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SHARED MONOPOLY AND ANTITRUST POLICY: AN EMPIRICAL INVESTIGATION OF THE EFFECTS OF THE FTC'S RESTRUCTURING PROPOSALS FOR THE CEREAL INDUSTRY

presented by

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BRIAN FRANCIS HARRIS

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SHARED MONOPOLY AND ANTITRUST POLICY: AN EMPIRICAL INVESTIGATION OF THE EFFECTS OF THE FTC'S RESTRUCTURING PROPOSALS FOR THE CEREAL INDUSTRY

By

Brian F. Harris

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ABSTRACT

SHARED MONOPOLY AND ANTITRUST POLICY: AN EMPIRICAL INVESTIGATION OF THE EFFECTS OF THE FTC'S RESTRUCTURING PROPOSALS FOR THE CEREAL INDUSTRY

By

Brian F. Harris

The Federal Trade Commission (FTC) has charged the four largest cereal manufacturers with "sharing" a monopoly. This has been achieved through a concentrated industry structure created and maintained primarily by the use of the non-price marketing practices of intensive advertising and product differentiation, extensive new product development, and retail shelf-space control. The result has been a 15-20 percent overpricing of cereals at retail. The FTC has proposed that the major manufacturers be ordered to divest a number of plants and license a number of established brands.

The purpose of the study is twofold. First, the theoretical foundations of "shared monopoly" are investigated by examining relevant aspects of the theories of oligopoly and industrial organization. The "shared monopoly" theory represents an extension of existing oligopoly theory to include non-price behavior in differentiated oligopolies. The "structuralist" model of the theory of industrial organization provides the basis for the proposed remedies. Its traditional horizontal emphasis, however, raises problems when it is applied to the food

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industry in which the vertical relationships between manufacturers and resellers affect industry performance.

The second purpose of the study is to empirically investigate the effects of the proposed remedies on cereal retail prices. The focus is upon the likely effects of restructuring the manufacturing sector on the behavior of food resellers. A theoretical contribution-to-profit (CTP) model is used to describe the process by which food wholesalers and retailers make optimal pricing, product adoption and deletion, and space allocation decisions for products such as cereals. Multiple regression models are used to test the major propositions of the CTP model with cereal data for the period April 1973 to March 1977 obtained from a representative food chain. The models analyze relationships at whole-sale and retail between cereal gross margins and the following factors that influence reseller gross margin and pricing decisions for cereals: unit sales, turnover, manufacturer advertising, sales growth rate, and amount of space occupied by cereal items.

The major findings and implications of the research are: 1. Profit contribution is the major criterion used by resellers to set gross margins and selling prices on cereals. The higher unit sales and turnover of the items supplied by the major cereal manufacturers allow resellers to achieve profit objectives at lower margins and selling prices.

2. The divestiture and licensing remedies are likely to reduce unit sales and turnover rates for a number of cereals through their effects on distribution costs, retail availability, and the brand structure of the cereal market. This will reduce reseller profits on cereals forcing resellers to increase gross margins. This will put upward pressure on retail prices.

3. Highly advertised cereals carry lower wholesale and retail margins. The higher sales and turnover generated by advertising allow resellers to achieve profit objectives at lower margins and selling prices. A reduction in advertising for cereals is likely to reduce reseller profits forcing resellers to increase margins and selling prices.

4. There is no evidence that large manufacturers receive preferential treatment from resellers. High sales or turnover items supplied by smaller firms carry margins similar to those carried by high sales or turnover items of larger firms.

5. To achieve a significant reduction in retail prices, it will be necessary for both manufacturer and reseller gross margins to fall. The remedies are more likely to cause reseller margins to increase. Any price reductions caused by the remedies at the manufacturing level could be offset by price increases at the reseller level of the distribution process. The remedies could simply cause a reallocation of profit margins between manufacturers and resellers without any decline in the retail prices of cereals.

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CHAPTER I

INTRODUCTION

Purpose of the Study

In January 1972, the Federal Trade Commission (FTC) charged the four largest breakfast cereal manufacturers, Kellogg Company, General Mills Incorporated, General Foods Corporation, and Quaker Oats Company, with having created and maintained a "shared monopoly" within the ready-to-eat (RTE) cereal market.¹ The FTC has proposed that the "shared monopoly" be remedied by ordering Kellogg, General Mills, and General Foods to divest a number of their plants and to license a number of their established brand trademarks. Hearing of the case began before an FTC administrative law judge in April 1976 and is still in progress.

The case is unique in a number of respects and is shaping as one of the most important recent antitrust initiatives undertaken by the FTC. Its deliberations and outcome are likely to have far-reaching implications for a wide range of industries from the viewpoint of antitrust regulation. For marketing, the case raises a number of critical issues concerning the social effects and the legality of a number of widely used marketing practices.

The purpose of the study is twofold. First, the nature, issues, and implications of the "shared monopoly" theory being put forward in

the RTE cereal case are explored. This is achieved by investigating the two major theoretical foundations upon which the theory is based, the theory of oligopoly and the theory of industrial organization. The focus of this investigation is the relationship between each of these theories and the "shared monopoly" theory. The implications of the "shared monopoly" theory for antitrust regulation and marketing are also identified.

Second, the effects of the FTC's proposed divestiture and trademark licensing remedies are investigated empirically. The empirical analysis focuses on identifying the possible effects of the remedies on the retail prices of RTE cereals. In industries, such as the breakfast cereal industry, in which products are distributed to consumers through food wholesalers and retailers, the behavior of resellers must be considered when evaluating the effect on industry performance of changes such as those that would be induced by the FTC's proposed remedies. Of particular importance are the pricing, new product acceptance, product deletion, and space allocation decisions of food wholesalers and retailers. The nature of food reseller behavior in these areas is investigated using a contribution-to-profit model that focuses upon the process by which food wholesalers and retailers make profit maximizing pricing and merchandising decisions. RTE cereal data from a large, representative wholesale-retail grocery chain are used to investigate the model empirically. The results of analyses using the model are used to assess the effects of the FTC's proposed remedies on the retail prices of RTE cereals.

The following excerpts from the opening comments of the FTC Complaint Counsel's Trial Brief (filed in February 1976) define the general dimensions of the case:

The monopolized RTE cereal market is...a textbook example of the dangers of concentration and the evils of monopoly.... The respondent's "supra-competitive" profitability has resulted from their tacit conspiracy or agreement not to engage in price competition....

"Shared monopoly" [is] the presence of market power in a few firms who use that power to earn monopoly profits, to avoid competition, and to exclude entry.... The respondents' market power derives from the concentrated industrial structure, with high barriers to entry...[and] the use of that power is demonstrated by the avoidance of price competition and the realization of supra-competitive profits.... Exclusionary conduct has included brand proliferation, product differentiation, intensive advertising and shelf-space allocation programs.²

The major issues of the case center upon the causes and effects of the highly concentrated structure of the RTE cereal industry. For many years, the four largest manufacturers have dominated industry sales. In 1970, the four respondents accounted for 91 percent of the \$740 million retail sales of RTE cereals in the United States. The distribution of market shares was approximately: Kellogg 45 percent, General Mills 21 percent, General Foods 16 percent, and Quaker Oats 9 percent.³

In terms of economic theory, the structure of the industry is clearly that of differentiated oligopoly.⁴ The central issue of the case, however, is the FTC's use of the term "shared monopoly" in place of the more traditional term, oligopoly. For the first time in U.S. antitrust history, four firms have been charged formally with "sharing" a monopoly. In summary form, the "shared monopoly" theory is constructed as follows:

- 1. The industry is concentrated
- The concentrated structure of the industry has facilitated a tacit conspiracy to avoid price competition
- 3. The results have been excessive prices and profits
- 4. The high profits of the industry have not attracted entry because of barriers to entry erected by the respondents
- 5. The barriers arise from the use of the following non-price marketing practices:
 - a) Brand proliferation
 - b) Product differentiation
 - c) Intensive advertising
 - d) Shelf-space control.

The key aspect of this theory is that the four respondents are able to "share" a monopoly by means of a tacit conspiracy, the objective of which is to avoid forms of behavior that might induce price competition and to encourage forms of behavior that deter entry into the industry. The result has been excessive prices which, in turn, have yielded the respondents excessive profits. The FTC calculated that, in 1970, the resulting retail prices for RTE cereals contained a "monopoly overcharge" of approximately \$128 million.⁵

In the initial complaint (January 1972), the "shared monopoly" charge was not specifically invoked. The complaint at that time emphasized how the industry's non-competitive market structure had led to poor economic performance, in particular, the excessive levels of prices and profits and the imitative nature of product development activities. The major marketing practice singled out for criticism was advertising. The FTC alleged that the heavy advertising expenditures blocked entry and that the advertising appeals used were unfair, especially to children. These activities violated Section 5 of the FTC Act.

The more definitive statement of the "shared monopoly" theory was contained in the FTC Trial Brief filed in February 1976. In the Trial Brief, less emphasis was placed upon the harmful effects of heavy advertising and the theory of "shared monopoly" was formally introduced. The FTC distinguished two dimensions of "shared monopoly". First, the most basic charge was that the <u>behavior</u> of the respondents constituted a tacit conspiracy in the RTE cereal industry. This violated Section 5 of the FTC Act. Second, the FTC put forward the view that, even if a tacit conspiracy did not exist, the structure of the industry provided sufficient evidence by itself that competition had been lacking. The essence of this view is that, regardless of the behavior pattern of firms, the existence of high concentration, stable firm market shares, high entry barriers, and high product differentiation provides sufficient evidence, per se, of unsatisfactory performance. These structural characteristics, therefore, constitute a violation of Section 5. A direct relationship between the industry's structure and its performance was asserted.

These two dimensions of the "shared monopoly" theory highlight the two major theoretical foundations upon which the economic and legal arguments of the case are based. The tacit conspiracy, or behavior,

dimension has its origins in the theories of oligopoly. In this context, the issue of "shared monopoly" is concerned with the conditions and mechanisms by which a group of firms, acting in recognition of the interdependence of each other's results on each other's behavior, produce a result which collectively resembles that of a single firm monopoly. The second dimension concerns the ability to directly infer an industry's performance from its structure. In this context, "shared monopoly" derives from the structural characteristics of an industry. This dimension has its origin in the theory of industrial organization. To explore the nature, issues, and effects of the theory of "shared monopoly" as it is being applied in the RTE cereal case, these two theoretical foundations are discussed in subsequent chapters. Prior to undertaking this, however, it is necessary to discuss the nature of the FTC's charges in more detail.

The Nature of the Tacit Conspiracy

The first dimension of the FTC's "shared monopoly" charge is that a tacit conspiracy is policed by respondents' use of a set of competitor monitoring information sources. These include the following practices:

- The collection of information on the prices, new products, promotions, and shelf locations of rival manufacturers by company salespersons
- The use of standard industry monitoring reports such as those produced by the A.C. Neilsen Company and Selling Area Marketing Incorporated (SAMI)
- 3. The membership activities of the respondents in the industry's trade association, the Cereal Institute.

These information sources allow any deviations from the "acceptable" modes of behavior to be readily detected. This allows rivals to retaliate quickly against violations of the "code" by members of the group.

The FTC argues that this conspiracy has three principal effects. First, it encourages interdependence in pricing decisions. The following practices are cited as evidence:

- Announcement of price increases well in advance of when they are to take effect
- Use of delivered pricing systems in which all customers are charged the same prices regardless of location
- Recommendation to retailers of retail prices supported by manufacturer salesforce efforts to have retailers adhere to these prices
- Granting immediate credit to retailers for losses incurred as
 a result of any price reductions on goods in-transit or
 in-warehouse.

These practices reduce uncertainty about the pricing behavior of manufacturers and retailers and allow manufacturers to respond immediately to the price changes of rivals. Price competition is therefore discouraged.

Second, the tacit conspiracy discourages the use of promotional techniques and product changes that stimulate price competition. The FTC cites the following practices as evidence of this:

- 1. Refusal to produce private label RTE cereals
- 2. Unwillingness to use trade deals and "cents off" promotions.

Third, the conspiracy restricts competitive behavior to nonprice marketing practices that deter potential competitors from entering the industry. Four specific practices are identified: (1) brand proliferation, (2) product differentiation, (3) intensive advertising, and (4) shelf-space control.

The alleged effects of these four marketing practices represent a fundamental challenge to the theory and practice of marketing. The allegation that a firm's product, promotion, and distribution practices may be anti-competitive or exclusionary is a serious legal challenge to the essence of modern marketing. A summary of the alleged effects of each of these four practices follows. The criticism of each practice raises a number of important questions, some of which are identified.⁶ Several of these questions provide the source of research hypotheses investigated later in the study.

Brand Proliferation

The effects of the intensive new brand development activities of the respondents have emerged as a key issue of the case. The FTC alleges that such activities raise entry barriers to potential competitors. This occurs for two reasons. First, since production plant economies of scale for RTE cereals occur at approximately five percent of market sales and since successful brands have been able to achieve, on average, only approximately a one percent share, a new entrant is forced to enter the market with multiple new entry brands. This increases considerably the promotion costs necessary to attract sufficient consumer attention for successful entry. It is alleged that the brand proliferating activities of existing manufacturers fragment

the RTE cereal product space to such an extent that it is extremely difficult for a new entrant to find a profitable niche in the market. The extent of the alleged proliferation can be seen from the following figures. In 1975, 120 different RTE cereal items were manufactured.⁷ The average retail supermarket stocked between 90 and 100 of these items. During the period 1970 to 1977, however, the six largest manufacturers introduced approximately 60 new items. For the period 1960 to 1970, the FTC alleged that the four respondents alone introduced over 75 new brands.

Second, the large number of brands manufactured by the respondents means that less retail space is available for new entrant brands. In addition, the use of manufacturer controlled shelf-space allocation programs allegedly assures that, even if a new entrant brand achieves some shelf space, the location and number of facings it receives places it at a competitive disadvantage to the established larger sales volume brands of the respondents.

The arguments of the FTC regarding brand proliferation raise the following questions:

- Is it necessary for a new entrant to introduce several successful brands to obtain five percent of the market? If so, why is this necessary? Are consumer tastes for RTE cereals so diverse that a single brand cannot obtain this level of market share?
- 2. If consumer tastes are so diverse, is this an exogeneous phenomenon or is it due to the brand development and advertising activities of major manufacturers?
- 3. How many RTE cereal brands are required to provide consumers

with a meaningful range of choice?

- 4. Is it more difficult (or costly) for new entrant brands to obtain retail shelf-space?
- 5. What effects do the actions of food wholesalers and retailers have in creating barriers to the entry of new brands of smaller manufacturers?

These questions are relevant to the key issue raised in the case of whether the respondents share a monopoly in the RTE cereal industry. Each deserves empirical investigation. This study, however, focuses on the type of issues raised by questions 4 and 5. The major objective of the study is to investigate the role played by food resellers (grocery wholesalers and retailers) in the performance of the RTE cereal industry.

Product Differentiation

The FTC has defined product differentiation as "conduct which draws the consumer's attention to minor variations between products, thereby diverting his attention from a comparison of the basic similarities between them".⁸ The argument is that the respondents' use of techniques such as trademarks, premiums, and product spokesmen (for example, "Cap'n Crunch" and "Tony the Tiger") and the creation of new brands simply by making minor changes to the ingredients, shapes, textures, and colors of existing brands, makes it more difficult for consumers to make meaningful value comparisons (quality versus price) among brands. The result is that consumers perceive the RTE cereal market to consist of many <u>different</u> products located across a multiattribute product space when, in reality, many of the products are

physically similar. These product differentiation techniques exclude new entrants in a manner similar to the way in which brand proliferation deters entry. Product differentiation, therefore, restricts competition from newcomers, especially private label manufacturers, and from existing manufacturers as it allows the respondents to structure the product space into groups of brands thereby ensuring that each brand competes with only the few brands positioned near it. As the criticism of product differentiation is closely tied to that of brand proliferation, the alleged roles and effects of these product differentiation activities raise a set of questions similar to those posed by the arguments regarding brand proliferation.

Intensive Advertising

The FTC argues that heavy advertising by the respondents discourages entry by:

- Providing support for brand proliferation and product differentiating activities
- 2. Directly creating consumer loyalties for the respondents' brands. The existence of entrenched preferences for established brands means that new entrants must incur heavy advertising costs to disturb existing brand loyalties. The existence of established brand loyalties also reduces the potential impact of new entry initiatives based upon price competition
- 3. Indirectly creating consumer loyalties through the effects of intensive advertising on the merchandising and shelf-space allocation decisions of retailers. The argument is that a major factor considered by retailers when deciding whether to add a new

cereal item or drop an existing item, and the location and number of facings to give to an item is the level of manufacturer advertising support for the item. The alleged result is that heavy advertisers are able to gain easier access to retail distribution and are able to obtain preferred shelf locations for their products, for example, multiple facings on eye-level shelves

 Allowing large advertisers to take advantage of quantity discounts from advertising media which places new entrants at a cost disadvantage.

The essence of the FTC's position is that the high levels of cost and risk associated with having to mount expensive advertising campaigns to reach threshold levels of consumer awareness deter the entry of potential new competitors.

The role of heavy advertising expenditures in the creation of barriers to entry has been the subject of considerable controversy and research. Several schools of thought have emerged. The FTC's arguments support the view that heavy advertising serves to restrict entry.⁹ An alternative view in which advertising is viewed as a means of entry has not been adopted.¹⁰ The arguments of the FTC raise the following questions:

1. Brand loyalty

a) Is intensive advertising necessary to create consumer brand loyalty? Could entry with a superior product generate sufficient brand switching to allow entry at a reasonable entry fee in terms of advertising cost?

b) Do existing brand loyalties originate from the superior

products already marketed by the established manufacturers?

c) Is it possible to reconcile the high brand switching rates for RTE cereals that have been observed in several studies with the brand loyalty position?¹¹

2. Reseller behavior

a) How much influence does the level of manufacturer advertising have on reseller merchandising decisions?

b) Does the shelf position and number of facings of an RTE cereal item influence its sales volume? Would a new entry brand be doomed with inferior shelf positioning?

3. Economies of scale in advertising

 a) Do quantity discounts mean increasing returns to advertising?
 Do smaller advertisers incur larger costs per thousand homes for advertising?

b) Would such discounts be a barrier to new entrants which were large multi-product manufacturers, for example, Procter and Gamble and Pilsbury?

c) How valid is the assertion of increasing returns to advertising in view of the consistent support for the diminishing returns thesis?¹²

d) Must smaller manufacturers incur higher threshold levels of advertising expenditures when introducing their RTE cereal brands to the market?

Shelf-space Control

The FTC alleges that the respondents acquiesce to the use of a retail shelf-space allocation program promoted by Kellogg that has the

effect of restricting retail distribution access to new entrant brands thereby discouraging entry into the industry. The Kellogg program uses the past history of item sales movement at the individual retail store level as a basis of allocating space among RTE cereal items. Shelf positions, therefore, are determined on the basis of past market shares. The FTC alleges that the other respondents have not challenged the Kellogg sponsored program because through it they receive a "fair share" of the available shelf-space. The exclusionary features of the program cited by the FTC are the following:

- 1. Respondents' brands receive preferred shelf positions
- Brands are arranged on retail shelves to discourage consumer value comparisons, for example, branded and private label substitutes are never placed side by side
- Respondents' brands receive multiple facings next to each other thereby increasing their chances of impulse selection
- The stability of market shares among the respondents is perpetuated.

