFM, Tech. Study No. 7, p. 77.

[2] Ibid., p. 78.

[3] Ibid., p. 89.

their bread product sales, 18 processed nearly half of their ice cream sales, and 14 processed 65 percent of their packaged milk sales. Most recent integration among firms below the largest 20 has been in the manufacture of bread and dairy products. Likewise, integration by chains ranking below the largest 40 is almost entirely limited to these product lines.

Private Labeling. Related to the integration into food manufacturing is the use of private labels, though it is not restricted to firms owning processing facilities. Privately labeled merchandise is that which is differentiated by the distributor, as opposed to brand name merchandise which is labeled by the manufacturer. A distributor desiring to merchandise products under his own label has two major options. In the one instance, he can assume ownership of the manufacturing operations as discussed in the preceding section. Secondly, he can contract with an established manufacturer to provide merchandise having the desired characteristics, including the distributor's own label. The latter approach has gained in popularity over the past 10 or 15 years, particularly among those retail and wholesale firms too small to operate their own manufacturing plants.

In contracting for privately labeled merchandise, the distributor firm assumes responsibility for several functions formerly performed by the manufacturer. These include: (1) product specification, (2) quality control, (3) distribution from manufacturing plant to warehouse, and (4) all merchandising functions (e.g. label design, advertising and store display).[1]

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[1] Ibid., pp. 129-130.

Distributors merchandise private labels for a variety of reasons. A special survey conducted for the Commission on Food Marketing disclosed that retailers carry private labels because (ranked in declining order of importance): (1) they contribute to the development of consumer loyalty, (2) it is necessary to remain competitive with other retailers who carry private labels, and (3) they yield a greater profit than manufacturer's labels.[1] As we shall learn in the concluding section of this Chapter, the underlying motives are probably a good deal more complicated than this simple ranking suggests.

The NCFM survey also found a positive relationship between firm size and percent of branded sales under private label. Private labels accounted for at least 25 percent of the sales of only 7 percent of those chains with less than $50 million in sales but 25 percent of those with sales over $250 million.[2]

Several of the very largest chains, chief among them A&P, merchandise a large number of private label lines. In some product lines, each firm stocks two or three different private labels of varying grade. In general, items sold under private label are relatively fast movers. The ten products most frequently private labeled by retailers, according to the NCFM survey, were:[3]

(1) Eggs
(2) Oleomargarine
(3) White bread
(4) Evaporated milk

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[1]NCFM, Tech. Study No. 10, p. 57.

[2]Ibid., p. 15.

[3]Ibid., p. 42. Ranked by percentage of retailers reporting a private label.

(5) Salad dressing
(6) Mayonnaise
(7) Instant coffee (6 ounce)
(8) Canned peas
(9) Cream style canned corn
(10) Ground coffee (bagged, 1 pound)

Private labels are supplied by manufacturers of all sizes. Some relatively small firms specialize in providing nothing but private labels for their wholesale and retail customers. Though some of the large food processors who have made sizable investments in building markets for their own brands refuse to sell private label, they are becoming the exception. Still, the extent of dual-branding by manufacturers (i.e. the selling of both private and manufacturer labels) varies widely among products. Over 80 percent of the retailers studied in the NCFM survey reported buying fluid milk from dual-brand manufacturers while only 16 percent bought catsup from such firms.[1]

There is no reliable indication of whether private labels are becoming of greater or lesser importance. The number of items sold under private label seems to have been increasing in recent years, though the composition of the private label list appears to be in a state of continual change. Thus, the proportion of total sales accounted for by private labels is difficult to estimate.

Performance Implications

Not surprisingly, the forms of vertical integration described above have had mixed effects upon industry performance. In some respects they have caused performance to improve; in other respects, they have contributed to a worsening of performance. Though we lack the

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[1] Ibid., p. 47.

tools and information required to make a definitive judgment as to which influences have been stronger, we can identify the relevant relationships and their probable net effects. In doing this, it will be useful to separate the effects into three types: efficiency, price, and market alternatives.

Efficiency. With the possible exception of private labeling, each of the forms of integration described above has been motivated in large measure by a desire to realize cost saving efficiencies. And, in each case, savings have usually resulted. The supermarket reduced the cost of retailing; the chain and the affiliated independent lowered the cost of wholesaling; the integration of retail and manufacturing reduced the distributional costs of linking the two.

The choice of food manufacturing industries into which chains have integrated is itself evidence of the efficiency motive. The two leading commodity lines, accounting for 38 percent of the manufactured output of the 40 leading chains in 1963, were bread products and fluid milk.[1] Several factors have made integration into these industries feasible. Both products are readily differentiable; they are both rapid turnover products accounting for a significant share of total grocery store sales (about 9 percent); and a chain of only moderate size can usually muster sufficient sales to realize most of the production scale economies. These factors make integration by chains possible but, in themselves, provide little actual inducement. The major motivation has come from the notoriously inefficient distribution system that links manufacturer to retailer.

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[1]NCFM, Tech. Study No. 7, pp. 82-83.

In 1964, it cost nearly as much to move a loaf of bread from the bakery to the consumer in the retail store (9¢) as it did to grow the wheat, mill the flour, buy the other ingredients, and bake the bread (11¢). The principal source of inefficiency in this system is the use of driver-commission men. Driver salesmen's salaries and commissions are the largest single cost item in delivery and selling expense, accounting for about 42 percent of the total between 1955 and 1965.[1]

> It is not unusual for five or six bakery trucks representing different wholesale bakeries to deliver to a supermarket each day, and for the driver salesmen to make return visits to stock the shelves and remove the stales. This duplication of service contributes to high delivery costs.[2]

The magnitude of the inefficiency is illustrated by the cost comparisons shown in Table 30. Though baking costs were slightly higher for the chains (.09 cents per pound), the chains' distribution costs were less than one-quarter those of the wholesale bakers. As a result, the total cost delivered to the store was over one-fifth (22 percent) lower for the chains.

Thus, in large measure, it is the efficiencies in distribution that motivate the retailer to integrate into baking, efficiencies made possible because:

(1) Retailers do not have to bear advertising and promotion expenses to obtain shelf space.

(2) They avoid driver-salesmen's commissions by using their own system of distribution.

(3) Larger deliveries per store for private label bread reduce total delivery costs.

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[1] NCFM, Tech. Study No. 5, p. 107.

[2] Ibid.

TABLE 30.--Cost per pound of white pan bread, four largest wholesale bakers and five major grocery chains with baking operations: 1958

(in cents)

Item	4 largest wholesale baking companies	5 major grocery chains' baking operations[1]
Production costs:		
Ingredient costs	5.14	5.72
Packaging, and wrapping materials	1.09	1.08
Compensation, bakery plant employees[2]	2.62	2.68
Compensation, company officers	.06	.01
Depreciation expense	.35	.17
Taxes, other than income and social security	.11	.05
Other costs and expenses	1.26	1.01
Total production cost	10.63	10.72
Distribution costs:		
Compensation, delivery employees[2]	3.21	.06
Delivery expense other than wages and salaries	.60	.94[3]
Advertising and promotion	.66	.08
Total distribution cost	4.47	1.08
Total cost per pound	15.10	11.80

[1]As reported and without adjustment for costs borne by nonbakery departments.

[2]Includes wages, salaries and employer contributions to fringe benefits and social security.

[3]Includes wages for one company and costs of contract carriers for another. None of the other three, however, was below the wholesale company average.

Source: Ray A. Goldberg, Agribusiness Coordination: A Systems Approach to the Wheat, Soybean, and Florida Orange Economies (Boston: Harvard Business School, 1968), p. 86.

(4) Improved coordination makes losses from staleness less with private labels than with advertised brands.[1]

A similar motivation exists for integration into the processing of fluid milk, though many dairies have modified their distribution systems in an effort to improve efficiency. Dairy companies surveyed by the National Commission on Food Marketing estimated delivery savings of 3 to 5 cents per half gallon for limited service compared to full service.[2]

Mueller and Garoian, and later the FTC, related the relative extent of vertical integration (measured by the ratio of actual integrators to potential integrators) to the concentration levels of major processing industries. Both studies found that about 75 percent of the variance in the degreee of chain integration into the industries examined was associated with differences in the degree of concentration of the manufacturing industries. Whether the relationship is causal, as Mueller hypothesizes, is not clear.