These arguments raise the following questions:

- How effective is the Kellogg program in influencing the shelf allocation decisions of retailers?¹³
- 2. Do shelf-space allocation programs such as the Kellogg plan or the shelf allocation policies of retailers themselves mean that new entrant brands have little chance of success? Does a bottom shelf, single facing position, for example, doom a new entry brand?¹⁴

The FTC charges that the behavior pattern described by these four marketing practices violates Section 5 of the FTC Act. In the Trial

Brief, the following three rationalizations are put forward to support this position:

First, the respondents have tacitly conspired to monopolize the RTE cereal market...and have thereby violated Section 2 of the Sherman Act. Second, the respondents have engaged in parallel exclusionary conduct which erects, maintains and raises barriers to entry in the RTE cereal market. This conduct violates Section 5 [of the FTC Act] because it violates Section 2 of the Sherman Act, because it is contrary to the spirit and intent of the antitrust laws and because it violates Section 5 whether or not it violates the letter or spirit of the antitrust laws as it results in substantial injury to consumers and to competition. Third, the respondents have retained their shared monopoly power which has resulted in a consequent maintenance of the RTE cereal market as a non-competitive market.¹⁵

These legal contentions which are offered in support of the "shared monopoly" charge highlight some of the most unique aspects of the case. Of major importance is the legal relationship being asserted between the traditional conduct offenses of Section 5 violations and the more serious monopolization offense of Section 2 violations. This provides the basis of the alleged links between the marketing practices of the respondents and the "shared monopoly" outcome. The fact that the FTC considers that the conduct of the respondents also violates a major monopolization statute (Section 2) provides the basis for the recommendation that a part of the remedy should be divestiture.

The Structure-Performance Relationship

The second dimension of the "shared monopoly" theory is the FTC's claim that the industry's structural characteristics have been directly responsible for its poor performance, especially the excessive retail prices for RTE cereals. The estimated \$128 million "monopoly over-charge" that occurred in 1970 represents a 15-20 percent overcharge in

retail prices. The FTC argues that this could be eliminated or reduced if the industry was more competitively structured.¹⁶ These excessive price levels are manifest in the high profit levels of major manufacturers. A major signal for initial FTC interest in the RTE cereal industry was the persistently high profit rates earned by the largest manufacturer, the Kellogg Company. In the initial FTC staff memorandum in which a proposal to investigate the industry was made to the FTC Commissioners, the head of the FTC's Bureau of Restraint of Trade said of the performance of the Kellogg Company:

Kellogg...enjoys such a strong "product differentiation" advantage (brand preference) that it has...been able to... earn one of the highest long-term profit rates in the history of American manufacturing, a 10-year average of more than 20% after taxes on stockholders' equity.¹⁷

The FTC alleges that the "shared monopoly" outcome within the industry resulting from the industry's structure and maintained by the use of non-price marketing practices in the areas of advertising, product development, and distribution has resulted in poor economic performance by the industry. The "shared monopoly" situation violates Section 2 of the Sherman Act and as such is "an attempt to monopolize, or combine or conspire...to monopolize". It also violates Section 5 of the Federal Trade Commission Act thereby constituting the use of "unfair methods of competition".¹⁸

The Proposed Remedies

To improve the performance of the industry, the FTC has recommended two integrated remedies. First, the major manufacturers should be ordered to divest themselves of a number of plants which would be taken over by smaller firms already in the industry or by new entrants. Specifically, it would require the Kellogg Company to divest itself of three of its four plants (its Omaha, Memphis, and San Leandro plants), General Mills to divest itself of one of its five plants (its South Chicago plant), and for General Foods to release one of its two plants (its Modesto plant). This would create the opportunity for five new manufacturers to enter the market or for five current small manufacturers to expand their market share. The rationale for the divestiture proposal is expressed in the Trial Brief as follows:

The order must strike at the basis of the respondents' conduct - the highly concentrated market structure of the RTE cereal industry in which entry is all but barricaded. Thus, five new cereal firms should be created by "spin offs" - three from Kellogg's assets, one from General Mills' assets and one from General Foods' assets. This will reduce concentration and intensify competition.¹⁹

The second remedial proposal is more unique to the case. To assure the viability of these new plants and firms, the respondents would be required to license, for a period of twenty years on a royalty free basis, their existing trademarks together with the product formulae and package designs for these products. Initially, each of the new firms created by the five plants divested would be given <u>exclusive</u> rights to one well established trademark. The details of this remedy as expressed in the Trial Brief are as follows:

To assure the viability of these [new] firms, Kellogg would be ordered to divest the following well established brands: Rice Krispies for the Memphis plant and Special K for the San Leandro plant. These brands would account for approximately 40% and 62% of plant capacity respectively which would enable two new firms to produce new cereals, to engage in price competition in order to expand their sales and to produce private label RTE cereal. The third firm [Omaha plant] would be given comparable brands to the brands of the other two firms. Similarly, General Mills would be required to create a new firm which would be given the South Chicago plant and the Wheaties brand which accounts for about 80% of the South Chicago plant. 20

Presumably, a similar provision would apply to the General Foods' plant and to a leading General Foods' trademark. In addition, any other existing trademarks must be licensed, not necessarily on an exclusive basis, to an applicant. Also, any trademarks of new brands entering the market during the first twenty years of the order would be eligible for license once they had been in existence for a period of five years. Quaker Oats Company would be spared the divestiture and licensing provisions but, along with the other respondents, would be prohibited from making any acquisitions for a period of twenty years and from using any shelf-space allocation programs. The objective of the trademark licensing proposal is expressed as follows:

A trademark licensing provision...would eliminate the respondents' ability to proliferate brands, differentiate products, and advertise intensively and should lead to the entry of additional producers.²¹

Intensive advertising will be discouraged because a respondent who advertises will only get a proportion of the added sales.... Product differentiation will be discouraged for many firms will be free to produce any given brand.... Price competition will be encouraged by the existence of more than one producer of certain brands.²²

The overall objective of the two proposed remedies is to reduce the retail prices of RTE cereals. Divestiture and trademark licensing will lead, it is claimed, to increased price competition among an enlarged set of manufacturers. This will reduce or eliminate the alleged 15-20 percent overcharge in retail prices of RTE cereals. The investigation of this argument, and a number of its specific implications, provides the basis for this study.

Reasons for Selecting the RTE Cereal Industry

An identification of some of the possible reasons for the FTC's selection of the RTE cereal industry as a test case for the "shared monopoly" theory provides useful insights into the underlying issues and implications of the case.

Rising Levels of Concentration

The cereal industry has traditionally been among the most highly concentrated industries, especially within the food manufacturing sector. On the list of thirty-five oligopolies identified by the Senate Subcommittee on Antitrust and Monopoly were only three food manufacturing industries: SIC 2043 cereal breakfast foods, SIC 2062 cane sugar refining, and SIC 2898 salt. Of these three industries, cereals had the highest four-firm concentration ratio of 83 percent (based on the 1958 Census of Manufactures) and was the only one of the three in which concentration had increased between 1947 and $1958.^{23}$ The 1966 census revealed that the four-firm concentration ratio in cereals had increased further to 87 percent.²⁴ The 1972 census showed that the rise in concentration had continued with the four largest firms accounting for 90 percent of the total industry value of shipments. 25 A study of the cereal industry by the National Commission on Food Marketing in 1966 had also drawn attention to the high concentration in this industry and to the nature and effects of its oligopolistic behavior pattern.²⁶

Concentration and Inflation

A growing concern for the impact of concentrated food industries on continuing inflation provided a major stimulus for the RTE cereal industry investigation. The Report of the President's Cabinet Committee on Price Stability (issued in January 1969) raised the issue of the role played by the market power of concentrated industries in the continuing increases in price levels.²⁷ This suspicion of concentration was increased by the reappearance of the phenomenon of "perverse price flexibility" during the 1970-71 recession. Prices in concentrated industries continued to rise despite a decline in demand.²⁸ A similar phenomenon had been observed during the depression of the 1930s. Means argued that it was due to the ability of concentrated industries to "administer prices".²⁹

In response to this, prominent legislators began to urge federal agencies to investigate the structure, behavior, and performance of highly concentrated oligopolistic industries. Senator Hart expressed the view that:

Nearly 30 percent of all consumer spending is wasted.... Monopoly pricing in one form or other accounts for the bulk of this consumer loss, particularly price-fixing conspiracies and the economic collusion or non-independence inherent in the high concentration ratios found in certain segments of American manufacturing.... There is a growing body of antitrust opinion that oligopoly - high concentration plus higher than competitive prices - is already illegal under existing anti-trust laws and needs only to be identified in a series of test cases to be so held by the courts.³⁰

Senator Proxmire called for the establishment of a Concentrated Industries Task Force within the FTC as a component of the antiinflation program. The principal role of the task force would be to identify industries in which monopoly overcharges were occurring.³¹

Congressman Rosenthal supported this position and commented on the suitability of the cereal industry as a test case:

...collusion among competing sellers tends to inflate prices on the average by about 25 percent or more above competitive levels.... The Commission [FTC] should immediately establish an oligopoly task force....the Commission has under consideration a study of monopoly overcharges in the breakfast cereal industry.... Such a study would appear to be an excellent way to begin a broad based study into monopoly overcharges in other industries.³²

The growing concern for the impact of high concentration on inflation combined with other forces to urge the passage of new legislation aimed at restructuring existing oligopolies as a means of increasing the degree of competition in industry. Both the Report of the White House Task Force on Antitrust Policy (the Neal Report)³³ and the Report of the Task Force on Productivity and Competition (the Stigler Report)³⁴ recommended investigations of selected oligopolistic industries. The high concentration and profit levels of the cereal industry pointed to it as a logical candidate.

Inefficiency in the Regulatory Process

A further source of pressure for the investigation of oligopolies was the criticism of the efficiency of the antitrust regulatory process. Both the Ash Report³⁵ and the Nader Report³⁶ recommended drastic changes in the FTC's procedures to improve the efficiency of the agency's regulatory process. The initial staff memorandum to the FTC Commissioners requesting approval to investigate the cereal industry bears the stamp of these criticisms:

...proposals aimed at improved "efficiency" at the Commission i.e. at organizational and other changes aimed at the production of more "cases" per dollar spent - would seem to be something less than the ultimate solution. The real problem lies not with
the <u>speed</u> with which cases, as such, are processed, but in the <u>kinds</u> of cases selected in the first place...in many areas the law has seized the shadow and missed the substance of the problem at hand. While it chases a menagerie of relatively insignificant business "practices", new oligopolies are being perfected and more consumers are being compelled to pay prices that are higher and higher above the level that would have prevailed had competition remained effective in those industries.... If anti-monopoly laws really have as their base the interest of <u>consumers</u>...this kind of structureperformance pattern should be the principal focus of their concern, not business morality, as such.³⁷

Bain had expressed a similar view regarding the limitations of conductoriented antitrust cases:

[The] prolongation and expense of antimonopoly actions results in large part from the fact that establishment of <u>conduct</u> offenses generally requires almost endless exploration of the minutiae of the business practices and policies of the defendants.... Five or ten years from initiation to conclusion of a monopoly case is not unusual. In effect, a <u>conduct</u> offense is much more difficult to establish than a <u>structural</u> offense would be.³⁸ (Italics mine.)

The search for a set of policy rules by which antitrust cases could be selected and investigated with improved cost-benefit results suggested an approach concentrating upon selecting and investigating industries based on their structural characteristics. Bain had put forward the view that an industry's performance can be inferred directly from its structure.³⁹ This approach is attractive to legislators and regulators as a means of improving regulatory efficiency. The structural characteristics of the RTE cereal industry identified it as a likely candidate to legally test such a position.

Shift of Emphasis to the Legal Arena

The failure of the Concentrated Industries Act $(1971)^{40}$ and the Industrial Reorganization Act $(1972)^{41}$ to win congressional support saw

emphasis shift to the legal arena in search of a precedent expressing the economic and legal theories contained in these proposals. Both proposals aimed at restructuring existing oligopolies. Their most significant feature was to define oligopoly in terms of structural criteria, or rules, alone. In the Concentrated Industries Act an "oligopoly industry" was defined as:

A market in which any four or fewer firms had an aggregate market share of 70 percent or more during at least seven of the ten and four of the most recent five base years.⁴²

The Industrial Reorganization Act proposed an even stricter structural standard. The act stated that monopoly power is possessed:

If any four or fewer corporations account for 50 percentum (or more) of sales in any line of commerce in any section of the country in any year out of the most recent three years.⁴³

These structural rules would provide the basis for selecting and investigating oligopolistic industries. The regulatory philosophy and the arguments underlying the cereal "shared monopoly" case are similar to those contained in these proposed legislative statutes.

Implications of the Cereal Case

The current case can be viewed as an important test case with significant implications for antitrust policy. It has been estimated that as much as one-quarter of all U.S. manufacturing output is produced by industries that can be classified as being oligopolies or "shared monopolies" in structure.⁴⁴ A legal precedent upholding the position that "shared monopoly" violates Section 2 of the Sherman Act and Section 5 of the FTC Act would open the way for applying the theory to a wide range of industries. The following industries would be among the potential candidates: (1) consumer goods - automobiles, appliances, cosmetics, cigarettes, soap, coffee, orange juice, razor blades, soups, baby foods, chewing gum, cake mixes, spices, (2) industrial goods steel, oil, electrical machinery. The ability of regulatory agencies to use structural criteria and rules for antitrust regulation that would follow from such a precedent would represent one of the most significant and pervasive changes in the history of business regulation in the United States.

The case also has far-reaching implications for marketing theory and practice. It raises fundamental questions about the social welfare effects and the legality of widely used marketing practices. The "shared monopoly" theory attempts to establish direct links between certain marketing practices and oligopolistic market structures and between the structure of an industry and its performance.

Intensive advertising, product differentiation, new brand development, and shelf-space allocation programs are alleged to have exclusionary effects. Intensive advertising, for example, allegedly creates a serious barrier to entry which allows firms to "share" a monopoly. The extensive new product development activities of the large manufacturers are alleged to fragment the market to an extent that new entrants find it extremely difficult to achieve the minimum market share required for successful entry. The use of manufacturer controlled shelf-space allocation programs has also created a barrier to new entrants. Obtaining access to retail distribution and achieving suitable shelf-space allocation is essential for successful entry into the cereal industry. The FTC has charged that the control of these allocation programs by

the large manufacturers places smaller manufacturers and new entrants at a significant disadvantage in securing distribution for their products.

The FTC is attempting to establish a direct link between these marketing practices and the structural characteristics of the industry, specifically the high level of concentration, stable firm market shares, extensive product differentiation, and high entry barriers. The industry's <u>structure</u>, created and maintained by the <u>conduct</u> named, allegedly accounts for the poor economic performance of the industry, most notably the excessive levels of retail prices and manufacturer profits.

The arguments of the case present a fundamental challenge to contemporary marketing theory and practice. The legality of a number of propositions and techniques employed in the development of marketing strategies in many industries is being challenged. Included among these are the following: the use of intensive advertising and sales promotion to differentiate products and create consumer loyalty; the use of market share goals as a means of achieving profit objectives; the use of new product development policies, based on the concept of market segmentation, that lead to a large number of brands with only marginal physical dissimilarities; and the use of non-price marketing techniques (promotion, product, and distribution programs) along with, or as an alternative to, price changes within an integrated set of marketing practices (the "marketing mix"). These techniques are widely used in the marketing of many products, especially in consumer goods industries. The assertion that these marketing practices allow a number of firms to

"share" a monopoly and thereby violate major antitrust statutes represents a fundamental challenge to the nature of marketing itself.

Organization of the Study

The first objective of the study is to investigate the two major theoretical foundations upon which the "shared monopoly" theory and the principal arguments of the RTE cereal case are based. These are the theory of oligopoly and the theory of industrial organization. Chapter II discusses the foundations of the theory found in the theory of oligopoly. Chapter III considers the relevant aspects of the theory of industrial organization. The analysis in each chapter emphasizes the relationship between each theory and the "shared monopoly" theory.

The second objective is to investigate the likely effects of the FTC's divestiture and trademark licensing remedies on the retail prices of RTE cereals. In Chapter IV, a theoretical contribution-to-profit model of food reseller behavior is developed. This model focuses upon the process by which profit maximizing food wholesalers and retailers make pricing and merchandising decisions for grocery products such as RTE cereals. Chapter V develops the specific research methodology used in the study. In Chapter VI, the results of testing the research hypotheses of the study with data on RTE cereals obtained from a large, representative wholesale-retail chain are presented. These results are used to assess the likely effects of the remedies on the retail prices of RTE cereals. Finally, Chapter VII presents a summary of the findings, conclusions, and limitations of the study. Areas of related research needs are also identified.

Chapter I--Footnotes

¹In the Matter of Kellogg Company, General Mills Inc., General Foods Corporation, and the Quaker Oats Company, Federal Trade Commission, File No. 711044, 15 January 1972.

²<u>FTC's Complaint Counsel Trial Brief - In the Matter of Kellogg</u> <u>Company et al.</u>, Federal Trade Commission, Docket No. 8883, 1976, Volume I, pp. 5-9.

³"Text of key section of FTC complaint against cereals", Advertising Age, 31 January 1972, p. 78.

⁴Walter Nicholson, <u>Microeconomic Theory</u> (Hinsdale, Illinois: The Dryden Press, 1972), p. 260.

⁵Trial Brief, Volume I, p. 11.

⁶For a further discussion of some important issues raised by the case see Paul N. Bloom, "The Cereal Antitrust Case: An Analysis of Selected Issues", in <u>Research in Marketing</u>, ed. Jagdish N. Sheth (Greenwich, Conn.: JAI Press, forthcoming).

⁷A grocery item is defined throughout this study as a single size of a brand. For example, the brand Corn Flakes consists of three items: Corn Flakes 8 ozs., Corn Flakes 12 ozs., and Corn Flakes 18 ozs.

⁸Trial Brief, Volume II, p. 326.

⁹For a discussion of this view see: Joe S. Bain, <u>Barriers to New</u> <u>Competition</u> (Cambridge: Harvard University Press, 1956); William S. Comanor and Thomas A. Wilson, <u>Advertising and Market Power</u> (Cambridge: Harvard University Press, 1974); and Michael E. Porter, <u>Interbrand</u> <u>Choice, Strategy, and Bilateral Market Power</u> (Cambridge: Harvard University Press, 1976).

¹⁰For a discussion of this view see: J.J. Lambin, <u>Advertising</u>, <u>Competition and Market Conduct in Oligopoly over Time</u> (Amsterdam: North Holland Publishing Co., 1976); and Phillip Nelson, "Advertising as Information", <u>Journal of Political Economy</u> 81 (July-August 1974): 729-754.

¹¹The following studies have provided evidence of the high brand switching among RTE cereals: National Commission on Food Marketing, <u>Studies of Organization and Competition in Grocery Manufacturing</u>: <u>Technical Study No. 6</u> (Washington, D.C.: U.S. Government Printing Office, 1966); and "1976 Guide to Product Usage Profiles", <u>Progressive Grocer</u>, July 1976, pp. 53-54.

¹²See James M. Ferguson, <u>Advertising and Competition: Theory</u>, <u>Measurement, Fact</u> (Cambridge, Mass.: Ballinger Publishing Company, 1974); Richard Schmalensee, <u>The Economics of Advertising</u> (Amsterdam: North Holland Publishing Co., 1972); and Julian L. Simon, <u>Issues in the</u> <u>Economics of Advertising</u> (Urbana: University of Illinois Press, 1970).

¹³Testimony in the case by representatives of large grocery retailers suggests that the decisions of retailers themselves have more effect on shelf-space allocation of RTE cereals than the output of the Kellogg program. See the testimonies of Edward Marion, Vice-President, Ralph's Grocery Company in <u>Official Transcript of Proceedings before</u> <u>the FTC</u>, Docket No. 8883, Washington, D.C., 18 October 1976, pp. 8792-8871; and Walter S. Rubow, Vice-President, Jewel Food Stores in Official Transcript of Proceedings, 21 October 1976, pp. 9072-9254.