Though improved efficiency is not a primary motive for the adoption of private labels, it sets the stage for possible reductions in promotional expenditures. By identifying the product with the retail firm, advertising at earlier stages of distribution is made unnecessary. In effect, differentiation of the product and the retailing units are accomplished simultaneously.

However, it is uncertain, at least in the short run, whether these cost savings actually materialize. The president of one prominent food manufacturing firm (Libby, McNeil, and Libby) has argued that the growing popularity of private labels "has increased the pressure on the

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[1] Ibid., p. 109.

[2] NCFM, Tech. Study No. 3, p. 162.

advertised brands, necessitating larger expenditures for advertising to hold their share of the consumers' business."[1] His contention is supported by the increasing trend in advertising expenditures of food manufactures, as measured by the Internal Revenue Service. In 1947, their advertising expense equaled 1.11 percent of sales; by 1957 it had reached 2.03 percent.[2]

Pricing. Though increased efficiency is itself a performance objective, the distribution of the savings made possible by improved efficiency is equally important. Are the savings reflected in higher firm profits, lower retail prices, or some combination of the two? Generally speaking, most retail firms attempt to increase overall firm profits at the same time that the cost savings are fully reflected in lower item prices. This seemingly contradictory aim stems from the retailers' constant effort to spread additional volume over his fixed and discretionary fixed costs. A lower retail price, made possible by more efficient means of manufacture or distribution, can be used to attract this incremental volume.

Thus, the efficiencies described earlier have generally been reflected in lower retail prices. The early chains owe much of their success to adherence to a low price policy, made possible by a more efficient wholesale-retail system of distribution. The FTC Chain Store Inquiry of 1933 concluded that independent grocery store prices were 6 to 10 percent higher than chain prices. A. C. Hoffman, in his monograph for the Temporary National Economic Committee, reviewed four price

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[1]Mueller and Garoian, pp. 155-156.

[2]Ibid.

comparison studies made between 1930 and 1938 that showed essentially the same relationship. Chain prices were 6 to 14 percent below those of the independents. The FTC's

> comparison of purchasing and selling prices of chains and independents on a sample of identical goods showed that only about one-fifth of the difference in retail prices was attributable to advantages in buying prices. The other four-fifths resulted from lower costs of chain retail and wholesale operations, from retail and wholesale operating economies inherent in high volume, limited-service operations, and in the application of uniform principles of management and operations.[1]

In the case of private labels, whether obtained through contract or ownership of the manufacturing facilities, the same effect is observed. The Food Marketing Commission's survey of private labels found the price of the most popular advertised brands of 10 important grocery products averaged 21.5 percent higher than prices of comparable private label items.[2] Goldberg found the retail price of white bread baked by large wholesale bakers averaged between 18 and 20 cents per loaf in comparison with an average price for large chain produced bread of 15.5 cents.[3]

The gross margin offers another measure of the extent to which the advantages of a more efficient system are passed on to the consumer. The retail gross margin reflects the total cost, including profits, of the retail function. Expressed as a percentage of retail sales, it shows the proportion of the consumers' food dollar accounted for by the retailing (and in the case of the large chains, wholesaling) function.

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[1]Joseph Cornwall Palamountain, Jr., The Politics of Distribution (Cambridge: Harvard University Press, 1955), p. 63.

[2]NCFM, Tech. Study No. 10, p. 65.

[3]Goldberg, p. 85.

In the late 1920's, the large national chains operated on a gross margin of about 18 percent. In contrast, independent grocers often had gross margins of 25 percent and higher. The disparity largely reflected the benefits accruing to the large chains as a result of their integration advantages. Introduction of the supermarket afforded grocery retailers another basis for reducing their gross margins. Early supermarkets operated on margins of around 12 percent. The gross margin of supermarkets operated by A&P in 1941 averaged 12.5 percent in comparison with a margin of around 17 percent for their conventional retail units.[1] However, the reduction in gross margin attributable to conversion to supermarket operations by the large chains was largely exhausted by the late 1940's. By 1964, the average gross margin of the four leading chains was once again moving upward toward the presupermarket levels, largely as a result of increased promotion expenditures and the fact that most markets were fairly well saturated with supermarkets.

The retail gross margins of private labels are normally higher than those of advertised brands. The NCFM private label study found that the gross margin of 13 items frequently sold under private label average 22.4 percent for advertised brands and 24.8 percent for private labels.[2] With only one exception, the private label gross margin exceeded that of its advertised counterpart. Since the retailer performs several additional functions in merchandising privately labeled items, a wider gross margin can be justified.

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[1]Charvat, p. 166.

[2]NCFM, Tech. Study No. 10, p. 73.

However, owing to the frequent use of private labels as price specials, their gross margins vary markedly through time. Each of the 13 items included in the NCFM study was specialed at least once; some were repeatedly specialed. During periods when these items were not being sold on special, their gross margins averaged 26.6 percent.[1] In contrast, their average special margin was only 13.9 percent. In a few instances, the gross margins were negative, indicating that the items had been sold below their invoice cost.

Market Alternatives. A third standpoint from which to evaluate the performance implications of vertical integration in grocery retailing is its contribution to expanding market alternatives. Its effect in this regard has generally been beneficial. The establishment and growth of supermarkets and chain integration into food processing has contributed to a reduction in the number of competing firms. However, the eliminated firms were generally made vulnerable by their inefficient modes of operation. Thus, in these instances, the trade-off was between a loss in the number of competitors and a gain in merchandising efficiency.

In other respects, vertical integration has added measurably to consumer choice. The private label has given the consumer an opportunity to choose between highly differentiated, highly advertised products and those which are much less so. Use of the private label has also tended to increase the supply options open to the retailer, thus giving him increased leverage in his dealings with suppliers.

Likewise, the growth of the affiliated independent has made it feasible for independent retailers to compete with much larger firms on

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[1] Ibid., p. 77.

a more equal footing. This too has expanded the market choices open to the consumer.

As these comments would suggest, vertical integration by grocery retailers generally appears to have been a healthy phenomenon. This does not mean that it is entirely free of complication. There are several potential hazards associated with grocery retailer integration. It is argued, for instance, that the private labeling of established product lines will discourage the manufacturers of advertised brands from experimenting with new products. If the product is successful, private labelers will manufacture it more cheaply since they will have avoided the costs of product development; while if it fails, they will ignore it entirely. However, there is no indication that the widespread sale of private labels has caused the number of new products to diminish even slightly.

On balance, therefore, the five major forms of vertical integration considered here...the retail-wholesale chain operation, the supermarket, the affiliated independent, retailer-processor integration, and the private label...have all tended to have a positive influence on industry performance.

CHAPTER IX

PRICING

Introduction

Thus far, price has been used in this paper largely as a proxy for performance. We explored the price effects of improving efficiency through various forms of horizontal and vertical integration. We looked for relationships between price levels and market share. And, we considered the probable price effects of varying the scale of operation of both store and firm. We have essentially looked to price for an indication of the level of either technical efficiency or firm profit. We now turn our attention to the process by which price is established.

In Classical economic theory, price is established through the interaction of several supply-demand variables. The market price, according to theory, reflects the net strength of a variety of forces acting upon the product and the potential consumer of the product. A change in the strength of any one factor destabilizes the system causing it to move toward a new equilibrium. Through this process, resources are constantly allocated and reallocated among competing uses. When the system functions smoothly, resources tend to be assigned to their highest relative uses.

Yet, it is well recognized that the "real world" does not always conform to the conditions postulated in Classical theory. One of the

several "imperfections" involves the means by which market price is established. The purpose of this Chapter is to describe the nature of this imperfection and to consider its implications for market performance.

Background

The industry setting, as described in preceding Chapters, has in some sense provided a forewarning of these imperfections. It will be recalled from our earlier description of the industry that:

* Each store stocks a relatively large number of items, around 7,000-8,000.
* The average grocery store transaction is valued at about $4.50.
* Fixed costs account for a significant share of total operating costs, as much as 95 percent by some definitions.
* Food purchased for home consumption accounts for about 16 percent of total consumer expenditures.
* The price of individual food items is relatively low, often below 50 cents.
* Changes in the quality and quantity of farm products cause retail prices to be relatively unstable.
* The composition of the market basket varies cross-sectionally among shoppers and through time for the same shopper.

These and other factors combine to form the setting in which retail grocery prices are established. Each factor, as we shall learn, exerts its own particular influence.

Price is, of course, only one of several determinants of demand in grocery retailing, though it appears to be one of the more influential.

Consumers often rank it as one of the three or four most important factors upon which their purchase decisions are based, though its rank varies according to type of food product.[1] A combination of events over the past two years--including a period of higher farm prices, a price structure adjustment by distributors of several food lines to compensate for increasing costs of distribution, the entry of retail food discounters into many markets,and increased activity by consumer interest groups--has had the effect of lifting price to a new prominence. According to the Burgoyne Index, nearly a third (31.4 percent) of the consumers interviewed in 1966 reported low prices as the most important factor in determining their choice of supermarket.[2] For the first time in several years, the Index showed low prices to be ahead of all other factors in relative importance. Still, it is not the simple price-demand relationship one might imagine.

Closer examination of the demand function for a single grocery item will help illustrate the wide range of factors that directly or indirectly influence retailer pricing behavior. Such a function might take the following form:

$D_{a,\ I,\ t} = f\ (P_a,\ P_b,\ P_{a,II}\ P_{b,II},\ N_I,\ N_{II},\ X,\ Y,\ C,\ Z,\ I)$ where

$D_{a,\ I,t}$ = the demand for item a in store I through time interval t.

P_a = price of item a.

P_b = price of all other items.

$P_{a,II}$ = price of item a in competing stores.

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[1]Kenneth D. Naden and George A. Jackson, Jr., "Prices as Indicative of Competition Among Retail Food Stores," Journal of Farm Economics, Vol. XXXV, No. 2, May 1953, p. 246.

[2]Supermarket News, August 15, 1966, p. 2.

$P_{b,II}$ = price of all other items in competing stores.

N_I = nonprice offer (trading stamps, store decor, merchandise selection, friendliness, etc.) of store I.

N_{II} = nonprice offer of competing stores.

X = proximity of store to consumer market.

Y = disposable personal income.

C = consumer preference patterns as reflected by consumption of item a in past time periods.

Z = population size of the market.

I = consumer information, as determined by the function:

$I = f(F, M, P, S)$

where,

F = frequency of purchase.

M = relative importance in total food budget.

P = promotional effort.

S = store display, including position within store, shelf position, number of facings, special markings, etc.

Despite the oversimplified nature of this function, it is suggestive of some of the principal factors that influence retail grocery pricing. Their effect on the pricing process will be examined in the following sections of this Chapter.

Retailer Pricing Strategy

It would be misleading to ascribe too much exactitude or rationality to the pricing of retail grocery items. It includes too much trial and error and too little hard information and understanding of

relationships for that. Still, there are enough common elements in the process to permit some evaluation of its general thrust.

Multiproduct Pricing. One of the more important relationships expressed in the equation above is that which links the demand for a given item to the price of all other items. This particular relationship influences retailer pricing strategy as perhaps no other single factor. It owes its existence to several causes. In the first place, most consumer visits to a supermarket are for the purpose of buying several items. Since most households have the facilities to preserve food products over a period of several days, many consumers concentrate their food purchases into a single weekly visit to the store. One study found that 69 percent of those questioned visited only one store in buying their weekly groceries.[1] On the average, consumers spend around $4.50 per grocery store transaction.

Thus, the prospective customer is interested not only in the price of a single item but in the prices of the several other items she wants, as well. Furthermore, since she is likely to frequent the same store week after week, the variety of food items about which she is interested is far broader than the list for which she will shop in any given week. The appropriate price comparison from the consumer's viewpoint, therefore, is for the total of a relatively large bundle of goods.

To add a further complication, the consumer's knowledge of prices is usually quite limited. Though the average consumer is not concerned with the prices of all 8,000 items stocked by the average store, she

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[1] Naden and Jackson, p. 239.

does make purchase decisions on several hundred. Yet, her knowledge of even those items she purchases most frequently is comparatively low.[1]

Under these conditions, retailer pricing strategy aims not just at the prices of individual items but at the combined prices of many items. Since the mix of product purchases varies widely from one consumer to another, the opportunity for widely varying mixes of retail price is also large.

The retailers influence upon retail price is expressed in the width of the margin he attaches to the cost of the item to him. In general, the width of margin applied to any particular item is determined by three consideration:

(a) consumer price consciousness;

(b) the degree to which the item is a complement or substitute for other items stocked by the store; and

(c) ease of comparability with competitor's offer.

The greater the consumer's consciousness of the price of an item or the more likely an item's sale is to result in the sale of additional items or the easier it is to compare competing offers, the lower the retail margin is likely to be. To illustrate, Holdren found that stores in the market he studied had a low margin on cornmeal because people who buy it, do so relatively frequently and tend to be "careful shoppers" and "big eaters."[2] Likewise, strained baby foods were priced near or below

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[1]One study of the price awareness for 60 highly advertised items found that 50 percent or more of the shoppers interviewed could name the exact price of only one item and within 5 percent for only seven items. Progressive Grocer, Colonial Study, 1962, pp. C104-6.

[2]Holdren, p. 74.

cost because "(1) baby foods are usually purchased in groups of 6-10 units and (2) families with babies usually have larger than average per household food expenditures."[1] Ice cream, though a relatively fast mover, was given a high margin because of consumer uncertainty over quality levels.[2]

Several studies have sought to specify the determinants of margin in greater detail. For example, Lee Preston hypothesized that markups were higher for: (1) items with low unit prices, (2) rapid turnover items, and (3) private label items.[3] But after observing 20 product categories over a 23-week period in one chain, Preston found the three rules-of-thumb quite weak as predictors of item markup. He concluded that there is probably no single simple pricing formula that can be employed in determining retail prices.

The actual mechanics of the margin setting process varies by firm. One large New Jersey cooperative, Wakefern, groups its commodities into product classes and sets a gross margin goal for each group.[4] Within each group, retail prices are set so that the overall mix will produce an approximation of the desired gross margin.

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[1] Ibid., p. 87.

[2] Ibid., p. 84.

[3] Preston, p. 18.

[4] "How to Grow Big and Fast with Shop-Rite," Food Topics, June 1966.

Price Specials. Having learned that grocery retailers have considerable discretion in the setting of retail prices, it is not surprising to find that they make frequent use of it in seeking to maximize firm profit. As we found earlier, a relatively high proportion of retailer operating costs are fixed. Under these circumstances, profits are maximized by attracting additional volume. Thus, the retailer uses his discretionary pricing powers for the purpose of attracting larger store volume.

It has become customary for retailers to feature a selection of 50 to 100 items each week at prices somewhat below those normally charged. To be readily visible to the consumer, the reduction in price is usually significant. One study found that price specials averaged 78.6 percent of price charged by stores not specialing the item.[1] The item-by-item composition varies from one week to the next though some items are frequent repeats. These items are advertised through various communication media, but principally newspapers, and are often prominently displayed within the store. To the extent these features attract customers and to the extent customers buy a "normal" mix of items, the retailer recoups his sacrifice on the low margin items through adding on slightly to the other margins, in addition to the average cost savings associated with spreading a relatively fixed cost across a larger sales volume.

This approach to pricing results in a wide variation in retail margin, most of which is not associated with differences in retailing

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[1]Roger W. Gray and Roice Anderson, "Advertised Specials and Local Competition Among Supermarkets," Stanford Food Research Institute Studies, May 1962, Vol. III, No. 2, p. 128.

costs. The variation is greatest within a product category. Table 31 illustrates the variation among brands of two ounce jars of instant coffee for one particular firm.

In some instances, the sales of an entire product line are dominated by specials to the extent that the entire line experiences a low margin. Fresh meats are the most notable example of this. A high proportion of all meat sales occur at special prices. As a result, the gross margin of the entire meat department is substantially below that of the entire store. During one 14-week period studied by the Commission on Food Marketing, over two-thirds of the retail cuts of beef of one large retail firm were specialed at one time or another.[1] The price cuts ranged from 6.3 percent to 34 percent of regular retail price, reducing gross margin by an average of 26 percent.

Advertising. Information of the weekly features usually reaches the consumer through newspaper advertisements. Grocery retailers are one of the largest single users of newspaper advertising. Though full-page ads are commonplace, the number of items per page varies widely, depending upon the firm's policy regarding ad layout.

The inclusion of an item in a firm's advertisement is not always indicative of a below-average price. Preston found that advertised prices were frequently not low prices in comparison to other firms or to the firm running the ad.[2] The Commission on Food Marketing noted

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[1] NCFM, Tech. Study No. 7, p. 176.