¹⁴After an extensive review of the research, Curhan concluded that the impact of changes in shelf space on unit sales is very small relative to the effects of other variables. See Ronald C. Curhan, <u>The</u> <u>Relationship of Shelf Space to Unit Sales: A Review</u> (Cambridge, Mass.: Marketing Science Institute, March 1972).

¹⁵Trial Brief, Volume II, p. 1.

¹⁶Rufus E. Wilson, "The FTC's Deconcentration Case Against the Breakfast-Cereal Industry: A New 'Ballgame' in Antitrust?", <u>Antitrust</u> Law and Economics Review 4 (Summer 1971): 57-76.

¹⁷Ibid., p. 64.

¹⁸Trial Brief, Volume II, p. 1.

¹⁹Ibid., p. 120.

²⁰Ibid., p. 123.

²¹Trial Brief, Volume I, pp. 12-13.

²²Trial Brief, Volume IV, pp. 127-128.

²³U.S., Congress, Senate, Subcommittee on Antitrust and Monopoly of the Committee of the Judiciary, <u>Hearings on Economic Concentration</u>. 88th Cong., 2d. sess., 1967, pt. 2, p. 961.

²⁴William G. Shepherd, <u>Market Power and Economic Welfare - An</u> Introduction (New York: Random House, 1970), pp. 268-269.

²⁵"Concentration Ratios in Manufacturing", <u>1972 Census of</u> Manufacturers: Special Report Series. ²⁶National Commission of Food Marketing, <u>Studies of Organization</u> and <u>Competition in Grocery Manufacturing</u>: <u>Technical Study No. 6</u>, 1966.

²⁷<u>Report of the President's Committee on Price Stability</u> (Washington, D.C.: Government Printing Office, 1969).

²⁸John M. Blair, <u>Economic Concentration: Structure, Behavior and</u> <u>Public Policy</u> (New York: Harcourt, Brace, Jovanovich Inc., 1972), p. 404.

²⁹Gardiner C. Means, "Price Inflexibility and Requirements for a Stabilizing Monetary Policy", <u>Journal of American Statistical Association</u> 30 (June 1935): 401-413.

³⁰Senator Philip A. Hart, "Congressional Consumer Investigations: What Do They Tell Us?" Speech before New York Consumer Assembly, New York, 7 March 1970, p. 1.

³¹Senator William Proxmire, "Oligopoly Investigation", <u>Antitrust</u> <u>Law and Economics Review</u> 3 (Fall 1969): 7-19.

³²Congressman Benjamin Rosenthal, "Oligopoly Investigation", Antitrust Law and Economics Review 3 (Fall 1969): 22-23.

³³Phil C. Neal et al., "Report of the White House Task Force on Antitrust Policy", <u>Antitrust Law and Economics Review</u> 2 (Winter 1968-69): 11-52.

³⁴George J. Stigler, "Report of the Stigler Task Force on Productivity and Competition", <u>Antitrust Law and Economics Review</u> 2 (Spring 1969): 13-36.

³⁵Roy L. Ash et al., "Ash Report on the FTC: Antitrust Moving to the White House?" <u>Antitrust Law and Economics Review</u> 4 (Fall 1970): 21-40.

³⁶Mark J. Green, "Nader Group Report on Antitrust Enforcement", Antitrust Law and Economics Review 4 (Fall 1970): 7-20.

³⁷Wilson, pp. 67 and 71.

³⁸Joe S. Bain, <u>Industrial Organization</u>, 2nd ed. (New York: John Wiley and Sons, Inc., 1968), p. 562.

³⁹Joe S. Bain, <u>Essays on Price Theory and Industrial Organization</u> (Boston: Little, Brown and Company, 1972), pp. 166-174.

⁴⁰U.S., Congress, Senate, <u>A Bill to Reduce the Concentration of</u> <u>Industrial Powers in Certain Markets</u> (The Concentrated Industries Act), 92nd Cong., 1st sess., 1971, S. 2614. ⁴¹U.S., Congress, Senate, <u>Industrial Reorganization Act</u>, 92nd Cong., 2d sess., 1972, S. 3832.

⁴²Concentrated Industries Act, Section 5(a)(i).

⁴³Industrial Reorganization Act, Section 101(b)(3).

⁴⁴Wilson, p. 62.

CHAPTER II

REVIEW OF LITERATURE (A): THE THEORY OF OLIGOPOLY

Introduction: The Regulation of Oligopolies

The basic issue of the RTE cereal case is the claim that four firms "share" a monopoly. The FTC has invoked the term "shared monopoly" instead of the more conventional term oligopoly to describe the conditions that exist within this industry. The possible reasons for the choice of the "shared monopoly" term are relevant to understanding the nature of the case and its theoretical foundations.

Historically, the major antitrust statutes of the United States have been applied to regulate the conduct, and not the structure of industry. Section 2 of the Sherman Act and Section 5 of the FTC Act are examples. It has been necessary, therefore, to prove that defendants have been guilty of anti-competitive behavior for courts to order remedial actions designed to increase competition. Many authorities argue that antitrust laws that provide only for injunctive relief and that cannot be used to order changes in industry structure are of limited value in improving the long term performance of an industry. Bain and others argue that if firms are ordered to cease using certain business practices, they will merely adopt alternative practices to achieve the same purposes.¹ The belief is that structural changes are

necessary to improve the performance of many industries.

The implicit assumption of this structural reform view is that a firm's behavior is circumscribed by the economic structure of the industry within which it operates. This view seems to have been accepted in the RTE cereal case. It is demonstrated in the arguments of the initial FTC staff memorandum:

...there is every reason to believe that even the most strenuous efforts to prevent the various other types of "anticompetitive" practices would have little or no serious effect...unless they were coupled with some fairly significant structural reforms.²

The belief that there is a need to either alter existing antitrust statutes or create new statutes that can directly attack industry structure lies behind the "shared monopoly" theory being advanced in the cereal case.

Only in single firm monopoly cases in which firms violate Section 1 of the Sherman Act have the courts been able to order structural changes such as divestiture. Examples are the cases involving Standard Oil (1911), American Tobacco (1911), and Corn Products Refining (1916). Few contemporary industrial structures fit the mold of these single firm, or one firm dominant, industries. Kaysen and Turner claim that "structural oligopoly is the numerically dominant form of market organization in manufacturing".³ In these industries, the characteristic structure is that of differentiated or undifferentiated oligopoly in which a small number of firms control the dominant share of an industry's output or sales. In interpreting the major antitrust statutes, however, the courts have imposed definite limits on the use of these laws to regulate oligopolistic structures.

Sherman summarizes the argument of those who advocate the need for new antitrust laws to directly attack oligopolies:

Antitrust policy is most effective against well defined collusive practices, such as price fixing, but it has been almost helpless against cases of possible tacit collusion by a few firms in concentrated industries, and it has failed altogether to deal with perverse aspects of entirely independent behavior by firms that enjoy large shares of their markets.⁴

In this context, a new legal precedent redefining oligopoly as a "shared monopoly" would provide increased scope for applying existing antitrust statutes to the regulation of oligopolies. Alternatively, it could serve as the basis for developing new antitrust statutes aimed specifically at changing the structures of these industries. The use of the term "shared monopoly" in the RTE cereal case rests upon these perspectives of economic and legal theory.

Some Broader Issues

The Nature of Competition

A fundamental issue involved in the regulation of oligopolies is the meaning of competition itself. McNulty has identified the paradox in economic theory regarding the meaning of competition:

There is a striking contrast in economic literature between the analytical rigor and precision of competition when it is described as a market structure, and the ambiguity surrounding the idea of competition whenever it is discussed in behavioral terms...it is one of the great paradoxes of economic science that every <u>act</u> of competition on the part of a businessman is evidence, in economic theory, of some degree of monopoly power, while the concepts of monopoly and perfect competition have this important common feature: both are situations in which the possibility of any competitive behavior has been ruled out by definition.⁵

Two views of competition have emerged: (1) a structural view and (2) a behavioral view. The structural view of competition is based on the principles of classical and neo-classical economic theory. It asserts that the fewness of sellers in oligopolistic industries denotes monopolistic performance virtually per se. Consistently high profit levels imply that firms possess the power to set prices greater than marginal costs. The result is that the performance of the industry is inefficient in economic terms. The behavioral approach, traditionally adopted in marketing, views competition as a dynamic process of moves and responses by firms in search of differential advantage.⁶ With this view, the level of profits may result from a variety of factors, only one of which is the power firms may possess due to the fewness of competitors. Above average profits may also result from a firm's, or industry's, managerial superiority, especially its ability to market products that better satisfy consumer needs and from differences among firms and industries in attitudes towards risk taking.

The Measurement of Performance

The structural view of competition, in which an industry's performance is measured relative to that of perfect competition, primarily evaluates performance in terms of economic performance. The key indicator of this is the firm's or industry's price-cost margin. Micro-economic theory states that in situations where price exceeds marginal cost (including normal profit), resources are being misallocated. High, sustained levels of profit become a key indicator of economically inefficient performance. By reallocating resources to industries or firms in which price equals, or more closely approaches, marginal costs, an economy's output and the level of consumer welfare can be increased. The rationale for using this approach in antitrust

policy is expressed by Kaysen and Turner as follows:

Because of our inability to correlate structure and performance with precision we look at performance directly.... Only the efficiency dimensions of performance can be evaluated in terms of the competitive standards.... Thus an examination of whether or not a firm has market power involves an examination of both the market <u>structure</u> in which it operates and the efficiency dimensions of its <u>performance</u>.⁷ (Italics mine.)

The behavioral view of competition, on the other hand, adopts a multi-dimensional view of industry performance. Bain has compiled the following set of performance measures:

- "1. Height of price relative to average cost of production, and thus size of profits
- "2. Relative production efficiency so far as this characteristic is influenced by the scale or size of plants and firms, and by the extent, if any, of excess capacity
- "3. Size of sales promotion costs relative to production costs
- "4. Character of the product, including choice of design, level of quality, and variety of product within any market
- "5. Rate of progressiveness of the firm and industry in developing both products and techniques of production, relative to evidently attainable rates and relative costs of progress."⁸

The first two dimensions are concerned with manufacturing efficiency, while the last three focus primarily upon the performance of a firm's, or industry's, marketing activities. While multiple performance dimensions have been recognized, however, the adoption of the structural standard of competition with perfect competition as a performance benchmark has meant that manufacturing efficiency and efficiency at the manufacturing level of the distribution process have received most attention. This orientation underlies the RTE cereal case. The level of profits is viewed as evidence of the power of large cereal manufacturers to set their selling prices and to influence the selling prices of resellers so as to cause retail prices to be above the levels that would prevail if the manufacturing sector of the industry was more competitively structured. Factors such as the level of selling costs and the extent and nature of product development are viewed as practices that have enabled the large manufacturers to share a monopoly.

If multiple performance dimensions are recognized, the issue of trade-offs arises. Higher selling and production costs for a product may be acceptable, for example, if consumers are provided with a more adequate range of choice. Higher production costs may also be acceptable if this allows cost savings to be achieved in distribution activities, for example, the cost advantages of full car-load lots in transportation or the minimization of inventory costs through more frequent deliveries. The recognition of multiple performance criteria also provides competing firms with a basis for developing different strategies in the production and distribution of their products. If competition is viewed as a dynamic process of moves and countermoves in which firms emphasize different performance measures in search of differential advantage, the economic structure of the industry is only one factor influencing a firm's competitive strategy, and hence an industry's performance. In this context, similar behavior patterns of firms may not be evidence of a "shared monopoly" but merely the rational response of firms to similar business conditions, only one of which is the economic structure of the industry within which they operate.

The view of competition adopted in the RTE cereal case is contained within the theory of "shared monopoly". Whether oligopoly, or "shared monopoly, is viewed as a structural or a behavioral phenomenon will largely determine how the performance of this industry is assessed. The underlying economic and legal theory of the case suggests

that the structural perspective has been adopted. The implication is that the major influence on the performance of this industry is its structure and, in particular, the small number of sellers at the manufacturing level of the industry.

Theories of Oligopoly

The use of the term "shared monopoly" by the FTC to characterize the situation within the RTE cereal industry suggests that a new approach to the theory of oligopoly may be being put forward. To investigate this and the validity of the theoretical premises of the case, the relationships between the "shared monopoly" theory and some of the major contributions to the present theory of oligopoly will be discussed.

The fundamental proposition in the theory of oligopoly is that the fewness of sellers means that the behavior and results of rival firms will be interdependent. The evolution of oligopoly theory has consisted largely of attempts to explicate the behavioral processes by which this interdependence occurs and to evaluate the profit, price, and output performance of oligopoly compared to that of perfect competition. A brief discussion of some of the major contributions to the theory of oligopoly and their influence on antitrust policy is presented in the following section.

Cournot's Duopoly Theory

The classical theory of oligopoly was put forward by Cournot.⁹ His theory, however, dealt only with duopoly situations and the interdependence problem was treated in a highly simplified manner by assuming that each duopolist believes his rival will continue to act in the same manner as he has acted before. The nature of such a market is described by Asch:

If oligopolist A has been charging a unit price of \$1 for his product, for example, oligopolist B assumes that A will maintain this price regardless of what B does. In a sense, then, "half" of the interdependence problem is assumed away. Each firm recognizes the need to base its policies on the behavior of its opponents, but it fails to see that those opponents will do exactly the same thing.¹⁰

Under these conditions, each firm makes its output (or pricing) decisions so as to maximize its profits on the assumption that the quantities marketed (or prices charged) by its rivals will remain fixed. Using these assumptions, Cournot concluded that (1) a determinant and stable price-quantity equilibrium exists for a duopolistic industry, (2) the equilibrium level of price depends upon the number of sellers, and (3) as the number of sellers increases, price will approach marginal cost.¹¹ The refusal to allow rivals to react to price or output initiatives is a highly restrictive behavioral assumption. For this reason, Cournot's theory has not been particularly useful as a description of realistic oligopolistic behavior or as a basis for antitrust policy.

<u>Chamberlin's Mutual Interdependence</u> <u>Theory</u>

The next major development in oligopoly theory came from the work of Chamberlin.¹² He argued that when the number of sellers is small and their products are standardized, oligopolists cannot fail to recognize their interdependence. A firm would be reluctant, therefore, to adopt measures which, when countered, would cause all members of the industry to be worse off. Such a situation would lead firms to set price at the

monopoly level without any overt collusion. Chamberlin describes the nature of such a market:

If each [firm] seeks his maximum profit rationally and intelligently, he will realize that when there are only two or a few sellers his own move has a considerable effect upon his competitors, and that this makes it idle to suppose that they will accept without retaliation the losses he forces upon them. Since the result of a cut by any one is inevitably to decrease his own profits, no one will cut, and although the sellers are entirely independent, the equilibrium result is the same as though there were a monopolistic agreement between them.¹³

The most significant aspect of this argument is that the monopolistic outcome emerges from the <u>structure</u> of the industry and occurs despite the absence of any formal collusive behavior. To achieve the monopoly price and joint profit maximization result, it is only necessary that oligopolists <u>recognize</u> their mutual interdependence. Chamberlin argued that it would be unreasonable to expect oligopolists to behave otherwise:

...the assumption of independence cannot be construed as requiring the sellers to compete as though their fortunes were independent, for this is to belie the very problem of duopoly itself. It can refer only to independence of action the absence of agreement or of "tacit" agreement.¹⁴

Chamberlin's "mutual dependence recognized" theory had a significant impact on economic and legal thinking regarding antitrust policy. The assertion that a monopoly result could occur without any explicit agreement and be simply a function of industry structure (principally, the number of sellers and the degree of product homogeneity) provided a basis for applying existing antitrust statutes to the regulation of oligopolies. Chamberlin's theory found expression in several landmark antitrust cases in the 1940s involving alleged "conscious parallel" behavior among oligopolists, the American Tobacco Company and the Triangle Conduit and Cable Company cases.¹⁵

The legal precedents expressing Chamberlin's view that were enunciated in these cases, however, were not followed subsequently by the courts. In the Theatre Enterprises Inc. case (1954), the Supreme Court refused to allow "conscious parallelism" (or imitative behavior) to replace overt conspiracy as a violation of the Sherman Act.¹⁶ This view was reaffirmed in the Pfizer and Company case.¹⁷ Despite the initial promise of Chamberlin's theory, it failed to win widespread support from the courts. The absence of a generally accepted legal precedent to guide agencies and courts in regulating oligopolies underlies the significance of the RTE cereal "shared monopoly" case.

The assumptions underlying Chamberlin's theory must be recognized. The typical industry being described is an undifferentiated oligopoly with firms producing standardized products at the same level of costs. Oligopolists, therefore, are assumed to face identical demand and cost conditions. Scherer points out the limitations of these assumptions:

...when cost functions and/or market shares vary from firm to firm within an oligopolistic industry, conflicts arise which, unless resolved through formal collusive agreements, interfere with the maximization of collective monopoly profits. And if left unresolved, these conflicts may trigger myopic, aggressive behavior which drives the industry far from the [Chamberlin] joint-profit-maximizing solution of its price-output problem.¹⁸

The application of the theory to oligopolistic industries in which products of firms are differentiated, cost conditions facing firms vary, marked differences exist in the market shares of firms, and firms produce not a single product but multiple products clearly must be made with considerable caution. The "shared monopoly" theory can be viewed as an attempt to extend the theory of oligopoly to include the behavior

and performance of differentiated oligopolies.

Fellner's Qualified Joint Profit Maximization Theory

Fellner's major contribution has been to indicate the problems facing a group of firms when attempting to implement and control a collusive or "shared monopoly" arrangement.¹⁹ Since price and output outcomes in oligopolies cannot be predicted merely by analyzing demand and cost conditions, notions of "conjectural interdependence" must be employed when analyzing how oligopolists make decisions given the conditions of indeterminacy that exist. And, according to Fellner "all problems of conjectural interdependence are essentially problems of bargaining provided we interpret bargaining in the broader sense, including the 'implicit' variety".²⁰

He identified a series of factors which determine the relative bargaining power of oligopolists and therefore the outcomes of "quasiagreements" (or bargains) in oligopolistic settings. Among these are (1) the ability of the parties to take, and to inflict, losses during stalemates and (2) the "toughness" or the willingness of parties to yield.²¹ These factors generally will not lead to the optimal joint profit maximization result, as described by Chamberlin and Cournot, but to what Fellner termed "qualified joint profit maximization". These quasi-agreements (1) will alter over time in response to shifts in relative bragaining strengths among firms and to changes in market circumstances and (2) will not usually involve all economic variables that enter into the decisions of oligopolists due to the

uncertainty [with] which persons and organizations discount their own future possibilities.... This is especially true

of those variables that require skill and ingenuity in handling (such as those directly connected with advertising, product variation, technological change, and so forth).²²

Fellner pointed out that the effects of advertising and new product decisions are difficult to measure accurately in present value terms. It is these variables, however, that are predominantly used by firms in differentiated oligopolies. The difficulty of achieving a joint profit maximization, or "shared monopoly", result in these industries suggests that, at best, only quasi-agreements will be possible. Competitive behavior will tend not to be centered around variables such as price because greater certainty exists in predicting the present value of their effects. The focus of competitive behavior, therefore, shifts to those variables with less predictable effects. This, however, makes it more difficult to reach quasi-agreements, that is, to implement and control a collusive, or "shared monopoly" arrangement.

Fellner's arguments are relevant to the "shared monopoly" case for two reasons: first, they provide a rationale for the preference of oligopolists for non-price forms of competitive behavior, and second, where non-price forms of behavior such as advertising and new product development are dominant, significant obstacles will exist in implementing and controlling a collusive arrangement over time.