[2] Preston, p. 48.

TABLE 31.--Gross margin and retail price for two ounce jar of instant coffee, unidentified firm

Brand	Gross margin	Price
	(percent)	(dollars)
Chase and Sanborn	19	.47
Decaf	16	.55
Yuban	16	.55
Nescafe	17	.51
Private label	26	.35
Sanka	13	.53
Maxwell House	17	.51

Source: Anonymous firm.

the same behavior in one of its studies, reporting that about one special in seven was not a reduction in price from the "regular" price.[1]

Considering the frequency with which retailers advertise, one might expect to observe numerous instances of direct competition. This is not, however, supported by the available factual evidence. To the contrary, there are fairly strong indications that retailers consciously strive to avoid duplicating their competitors' price offer.[2] Through use of firm-identified products (e.g. private labels and some perishables) and by close attention to the advertising cycle of their competitors, retailers keep advertised product overlap to a minimum.

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[1]NCFM, Tech. Study No. 7, fn. p. 174.

[2]See both Nelson and Preston and Wroe Alderson and Stanley J. Shapiro, "Towards a Theory of Retail Competition," Theory in Marketing, Reavis Cox, Wroe Alderson, and Stanley J. Shapiro, Eds. (Homewood, Ill.: Richard D. Irwin, Inc., 1964), pp. 190-212.

Zone Pricing. Large chains, by nature of their size and administrative awkwardness, do not share the pricing agility of smaller firms. They are constrained in their pricing decisions for a variety of reasons. As one of the company's principal means of control over merchandising activity at the store level, price determination is kept under rather tight rein by the management of most large chains. Permitting each store to form its own price structure could lead to serious intrafirm competition. Furthermore, use of areawide advertising by a firm makes it necessary that all of the firm's stores within that area participate in the same promotional program.

To accomplish this, the largest chains establish a limited number of price zones within each warehouse district. All stores within a given zone adhere to a common price structure. The pricing discretion of the individual store manager is severely constrained. Only under well defined conditions are these managers permitted to initiate a price change.[1] The most frequent conditions are: (1) when perishables are distressed and likely to be lost if not moved quickly or (2) when a competing retailer lowers his fluid milk price. And, in the latter case, the manager's decision is usually subject to immediate review at the warehouse level.

Consumer Information

Our interest in consumer information at this point is two-fold: first, as an indicator of industry performance, and second, as a

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[1]U.S. Congress, House Committee on Government Operations, Consumer Problems of the Poor: Supermarket Operations in Low-Income Areas and the Federal Response, House Report No. 1851, 90th Congress, 2nd Session, 1968, p. 53.

determinant of product demand and, therefore, of retailer pricing behavior. As we learned in the previous section, consumer price consciousness is relatively low. Considering the large number of items involved, the frequency with which many of the prices change, and the diversity of pricing techniques, it is little wonder.

Looking at price changes for a limited number of items twice a week for one year, Nelson and Preston found that the chain and affiliated stores in their sample changed prices in one out of 10 opportunities.[1] Thus, for a list of only 100 items priced twice weekly, one would expect to observe approximately 1,000 changes in price over the period of a year. That is, the price of each product would change an average of 10 times per year. Furthermore, there is no evidence that a significant share of these changes is motivated by changes in wholesale price.[2] This is true even for perishable products, for which one would expect the association to be strongest.

Beyond the frequent changing of price per unit, changes in the unit composition (e.g. 3 for 49¢ or 2 for 25¢) of the offer is often employed. In their study, Nelson and Preston found that about one-fifth (21 percent) of the over 30,000 price changes they observed involved changes in both price per unit and unit composition.[3] There are, of course, a number of possible reasons for this behavior. In the event of an increase in unit price, it may be used to make the increase less

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[1] Nelson and Preston, p. 37.

[2] Ibid., p. 91.

[3] Ibid., p. 55.

obvious (e.g. a change from 4 for 92¢ to 3 for 72¢). Yet, it can also be used for the opposite purpose, namely to draw attention to a small decline in unit price (e.g. from 22¢ each to 2 for 40¢).

As a result of the frequent and often obscure changes in the retailer's price offer, it is exceedingly difficult for the consumer to make meaningful interstore comparisons. It is, in fact, unlikely that retailers themselves are well informed of their competitor's price offer. In some markets, such as Los Angeles, price survey firms collect and sell current price information collected weekly by enumerators who visit stores of the major chains much as BLS employees collect monthly data. Some of the larger firms devote considerable attention to keeping track of their competitor's prices, sending teams of their own employees into the stores to shop. Most firms, regardless of size, attempt to keep aware of their competitor's prices for a selected list of items. Yet, despite the considerable attention it receives, price information among retailers is far from complete.

Among consumers, it is more nearly nonexistent. The combination of frequent price changes within stores and varying price mixes among stores is largely responsible. Thus, a given list of items may be priced more cheaply from store A this week but from store B next week. The Commission on Food Marketing compared prices on a common list of 121 items for several large chains across a number of markets for an 8-week period in 1965.[1] By weighting the individual item prices by their relative importance in consumption, a weighted composite price was calculated. The typical pattern, tracing the composite price of each of

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[1] NCFM, Tech. Study No. 7, pp. 169-174.

the three or four firms per market across the 8-week period, was for first one firm and then another to be lowest. Typically, each firm in the market bounced between lowest priced and highest priced, holding each extreme for at least one of the 8 weeks.

If firms maintained some consistency in their pricing mix, it is conceivable that a consumer could eventually find that store which offers the mix of products she buys at least cost. It is perhaps because of this that two consumers will stoutly defend different stores as being lowest in price. Allowing for differences in the composition of their market baskets, they could both be right. Yet, with the constant shifting of price mixes within each firm, the chances of this remaining true over time are slight.

Neither can special prices be taken as indicative of overall store prices. A cut in one price is normally matched by an increase in another. In addition, there is some indication that for at least some firms the lower the special, the higher the nonspecials.[1]

Thus, from the consumer's standpoint, retailer pricing behavior is somewhat of a mixed blessing. With complete information, the consumer could realize a significant cost saving by carefully shopping the specials (assuming away the added cost and disutility of the additional shopping). By one estimate, consumers could reduce their food bills by as much as 12 percent.[2] Yet, at the same time this approach to pricing rewards more complete consumer information, it also makes it more difficult to attain. Consumer buying patterns suggest that many shoppers do not consider the reward worth the marginal cost and inconvenience.

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[1]Gray, p. 133.

[2]Ibid., p. 130.

Do the Poor Pay More?

A contemporary issue in retail grocery pricing is whether low income consumers are discriminated against through having to pay higher prices. It has been hypothesized that stores in low income areas: (a) charge above average prices, (b) merchandise inferior products, and (c) raise prices during those periods of the month when welfare checks and food stamps are distributed.

At least three separate efforts have been made to test one or more of these hypotheses. The Bureau of Labor Statistics conducted a comparison study in six large cities for the Commission on Food Marketing in February 1966.[1] The BLS study compared prices, produce quality, and general appearance of stores operating in low and high income areas. For each of 18 items, two prices were collected per store; one for the size and quality of item that experienced fastest movement through low income stores, the other for the size and quality normally used in making Consumer Price Index calculations.

No significant differences in price were found between stores of the same firm or of the same general type operating in low income versus high income areas. That is, there was no evidence of outright price discrimination based on neighborhood income. The timing of the study (in the latter part of the month) did not permit assessment of the hypothesis that prices are raised when food stamps and welfare receipts are most plentiful.

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[1] NCFM, Tech. Study No. 10, pp. 121-144.

A similar study, this one by the Department of Agriculture, was made in February 1968.[1] It compared the prices of chains operating stores in both low and high income areas of six cities. Again, no discernible measure of price discrimination between low and high income area was found.

The Special Studies Subcommittee of the House Committee on Government Operations recently issued a report on the same subject.[2] Though the Subcommittee reported evidence of price discrimination, it was of uncertain reliability. Recognizing this, the Committee recommended that the appropriate Federal agencies examine the subject in greater detail.

Despite the absence of widespread overt price discrimination, there are indications that the poor do indeed pay more per unit of food purchased. A high proportion of the low income family's food needs are purchased from small independently operated stores. These stores, as indicated by several studies, including that of the BLS, tend to charge higher prices than either large independents or chains. The results of one Commission study showed that small independent store prices were at least 3 percent above chain prices in five of six cities examined.[3] The differential between large and small independents was about 2 percent. The BLS agents who collected data for the low income-high income

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[1] U.S. Department of Agriculture, Comparison of Prices Paid for Selected Foods in Chainstores in High and Low Income Areas of Six Cities, June 1968.