Stigler's Theory

Stigler also emphasized the problems of implementing and enforcing a collusive agreement.²³ He identified two main problems that a collusive agreement encounters:

First, agreement is difficult to reach if the transactions in which firms deal are highly heterogeneous...[and] heterogeneity is typical: buyers differ in the quantities they purchase

(with large effects on costs), in the amount of service they demand, in their promptness of payment, and so on. If the firms standardize qualities, lot sizes, service terms, credit terms, and the like, these difficulties can be reduced - but it will reduce profits to standardize where buyers wish variety.... Second, an agreement must be policed. Even a whole-hearted colluder...cannot control all of his salesmen. Since there are many indirect ways of cutting prices, there will usually be some chiseling.... This chiseling is harder to detect, the fewer and larger the buyers.²⁴

Stigler argues that the costs of forming and enforcing collusive agreements are a major cause of departures from a joint profit maximization outcome. He proposed that these costs will be higher:

- "1. The more numerous the firms....
- "2. The more complex the industry's product structure including... differences among buyers in demand elasticities, types and quantities of product bought, and so forth....
- "3. The more rapid the changes in demand and supply conditions...."²⁵

Each of these propositions is relevant to the "shared monopoly" argument. They provide a set of hypotheses which need to be empirically tested to assess the feasibility or extent of the alleged collusion. The FTC stated during the hearings of the cereal case that Stigler's views on oligopoly come close to the reasoning underlying its arguments.²⁶

Other Explanations of Oligopoly Behavior

While the contributions of Cournot, Chamberlin, Fellner, and Stigler can be viewed as attempts to develop a comprehensive theory of oligopoly, a number of other relevant theoretical contributions must be recognized. A review of six of the more significant of these contributions follows. These are (1) the theory of games, (2) conscious parallelism, (3) the kinked demand curve, (4) pricing rules, (5) price leadership, and (6) limit pricing. Of particular concern is the relevance of each to the theory of "shared monopoly".

Theory of Games and Oligopoly Behavior

The limitations of Chamberlin's theory saw theoretical attention shift from the field of micro-economics to the field of decision theory in search of an explanation of behavior among oligopolists. Von Neumann and Morgenstern's game theoretic models provided a means of analyzing the likely outcomes of a range of possible behavioral strategies within oligopolistic settings.²⁷ In their simplest model, the zero-sum game model, rival decision response strategies were analyzed in terms of pavoff matrices. Minimax and maximin decision rules allowed an oligopolist to decide among alternative outcomes. The use of these decision rules, however, is unsuitable in variable-sum game situations which are more typical of oligopolistic behavior. The fact that one firm's gain is not necessarily another's loss introduces a broader set of dimensions into the decision strategy problem. These complexities have been approached using more complex game strategies such as the Prisoner's Dilemma. The complex probabilistic nature of such games, however, makes the outcomes of oligopolistic behavior much more difficult to predict.

The difficulties of predicting the responses of oligopolists and therefore the outcomes of oligopolistic behavior as the number of decision variables increases, highlights the requirements and problems of implementing and controlling collusive behavior within industries such as the RTE cereal industry. Scherer identified three factors, each relevant to the RTE cereal case, which influence the response

strategies of oligopolists, and hence the outcome of oligopolistic behavior: (1) the amount of information available to rivals, (2) the nature of response lags, and (3) the dynamics of interfirm rivalry.²⁸

<u>Amount of information available</u>. The amount of information available and the opportunities for communication among rivals plays a key role. In the RTE cereal "shared monopoly" case, the FTC has claimed that the data collection activities of salespersons, the use by all respondents of competitive information sources, such as Neilsen and SAMI reports, and the existence of the Cereal Institute as a manufacturer trade association provide the respondents with sources of competitive information which are used to police a tacit conspiracy.

<u>Nature of response lags</u>. A second important influence on behavior patterns in oligopolies is the nature of response lags. If rival oligopolists are able to retaliate rapidly to each others' decisions, for example to price changes, they will realize that little is to be gained. Such moves, therefore, will be resisted. In contrast, the benefits from a successful new product or advertising campaign are likely to be longer lived in industries where substantial lead times are required to develop new products and advertising campaigns. The pattern of behavior that has characterized the RTE cereal industry can largely be explained by the nature of the response lags in areas of price and new product competition. A discussion of relevant aspects of each form of behavior is presented in the following section.

Price competition in the cereal industry. The willingness of manufacturers, operating under similar cost conditions, to compete on a price basis depends upon: (1) the nature of consumer demand, especially

the influence of price on demand, (2) the role played by resellers in the setting of prices, and (3) the likely responses of other manufacturers and resellers to price changes. First, consumer demand characteristics are an important determinant of the preferred modes of competitive behavior within an industry. For low priced, frequently purchased grocery products such as RTE cereals, price is likely to be only one factor influencing consumer demand. Other factors include the desire for variety, the influence of household members, availability, and loyalties to manufacturers or stores. The high level of consumer brand switching among RTE cereals suggests that attributes other than price are more important.²⁹ The nature of consumer tastes also may be largely an exogeneous factor facing cereal manufacturers. An example is the recent growth in demand for natural and nutritional cereals. The nature of consumer behavior will also determine the suitability of a product category for private labelling.

Second, for products such as RTE cereals which are distributed through food wholesalers and retailers, the pricing decisions of manufacturers are only one determinant of the level of retail prices. The pricing decisions of resellers will influence the level of retail prices for these products. The price behavior of resellers must also be considered when evaluating the extent and pattern of price competition in an industry. The behavior of resellers will also be a major factor determining the suitability of a product category for private labelling. Third, the likely responses to price changes by competitors at both manufacturer and reseller levels of the industry will influence the extent of price competition.

In the RTE cereal case, the FTC focuses upon only the price behavior of cereal manufacturers. An objective of this study is to investigate the role played by food resellers in the overall pattern of pricing behavior within the cereal industry.

New product competition in the cereal industry. A major form of competitive behavior in the cereal industry is the intensive efforts given to new product development. The FTC argues that the result has been brand proliferation which has allowed the large manufacturers to create barriers to entry and growth in the industry. One explanation for the preference for new product competition suggested by Scherer is that the retaliatory lags with this form of behavior are likely to be longer than those for price competition.

Buzzell and Nourse have studied the characteristics of this industry's new product development activities.³⁰ They found that for twenty-eight new RTE cereals introduced between 1954 and 1964, the average interval between commencing research and development and achieving full distribution was fifty-five months. This compared to only thirty-seven months for the average food grocery product.³¹ This longer lead time has important implications for the nature of retaliatory responses within the industry. The longer lead time, however, must be considered against the higher costs and risks of developing new RTE cereal products. Table 2-1 summarizes the relative cost information presented by Buzzell and Nourse.

Table 2-1 shows that the average costs of developing and introducing a new RTE cereal product were over twice those for the average new grocery product. The costs of developing and introducing a

significantly new RTE cereal product (for example, an initial brand in a new segment of the market such as a new nutritional cereal) were almost $3\frac{1}{2}$ times those of the average new grocery product. The high costs of developing significantly different products is likely to be a reason for the more imitative new brand strategies that have been employed. These high costs also are likely to have been an entry deterring factor.

Cost Category	New RTE Cereal Brands	Average Grocery Product	Pioneering RTE Cereal Products
Research and Development	\$122,000	\$68,000	\$127,000
Market Research	\$60,000	\$26,000	\$76,000
Test Marketing	\$921,000	\$248,000	\$592,000
Introduction Costs (total 1st 2 years) ^a TOTAL	<u>\$4,775,000</u> \$5,878,000	<u>\$2,368,000</u> \$2,710,000	<u>\$8,623,000</u> \$9,418,000

Table 2-1. Costs of Developing New Grocery Products

SOURCE: R.D. Buzzell and R.E.M. Nourse, <u>Product Innovation in</u> <u>Food Processing 1954-1964</u> (Cambridge: Harvard University Press, 1967): 111-117.

^aIncludes advertising, sales promotion, and salesforce expenditures.

In addition to the high development and introduction costs, the success rate for new RTE cereals has not been spectacular. For twenty new brands introduced between 1954 and 1964, five were discontinued before they achieved national distribution. After four years of national distribution only six of the remaining fifteen had reached a sales level sufficient to provide manufacturers with a break-even result on their new product development activities. This compares with approximately ten out of fifteen for the average grocery product.³² Only one out of every three new RTE cereals, therefore, reached break-even after four years of distribution.

The intensity of new brand development activity among major cereal manufacturers can be seen in the following figures. For the sample of grocery retailers used by Buzzell and Nourse, the number of RTE cereal items stocked increased by thirty-five during the period 1954 to 1964. During this ten year period, however, sixty-two new items were added (fifty-three of which were variations of existing RTE cereal products and nine were new types of RTE cereals) and twenty-seven items were dropped.³³ This high level of new brand development has been sustained. For the grocery chain used in the present study, approximately fifty-five new RTE cereal items were added and fifty items were dropped during the period 1970 to 1977. Of the items dropped, approximately twenty-five percent were items that had been introduced since 1970. These figures are similar to those observed by Buzzell and Nourse for the period 1954 to 1964.

An important dimension of new product competition in the RTE cereal industry is the competition of new products for retail space. One explanation for the fact that, since 1970, the number of RTE cereal items carried by resellers has remained virtually constant is that resellers have been reluctant to increase the amount of storage or shelf space allocated to the RTE cereal category. A reseller will have little incentive to allocate more of the limited storage or shelf space to RTE

cereals if this space can be allocated to other product categories that yield a higher contribution to profit. RTE cereals are one of the most space consuming dry grocery products. In a typical grocery supermarket, cereals can occupy as much as 7-8 percent of dry grocery department shelf space but contribute only 4-5 percent of the total profits generated by this department.³⁴ In terms of relative profit contributions, the cereal category may not be a very attractive proposition to resellers. If this is the case, wholesalers and retailers will resist allocating increasing amounts of space to cereals. This would imply a very selective approach towards new items and could explain the one-forone relationship between RTE cereal items added and items dropped in recent years.

This issue also raises the question of the distribution of power in food grocery product channels. If a major factor determining the ability of a cereal manufacturer to gain retail distribution for his products is the reseller's product acceptance, deletion, and space allocation decisions, resellers possess an important source of power with respect to manufacturers. The ability of new firms to enter and remain in the market will depend upon the ability of their brands to contribute satisfactory levels of profits for resellers. These issues highlight the need to include the behavior of cereal resellers and the nature of the relationships between cereal manufacturers and resellers when evaluating the performance of the cereal industry and the likely effects of the proposed remedies.

<u>Dynamics of interfirm rivalry</u>. A third factor influencing the outcome of oligopolistic behavior is the nature of interfirm rivalry

within an industry. Scherer distinguishes between continuous and discontinuous rivalries and asserts that:

Maximization of joint benefits is more likely when the rivalry is continuous for two main reasons: repeated experience under stable conditions affords an opportunity for learning to cooperate and trust one another; and when the game will be played continuously or repeatedly, each party can threaten its rivals with damaging retaliation tomorrow if cooperation is not forthcoming today.... This...leads us to predict oligopolists selling an <u>unchanging product</u> under <u>stable demand conditions</u> are more likely to maximize joint profits than oligopolists selling rapidly changing products under variable demand conditions.³⁵ (Italics mine.)

Scherer's prediction applies primarily to undifferentiated oligopolies which are more commonly found in raw material and industrial product markets. Its validity in consumer goods markets in which products are differentiated and demand conditions change more frequently is less clear. In a study of the product life cycle for RTE cereals, Buzzell concluded that demand conditions in the cereal industry have been far from stable.³⁶ Other factors, therefore, need to be introduced to explain the alleged "shared monopoly", or joint profit maximization, outcome of a consumer product industry such as RTE cereals.

It is in this context that the alleged effects of intensive advertising, product differentiation, brand proliferation, and shelf space control play an important role. The alleged joint impact of intensive advertising, product differentiation, and product proliferation on price competition in the cereal industry is summarized in the following excerpts from the Trial Brief:

Product differentiation is conduct which draws the consumer's attention to minor variations between products, thereby diverting his attention from a comparison of the basic similarities between them....

...brand proliferation has resulted from the introduction of many products which have been differentiated from one another by the respondents on the basis of variations in minor ingredients, shapes, colors, textures, flavorings etc. These differences cause the consumer to perceive the respondents' products as many different brands....

Brand proliferation substantially increases the number of products which the consumer must consider in order to make a RTE cereal choice based on price and quality comparisons. The existence of more products, due to brand proliferation, makes consumer choice more difficult. As the consumer's opportunity to make value comparisons is reduced, the consumer finds it harder to determine which product is the best buy at the retail price. Thus, price competition is discouraged.³⁷

The implication is that through the use of these non-price marketing practices, the respondents have achieved a "shared monopoly" result. For this reason, the "shared monopoly" theory is best viewed as an attempt to extend the traditional theories of oligopoly to include differentiated consumer product oligopolies.

Conscious Parallelism

The American Tobacco Company and the Triangle Conduit and Cable Company cases advanced the concept of conscious parallelism as an explanation of how firms in oligopolies achieve collusion.³⁸ The essence of the concept is that "competitors illegally restrain trade by intentionally imitating their competitors' actions with reasonably high expectations of a responsive imitation that will lessen the rigors of competition".³⁹ In the Triangle Conduit case, fourteen manufacturers of rigid steel conduit were charged with having collectively violated Section 5 of the FTC Act "through their concurrent use of a [basing point] formula method of making delivered price quotations with the knowledge that each did likewise, with the result that price competition between and among them was unreasonably restrained".⁴⁰ The court ruled that there was no need to provide direct proof that an agreement existed and concluded that:

Such an agreement can be shown by circumstantial evidence.... The record clearly establishes the fact that conduit manufacturers controlling 93% of the industry use a system under which they quote only delivered prices, which are determined in accordance with a formula.... [The] result of using that formula [was that] conduit manufacturers were enabled to match their delivered price quotations, and purchasers everywhere were unable to find price advantages anywhere.⁴¹

The fact that all firms charged uniform delivered prices was considered sufficient evidence for the court to infer that such consciously parallel behavior effectively constituted an agreement to fix prices.

In several subsequent cases, however, the court retreated from this earlier position and the attack on oligopoly predicted after these two cases did not eventuate. In the Theatre Enterprises case, the court concluded:

To be sure, business behavior is admissable circumstantial evidence from which the fact-finder may infer agreement.... But this Court has never held that proof of parallel business behavior conclusively establishes agreement, or, phrased differently, that such behavior itself constitutes a Sherman Act offense..."conscious parallelism" has not yet read conspiracy out of the Sherman Act entirely.⁴²

In the Pfizer case, the court charged five prescription drug manufacturers with violating Sections 1 and 2 of the Sherman Act in that, through a set of practices used in the manufacture and marketing of their antibiotic products, they conspired to exclude competitors and fix prices thereby conspiring to monopolize the market. The key issue of the case became whether the alleged behavior of the defendants was a conspiracy or whether it was "nothing more than the natural and normal consequences of the exercise of independent business judgement and the free-flow of market place forces".⁴³ The court ruled in favor of the defendants stating that:

The court is not persuaded beyond the "hesitation point" that the defendants...engaged in anything other than the exercise of independent business judgement... Parallel pricing among the...producers, standing alone, does not indicate price fixing.... The Court is not convinced that the illegal conduct alleged here is demonstrated by the..."excess profits" evidence offered by the government.... This Court is not convinced that excess profits demonstrate guilt any more than nominal profits would prove innocence of a price-fixing charge.⁴⁴

The RTE cereal "shared monopoly" case is the first major case since the Pfizer case to use the essence of the conscious parallelism argument to support the claim that a number of firms collectively violate the Sherman and FTC Acts. The distinction between tacit conspiracy and independent business judgement in the face of similar business conditions is a relevant issue in this case also.

The Kinked Demand Curve

The concept of the kinked demand curve, developed independently by Hall and Hitch, and Sweezy in 1939, was another attempt to explain price behavior and the preference for non-price methods of competition by oligopolists.⁴⁵ The essence of this concept is that oligopolists face two demand curves. One curve describes the relationship between quantity and price on the assumption that rivals maintain their prices at current levels (the Cournot assumption). The other describes this relationship when rivals exactly match any price changes (the pricematching, constant market shares assumption). These two demand curves differ significantly in their price elasticities. The former curve is the more elastic. The elasticity of the latter demand curve is the same as that of the overall industry demand curve at any given price. The reason for the greater elasticity of the former curve is the assumption made about the price response behavior of oligopolists. If a firm raises its price and its rivals do not follow, the demand for its products will fall more sharply than if rivals did follow the price increase. On the other hand, if a firm lowers its price without a matching response by its rivals, it can increase its market share significantly. In this situation, rivals are likely to match the price decrease to maintain their market position. The overall result is that at prices above the current price, rivals are less likely to match a firm's price increase while at prices below the present price, rivals are likely to match any price decreases. This produces an overall demand curve which is kinked at the current price. Scherer summarizes the implications of this conduct pattern as follows:

When the constant-shares demand curve is relatively inelastic, oligopolists will refrain from price-cutting, since they expect that matching cuts by rivals will nullify any price gains; and...oligopoly prices will tend to be rigid in the face of moderate cost and demand condition changes.⁴⁶

The original aim of the concept was to provide an explanation for the failure of prices in concentrated industries to fall as predicted by classical price theory during the depressed economic conditions of the early 1930s. Means had identified this phenomenon and had blamed it on what he termed the "administered pricing" behavior of firms in concentrated industries.⁴⁷ While the concept provided a plausible explanation for the price rigidity of the 1930s, however, it has little relevance in situations where the issue is upward price followership. Machlup observes that "the theory of the kinky oligopoly demand curve does not apply to a seller who believes that his competitors would follow his price increases as well as his price reductions".⁴⁸ This limits the concept as an explanation of oligopolistic behavior under contemporary economic conditions.

Pricing Rules

Another explanation for the price behavior of oligopolists is that prices are determined primarily by the use of various rules-ofthumb. Examples are full-cost, or cost-plus, pricing and target return, or desired profit margin, pricing rules. The argument is that if oligopolists face similar cost conditions, pricing policies based on these rules provide boundaries to the extent of price cutting. This makes rival responses more predictable thereby introducing a degree of discipline into the industry. These rules provide a means by which oligopolists can coordinate their behavior and, therefore, they serve the same purpose as more explicit forms of collusion.

The study by Hall and Hitch in 1939 concluded that price rigidity in oligopolies was due to the use of full-cost pricing rules.⁴⁹ The use of these rules implies that prices will remain relatively invariant to changes in demand. The use of cost-based pricing methods has been defended on the basis of (1) the difficulties of estimating demand and (2) administrative ease in making pricing decisions for firms selling multiple products.

In a later study by Kaplan, Dirlam, and Lanzillotti, target return on investment was identified as the most commonly used corporate pricing rule.⁵⁰ This method of pricing was pioneered in the 1920s by General Motors Corporation. Its objective was:

[To obtain] over a protracted period of time a margin of profit which represents the highest attainable return commensurate with capital turnover and the enjoyment of

wholesale expansion, with adequate regard to the economic consequences of fluctuating volume.⁵¹

Blair suggests that for a firm to successfully use these pricing rules, it must possess a substantial degree of monopoly power and be in a position of leadership in its industry.⁵² When costs vary significantly among firms, the use of cost-based rules becomes a more difficult means of achieving industry coordination. The most important issue for antitrust policy, however, is whether these rules are purposely used to reduce price competition or whether they are merely a rational response to the nature of the business environment.

One area in which pricing rules provide a logical response to business realities is in the pricing decisions of food retailers and wholesalers. A variant of target return pricing commonly used by retailers and wholesalers for pricing grocery products is contributionto-profit pricing.⁵³ With this method, resellers use a product's actual or expected gross dollar profit contribution (its gross dollar margin multiplied by its unit sales volume) to set selling prices and to make decisions concerning product additions and deletions and shelfspace allocation.

The objective of a grocery reseller is to achieve an overall level of profit that will maximize the return on his investment. At the retail store level, some product categories and some individual products will yield profit contributions above, and others below, the reseller's overall profit level objective. The large number of products carried in a retail store means that it is virtually impossible to calculate the full costs of performing retail operations on each product individually. Rather, an overall profit contribution
objective is established and individual product prices reflect characteristics such as the unit sales of the product, the nature of consumer demand for the product, the amount of shelf space it occupies, and the nature of local retail competition for the product. Contribution-to-profit rules provide rational guidelines for the pricing behavior of food wholesalers and retailers. The behavior of food resellers is an important determinant of the final retail prices of RTE cereals. A model of grocery reseller behavior which uses the contribution-to-profit concept is developed in Chapter IV. It is used to evaluate the likely effects on retail prices of the FTC's restructuring proposals for the RTE cereal industry.

Price Leadership

Price leadership has been suggested as a communication mechanism by which oligopolists are able to coordinate their behavior. Scherer describes the concept as follows:

Price leadership implies a set of industry practices or customs under which list price changes are normally announced by a specific firm accepted as the leader by others, who follow the leader's initiatives.⁵⁴

Markham has identified three types of price leadership: (1) dominant firm leadership, (2) collusive leadership, and (3) barometric leadership.⁵⁵ In dominant firm price leadership, one large firm dominates a competitive fringe of small firms. The smaller firms are forced to accept the prices set by the dominant firm. The FTC has expressed the view that a dominant firm would have a market share of at least 35-40 percent. In so doing, it has effectively defined the Kellogg Company as the dominant firm price leader in the cereal industry. Collusive price leadership is more likely to occur in oligopolies in which a small number of firms account for a large percentage of industry sales without any one firm being completely dominant. Scherer suggests that the following factors could account for the emergence of a price leader in industries of this type: (1) the relative sizes of the firms, (2) historical circumstances, for example, which firm was first on the market with a new product, and (3) the relative cost levels of the firms.⁵⁶ These factors distinguish those firms whose price changes are regularly followed from those whose price initiatives are rejected. The essence of collusive price leadership is the willingness of firms to follow, consistently and unanimously, the price decisions of a leader.

In product categories where defined segments exist, it is possible for different firms to emerge as price leaders. In the cigarette industry, for example, in which three firms, Reynolds, American Tobacco, and Liggett and Myers, have dominated sales for most of this century, price leadership rested with Reynolds up until World War II and, since then, has been shared by Reynolds and American Tobacco in different segments of the cigarette market. Reynolds, for example, is the price leader in filter cigarettes and American in non-filters. In the RTE cereal market, four broad segments exist: regular cereals (for example, Corn Flakes, Wheaties); pre-sweetened cereals (for example, Sugar Frosted Flakes, Alpha Bits, Lucky Charms); nutritional cereals (for example, Special K, Total); and natural cereals (for example, Nature Valley Granola, Country Morning). In the natural cereal segment, for example, Quaker Oats was the first major manufacturer to introduce

a strong national brand, 100% Natural in 1972. It now holds the dominant market share in that segment. In consumer packaged goods industries, a fundamental tenet of marketing strategy is market segmentation, the objective of which is to allow firms to develop particular strengths in specific segments of the overall market. Price leadership, therefore, may be diffused across the different segments. To assess the nature and extent of such leadership, an analysis of past pricing behavior of firms within each segment is necessary.

The size and type of the competing firms is another factor influencing the likelihood of price leadership. In the cereal industry, all six major manufacturers are large, diversified, broad line food manufacturers with established positions in other food areas besides cereals. Kellogg is the least diversified of the manufacturers. The strength and reputation of these firms results from their overall, multiple product performance not merely from their reputation in cereals. In this context, leadership in the cereal industry is a complex issue and one that cannot be separated from the image and reputation of the firms in other product areas.

The third type of leadership identified by Markham is barometric price leadership. The distinction between this type of leadership and collusive price leadership is, however, more conceptual than operational. Whereas the presence of a price leader does provide a possible instrument of collusion, the barometric leader acts merely as a barometer of market conditions. Stigler suggests that "[the barometric firm] commands adherence of rivals to his price only because, and to the extent that, his price reflects market conditions with tolerable

promptness".⁵⁷ In this form of leadership, it is likely that the leadership position will change more frequently and that price initiatives will not be followed due to the lack of coercive power of one firm over its rivals. The result is that, with barometric leadership, the chances of monopoly price levels emerging are less than in the situations of collusive or dominant leadership.

In the RTE cereal case, the FTC has defined Kellogg as the industry's price leader. The RTE cereal industry can be described as an "asymmetric oligopoly" since the market shares of the four largest manufacturers do not approach equality.⁵⁸ The most likely forms of leadership suggested by theory would be either dominant or collusive leadership. Fellner and Stigler point out, however, that as the products of an industry become more differentiated and the product and price structures more complex, a predictable pattern of price behavior as a means of achieving cooperation and communication among rivals becomes more difficult to implement and control. The issue of price leadership in product areas such as RTE cereals is also complicated by the fact that not only manufacturers but also resellers have inputs into overall pricing decisions. The issue of price leadership cannot be separated from the broader question of leadership and the distribution of power and control within an industry's overall distribution channel.

The price leadership concept has been most commonly used to explain the price behavior of manufacturers in industries such as steel and automobiles. The ability to transfer the concept to food industries such as RTE cereals must be carefully assessed. The "shared monopoly" theory is an attempt to explain the nature and especially the

lack of price competition within the cereal industry.

Limit Pricing

A relationship between the pricing behavior and the structure of oligopolies has been described by the concept of limit pricing. The essence of the concept is that by setting prices at less than short-run profit maximizing levels, oligopolists deter entry. Bain defines the limit price as "the highest common price that the established sellers believe they can charge without attracting a single significant entrant to their market".⁵⁹ The rationale behind this strategy is that while short-term profits will be less than a maximum, the deterrence of entry will yield a higher level of profit when discounted over the longer period.

The major application of the limit price concept has been in the potential competition doctrine employed in the regulation of mergers. The doctrine is described by Phillips and Stern as follows:

This doctrine suggests that if a firm which is considering entry into a new market is recognized as a significant potential entrant by the established in-market firms, such a recognition will serve as a restraining influence on the latter's business behavior.⁶⁰

Setting prices at levels below those that would prevail if short-run profit maximization goals were followed becomes a purposefully restrained and collusive form of behavior, the objective of which is to deter the entry of potential competition.

Scherer identifies some of the requirements and problems associated with employing a limit pricing strategy. He argues, for example, that firms are more likely to use a limit pricing strategy when their cost advantage over potential entrants is significant.⁶¹

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Studies suggest that, in the RTE cereal industry, the level of manufacturing and distribution costs are not likely to be a major entry deterrent as no significant scale economies exist.⁶² The FTC has accepted this proposition as a basis for its proposed remedies.

The essence of the FTC's "shared monopoly" theory is that the major factors limiting entry into the cereal industry are the non-price activities of the respondents, especially their intensive advertising and brand proliferation policies. By intensively advertising their brands, larger manufacturers allegedly place smaller manufacturers and potential entrants at a cost disadvantage. By proliferating brands, established sellers effectively "crowd out" potential new entrants from the market. In the "shared monopoly" theory, the limit pricing barrier has been replaced by the limits imposed upon entrants by the advertising and new product development activities of the larger manufacturers.

The entry deterring effect of new product development is the most unique aspect of the theory. The essence of the "crowding out" effect of new product development is contained in the following statement from the Trial Brief:

...brand proliferation is a superior method of entry deterrence to price cutting. That is, the existing firms maximize their profits subject to the constraint that their actions deter entry, if they establish so many brands that, even though a very high price is charged, there is no room between or among them for a potential entrant to gain sufficient sales to cover fixed introduction costs and earn an entry-inducing rate of return.... Entry during the 1950s and 1960s was deterred through brand proliferation. Brands were located so near to each other in the relevant space that there was simply no room for an entrant in their midst.⁶³

The FTC argues that brand proliferation has adversely affected the economic performance of the cereal industry in two principal ways:

(1) it has reduced the degree of price competition and (2) it has deterred entry by making it more difficult for new entrants to obtain retail distribution for their products. The effect of brand proliferation on price behavior is expressed as follows:

Brand proliferation substantially increases the number of products which the consumer must consider in order to make an RTE cereal choice based on price and quality comparisons. The existence of more products, due to brand proliferation, makes consumer choice more difficult. As the consumer's opportunity to make value comparisons is reduced, the consumer finds it harder to determine which product is the best buy at the retail price. Thus, price competition is discouraged.⁶⁴

The validity of the implicit rational, "economic man" view of consumer behavior for frequently purchased, low priced consumer products such as cereals is an important theoretical and public policy issue and one that has generated considerable controversy between economists and marketers.⁶⁵

Brand proliferation also limits entry by "crowding out" the brands of potential new entrants or smaller existing manufacturers from retail shelf space. The implication is that grocery resellers more readily accept the new brands of larger manufacturers than those offered by new or smaller manufacturers. For new entrants to gain access, it is necessary for them to offer resellers higher rewards. The validity of the implicit view of the nature and sources of power within the RTE cereal distribution channel is a key issue considered in this study.

The objective of the trademark licensing remedy is to overcome the limiting effect on new entry of brand proliferation. The objective is to encourage new entrants by lowering the costs associated with establishing a trademark. If the FTC's arguments concerning brand proliferation are accepted by the courts, the implications of such a precedent could be far-reaching. For example, any product area in which a large number of brands are produced by a small number of manufacturers could be subject to the same kind of argument. While the number of items in the RTE cereal category is one of the largest for all grocery categories, other product areas that potentially could be affected include pet food, soaps and detergents, cake mixes, soups, cookies and crackers, canned fruits, vegetables and juices, and chewing gum.

Conclusion

The objective of this chapter has been to analyze the "shared monopoly" theory from the viewpoint of the existing theoretical literature on oligopoly. The major theoretical contributions in the area of oligopoly were discussed. While some basic propositions of the "shared monopoly" theory can be traced to these sources, no single existing theoretical explanation fits the theory exactly. In particular, the emphasis of the existing theories on price behavior in undifferentiated oligopolies limits the scope for applying these theories to industries such as RTE cereals. The "shared monopoly" theory is essentially an extension of existing theories of oligopoly to include the effects of non-price forms of behavior, in particular, advertising, new brand development, product differentiation, and shelf-space allocation, in an explanation of the behavior and performance of differentiated oligopolies.

The "shared monopoly" theory is being advanced as a basis upon which to restructure differentiated oligopolies as a means of improving their economic performance. The propositions of the theory raise many important issues, both theoretical and empirical, for the nature and effects of contemporary marketing practices and, in the broader sense, for the development of antitrust policy aimed at improving the performance of oligopolistic industries. As a basis for considering some of the broader issues raised by the case, the focus of this study is to investigate the likely effects of the FTC's proposed remedies on the retail prices of RTE cereals.

Several streams of economic theory have merged to generate the theory of "shared monopoly". This chapter has discussed the first of these, the theory of oligopoly. The second basis for the theory and the arguments of the RTE cereal case is provided by the theory of industrial organization. The discussion now shifts to a consideration of the relevant aspects of this theory.

Chapter II--Footnotes

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CHAPTER III

REVIEW OF LITERATURE (B): THE THEORY OF INDUSTRIAL ORGANIZATION

Introduction: Origins of the Theory

The need to regulate monopoly and monopolistic practices in industry has been central to the antitrust philosophy and laws of the United States since the passage of the Sherman Act in 1890. The original targets of the Act, however, were single firm monopolies or industries in which one firm dominated all others. Early legal precedents were established in industries of this character, for example, railroads, tobacco, steel, and oil. In the 1930s, however, the major focus of antitrust regulation shifted from the single large firm situation to that of concentrated industries in which a small number of firms accounted for a large percentage of an industry's output. A series of studies during this period drew attention to the macro- and micro-economic problems posed by the high levels of concentration that existed in many industries.¹

These studies provided the impetus for the development of improved theoretical explanations for the relationships between structure, conduct, and performance in concentrated industries. These attempts were aided by the development of richer models of microeconomic price theory, in particular the theories of imperfect

competition advanced by Chamberlin and Robinson.² Until that time, the polar models of perfect competition and monopoly had dominated price theory and the approaches adopted in antitrust regulation.

The most significant theoretical development to emerge was the theory of industrial organization. This theory has provided a focal point for theoretical and empirical debate in the area of antitrust regulation since the 1940s. It has also generated a number of controversial issues, many of which are present in the underlying theories and arguments of the RTE cereal "shared monopoly" case.

The development of the basic conceptual framework upon which the theory of industrial organization is built has been attributed to the work started by Mason during the 1930s.³ The basic propositions of the theory have been expanded subsequently by a number of scholars.⁴ A large number of empirical studies have also tested the various propositions of the theory.⁵

The influence of the theory of industrial organization can be seen in some of the key arguments of the cereal case and in several recent legislative proposals, the Concentrated Industries Act and the Industrial Reorganization Act. The principal issue being addressed both by the cereal case and these two legislative proposals is the regulation of the structure, conduct, and performance of oligopolistic industries. This chapter presents a brief overview of the theory of industrial organization and its principal operational models. The theory is relevant for the RTE cereal case because it provides the basis for the remedial proposals put forward by the FTC.

Basic Propositions of the Theory

The principal contribution of the early work done by Mason was to shift the emphasis from the firm to the industry as the primary unit for studying the issue of economic performance. The objective behind Mason's work was expressed as follows:

...study of different types of industrial markets and business practices and of the effects on prices, outputs, investments and employment designed to indicate means of distinguishing between socially desirable and undesirable situations...is... the only way in which economics can contribute directly to the shaping of public policy.⁶

To guide this kind of research, Mason grouped firms in terms of the similarity of their <u>market structures</u>. The objective of such a classification scheme was to provide a systematic approach to "[the]...study of the empirically determinable differences in market structure [which] may...[explain] observable differences in policy and practice".⁷ Structure was therefore put forward as the starting point for studying the behavior and the economic performance of industries. The extension and refinement of the basic proposition of the theory of industrial organization, that causal linkages exist between an industry's structure, conduct, and performance, has provided the source for the large body of theoretical and empirical literature that has followed.

Bain accepted Mason's challenge to develop a generalized classification scheme for studying the organization of industries. Using five structural characteristics of industries: (1) the number of sellers, (2) whether the product was a producer or consumer good, or (3) a durable or non-durable good, (4) the extent of product differentiation, and (5) the number of buyers, Bain put forward fourteen

"terminal classifications that seem, by and large, to be empirically justifiable".⁸ The objective of this scheme was "to articulate a theory...concerning those things associated with price and market behavior, and...a corresponding market classification".⁹

Bain also performed the first significant empirical tests on the theory. He investigated the relationship between the level of concentration (a structural characteristic) and profit rates (a performance measure) in forty-two U.S. manufacturing industries during the period 1936-40. Using the proportion of the total value of each industry's output supplied by the largest eight firms as the measure of concentration, Bain found that the industries fell into two groups. For industries in which the eight-firm concentration ratio (CR8) was greater than 70 percent, average profit rates were significantly higher than those for industries with concentration ratios below 70 percent. 10 This 70 percent CR8 level (or its CR4 equivalent of approximately 50 percent) was viewed as a "critical level" of concentration and has been used as a benchmark for a number of subsequent studies¹¹ and for important regulatory proposals, such as Kaysen and Turner's "unreasonable market power" statute,¹² the Concentrated Industries Act, and the Industrial Reorganization Act. Bain suggested that these critical levels of concentration provided operational measures for the number of firms and their size distribution necessary for "workable competition" within an industry.¹³

Bain also developed the important concept of barriers to entry. The primary issue of theoretical and policy importance was whether high concentration was caused by natural or artificial barriers to entry.

Three major entry barriers were identified: (1) product differentiation, (2) absolute cost advantages, and (3) advantages due to economies of large-scale firms.¹⁴ In a study of twenty U.S. manufacturing industries, Bain concluded that, in a large percentage of these industries, the actual size of firms greatly exceeded the size necessary to achieve optimal economic performance.¹⁵ The implication was that natural barriers such as economies of scale were not a sufficient reason for the high levels of concentration that existed in many of these industries. Large firm size and high industry concentration were manifestations of artificial barriers to potential entrants in many industries. Large size, therefore, was not considered essential for economic efficiency in many industries.

In Bain's two comprehensive works, <u>Barriers to New Competition</u> and <u>Industrial Organization</u>, these issues were further developed.¹⁶ In particular, the role of product differentiation as a barrier to entry was developed and investigated. He found that, in the twenty industries studied, as product differentiation became an important characteristic of the market, seller concentration increased.¹⁷ As a measure of product differentiation, Bain used the ratio of advertising expenditures to sales for each industry. He was also able to establish a critical level of product differentiation. An advertising to sales ratio in excess of 5 percent was considered to create an artificial barrier to the entry of new firms and a source of market power for established sellers.¹⁸ The relationships Bain observed between (1) concentration and profits and (2) advertising expenditures and profits became focal points for the subsequent development of the theory and its use in antitrust policy.

Operational Models of the Theory

The Structure-Conduct-Performance Model

The major thrust of the development and testing of the theory during the 1960s and 1970s has been to extend the basic conclusions put forward by Bain. Of particular importance, however, is the emergence of two operational models of the theory. The first, and traditional, model expresses the relationship between structure, conduct, and performance as follows:

Market structure is important because the structure determines the behavior of firms in the industry, and that behavior in turn determines the quality of the industry's performance.¹⁹

Caves describes this formulation as the structure-conduct-performance model. The key aspect of this formulation is that a direct chain of causation links the three elements of industry organization. From the viewpoint of antitrust policy, the performance of an industry, therefore, can be improved by changing either its structure or its conduct pattern. Historically, the major U.S. antitrust statutes have been employed primarily to regulate the conduct of firms as a means of improving industrial performance. This approach has come under increasing criticism, especially as a means of improving the performance of oligopolies. These criticisms have given rise to a second formulation of the theory - the "structuralist" model.

The Structure-Performance Model

In reviewing the findings of the large number of empirical studies that had tested the various propositions of the theory, Bain put forward the important view that "comparatively immutable dimensions of market structure have a <u>long-run</u> association with market performance".²⁰ The implication of this view is that in the long-run a strong and stable relationship exists between an industry's structure and its economic performance. While short-run performance can be influenced by the conduct of firms within the industry, the most important determinant of an industry's performance is its structure. This structureperformance formulation has been termed the "structuralist" model. It has received increasing attention from those who consider it to be a superior theoretical base from which to attack oligopolistic industries. If the model is valid, an industry's long-term performance can only be improved by altering its structure.

The structuralist approach is operationalized by using rules such as those defining the critical levels of key structural parameters (for example, industry concentration ratios, firm market shares, advertising to sales ratios) and levels of performance indicators (for example, prices and profits). As a result, the model appeals as a method of improving the efficiency of the regulatory process. The cereal "shared monopoly" case is based upon similar theoretical and practical considerations and is an important test case for this new structural approach. The significance of this approach in antitrust regulation is expressed by Mueller as follows:

...there can be little real doubt that a highly significant change has taken place in this area of the law. Indeed, it is hard to escape the conclusion that a distinct era, that of an almost exclusive preoccupation with the "conduct" approach, is drawing to a close and that another one, a predominantly "structural" approach, is beginning.²¹

Major Findings of Empirical Studies

Some of the key arguments of the RTE cereal case are based on the results of empirical studies that have tested the central propositions of the theory of industrial organization. A brief review of the nature and conclusions of some of the more important studies is presented in this section.

The two most common research thrusts have been studies analyzing the relationships between (1) concentration and profits and (2) the degree of product differentiation (usually measured in terms of the level of advertising expenditures) and profits.

Concentration and Profits

In the initial study conducted by Bain with data for a broad cross-sectional sample of forty-two manufacturing industries during the period 1936-40, a strong positive relationship was found between concentration and profits and the critical CR8 concentration level of 70 percent was identified.²² Weiss estimates that between 1951 and 1969, at least thirty-two additional studies involving some form of this relationship were conducted.²³ In virtually all these studies, Bain's initial results were confirmed.