[2] Committee on Government Operations.

[3] NCFM, Tech. Study No. 7, p. 308.

comparison further noted that many of the stores listed in the grocery route lists were small delicatessens and beer parlors or pool halls that sold an extremely limited line of food items.[1]

The fact that low income families often buy products in the smallest size available also contributes to the relatively higher prices they must pay. Lacking enough money to buy food a week or two in advance and often lacking satisfactory means of preserving perishable products, low income families frequently buy no more than is needed for a day or two. Thus, the BLS study found that although medium and high income families most frequently buy flour and sugar in five pound units, low income families tend to buy two pound sacks.[2] The price per pound ranged from 13 percent to 39 percent higher when purchased in the smaller unit. In the case of milk, quarts were most popular in low income areas while half gallons accounted for most of the sales in higher income markets. The per unit price was again higher for the smaller unit, ranging from 1 percent to 23 percent. Cola drinks often sell fastest by the bottle or can in low income stores while the carton is the standard selling unit elsewhere.

The low income customers' unique tastes often put them at an additional disadvantage. Many of their favorite foods are not popular among the larger population. As a result, they do not make good feature items for firms operating across a wider market. The gross margin for such "soul foods" as chitterlings, pork skins, pig ears, snouts, tripe, and fat back are, therefore, substantially above those of the more

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[1] NCFM, Tech. Study No. 10, p. 129.

[2] Ibid.

conventional cuts. One study reportedly measured retail margins as high as 65 and 75 percent for these cuts.[1]

The BLS study also reported that stores in low income areas generally offered a poorer selection of merchandise and that the condition of their fresh meats and produce was significantly inferior. Though it was not possible to ascertain whether the merchandise was of lower quality when it reached the store, a combination of less effective management and slower product turnover are more likely causes.

It is probable, therefore, that the poor do pay more per unit of food. But their higher prices do not appear to be the result of conscious and widespread price discrimination. Though isolated instances of differential pricing probably do occur, the more fundamental causes of the higher prices--limited mobility, insufficient information, and severe budgetary limitations--are a natural outgrowth of the poverty environment.

MarketingEfficiency

Price behavior also affects market efficiency...the efficiency with which resources are allocated among competing uses in response to expressed consumer wants. If the market does an effective job of transmitting consumer preferences to producers and if, in turn, product information is accurately relayed to consumers, the market is said to be performing efficiently. The pricing practices described above influence the degree to which maximum feasible market efficiency is attained.

The operating data shown in Table 32, though not necessarily representative of the typical supermarket pricing structure, do provide an

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[1]Christian Science Monitor, August 16, 1968.

illustration of the wide variation in gross margin-operating expense relationships found among major product lines within a single store. The store in this illustration was operated by a small but rapidly growing New Jersey chain. The pricing strategy of the firm, as revealed by its departmental operating data, was to rely heavily upon low meat and grocery prices to attract sales volume. Neither of these departments (accounting for nearly 60 percent of total sales) made a positive contribution to overall net profit. Instead, nearly half of the store's net profit came from the nonfood department, though it accounted for just over 5 percent of total sales volume.

TABLE 32.--Operating data by major department for a single New Jersey supermarket, based on a 16-week analysis, 1961

Department	Percent of total sales	Gross margin	Total operating expenses	Net profit (loss)	Percent of total profit
		percent of sales			
Produce	8.03	27.17	21.39	5.78	20.8
Meat	19.01	18.48	19.15	(.68)	(5.8)
Nonfoods	5.24	27.27	7.25	19.96	47.1
Dairy-Deli	15.55	12.84	10.19	2.65	18.5
Frozen	5.30	17.90	15.96	1.94	4.6
Ice Cream	1.10	16.87	12.91	3.96	2.0
Bakery	4.80	22.00	9.04	12.96	27.9
Grocery	40.97	12.13	12.95	(.82)	(15.1)
Storewide	100.00	16.28	14.05	2.23	100.0

Source: Glenn Snyder, "Net Profit Study Discloses Operating Costs of Major Departments," Progressive Grocer, August 1961.

This general pricing strategy is relatively commonplace throughout the industry, though the details vary from one firm to another. The New Jersey chain described above, a member of a large cooperative wholesale group merchandising a wide assortment of private labels, relies to an unusually heavy extent upon low prices among its dry grocery line. The estimated net profit position of the meat department, however, is not atypical. The estimates appearing in Table 33 were made by the Commission on Food Marketing, using data collected from a variety of sources including a special study by the Department of Agriculture and individual firm information. The loss incurred through the merchandising of meat at below cost prices is again evident.

The item by item variation of net profit within a given department is likely much greater than the variation we have just witnessed among departments. There is a list of items that has near universal appeal among grocery merchandisers for use as loss leaders. Though they are concentrated most heavily in the meat department, they can be found in all major departments of the store. Holdren observed that coffee, sugar, and vegetable shortening had been sold at or below cost for several years in the market he studied.[1] Butter, canned milk, and baby foods are other items sold at very low margins.

The loss-leader approach to pricing has influenced the course of competition within the industry in many ways: (1) it has encouraged suppliers to seek through various means (sometimes unlawful means) to have their products specialed; (2) it has hastened the departure of specialty shops and small neighborhood stores; (3) it has favored some

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[1] Holdren, p. 88.

TABLE 33.--Estimated average instore[1] gross margins, costs, and profits of supermarkets, 1964

(percent of sales)

Department or product group	Labor	Store supplies	Buildings and equipment	Advertising and promotion	Other expenses[2]	Profits before tax	Gross margin
Meat	12.7	1.6	3.3	2.4	3.0	-0.9	22.1
Produce	14.0	.9	7.1	2.4	3.2	2.5	30.1
Dry groceries	6.6	.4	2.8	2.4	3.2	2.0	17.4
Dairy products[3]	5.1	.5	4.2	2.4	3.3	0.4	15.9
Bakery products	6.6	.5	2.0	2.4	3.2	2.1	16.8
Frozen foods	7.7	.3	10.8	2.4	3.2	2.5	26.9
Total store[4]	8.5	0.7	3.7	2.4	3.1	2.1	20.5

[1]In retail store only. Margins are the difference between delivered-to-store product costs and sales. Expenses do not include warehousing and delivery.

[2]Includes headquarters expense, interest, and miscellaneous costs.

[3]Fluid milk products, ice cream, butter, cheese, margarine, and eggs.

[4]Includes nonfoods.

Source: NCFM, Tech. Study No. 9, p. 6.

commodity and producer interests over others; and (4) it has generally confused the consumers' perception of "normal price."

Though it is difficult to separate the influence of the price determination process from other factors, e.g. absolute size and relative size of buyers, it obviously has an important effect on the

relationship between supplier and buyer. Through use of a wide variety of promotional gimmicks, suppliers seek to have their products included among those chosen by the retailer for use as loss leaders. In so doing, they have frequently run afoul of the limitations prescribed under the Robinson-Patman and Federal Trade Commission Acts. These Acts prohibit a supplier from offering one customer a preference in the terms of trade while not offering it to others, with certain exceptions. But, as indicated earlier, retailers consciously strive to avoid promoting the same items simultaneously. Thus, by the nature of retailer pricing strategy, suppliers have a built-in incentive to be discriminatory in their allowance of preferences.

The long list of violations over the past few years demonstrates the extent to which suppliers and buyers have yielded to the temptation. During the period 1951-64, the Federal Trade Commission issued 95 formal complaints and conducted around 1,300 investigations relating to competitive injury to nonfavored customers of grocery manufacturers as a result of discriminatory preferences granted by grocery manufacturers.[1] In most of these cases, the supplier rather than the buyer was held in violation of the statutes. Nonetheless, there are also numerous cases of chain buyers soliciting preferences for special promotion and anniversary sales.[2]

There are at least two indications that retailer pricing practices, independent of firm size or market share, have contributed to this

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[1] NCFM, Tech. Study No. 7, p. 417.

[2] For a recent complaint issued against Colonial Stores see Federal Trade Commission, News Summary, No. 39, October 1, 1968.

behavior. First, though regulatory agencies concentrate on surveillance of the larger chains, there have been several cases involving independent wholesalers, cooperative and voluntary wholesale groups, and small independent retailers. This suggests that buyer size alone is not the primary determinant.