A major weakness of these studies, however, is that a satisfactory <u>behavioral explanation</u> for the size and changes in the parameters of the concentration-profits relationship has not been given. One explanation was put forward by Stigler:

the success of oligopolistic collusion depends on the individual seller's ability to detect chiseling and... ultimately this depends on his ability to distinguish nonrandom sales losses. The implication...is that the ability to collude depends heavily upon the number and relative size of sellers, falling off rapidly as firm sizes approach equality and as numbers rise. 24

The absence of a generally acceptable theoretical explanation for the statistically observed relationships between concentration and profits highlights the lack of a satisfactory theory of oligopolistic behavior. The results of most of the studies, therefore, are of more descriptive than explanatory value. McKie has suggested that "if it were not for the problem of oligopoly, 'industrial organization' would probably not have emerged as a special subject at all".²⁵ The implication is that a major reason for the emergence of a structure-oriented industrial organization theory has been the absence of a general theory of oligopolistic behavior. This suggests that renewed efforts to develop an improved theory of oligopolistic behavior would be an alternative approach to investigating the issues of industry performance.

A major problem of using the results of studies employing highly aggregative, cross-sectional methodologies as a basis for antitrust policy within a single industry is the difficulty of predicting the effects of structural changes on the behavior of firms, and thus on industry performance. In the RTE cereal case, changing the structure of the manufacturing sector through divestiture and trademark licensing will also affect the behavior of cereal resellers. The ability of these proposed remedies to improve the performance of the industry will depend upon the responses to these structural changes of both cereal manufacturers and resellers. The theory of industrial organization, however, has limitations in several areas relevant to the RTE cereal case: (1) the explanation for patterns of behavior in differentiated

oligopolies and (2) the nature of the relationship between structure, conduct, and performance in industries in which firms at various levels of the distribution process affect the overall performance of the industry. The present study is motivated by a recognition of these limitations.

Advertising and Profits

A major structural characteristic considered in the theory of industrial organization has been the degree of product differentiation. The concept of product differentiation was formally introduced into economic theory by Chamberlin who considered it to be a key characteristic of oligopolistic and monopolistically competitive market structures. He defined the concept as follows:

A general class of product is differentiated if any significant basis exists for distinguishing the goods of one seller from those of another. Such a basis may be real or fancied, so long as it is of any importance whatever to buyers, and leads to a preference for one variety of the product over another.²⁶

The measurement of product differentiation creates a problem for empirical studies. The most common response has been to argue that the primary means by which firms differentiate their products is their advertising and promotional expenditures. Most studies of industrial organization have used some advertising expenditure variable as a measure of the extent of product differentiation. The inclusion of the level of advertising expenditures as a structural characteristic of industries has had a significant effect upon how the theory of industrial organization has been applied in antitrust policy. The level of advertising expenditures has been put forward as the principal structural variable affecting the performance of consumer goods industries. Advertising allegedly allows firms to differentiate products which creates consumer brand loyalties. High levels of advertising, therefore, create a cost disadvantage for potential entrants as strong consumer brand loyalty patterns must be disturbed for successful entry. Studies by Mueller and Hamm,²⁷ Comanor and Wilson,²⁸ and Porter²⁹ suggest that in consumer goods industries advertising expenditures create the most serious barrier to entry and, therefore, are a major cause of high concentration and poor economic performance.

The influence of the views concerning the effects of advertising on industry performance can be seen in some of the key arguments of the RTE cereal case. The large advertising expenditures of the major manufacturers and their effects on consumer purchase behavior are alleged to create a significant barrier to entry and as such are considered to be a major cause of the "shared monopoly". Two adverse effects are attributed to advertising. First, advertising affects consumer demand by making demand curves less price elastic. This provides heavy advertisers with the market power to control prices. Second, advertising raises entry costs. In this context, advertising expenditures are viewed purely as an addition to manufacturer's costs. Prices in industries where product differentiation is possible, therefore, will tend to be higher than would be the case if perfect competition prevailed. Kaldor argued that because advertising is supplied jointly with products, consumers are forced to pay for more advertising than they would pay if advertising was supplied separately. This violation of marginal-cost pricing leads to an oversupply of advertising. This is

financed by forcing consumers to pay higher prices for advertised goods.³⁰ Intensive advertising, therefore, not only represents a cost barrier to entry, but it also plays a direct role in creating excessive consumer prices.

The effects of advertising on industry performance have been a source of controversy. Of the three barriers to entry, scale economies, absolute cost advantages, and product differentiation, Bain concluded that:

Product differentiation advantages [are]...a much more important source of...high barriers to entry. In all but three of the thirteen consumer-goods industries...which were examined, product differentiation barriers were either moderate or high.³¹

In six industries in which Bain defined entry barriers to be very high (those that confer on established firms the ability to raise their prices 10 percent or more above the competitive level without inducing entry by newcomers), product differentiation was either the dominant influence or a strong contributing factor.³² However, in a study of a mixture of forty-four consumer and producer goods industries, Telser concluded that the levels of concentration and advertising expenditures were independent.³³ His conclusion was challenged by Mann, Henning, and Meehan on the grounds that data limitations were responsible for his findings.³⁴ Telser responded and the issue remained largely unresolved.

The strongest empirical support for a positive relationship between advertising expenditures and profits has come from the more recent studies of Comanor and Wilson,³⁵ and Porter.³⁶ In a study of forty-one consumer goods industries for the period 1954 to 1957,

Comanor and Wilson concluded that heavy advertising leads to increased profits. The explanation for this relationship reflects the view of advertising generally adopted by industrial organization theorists:

Advertising acts as a proxy for product differentiation, or, more specifically, for the product and market characteristics that permit heavy advertising expenditures to differentiate effectively the products of a firm from those of its rivals. Although these product and market characteristics are not easily measured, they are typically characterized by heavy advertising expenditures. The measured impact of advertising results then from the impact of product differentiation on profitability and from the effectiveness of heavy advertising expenditures in exploiting the gains from product differentiation.³⁷

Industries classified by Comanor and Wilson as having heavy advertising were found to earn profit rates typically 50 percent higher than those in less advertising intense industries. The direct relationship between heavy advertising and profits led Comanor and Wilson to conclude that high levels of advertising restrict entry into an industry.³⁸ One of the industries included in the study was cereals. At the 3-digit SIC level used by Comanor and Wilson, however, the cereal industry aggregates a broad class of grain mill products including both hot and RTE cereals. A 5-digit classification is needed to isolate the RTE cereal category.

In the study by Porter, data for the period 1958 to 1965 for forty-two consumer goods industries consisting of a mixture of 3 and 4-digit SIC industries were tested in regression models similar to those used by Comanor and Wilson. The industries, however, were divided into two groups. The first group consisted of nineteen convenience goods industries defined as those industries in which products are primarily sold through convenience outlets such as retail stores and for which little or no information is provided by the outlet. Examples include meat, dairy products, frozen foods, beer, cigarettes, books, soap, and cereals. The second group consisted of twenty-three non-convenience goods industries in which products are sold through outlets which provide information and sales assistance to buyers. Purchases of non-convenience products generally involve larger amounts of money, are less frequent, and are postponable. Examples include carpets, clothing, household appliances, motor vehicles, and jewelry. When the models analyzed data for each of these groups of industries separately, a strong positive relationship between advertising and profit levels was found only in the convenience goods category.³⁹

The major reason Porter distinguished between convenience and non-convenience goods was to explore the nature of vertical, or channel, relationships that link manufacturers and retailers in different industries. Porter argued that these relationships depend upon consumer buying characteristics for convenience and non-convenience products. The major differentiating characteristics identified were: frequency of purchase, cost of purchase, and willingness of consumers to search for pre-purchase information on a product. While this extension of the theory of industrial organization to include a consideration of the roles of both manufacturers and resellers is an important development, the assumptions concerning the nature of consumer behavior and the role of advertising need further empirical investigation. The major objective of the present study is to investigate the nature of the relationships between food manufacturers and food resellers in the RTE cereal industry as a basis for evaluating the likely effects of the FTC's

proposed remedies.

The effects of advertising on (1) entry barriers, (2) levels of concentration, (3) manufacturer profit levels, and (4) consumer prices provide the basis for some of the major arguments of the RTE cereal case. The following quotation from Comanor and Wilson's book which appears in the FTC's official Trial Brief apparently represents the FTC's view of the relationship between advertising, product differentiation, and price competition in the RTE cereal industry:

Not only may advertising and the accompanying product differentiation raise entry barriers, but also it may have a direct influence on the character of competition among established firms...the achievement of product differentiation provides the firm with a measure of freedom from the constraints imposed by the competitive actions of its rivals. In this manner, effective differentiation has an effect on price-cost margins which is analogous to that of a collusive agreement among established firms. In both instances, the firm is insulated to some extent from the competitive efforts of its rivals, and high profits may be gained so long as there is no fear of attracting new firms into the industry.⁴⁰

It is the joint effects of intensive advertising and brand proliferation that have been largely responsible for the alleged "shared monopoly".

Remedies for Improving Industry Performance

A set of remedies for improving the performance of an industry follow logically from the main conclusions of the studies of the theory of industrial organization. First, if the number of firms competing within an industry is increased so that concentration is reduced below "critical levels", price competition will increase. This will decrease consumer prices and reduce excessive levels of profit. This provides the rationale for the FTC's plant divestiture remedy for the RTE cereal industry. The FTC seems to have been guided by this "critical level" hypothesis. In the Trial Brief, the FTC expresses the view that "economic research indicates that one begins observing poor economic performance in an industry when the top four [firms] exceed 55 percent of the market".⁴¹ The divestiture proposals would reduce the existing four-firm concentration ratio of approximately 90 percent to a level approaching 55 percent. The data presented in Table 3-1 are taken from the Trial Brief. The existing four-firm concentration ratio and size inequality is compared with that which the FTC believes would exist following the implementation of the divestiture order.

	Pre-Dives	titure	Post-Divestiture		
Firm	Market Share (%)	No. of Plants	Market Share (%)	No. of Plants	Loss Market Share (%)
Kellogg	45	4	25	1	20
General Mills	21	5	17	4	4
General Foods	16	2	11	1	5
Quaker Oats	9	_4	9	4	_0
TOTAL	91	15	62	10	29
Ratio largest firm (Kellogg) to smallest firm (Ralston) sales	11.3 to 1		6.3 to 1		

Table 3-1. Concentration and Size: Pre and Post Divestiture

SOURCE: <u>FTC's Complaint Counsel Trial Brief - In the Matter of</u> <u>Kellogg Company et al</u>., Federal Trade Commission, Docket No. 8883, 1976, Volume II, p. 123.

Second, if the potency of advertising can be diminished, barriers to entry and growth for potential competitors will be reduced. This argument provides a rationale for the trademark licensing proposal. The objective of this remedy is to reduce the ability of the large manufacturers to create consumer loyalty through heavy advertising expenditures. This, it is argued, will reduce the level of advertising expenditures. This reduction in selling costs will provide greater scope for price competition which will reduce the retail prices of RTE cereals.

These two remedies follow logically from the structuralist model of industry organization theory. They are expected to force changes in two of the key structural characteristics of the industry, the level of concentration and the extent of product differentiation that allegedly have been responsible for the poor economic performance of the industry.

Limitations of the Theory

When applying industrial organization theory to antitrust policy, its limitations must be recognized. The major limitations arise from some key characteristics of the theory, two of which are particularly relevant to the RTE cereal case: (1) the use of perfect competition as a benchmark for industry performance and (2) the horizontal orientation of the theory.

Perfect Competition as a Benchmark

A major limitation of the theory arises from its implicit use of perfect competition as the benchmark model of industrial organization. In terms of economic theory, optimal industry performance occurs when

the structural characteristics of perfect competition are present. In perfect competition, prices equal marginal costs and profit levels are normal. In applying the theory to antitrust policy issues, however, the restrictions imposed by the assumptions of this optimal model must be recognized.

Economic Efficiency and Consumer Welfare

One such assumption is that the primary measure of an industry's performance is its level of economic efficiency. The level of profits provides the thermometer of economic efficiency. While other performance dimensions have been recognized, the issue of trade-offs between economic efficiency and other performance dimensions, for example, the level of consumer satisfaction generated, is not considered. The implicit assumption is that consumer satisfaction (or welfare) is maximized when the prices paid by consumers for a product equal its marginal costs of production. Consumers, therefore, are assumed to behave in rational economic terms.

Research in the area of consumer behavior, however, suggests that price is only one factor used by consumers in making purchase decisions for many products. For frequently purchased, low priced grocery products, the consumer is likely to trade-off price with attributes such as variety, availability, and convenience. The weight given to the price attribute is likely to vary across different products and different purchase situations. The level of consumer welfare, therefore, will be a function of a set of attributes only one of which will be price. The nature of the trade-offs among these attributes becomes an essential consideration when assessing consumer welfare. In the RTE cereal case, the dominant concern is with improving the economic efficiency of the industry. The major performance characteristic being criticized is the alleged excessive retail price levels for RTE cereals. The primary objective of the proposed remedies is to reduce or eliminate these "monopoly overcharges".

If the ultimate objective is to increase consumer welfare, this perspective raises two important issues. First, it assumes that in interbrand purchase decisions for RTE cereals, consumers consider price to be the key variable. It would be expected, therefore, that consumers would be price conscious in their RTE cereal purchase decisions. Available evidence suggests this is not the case.⁴² Second, if all other purchase decision criteria such as range of choice, availability, and prices of other cereals remain unchanged, consumer welfare can be expected to increase if the remedies cause the prices of RTE cereals to decline. However, if the remedies have adverse effects on other purchase decision criteria, for example, a decline in the range of choice, it is not clear whether the remedies, even if they do cause retail prices to fall, will lead to an increase in the level of consumer welfare. The effects of the remedies on other performance criteria must also be considered.

The Nature of Consumer Behavior

The assumptions of perfect competition concerning the nature of consumer behavior also must be recognized. The emphasis of demand theory in economics has been upon the consumer's choice among different <u>products</u>. On the other hand, in marketing theory, the primary focus

has been upon the consumer's choice among different <u>brands</u> of a product. Within a specific product category such as RTE cereals, the primary task facing consumers is the choice among brands.

The objective of the proposed remedies is to alter the consumer demand pattern for RTE cereals at the brand level through a stimulus of increased price competition. When allocating income among alternative products, a consumer may use different purchase decision criteria than when considering the choice among alternative brands of a product. In deciding between the purchase of an RTE cereal or an instant breakfast drink, for example, relative prices may be a much more important factor than when the choice situation is between two brands of RTE cereals, for example, between Corn Flakes and Wheaties. Even if the prices of these two brands differ, other criteria may enter the decision, for example, past experience and nutritional content, and trade-offs will be made. The assumption that price is the only, or dominant, factor in all purchase situations should be confirmed by empirical research.

The influence of the view of demand contained in the theory of perfect competition upon the development of the theory of industrial organization can readily be seen. Porter points to the excessive emphasis given by the theory to the conditions of supply:

The major elements of industry structure hypothesized to affect performance have thus included seller concentration, entry barriers, and industry growth rates. The influence of product differentiation has been analyzed and tested but only in the context of its contribution to entry barriers. Furthermore, product differentiation has been measured by and associated with the industry's level of advertising, and a given rate of advertising outlay has implicitly been assumed equally influential in every industry. Thus the conditions of demand have largely been ignored.⁴³

By definition, the theory of industrual organization is concerned with issues at the industry, or product category, level. Applying the theory to a specific industry, for example, as the basis for proposals to divest manufacturers of plants and to license established trademarks, requires an analysis of the nature of the consumer choice process among brands within that product category. The models of consumer interbrand choice behavior developed in the marketing literature warrant consideration in this context.⁴⁴ Porter's attempt to include interbrand choice processes within the theory of industrial organization framework is a useful step in this direction. The aggregative nature of his model and those of the traditional theory of industry organization, and the simplistic view of consumer behavior adopted, however, tend to limit the usefulness of this theory for analyzing the likely effects of antitrust policy decisions upon consumer welfare within the context of a single industry.

The Sources of Profits

The use of the level of profits as the primary measure of an industry's, or a firm's, market power is a further assumption of perfect competition that warrants consideration. Alternative explanations of industry or firm profit levels can include differences in production or distribution efficiencies, in managerial resources, in attitudes towards risks, or in the ability to satisfy consumers. Marris has raised this question in the broader context of the paradox inherent in the philosophy of antitrust regulation:

...trust busting effectively contradicts the most fundamental principle of capitalism. Whatever may be said of the liberty of the individual, capitalism insists on the liberty of the
organization. That liberty includes the right to grow, and the system rewards, with growth, the fruits of both good luck and good guidance. I cannot conceive how any political or other mechanism can sustain that principle if it is to be modified to read "You shall continue to be rewarded for success, but for successive success, you shall be punished".⁴⁵

For antitrust policy purposes, profits arising from market power should be separated from those arising from superior performance. The traditional view has assumed that persistently high profits arise from the existence of market power among firms in highly concentrated industries. In the context of the RTE cereal case, there are two relevant issues: (1) the level of industry profits (the average profit level of all RTE cereal manufacturers) relative to other industries and (2) the distribution of profits among cereal manufacturers. These comparisons are made difficult by the fact that all the major cereal manufacturers, except Kellogg, are highly diversified food manufacturers. Nevertheless, it has been the persistently high profits of Kellogg that have attracted most concern. It should be noted that studies have shown that profit levels tend to be higher for less diversified firms due largely to their concentration upon a narrower field of business.⁴⁶ All the sources of high profits should be considered when evaluating a firm's or industry's performance.

<u>Vertical Dimensions of Industrial</u> Organization

A second limitation of the theory, and the one of particular concern in this study, is its emphasis on the horizontal structure of industries. The structure, conduct, and performance of a group of manufacturers producing similar products has provided the traditional focus of the theory. Several studies have applied the theory to the

retail sector.⁴⁷ The theory, however, has generally neglected the vertical relationships that exist between manufacturers and resellers. These relationships constitute an industry's channel of distribution.

Porter believes that the horizontal orientation that implicitly underlies the theory of industrial organization "rests on a substantive belief that vertical market relations between manufacturing and the other sectors - in particular, retail distribution - could be ignored".⁴⁸ The need to consider vertical dimensions is particularly important when applying the theory to industries such as the food industry in which manufacturers are linked to consumers by a distribution channel consisting of food wholesalers and retailers. When assessing the effects of changes at one level of this channel, for example, divesting existing manufacturers of plants, on performance measures at the consumer level of the channel such as the level of retail prices, the structure and behavior of the wholesaling and retailing sectors must be considered.

The need to integrate horizontal and vertical dimensions in an expanded theory of industrial organization has been increasingly recognized in recent years. In reviewing the development of the theory, Grether identified the lack of attention to vertical market structures as a major limitation of the theory.⁴⁹ Handy and Padberg,⁵⁰ and Marion and Sporleder⁵¹ have pointed out the problems this causes when applying the theory to the food industry. Handy and Padberg put this issue in the broader context of what is the appropriate definition of an "industry" such as the food industry:

Industrial organization theory is designed for a distributive channel dominated by a manufacturer... If separate industries or substructures specialize in different activities to complement or offset others, the total pattern of interaction and

behavior cannot be observed through the study of one industry.⁵²

Marion and Handy suggest that one reason for the emphasis of the theory of industrial organization on horizontal relationships has been the lack of adequate conceptual models of vertical market relationships. This, they claim, is due primarily to the paucity of research on interorganizational behavior.⁵³ In recent years, marketers have begun to develop conceptual frameworks in which these vertical relationships are viewed within the context of a social system and performance is determined by the distribution of power and control and the nature of cooperation, conflict, and communication among channel members.⁵⁴ To date, however, these have not been developed to a point where they can be used to complement the more traditional horizontal approach in an expanded theory of industrial organization.