Second, the commodities most afflicted by discriminatory pricing are dairy and bakery products. As we learned earlier, the producers of these products are often more highly concentrated within the local market than are their retail buyers. Thus, the processors cannot be said to be acting out of a disadvantage associated with smaller market share. But perhaps more significant, bread and milk are nearly always key retailer promotion items because of their relative importance in the average consumer diet. The incentive among suppliers of these products to gain favor is therefore relatively greater than for other, less promotion-oriented items.

The decline in the number of small, independent grocery stores and specialty food stores in recent years is also, in some measure, a function of the pricing strategy employed by their supermarket competitors. Though most studies show the average price level of the small independent grocer to be significantly higher than that of larger independents and chains, the disparity is made to appear even wider as a result of the use of loss leader pricing by the larger units. Small independents, unless associated with affiliated groups, have never made extensive use of these pricing techniques. Neither have they used advertising, except for occasional newspaper ads and handbills. In the two

markets studied by Nelson and Preston, unaffiliated independents (regardless of size) changed the prices of their products about one-third as frequently as did their chain and affiliated competitors.[1]

For the specialty shops with their even narrower product lines, the squeeze has been all the greater. In some product lines the price differential might be more apparent than real. But, in others it is obviously very real. Independent butcher shops find it extremely difficult to compete on the basis of price alone with the meat departments of supermarkets using meats as a principal feature. An entire firm cannot afford to operate at a loss over an extended period of time as do the meat departments of many, if not most, supermarkets.

In the selection of commodities and brands to be specialed, the retail trade exercises considerable economic power. By choosing one product over another, say fryers over pork chops, the retailer is influencing the relative positioning of the demand schedules for these products and, therefore, the returns to resources engaged in their production. A simplified diagramatic example will illustrate.

In Figure 1, fryers are being specialed while the price of pork chops is raised slightly as a partial offset. For each product, D_1 represents the demand function under conditions of no price specials. The price-quantity vectors P_1 Q_1 assume a constant net profit across all items, including fryers and pork chops. With the decision to lower the price of fryers and raise the price of pork chops, the demand functions shift to D_2. Consistent with the new prices (P_2) and the new demand functions (D_2), the quantity demanded moves to Q_2. Part of the change in the quantity demanded (Q_1X) is caused by the change in price of the

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[1]Nelson and Preston, p. 37.

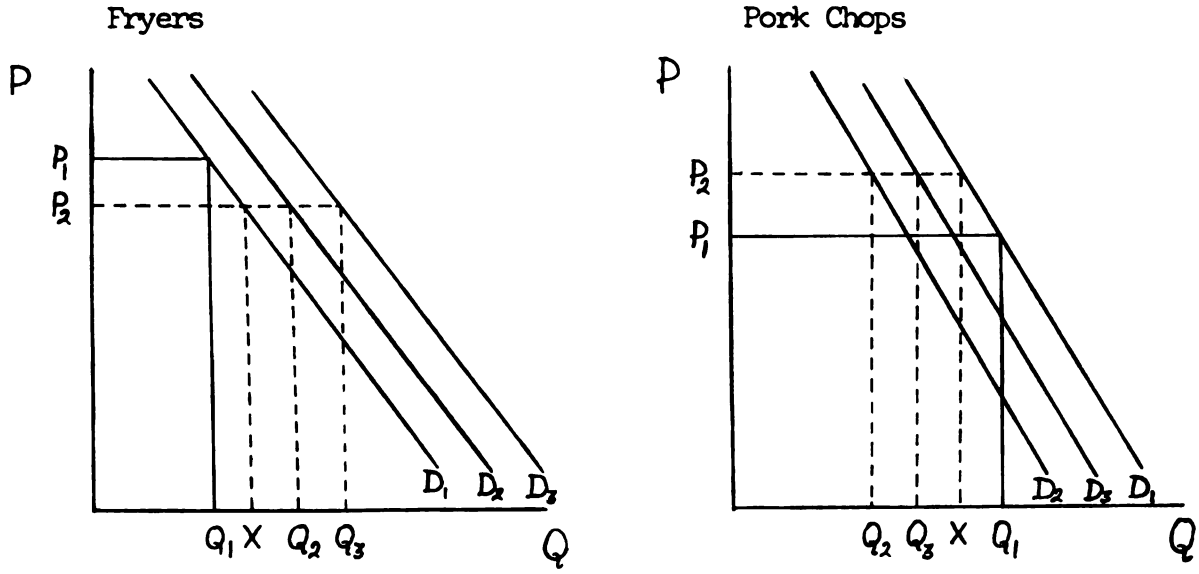

FIGURE 1.--Illustration of price-quantity relationship between specialed and nonspecialed products within a given firm

product and part (XQ_2) by the change in price of other related products. In this illustration, it is assumed that fryers and pork chops are substitutes; thus, the leftward shift of the demand function for pork chops. If the second item were complementary to the first, the demand function would shift in the opposite direction. The net effect on quantity demanded would depend, however, on the relative strength of two opposing forces: an outward shift in the demand function versus a higher retail price.

Still another factor to be included in this analysis is the customer attraction effect. This, after all, is the principal motivation for using a loss leader pricing strategy. If the price specials attract additional customers and if these customers buy specials and nonspecials alike, the effect will be to shift all demand functions further outward (to D_3). Thus for the specialed item, the final result will be a significant increase in the quantity demanded. For the other items, the final result will depend on the net effect of a higher price, increased customer traffic, and complement-substitute relationships.

Demand elasticity and the variation in elasticity among products is also of importance. All other factors being the same, retailers would maximize total revenue by lowering prices for those items having a relatively elastic demand and raising prices of the items exhibiting relatively inelastic demand functions. Yet, all other factors are clearly not the same. To the contrary, those items having the more inelastic demand functions have the greater customer appeal and are therefore more frequently specialed.

The increase in the quantity demanded of the specialed products helps explain some of the retailers' merchandising behavior. The

increased sales volume of specialed products places pressure on the retailers' suppliers to command a higher wholesale price. By lowering his per unit selling price, in effect the retailer is giving cause for his per unit cost to rise. As a means of counteracting this, retailers are encouraged to follow two courses of action: (1) to vary the list of specialed items frequently before their costs can be bid very high and (2) to stagger the timing of their specials so that they are not bidding against a special-motivated demand of their competitors.[1] From the standpoint of rising supply costs, the use of products having a relatively inelastic demand works to the retailer's favor. That is, the increase in quantity demanded is held down.

For some products, however, it is not competitively feasible for a retailer to avoid near constant specialing. Under these circumstances, pressure builds to pass some of the cost back to the processor (perhaps through discriminatory pricing) or to integrate into the processing function itself. This pressure is perhaps most evident in the bakery and milk processing fields. In the case of fresh meats, where these alternatives are less feasible, the retailer must bear most of the burden himself.

The price strategy we have been examining disrupts the conventional means of resource allocation in two ways. First, it causes a false signal to be sent both to consumers and producers. It assigns values to products that do not accurately reflect their resource

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[1]Williams and Uvacek found pronounced fluctuations in the weekly beef purchases of individual chains in the Los Angeles area. Week to week changes of more than 100 percent in the purchases of a particular firm were not unusual. See: W. F. Williams and E. Uvacek, Pricing and Competition on Beef in Los Angeles (Washington: U.S. Department of Agriculture, 1960), Marketing Research Report 413.

requirements--some are overvalued, some undervalued. Second, since the prices are not market determined, they are subject to abrupt and unexpected change thereby contributing to conditions of market uncertainty and instability.

Finally, the use of loss leader pricing and the frequent changing of prices has generally hampered consumers in their attempts to compare prices. As indicated before, the store that charges the lowest price for a given list of products one week might well be among the highest priced the following week. Hence, the consumer rarely has much appreciation for what might be considered a "normal" price. Although shoppers continue to list low price as one of their leading criteria in store selection, one cannot help but wonder if its frequent mention is prompted more by its aura of rationality than by frequent application. The confusion and uncertainty surrounding product pricing has probably contributed to a lessening of its importance as a guide to consumer decisionmaking. In its place, retailers have increasingly substituted nonprice appeals.

Summary

Pricing plays an uniquely important role in the merchandising of groceries. Loss leader pricing has attained near universal acceptance by the industry. Though use of this technique offers the appearance of substantial price competitiveness, the outward signs are deceiving. To the contrary, this behavior has likely contributed to a general lessening of price competition among grocery retailers. Because of the widespread use of loss leader pricing, price has become a poorer guide in the purchase of consumption items and in the allocation of resources.

CHAPTER X

SUMMARY AND CONCLUSIONS

The principal aim of this paper has been to gain a clearer understanding of the relationship between the structure, behavior and performance of a single industry functioning in a contemporary economic setting. The subject has been grocery retailing, an industry characterized by rapid growth and diversity of form. Five structural and behavioral characteristics were isolated and examined for their performance implications. Because of the greater abundance of primary information and the frequency of its application in public regulatory decisions, the relative size (or market share) characteristic received greatest attention.

Summary

The market share effects of grocery retailing were examined from two viewpoints: (1) from the industry's position as a buyer and (2) from its position as a seller in the consumer market. As a buyer in the national and regional markets, the grocery retailer often bargains from the weaker market share position. Most supplier markets are more highly concentrated, some are substantially so. Nonetheless, the flow of concessions, when they occur, is nearly always in the retailers'

direction. This suggests that factors other than market structure play an important role in determining the terms of trade between a grocery retailer and his suppliers. Four factors were identified as having particular significance in this regard: (1) the retailers' distributional proximity to the final consumer, (2) retailer pricing practices, (3) the threat of vertical integration, and (4) economies of scale in food processing.

In their selling markets, which were assumed to correspond roughly to the metropolitan area concept, grocery retailers are considerably more concentrated. On balance, the largest four firms account for about half of all sales. A series of regression analyses employing individual SMSA concentration levels and changes in level as the dependent variable failed to reveal any strong associations with the more common market parameters--e.g. population size, rate of population growth, population density, median age, and median family income. The analyses did show, however, that changes in concentration are related to the level of concentration. The higher the level of concentration, the greater the likelihood it will fall...and vice versa. The analyses, which were limited to the largest four, eight, and 20 firms in 192 SMSA's, also indicated that a higher concentration among the largest four firms was associated with a lesser concentration among the 5th-20th size group... and vice versa.

Looking at the market shares of individual firms through time, evidence of considerable instability was noted. Firms with a high market share tended to suffer a loss in share while those with low initial

shares gained. Comparing the change in market share during the periods 1954-58 and 1958-63, we noted that more firms (45.1 percent) gained in one period and lost in the other, than either gained or lost in both periods consecutively. By grouping firms according to their relative size within markets it was possible to examine changes in the individual firm composition of the top four size class. The analysis indicated that in some periods, e.g. 1954-58 and 1954-63, the change in composition was substantial. In at least half of the markets studied, two or more of the firms that were among the top four at the beginning of the period had been replaced by other firms by the end of the period.

Among the most revealing findings of this study are those stemming from the analysis of individual store data of large chains. Using an assortment of statistical techniques, it was possible to isolate several interesting relationships. The tests generally indicated that market share and net profit were positively related. In isolation, this finding would seem to support the conventional structure-performance hypothesis. However, closer examination of the relationship of these variables to other related information leads one to a somewhat different conclusion. Profits are high in the high share markets because the retail facilities are fully utilized and, per unit costs are therefore low, not because higher prices are charged. Thus, it would appear that market structure (as measured by market share) and market performance (as measured by net profit per dollar sale) are statistically related because they both vary in response to a third factor: merchandising success.

In the short run, this results in sizable excess capacity in those markets experiencing only limited merchandising success. Yet, considering the relative rapidity with which firms can and do alter their relative share of a given market, in the intermediate run, the excess capacity of a given firm likely shifts from one market to another. Indeed, the existence of this costly unutilized capacity might have greater relevance to the industry's competitive climate than does the level of concentration itself. In its continuing search for means of better utilizing its facilities, the firm is under constant pressure to change its offer in a way that will attract additional sales volume.[1]

Turning to absolute size, the performance implications of both size of store and size of firm were examined. Store size (within the range observed) has relatively little effect upon technical efficiency. It does, however, affect the attractiveness of the store from the consumers' point-of-view. For this reason, a store of at least moderate size (10,000-15,000 square feet) is a virtual precondition to sales success for the conventional supermarket.

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[1]These data provide no indication of the variability of sales success among smaller firms, including single store independents. One might hypothesize that this form of instability is peculiar to large chains, that it is an additional cost of the administrative awkwardness of large scale. Holdren argues (p. 101), for example, that chains probably have to maintain a lower price level to appear reasonably competitive with their independent rivals. He reports that a 25 percent return on investment for independent operators is considered quite low while returns of 13 to 15 percent are normal for chains.

Yet, there is evidence that large numbers of independent operators also encounter operating losses. Oesterle and Downey's data for 418 midwestern independents indicate that a sizable share of the total operated at a loss in 1963; the least profitable one-fifth of these firms experienced an average loss in each of the five sales classes studied. Eric C. Oesterle and W. David Downey, Financial and Operating Standards for Supermarkets (Chicago: National Association of Retail Grocers of the United States, 1965).

The implications of varying firm size are less well understood. Integration into warehousing and various forms of food processing starts becoming feasible at a sales volume of something less than $50 million. This can, depending upon the circumstances, yield significant economies. The advantages of growth beyond $100 million become more limited, though the extent of the limitation depends on the degree to which firms are diversified by market. For some functions, such as warehousing and the processing of dairy and bakery products, the economies are more closely associated with the firm's local scale than with its overall size.

The most serious single drawback to large scale is its rigidity and insensitivity to individual and local preferences. In effect, this acts as a constraint upon the proportion of market sales any single firm can capture. The pluralistic nature of the present day consumer market makes it highly unlikely that any one firm can put together an offer that will hold the patronage of a very large share of the consuming households over an extended period of time.

Horizontal integration, the third characteristic examined, was found to have played a relatively important role in the structuring of the grocery retailing industry. Realization of the economies described above made necessary the integration of large numbers of retail units. Of equal importance, however, is the manner in which this integration was accomplished. A sizable share of the stores operated by the largest chains, particularly in the 1930's, were acquired through merger with other firms. Though this had the effect of reducing the number of competitors or potential competitors, there is no convincing evidence that it has impaired industry performance.

Still, the Justice Department and the Federal Trade Commission have moved against horizontal mergers with increased vigor in recent years. This vigilance appears to have caused a sharp reduction in the incidence of mergers. The question now is, how will this affect the future growth pattern of large chains? Will they replace external merger expansion with internal expansion? If so, will ease of exit be reduced, further aggravating an industry tendency toward excess capacity?

Vertical integration has also found repeated application in grocery retailing. The integration of retail and wholesale functions in the form of grocery chains and affiliated groups, the creation of the supermarket through integration of several retail lines, and integration into various forms of food processing are means by which the face of grocery retailing has been significantly altered. In the vast majority of instances, this effect has been healthy. It has presented older, less efficient forms of distribution with a stiff competitive challenge. The consumer has usually benefitted through lower retail prices and expanded market alternatives.

Retailer price behavior was the last characteristic to be considered. As a result of the special circumstances surrounding the retailing of grocery products, retail firms were found to make extensive use of what is termed "loss leader" pricing. By selectively lowering the prices of a limited number of items and offsetting this with slightly higher prices on other items, the retailer can give the appearance of offering the consumer significant savings.

Such behavior leads to several effects, none of which contribute positively to industry performance. Suppliers are motivated to influence the retailers' pricing strategy in favor of their products; specialty shops and small stores are put at a competitve disadvantage; a distoration is introduced into the process by which resources are allocated; and the consumers' perception of "normal price" is further confused.

This, in brief, is what this study has revealed. What, then, are the major conclusions that can be distilled?

Conclusions and Policy Implications

The principal aim of this study, as stated at the outset, was to promote an improved understanding of the relationship between selected structural and behavioral characteristics of the grocery retailing industry's performance. In some small way, I believe this has been accomplished.

But unless we are content with the creation of knowledge for its own sake, our task is not quite completed. Perhaps the toughest questions of all are yet to be answered. Namely, what are the implications of the study's findings for the social welfare? Are changes in public policy needed? If so, what are they?

The contribution of present antitrust surveillance is hard to objectively assess. Its supporters argue that the competitiveness of our present economy is evidence of the success of this activity. Its critics view the same condition as ample justification for discontinuing strict enforcement. The truth, if one were to know it, would seem to lie somewhere between.