The need to consider both horizontal and vertical dimensions in industries such as the food industry arises from the fact that the structure and behavior of the reseller sector affects the performance of the industry. The structure of the wholesaling and retailing sectors, for example, affects the profit levels of manufacturers. Lustgarten has shown that the higher the level of buyer concentration (for example in the retailing sector), the lower the profit levels achieved by sellers (for example, manufacturers).⁵⁵ The behavior of resellers affects the level of prices and the range of choice available to consumers.

For validity, the horizontal orientation of the theory of industrial organization requires that certain assumptions hold concerning the nature of vertical channel relationships. These assumptions,

however, are rarely, if ever, explicitly stated.

Three possible assumptions are that (1) the channel is dominated by the manufacturer, (2) perfect competition exists at reseller levels of the channel, and (3) manufacturers sell direct to final consumers. In a situation where absolute power rests with manufacturers, restructuring this sector will be essential if industry performance is to be changed. In food industry channels, however, power is more likely to be shared among the various members. The desire of resellers to counterbalance the power of food manufacturers can be seen in the private label operations of food wholesalers and retailers. Also, food manufacturers depend upon retailers to provide shelf space for their products. In such an environment, power is shared.

A second situation that could be accommodated by the traditional theory is that at wholesale and retail levels, perfect competition exists. In this situation, no single wholesaler or retailer can achieve unique gains from his relationship with manufacturers. Any gains are quickly dissipated by the pressures of competition. A study by the Joint Economic Committee (JEC) of the U.S. Congress on the profit and price performance of leading food chains during recent years, however, suggests that the structure and conduct of the food retailing sector differs significantly from that of perfect competition. The study found that, in 1972, the four largest food retailers in local markets accounted for an average of 52.4 percent of total local retail food sales and that concentration had increased from 45.5 percent in 1954.⁵⁶ Positive relationships existed between the levels of local concentration and retailer profits and between local concentration and the prices of a

representative basket of grocery food items.⁵⁷ The rise of large food chains with integrated wholesale and retail operations has created a situation of bilateral oligopoly in many areas of the food industry. A study by Bucklin found that concentration levels in wholesaling were even higher than those in retailing.⁵⁸

A third assumption that would satisfy the traditional theory is that manufacturers sell their products direct to consumers. Most grocery products such as RTE cereals, however, are distributed through indirect channels, that is, via wholesalers and retailers. The fact that none of these three assumptions apply in many industries highlights the need to either expand the theory to include vertical dimensions or at least to re-evaluate the usefulness of applying the theory to industries where vertical dimensions affect industry performance.

These vertical relationships must be considered when the effects on an industry's performance of structural or behavioral changes at any level of the channel are being assessed. As Marion and Handy point out:

In assessing market performance, it is...important to consider vertical market relationships. Evaluating market performance by examining the performance of manufacturers or retailers only may lead to spurious conclusions. Both buyers and sellers must be studied if the total pattern of interaction and behavior on performance dimensions is to be observed.⁵⁹

In the RTE cereal case, the ultimate effects of the proposed remedies on industry performance, especially on the level of retail prices, will depend upon the responses to these changes, not only by existing and new entrant manufacturers, but also by food wholesalers and retailers.

When the vertical dimensions of the industry's overall distribution channel are considered, other possible effects of remedies such as those being proposed can be recognized. Stern and Dunfee, for example, point out that:

It is entirely likely that a reduction of concentration at one level within a given channel will tend to increase power at another level and may thereby dramatically affect the overall efficiency of the distribution structure.... [Furthermore], it is possible that breaking up the manufacturers into smaller units would necessitate the use of a less efficient distribution system making, in the long run, for added cost to the ultimate consumer.⁶⁰

The findings of the JEC study suggest that if the remedies cause power to shift towards the retail end of the RTE cereal channel, it is unlikely that consumer prices will fall in highly concentrated retail markets. This raises questions concerning the feasibility of a policy aimed at reducing retail prices by restructuring only the manufacturing sector while leaving the structures of concentrated retail or wholesale sectors unaltered.

The effects of the remedies on distribution costs for RTE cereals must be investigated. Distribution cost efficiency in serving national markets is an important factor explaining the locations of existing cereal manufacturing plants. These plants serve as production points as well as distribution centers for the products of a manufacturer. Kellogg's four plants are geographically dispersed to serve the demand of a national market. Kellogg plants are located at Battle Creek, Michigan; Memphis, Tennessee; Omaha, Nebraska; and San Leandro, California. The allocation of production among these plants illustrates the influence of distribution costs. In 1969, Kellogg manufactured approximately twenty-five different brands of RTE cereals. Fifteen of these were manufactured at only one plant, two at two plants, two at three plants, and six at all four plants. Cereal manufacturers, in general, produce their largest market share brands at more than one plant.⁶¹

The effect of the divestiture of plants and the exclusive licensing of some large market share brands on distributional efficiencies could be significant. The fact that the production of a number of larger market share brands will be restricted to a single plant location is likely to increase the costs of distributing these cereals. Any increase in distribution costs would reduce the scope of new entrants to compete on a price basis and some of these increased costs could ultimately be passed on to consumers in the form of higher retail prices.

These possible effects of the remedies point to the necessity of adopting an overall channel perspective when considering the major issues of the case and when assessing the potential impact of the proposed remedies on retail prices. The results of the JEC study suggest that the assumption that manufacturers have dominant control over the level of retail prices for RTE cereals should not be accepted without empirical investigation. The FTC's "shared monopoly" theory assumes that cereal manufacturers, through intensive advertising, brand proliferation, and shelf-space allocation programs, are able to control the pricing decisions of a large number of resellers. This view reflects the traditional horizontal orientation of the theory of industrial organization.

Conclusion

A major problem of applying the theory of industrial organization to antitrust policy in industries such as the food industry is the

horizontal orientation of the theory discussed in this chapter. The specific motivation for this study arises from a recognition of the need to consider the vertical dimensions of structure, conduct, and performance when analyzing an industry's performance. In the RTE cereal case, the "relevant industry" consists not only of manufacturers but also of resellers of cereals in the form of grocery wholesalers and retailers. The interrelation of horizontal and vertical structures and behavior will determine the performance of the overall industry. The effects of restructuring the manufacturing level of the RTE cereal channel on performance at the consumer level will depend upon the impact of these changes on the behavior of members at all levels of the channel.

The discussion now turns to an analysis of the behavior of resellers in vertical structures such as those that exist in the distribution channel for RTE cereals.

Chapter III--Footnotes

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²Edward H. Chamberlin, <u>The Theory of Monopolistic Competition</u> (Cambridge: Harvard University Press, 1933) and Joan Robinson, <u>The</u> <u>Economics of Imperfect Competition</u> (London: MacMillan and Co. Ltd., 1933).

³E.S. Mason, "Price and Production Policies of Large-Scale Enterprise", American Economic Review 29 (March 1939): 61-74.

⁴Among the major contributors to the theory have been the following: Joe S. Bain, <u>Barriers to New Competition</u> (Cambridge: Harvard University Press, 1956) and <u>Industrial Organization</u> (New York: John Wiley and Sons, Inc., 1959); Richard E. Caves, <u>American Industry</u>: <u>Structure, Conduct and Performance</u>, 2nd ed. (Englewood Cliffs, N.J.: <u>Prentice-Hall Inc., 1967); F.M. Scherer, Industrial Market Structure and Economic Performance</u> (Chicago: Rand McNally, 1970); William G. Shepherd, <u>Market Power and Economic Welfare: An Introduction</u> (New York: Random House, 1970); and George J. Stigler, <u>The Organization of Industry</u> (Homewood, Ill.: R.D. Irwin Inc., 1968).

⁵For a review of the studies see: Leonard Weiss, "Quantitative Studies of Industrial Organization" in M. Intriligator, ed., <u>Frontiers</u> <u>of Quantitative Economics</u> (Amsterdam: North Holland Publishing Co., 1972), pp. 362-403.

⁶E.S. Mason, "Monopoly in Law and Economics", <u>Yale Law Journal</u> 47 (November 1937): 49.

⁷Mason, American Economic Review (March 1939): 66.

⁸Joe S. Bain, "Market Classifications in Modern Price Theory", Quarterly Journal of Economics 56 (August 1942): 573-574.

⁹Ibid., p. 574.

¹⁰Joe S. Bain, "Relation of Profit Rate to Industry Concentration: American Manufacturing 1936-1940", <u>Quarterly Journal of Economics</u> 65 (August 1951): 293-324. ¹¹Weiss, p. 371.

¹²Carl Kaysen and Donald F. Turner, <u>Antitrust Policy: An</u> <u>Economic and Legal Analysis</u> (Cambridge: Harvard University Press, 1959), p. 98.

¹³J.M. Clark, "Toward a Concept of Workable Competition", <u>American</u> <u>Economic Review</u> 30 (June 1940): 241-256.

¹⁴Joe S. Bain, <u>Essays on Price Theory and Industrial Organization</u> (Boston: Little, Brown and Company, 1972), p. 98.

¹⁵Ibid., pp. 111-132.

¹⁶Bain, <u>Barriers to New Competition</u> (1956) and <u>Industrial</u> <u>Organization</u> (1959).

¹⁷Bain, <u>Barriers to New Competition</u>, p. 216; <u>Industrial</u> <u>Organization</u>, p. 236.

¹⁸Bain, Industrial Organization, p. 391.

¹⁹Caves, p. 16.

²⁰Bain, Essays, p. 173.

²¹Charles E. Mueller, "The New Antitrust: A 'Structural' Approach", Antitrust Law and Economics Review 1 (Winter 1967): 129.

²²Bain, "Relation of Profit Rate to Industry Concentration", pp. 293-324.

²³Weiss, p. 364.

²⁴George J. Stigler, "A Theory of Oligopoly", <u>Journal of Political</u> <u>Economy</u> 72 (February 1964): 44-61.

²⁵James W. McKie, "Market Structure and Function: Performance versus Behavior" in J.W. Markham and G.F. Papanek, <u>Industrial</u> <u>Organization and Economic Development</u> (Boston: Houghton Mifflin Co., 1970), pp. 12-13.

²⁶Chamberlin, p. 56.

²⁷Willard F. Mueller and Larry G. Hamm, "Trends in Industrial Market Concentration, 1947 to 1970", <u>The Review of Economics and</u> <u>Statistics</u> 56 (November 1974): 511-520.

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³⁰Nicholas Kaldor, "The Economic Aspects of Advertising", <u>Review</u> of <u>Economic Studies</u> 18 (1949-50): 1-27.

³¹Bain, <u>Industrial Organization</u>, p. 249.

³²Ibid., pp. 247, 262.

³³Lester Telser, "Advertising and Competition", <u>Journal of</u> <u>Political Economy</u> 63 (December 1964): 2-27 and "Another Look at Advertising and Concentration", <u>Journal of Industrial Economics</u> 18 (November 1969): 85-94.

³⁴H.M. Mann, J.A. Henning, and J.W. Meehan, Jr., "Advertising and Concentration: An Empirical Investigation", <u>Journal of Industrial</u> <u>Economics</u> 16 (November 1967): 34-45.

³⁵Comanor and Wilson.

³⁶Porter.

³⁷Comanor and Wilson, p. 131.

³⁸Ibid., p. 132.

³⁹Porter, pp. 142-148.

⁴⁰Comanor and Wilson, p. 45 quoted in Trial Brief, Volume II, p. 326.

⁴¹Trial Brief, Volume IV, p. 840.

⁴²See National Commission on Food Marketing, <u>Studies of</u> <u>Organization and Competition in Grocery Manufacturing: Technical Study</u> <u>No. 6</u> (Washington, D.C.: Government Printing Office, 1966); "How Customer's Estimates Compare with Actual Prices", <u>Progressive Grocer</u>, November 1974, p. 41; and "1976 Guide to Produce Usage Profiles", <u>Progressive Grocer</u>, July 1976, pp. 53-54.

⁴³Porter, pp. 2-3.

⁴⁴For an example of an interbrand choice model, see John A. Howard and Jagdish N. Sheth, <u>The Theory of Buyer Behavior</u> (New York: John Wiley and Sons, Inc., 1969).

⁴⁵Robin Marris, "Is the Corporate Economy a Corporate State?", <u>American Economic Review</u> 62 (May 1972): 113. ⁴⁶Federal Trade Commission, <u>Staff Economic Report on the Influence</u> <u>of Market Structure on the Profit Performance of Food Manufacturing</u> <u>Companies</u> (Washington, D.C.: U.S. Government Printing Office, September 1969), pp. 23-24.

⁴⁷Federal Trade Commission, <u>Staff Economic Report on Food Chain</u> <u>Profits</u> (July 1975). U.S., Congress, Joint Economic Committee, <u>The</u> <u>Profit and Price Performance of Leading Food Chains, 1970-74</u> by Bruce W. Marion et al., Joint Committee Print (Washington, D.C.: U.S. Government Printing Office, 1977).

⁴⁸Porter, p. 3.

⁴⁹E.T. Grether, "Industrial Organization: Retrospect and Prospects", American Economic Review 60 (May 1970): p. 86.

⁵⁰C.R. Handy and D.I. Padberg, "A Model of Competitive Behavior in Food Industries", <u>American Journal of Agricultural Economics</u> 53 (May 1971): 182-190.

⁵¹Bruce W. Marion and Thomas L. Sporleder, "An Evaluation of the Economic Basis for Antitrust Policy in the Food Industry", <u>American</u> Journal of Agricultural Economics 58 (December 1976): 867-873.

 5^{2} Handy and Padberg, pp. 182, 189.

⁵³Bruce W. Marion and Charles R. Handy, <u>Market Performance</u>: <u>Concepts and Measures</u>, Agricultural Economic Report No. 244 (Washington, D.C.: U.S. Government Printing Office, September 1973), p. 57.

⁵⁴Louis W. Stern and Jay W. Brown, "Distribution Channels: A Social Systems Approach" in <u>Distribution Channels: Behavioral</u> <u>Dimensions</u>, ed. Louis W. Stern (Boston: Houghton Mifflin Co., 1969), pp. 6-17.

⁵⁵S.R. Lustgarten, "The Impact of Buyer Concentration in Manufacturing Industries", <u>Review of Economics and Statistics</u> 57 (May 1975): 125.

⁵⁶Joint Economic Committee, <u>The Price and Profit Performance of</u> Leading Food Chains, 1970-74, p. 132.

⁵⁷Ibid., pp. 77-79.

⁵⁸Louis P. Bucklin, <u>Competition and Evolution in the Distributive</u> <u>Trades</u> (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1972), p. 245.

⁵⁹Marion and Handy, p. 24.

⁶⁰Louis W. Stern and Thomas W. Dunfee, "Public Policy Implications of Non-Price Marketing and De-Oligopolization in the Cereal Industry" in <u>Public Policy and Marketing Practices</u>, ed. Fred C. Allvine (Chicago: American Marketing Association, 1973), p. 284.

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⁶¹Trial Brief, Volume I, p. 160.

CHAPTER IV

A MODEL OF RESELLER BEHAVIOR IN THE FOOD INDUSTRY

Introduction

The limitations of the theory of industrial organization arising from its traditional horizontal orientation are of particular concern when applying the theory to industries in which products are distributed through independent buyers and sellers. RTE cereals are distributed through such a vertical structure. In these channels each member has the ability to act independently in pursuit of their separate objectives. In industries in which decisions of both manufacturers and resellers affect industry performance in areas such as the level of prices and the range of consumer choice, a consideration of the structure, conduct, and performance of the manufacturing or the reselling sector alone represents an incomplete view. Antitrust policy based upon such a perspective may be seriously deficient and yield undesirable results.

The major objective of this study is to investigate the channel relationships in the RTE cereal industry. This allows the likely effects of the FTC's restructuring proposals for the manufacturing sector of the RTE cereal industry to be analyzed. The perspective guiding the study is that the responses of food wholesalers and retailers to these remedies

will play a major role in determining their ultimate effects.

The essence of the FTC's argument, based upon the structuralist model of industrial organization theory, is that retail prices of RTE cereals can be reduced by restructuring the manufacturing sector of the cereal industry. The retail prices of RTE cereals, however, are determined by the pricing decisions of manufacturers, wholesalers, and retailers and not by the decisions of manufacturers alone. To examine the influence of wholesalers and retailers on the retail prices of RTE cereals and to assess the feasibility of the proposed remedies, a model of food reseller behavior is developed and tested using data from an actual RTE cereal channel. Prior to undertaking this, however, it is necessary to discuss some general aspects concerning the relationships between manufacturers and resellers in distribution channels.

Channel Relationships: Economic and Behavioral

Two dimensions of the relationships among members of marketing channels have been distinguished. The first dimension is the formal legal relationships among manufacturers and the other channel members. These define the allocation of functional responsibilities and are primarily concerned with specifying the <u>economic</u> relationships among members.¹ The second dimension is the less formal <u>behavioral</u> or social relationships among members. Once the formal economic relationships have been established, behavioral relationships become an important determinant of the operational effectiveness of the overall channel. Together these two relationships define the nature and extent of dependency and therefore the distribution of power among members.

These two dimensions underlie two views of marketing channels found in the literature. The traditional, or channel efficiency, approach views the channel primarily as an economic system. The emphasis is upon the allocation of functional responsibilities among members in terms of economic efficiency. The perspective is that the optimal allocation of functions occurs when functions are allocated among members on the basis of which member can perform the function at the lowest cost. The shapes of cost curves and economies of scale become important factors determining the optimal allocation of functions.²

A more recent approach has been to view the channel as a social system.³ Concepts such as channel power,⁴ channel conflict,⁵ channel control,⁶ and channel leadership⁷ derived from similar concepts contained in the theories of inter-personal, inter-group, and inter-organizational behavior in areas of the social sciences, have been applied to the study of marketing channels. More recently, comprehensive models of inter-organizational relationships within marketing channels in which these various concepts are integrated have been put forward.⁸

The social system approach emphasizes that factors such as the distribution of power, the potential for conflict, and nature of communication among members must be considered when designing and managing a distribution channel. The optimal economic allocation of functions may require modification to account for behavioral relationships. The relative balance of economic and behavioral factors, however, will vary for different channel structures. For example, as the number of independent middlemen increase in indirect channels, the

coordination of inter-organizational behavior will become more difficult. The distribution of power to control key economic factors such as the profits of members becomes a central issue in channels of this type. By contrast, in direct or vertically integrated channels, the distribution of power assumes lesser importance. In these structures, one member basically has absolute power to control the activities of other members. In indirect channels, such as those in the food industry, power is more likely to be shared among members. The performance of the overall channel and the industry, therefore, is determined by the behavior of all channel members.

The rationale for the social system approach has been expressed by Stern and Brown as follows:

The channel of distribution has commonly been analyzed as an economic system. In other words, the laws of economics have been thought to coordinate the behavior of firms comprising the channel...although assuming economic laws are the means of coordination has produced valuable insights, recognizing other, perhaps more fundamental, social means produces additional understanding... Obviously channel relationships are predominantly economic in nature...[however] when studied as an economic system, the channel is simultaneously studied as a social system; the former is a subset of the latter. The <u>basic</u> variables are social variables.... Much channel behavior is left unexplained when examined under the limits imposed by economic assumptions.⁹

The essence of this view is the recognition that while the ultimate objectives of channel members are economic, for example, profit, sales volume, or market share goals, the achievement of these objectives requires the coordination of inter-organizational behavior. This requires that social variables such as the nature and distribution of power and the potential for conflict among members be considered.