A continual monitoring of the competitive process serves a useful purpose. There are ample opportunities for malfunction. Nevertheless, there are also numerous opportunities for misinterpretation. Thus, at the same time we maintain close intelligence, we must guard against its misuse or misinterpretation. Considering the relatively primitive state-of-the-arts and the rapidity of change in our economy, the burden of the latter responsibility is especially heavy.

The central reference point of antitrust policy has been classical theory. It has generally remained so in the face of changing circumstances. Market structure theory, after all, is little more than a restatement of the classicial requisites. Yet, if the general welfare is to be well served, there is mounting evidence that the reference point of public policy must be made more adaptive, more flexible. And, at the same time, it must be more closely connected to standards of performance.

An increase in market concentration or the merger of two firms, for example, cannot be termed harmful to competition, by definition alone. In all likelihood these events are accompanied by a combination of benefits and costs. A reasonable assessment requires that the trade offs between these counterforces be compared and a net effect estimated. But to make such comparisons, one must be primarily concerned with end results, not with the conditions that yielded them. This will require a somewhat different approach than is now in vogue.

Yet this is obviously much easier said than done. Satisfactory results are harder to identify and measure than are the requisites of classicial theory. Indeed, our present understanding of society's scale of values can be termed little more than crude. What is the value

to the consumer of grocery store advertising, of trading stamps, of a wide assortment of product choices, of a choice of competing retail outlets, of being able to buy groceries 12 hours a day, six days a week, of nationally advertised brands, etc? Unfortunately, we don't know the answers. The signals transmitted through the market are too muddled by distorations in the system to provide useful answers. For the most part, these answers will have to be obtained outside the market, through publicly-supported research.

In restrospect, it is clear that competition between different forms of distribution--e.g. chains versus independents, chains versus affiliated independents, and supermarkets versus limited-line outlets--has made a significant contribution to industry performance. In some respects this is a confirmation of Schumpeter's view of "the essential fact about capitalism" and of Palamountain's hypothesis of the role of "intertype" competition.

The changing competitive relationship between the large chain and the small independent is a case in point. The rigidities of large organization in combination with the growth of affiliated groups and the increasing accessibility of private labels has made it possible for small independent operators to compete with large chains on a comparatively equal, if not sometimes slightly advantageous, footing.

Of perhaps greater relevance, one should note that it is not so much the difference in size or market power that gives the affiliated independent his competitive vigor--many affiliated groups are of substantial size--as it is the difference in structure or organization.

The enforcers of antitrust statutes would be well advised to consider the implications of these differences. It might even suggest, for example, that different standards of enforcement should be applied to different forms of distribution, depending upon their stage of maturation and the effects it would have upon their performance. The merger of an affiliated group with an independent wholesaler, for example, might lead to an entirely different outcome than had a chain been the principal merging party. Thus, to the extent antitrust enforcement can be used to encourage viable new forms of distribution, it would seem highly desirable to do so.

The findings of this study also suggest that the hypothesized line of causality linking structure to behavior and behavior to performance is much too rigid to be of predictive value in assessing industry performance. There is no evidence of a strong causal relationship between high market share and unsatisfactory performance. There is, instead, evidence that market share and performance are both a function of the sales success of firm merchandising behavior. Thus, an antitrust policy predicated on the reliability of a market structure-performance relationship seems ill-advised. The theory assumes a simplicity and a generality that does not exist.

The findings also provide no evidence that chains are using the leverage of a high market share to charge higher prices. However, the findings do indicate the existence of a strong positive relationship between market share and profitability. The higher profits earned in the high share markets appear to be largely a result of the full utilization of existing capacity and the associated cost savings.

Although there is no evidence of price discrimination associated with market share, there are other undesirable features. It is rather clear, for instance, that large chains operating across several markets must rely upon their profitability in some markets to subsidize their losses in others. And furthermore, a considerable amount of under-utilized capacity is involved in the latter markets.

If there are no benefits to counterbalance the costs of this condition, a policy corrective is needed. But before this can be determined, several other questions must be answered. For example: How rapidly do firms shift between high and low share in a given market? If the distribution of sales within a given market is constantly changing, is the temporary underutilization of capacity it causes a necessary cost of maintaining a competitive climate? If this under-utilization of capacity is something more than temporary, why do chains continue to subsidize operation in losing markets?

This study has advanced tentative answers to these questions. On the basis of limited evidence, it appears that the volatility of a particular firm's market share in any given market might be sufficient to justify at least some excess capacity. That is, the cost of the under-utilized capacity is more than matched by the benefits associated with the creative competitive tension it fosters. Still, a well informed judgment must await more definitive evidence.

Evidence that individual firm market shares experience relatively abrupt change also casts a shadow of doubt over the relevancy of tracing conventional market concentration measures (e.g. market share of the large four firms) through time. Unless allowances are made for

changes in firm rank and firm composition, the resulting trends can be grossly misleading.

Turning to price behavior, findings of the study indicate that retailer pricing practices often detract from an otherwise satisfactory performance. They often result in a competitive display that is more apparent than real. Their general effect on consumer price information is to create added confusion and uncertainty. As a result, price rarely figures importantly in consumer purchase decisions involving choice of outlets.

Still, the costs of obtaining and interpreting more complete consumer information cannot be ignored. For an individual acting alone, it is often prohibitively expensive. If the cost were shared by a sizable number of consuming units, however, it could be brought to a modest level. Private price collection firms already operate in some large cities, though use of the information they collect is presently limited to local retailing firms.

It would be instructive to see how consumers would use information of this sort if it were made available. Perhaps a pilot study could be initiated in one of those markets in which the data are already being collected. In addition to being exposed to the data, study participants could be involved in consumer education programs designed to help them make the fullest possible use of their new information. Consumer decisionmaking might be further facilitated by use of electronic data processing. The principal purpose of the study would be to see what use consumers would make of more complete information if it were readily

available and to see if the value of the service, in the consumers' view, exceeded its cost.

Retailer pricing practices should be more closely scrutinized for yet another reason. It is evident that retailers both possess and exercise considerable discretion in the setting of retail prices. In following a "loss leader" pricing strategy, the relationship between wholesale price and retail price becomes blurred. The retailers' chief concern is the pricing of the entire basket.

The ramifications of this are transmitted throughout the marketing channel--back to and including the producer. Precisely what the effects are, we do not know. But they bear careful watching, both by researchers and policymakers. So also do the effects of retailer advertising. The power of advertising to influence human behavior, when it is skillfully used, is considerable. It behooves us, therefore, to observe its application and its effects with some care.

Most antitrust legislation is broadly stated. A review of some of the more recent antitrust decisions demonstrates the heavy burden of interpretation the statutes defer to the regulatory and judicial bodies charged with their enforcement. Though the regulatory agencies make comparatively extensive use of economic and other technical analyses in discharging their responsibilities, the judicial system does not. If the court's decisions are to be predicated on the most complete information possible, they should make far greater use of impartial technical assistance.

Grocery retailing is still feeling the effects of the trend toward large scale organization. The adjustment is midstream. Nearly half (47 percent) of all stores had annual sales of less than $50,000 in 1963,

and thus, were well below what might be considered a viable operating size. Though their protection does not seem justifiable on competitive or antitrust grounds, neither should the operators of these failing firms be altogether abandoned by public policy. They are not unlike the small businessman in the several other industries affected by the high and increasing capital requirements of new technology. The appropriate adjustment for these individuals varies. Public assistance is not always required. For a comparatively small number, the adjustment can take the form of growth to a larger, more viable size. For those who can qualify, there would seem to be adequate sources of private capital available for this purpose.

The role of the public sector, in facilitating this adjustment, should be defined with care. There is a tendency for those affiliated with the more established means of production and distribution to be most vigorously represented in policymaking circles. A constituency, like a good Kentucky bourbon, takes time to mature and gain strength. Because of this lag, one has to constantly guard against efforts to perpetuate economic units that are neither large enough nor sophisticated enough to be competitively viable.

For many, therefore, the adjustment must take a route other than growth within the industry. Some operators are young and capable enough to warrant public investment in retraining and placement. Others, lacking the potential for employment in other fields, must be helped where they are--perhaps through some form of publicly supported income maintenance.

In any event, it can be persuasively argued that the human costs surrounding these adjustments are, at least in some measure, a public responsibility. The benefits of these and other changes accrue to the larger society. Why, therefore, should not the larger society share in their costs as well?

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