While these factors are basically social in nature, major questions concerning power and conflict within channels ultimately arise from the underlying economic relationships among members. A primary source of conflict, for example, are differences in the economic objectives of channel members. While both manufacturers and resellers may seek to maximize rates of return on their respective investments, the policies they use to achieve this overall objective may generate conflict. The desire of a manufacturer to maximize market share, for example, may conflict with a reseller's objective of maximizing the profit contribution of each unit of wholesale storage or retail shelf space. An understanding of the economic behavior of members as they pursue their objectives is an essential step in anticipating and managing conflicts that may jeopardize the survival of the entire channel or one or more of its members. In a similar manner, major questions concerning power within channels arise ultimately from economic relationships.

<u>Sources of Power in Marketing</u>

Stern has identified the major sources of power within marketing channels as (1) reward power and (2) expert power.¹⁰

Reward Power

The ability of one channel member to influence the profits earned by other members is a significant source of power in marketing channels. In the food distribution channel, this involves the ability of a manufacturer to increase the profit margins earned by resellers either directly or through various price, volume, and promotional allowances.

The distribution of total rewards within this channel can be measured by criteria such as the relative levels of profit margins or the shares of total sales or profit. The greater the degree to which a manufacturer can influence a reseller's profit margins, the greater will be the economic dependence of the reseller on the manufacturer. The greater, therefore, will be the reward power of the manufacturer.

The extent of the manufacturer's power, however, also depends upon the proportion of the reseller's total sales or profits that are generated from sales of the manufacturer's products. The dependence of a reseller upon a manufacturer is clearly greater when the manufacturer's product contributes a large percentage of the reseller's total sales or profits. By contrast, when the contribution of a manufacturer to the reseller's overall sales or profit is relatively small, the reseller's dependence on the manufacturer, and therefore the manufacturer's power, is lessened. The relationship between manufacturers and resellers in the food industry falls within this latter category.

In indirect channel structures, the central issue is the <u>extent</u> of dependence of resellers on manufacturers for economic rewards. The ability of the reseller to influence his share of economic rewards must also be recognized. To examine this issue, it is necessary to investigate the nature of reseller behavior in areas that affect the share of rewards obtained by resellers. This primarily involves a consideration of how resellers make pricing, new product acceptance, product deletion, and space allocation decisions.

In the channel structures for grocery products such as RTE cereals, wholesalers and retailers are able to control certain variables

that affect their share of rewards. Retailers, for example, set their selling prices and can influence the sales volume of items they carry. In such channels, reward power is more likely to be shared between manufacturers and resellers. The distribution of reward power is ultimately based upon the degree to which channel members are able to make independent economic decisions. Problems concerning reward power arise when a member considers that he is not receiving an adequate share of the total profits being generated in the channel. Measures of reward power, therefore, include the distribution of profit margins among members and the proportion of a member's profit derived from the activities of other channel members.

Expert Power

Expert power derives from a member's knowledge, experience, and reputation in a particular area. In the RTE cereal industry, for example, Kellogg has a dominant position in the manufacturing sector. Other channel members, therefore, are likely to view Kellogg as possessing expert power. Kellogg could use this source of power to obtain preferential treatment from resellers in obtaining distribution access and in setting prices and margins for its products. In the RTE cereal industry, however, where competition in the manufacturing sector is mainly among a small group of large, experienced food manufacturers, resellers may not perceive significant differences in the expert power of major suppliers. Also, when resellers are independent of manufacturers, expert power is likely to be shared among manufacturers, wholesalers, and retailers as each is viewed as being a specialist in its area of operations.

The major criteria used to assess a member's expert power are also likely to be economic in nature. These include a member's market share, the growth of a member's products, new product or service innovations, and the level and quality of advertising and sales support given products. The nature of expert power in food industry channels is perhaps best illustrated by the criteria used by resellers when evaluating the new product offerings of manufacturers. Along with the product's profit potential, retail buyers evaluate a new product by: (1) the advertising support given the product by the manufacturer, (2) the reputation of the manufacturer developed from past new product successes, and (3) the degree of innovation demonstrated by the product.¹¹ These criteria are used by resellers as implicit measures of a manufacturer's expert power.

A major assertion of the arguments concerning the sources of power in marketing channels is that in channels consisting of independent members, such as those found in the distribution of food products, reward and expert power are shared. The power of a manufacturer's advertising and reputation, for example, must be assessed against the power of retailers to control distribution access. Each member is expert in his own area and each can influence the size of the other's returns. By contrast, in channel structures where manufacturers have virtually complete control over economic rewards, reseller behavior is largely circumscribed by the decisions of manufacturers.

The Role of Resellers in Food Industry Performance

In the food industry, reseller pricing decisions influence the level of retail prices and reseller merchandising decisions affect the range of consumer choice. A critical question in framing public policy in this industry is the extent to which resellers make these decisions independent of the pricing and product decisions of manufacturers. In channel structures where power rests with manufacturers, attempts to reduce this power by restructuring the manufacturing sector are more likely to affect reseller price and merchandising decisions in the desired direction. However, in channels where the power is shared, the effect on overall industry performance of restructuring only one level of the industry is less certain. Restructuring one level may merely shift power to another level with little effect on industry performance.

The essence of the FTC's "shared monopoly" theory is that high concentration, intensive advertising, brand proliferation, product differentiation, and shelf-space control provide cereal manufacturers with market power. This causes retail prices of RTE cereals to be 15-20 percent above the competitive level. The implicit assumption is that manufacturers also have channel power, that is the power to control the pricing decisions of RTE cereal resellers. The validity of this assumption, however, depends upon the extent to which the independent pricing decisions of wholesalers and retailers can influence the level of retail prices. The merchandising decisions of RTE cereal resellers, especially their new product acceptance, product deletion, and space allocation decisions, can also affect manufacturers' decisions and will influence the range of consumer choice among RTE cereals. It is necessary, therefore, to explore the nature of wholesaler and retailer behavior in these decision areas.

A Model of Reseller Behavior in the Food Industry

In the following section, a model describing the pricing and merchandising behavior of a profit maximizing food reseller (a wholesaler or a retailer) is developed. This model is used to analyze the relationships between manufacturers and resellers in the RTE cereal industry and the effect of these relationships on the overall performance of the industry.

Assumptions of the Model

The following assumptions guide the development of the model:

- 1. The objective of the reseller is to maximize profits
- 2. If the required investment outlay (for capital assets plus merchandise inventories) for a reseller is I and the minimum acceptable rate of return on this investment is r, rI represents a normal profit margin
- A reseller's decision to carry a product is based upon the product's ability to contribute a profit greater than, or equal to, the level of normal profit, rI¹²
- The level of capital investment is assumed to be fixed. In economic terms, the model focuses on short-run reseller behavior.¹³

Contribution-to-Profit Concepts

Two major investments dominate the asset side of a reseller's balance sheet: (1) capital investments in warehouse and equipment (wholesaler) and in store and equipment (retailer) and (2) current investments in merchandise inventories stocked in the warehouse or store. For a given level of fixed investment in a warehouse or store, the ability of a reseller to increase profit depends primarily upon the efficiency with which inventory investment is managed. To maximize profit and the rate of return on existing investments, the reseller must optimize the use of available warehouse storage or retail shelf space. This is achieved by allocating this space among products on the basis of the net contribution-to-profit per unit of space.

A product's net contribution-to-profit is measured as: Net Contribution-to-Profit = [Selling Price - (Purchase Price + Direct Product Costs)] x Unit Sales. Alternatively, Net Contribution-to-Profit = (Gross Margin \$ - Direct Product Costs) x Unit Sales. Direct product costs are those costs directly associated with an individual product. The major categories of direct product costs for food resellers are warehousing, delivering, in-store unloading, shelving, bagging, and ringing-up costs.¹⁴

Several operational methods for measuring and allocating direct product costs at the individual item level have been developed. These are the Direct Product Profit method for grocery stores¹⁵ and the. Merchandise Management Accounting method for department stores.¹⁶ However, because of the practical difficulties of measuring and

allocating direct costs for as many as 30,000 items at wholesale and 8,000 items at retail, the net contribution-to-profit measure has not been widely applied. The most commonly used method despite its inherent limitations is the simpler gross contribution-to-profit measure. The application of this method has been facilitated by the development of computerized information systems that provide most large grocery wholesalers and retailers with gross contribution-to-profit data at regular intervals on all items carried. An example is Wetterau's HOPE (Higher Operating Profits through Efficiency) system. This computerized merchandising and space allocation system ranks items at the individual retail store or warehouse (wholesale) level by their gross dollar and percentage profit contributions.¹⁷

An item's gross contribution-to-profit is measured as: Gross Contribution-to-Profit = (Selling Price - Purchase Price) x Unit Sales.

Alternatively,

Gross Contribution-to-Profit = Gross Margin \$ x Unit Sales. The relationships among the three variables, gross contribution-toprofit, gross margins, and unit sales, define the food reseller's basic profit equation. These relationships provide basic guidelines for reseller pricing, product acceptance and deletion, and space allocation decisions.

The use of the gross instead of the net contribution-to-profit criterion raises fewer problems when it is applied to product categories in which all items have similar levels of direct product costs. In the case of RTE cereal items, for example, which are among the bulkiest of dry grocery items, differences in direct product costs among items are not likely to be as great as the differences in these costs between RTE cereal items and less bulky product categories such as canned soup and bath soap. This requires that when using gross contribution-to-profit to reallocate storage or shelf space between two product categories, for example, cereals and soups, adjustments should be made to gross contributions to allow for differences in direct product costs.

The Contribution-to-Profit (CTP) Model

A profit maximizing reseller will view a wholesale warehouse or retail store as essentially nothing more than a large box of goods.¹⁸ To maximize return on a given level of investment, the reseller will stock this box with the mix of goods that contributes the highest overall level of profit. This is achieved by maximizing the profit contribution of each available unit of storage or shelf space. In terms of the relationships among gross contributions-to-profit, gross margins, and sales, a reseller has several policy options in attempting to achieve profit contribution objectives. For example, for a given gross margin level, the higher the unit sales of an item, the higher will be its gross contribution-to-profit. Alternatively, the higher the unit sales of an item, the lower need be its gross margin for the reseller to achieve a specific profit contribution for that item. The reseller, therefore, can attempt to adjust either gross margins or unit sales (or a combination of both) to achieve item and overall profit contribution objectives. Contribution-to-profit criteria, therefore, provide resellers with a set of guidelines for profit control.

A key factor affecting the food reseller's profit result is the inventory turnover rate during a particular period. An item's inventory

turnover rate is primarily determined by its level of unit sales during a given period. For the representative grocery chain used in this study, the average value of merchandise inventories represented approximately 70 percent of the value of the chain's current assets and 45 percent of the value of the chain's total assets for the period 1974 to 1976. The value of inventory carried, therefore, exerts a significant leverage effect upon the rate of return a reseller earns on total investment. The carrying cost of inventories is minimized by carrying those items with the highest turnover rates where turnover rate is measured by unit sales/average unit inventories. The higher the turnover rate, the lower is the average value of inventory stocked and the greater is the reseller's profit and rate of return on investment. Conversely, as turnover falls, the cost of carrying inventory increases and profits and return on investment decline. The profit maximizing reseller will carry only those items having unit sales levels high enough to produce turnover rates that maximize the profit contribution per unit of storage or shelf space. The CTP model provides resellers with guidelines for making optimal decisions in three key profit areas: pricing, assortment selection (product acceptance and deletion), and space allocation.

CTP as a Basis for Pricing Decisions

The basis for optimal reseller pricing decisions lies in the relationships among the variables in the reseller's profit equation. It requires the adjustment of gross margins to achieve profit contribution objectives at the individual item, product category, department, and overall warehouse or store level.¹⁹ These adjustments are made on

the basis of differences in unit sales and turnover rates among items. A profit maximizing reseller will only carry slow moving (low unit sales) items, for example, if their gross margins can be set high enough to contribute acceptable levels of profit. If acceptable contributions are not being generated, the reseller will attempt either to (1) increase gross margins on these items (by negotiating reduced purchase prices from manufacturers, by increasing selling prices to consumers, or through a combination of these two measures) or (2) increase their unit sales, perhaps through increased manufacturer or reseller advertising and promotional support. If these measures are either not possible or unsuccessful, the profit maximizing reseller will delete the low profit contributing item from his assortment and allocate its storage or shelf space to a suitable item yielding a higher contribution-to-profit. For high unit sales items, prices and gross margins can be set at lower levels to achieve profit contribution objectives. The retail price of an item is the end result of the process of gross margin adjustment in response to variations in the unit sales levels of items. This optimal form of pricing behavior will not be used for all items. Some items, such as coffee, which are typically used as loss leaders, will show negative margins and profit contributions. These losses, however, will be offset by higher margins on other product categories. The objective of the reseller is to achieve an overall profit objective. The CTP approach provides the general guidelines for pricing to achieve this objective.

CTP as a Basis for Merchandise Assortment Decisions

The CTP model also provides guidelines for optimal assortment decisions. The objective of the reseller is to carry the assortment of items that maximizes the profit contributed per unit of storage or shelf space. A ranking of all items carried in terms of their gross dollar profit contributions will identify strong and weak performers. The latter become likely candidates for deletion. Similarly, new product offerings can be evaluated on the basis of their expected contributionto-profit. This requires estimates of unit sales and gross margins. New product offerings can be ranked in terms of their expected CTPs and decisions regarding their acceptance or rejection made on this basis. Studies of new product evaluation procedures used by retail and wholesale buyers indicate that sales potential, expected gross margins, and therefore expected profit contribution are important criteria used in the acceptance/rejection decision process.²⁰ Doyle and Weinberg have developed a formal screening procedure for supermarket new product evaluation decisions which utilizes the contribution-to-profit approach for assortment decision making.²¹

CTP as a Basis for Space Allocation Decisions

The CTP model also provides the reseller with guidelines for optimal space allocation decisions. Contribution-to-profit criteria can be used to adjust space among items within a single product category (for example, between Corn Flakes 18 oz. and Cheerios 15 oz.), among product categories (for example, RTE cereals and cake mixes), and among departments (for example, dry groceries and frozen foods). At the

retail store level, for example, the relative CTP of items provides a rational method of allocating shelf space among items within a product category (high CTP items, for example, could be given preferred shelf positions or multiple facings) or for allocating space among product categories or departments. When using gross CTPs to adjust space allocations among different product categories or departments, however, allowances must be made for differences in (1) direct product costs and (2) investment costs per unit of space. A unit of refrigerated space for frozen foods, for example, costs more than a unit of shelf space for dry groceries.

Table 4-1 illustrates how CTPs would be used to make assortment and space allocation decisions. Assume that only two dry grocery product categories are considered, laundry detergents and RTE cereals. Ranked arrays of hypothetical CTPs for a sample of the items in each category are shown in Table 4-1. In the two arrays shown, the laundry detergent category contributes 3.18 percent of the reseller's total profit while RTE cereals contribute 2.32 percent. Comparing the CTPs at the item level, the last item on the laundry detergent list shows a CTP of .0012 (item 0010) while in the RTE cereal category, the eighth item (item 1118) shows the same CTP. The conclusion is that the laundry detergent category should be allocated a larger amount of space by deleting items 1119 and 1120 from the RTE cereal category. Either some new product should be added to the laundry detergent category that will yield a CTP higher than .0012 or the additional space should be allocated to higher CTP items already being carried.

Laundry Detergents		RTE Cereals	
Item No.	CTP (%)	Item No.	CTP (%)
0001 0002 0003 0004 0005 0006 0007 0008 0009 0010	.0100 .0098 .0060 .0040 .0030 .0020 .0018 .0016 .0014 .0012	1111 1112 1113 1114 1115 1116 1117 1118 1119 1120	.0060 .0050 .0040 .0020 .0018 .0016 .0014 .0012 .0010 .0008
TOTAL .0318		TOTAL .0232	

Table 4-1. CTP by Item and Product Category

SOURCE: Edward W. Smykay, Mary A. Higby, and Brian F. Harris, <u>Marketing Processes</u> (Chicago: Mindenhall Press, 1977), pp. 290-292.

Implications of the CTP Model for the RTE Cereal Case

The CTP model provides a basis for evaluating the possible effects on retail prices of the FTC's proposed restructuring remedies for the RTE cereal industry. The effects of the remedies on reseller profits will play a major role in determining whether the remedies are able to achieve their objective of reducing the retail prices of RTE cereals. If reseller profits are threatened by divestiture and trademark licensing, implementation of these remedies could cause retail prices of RTE cereals to increase. If, for example, the remedies reduce the average unit sales or the turnover rates of a number of RTE cereal items, resellers will be forced to increase gross margins on these items to protect CTP objectives. Gross margins can be increased either by (1) negotiating with manufacturers for reduced buying prices or (2) increasing the selling prices of these items. A combination of these two measures most likely would be employed. Any adjustment of margins which increases selling prices will raise the retail prices of RTE cereals. The results would be diametrically opposed to those desired by the FTC.

Effects of Remedies on Reseller Profits

The divestiture and trademark licensing remedies could cause a reduction in the unit sales and turnover rates, and a decrease in reseller profit margins on a number of RTE cereal items for three reasons: (1) effects on distribution costs and retail availability of RTE cereals, (2) the splitting effect on brand sales of new national and private label brands, and (3) effects on the level of advertising expenditures.

Distribution Costs and Availability

Divestiture and exclusive trademark licensing would shift the production of five well established national brands, including Rice Krispies, Special K, and Wheaties, to a single plant location. Brands likely to be affected by these two remedies presently account for approximately 20 percent of the total dollar sales of RTE cereals. In general, larger market share brands are now produced at a number of geographically dispersed plants. In addition to being production points, these plants also serve as distribution centers for all the brands produced by the manufacturer. Their locations provide a basis for both manufacturers and resellers to achieve distribution economies in transportation, handling, and storage and allow resellers to keep inventories at minimum levels. Centralizing production of these brands is likely to increase the distribution costs of RTE cereals. Some of the possible effects of such a shift are: (1) reduced opportunities for new entrants to compete with existing manufacturers on a price basis because of higher distribution costs, (2) increases in manufacturers' selling prices to wholesalers and retailers ultimately placing upward pressure on retail prices, and (3) increased availability and out-of-stock problems due to the higher costs of transporting smaller volume shipments of fewer brands over longer distances.

Cost advantages to resellers of a single manufacturer supplying a large number of brands (for example, Kellogg produces approximately twenty-five different brands of RTE cereals) include the economies of ordering and buying multiple items from a single manufacturer and the transportation and inventory cost savings of more regular shipments of multiple brand car-load lots. Reducing the average distance between the manufacturer and the reseller shortens shipping time allowing resellers to keep inventory carrying costs at a minimum.

Any increase in distribution costs arising from dispersing the production of RTE cereals among a larger number of manufacturers will make it more difficult to achieve a reduction in the retail prices of RTE cereals. Increased distribution costs could also reduce the availability and therefore the unit sales of a number of RTE cereal items. This would force resellers to increase gross margins on these items as a means of protecting profit objectives.

Sales Splitting

Under the proposed trademark licensing provision, a firm can apply for the license to manufacture any trademarked brand currently produced by Kellogg, General Mills, or General Foods which has been on the market for five years. Except for Rice Krispies, Special K, Wheaties, and two other brands, any other trademarks could be licensed on a non-exclusive basis. At the present time, approximately forty brands would be eligible for non-exclusive licensing. Licenses most likely to be sought would be for proven brands with higher market shares or for those brands considered to be in growth markets.

If it is assumed that existing manufacturers having already lost at least one large market share brand through exclusive licensing will not completely abandon all of their non-exclusively licensed brands, the sales of a number of these brands will be split between two manufacturers. The total sales of a non-exclusively licensed brand, for example Kellogg's Sugar Pops, would be split between two brands, the original Kellogg brand and a second brand of Sugar Pops produced by a new entrant under license. From the viewpoint of the reseller, the units of storage or shelf space previously allocated to the Kellogg's brand now must be shared between these two versions. Even if the reseller decides to increase the total amount of space allocated to Sugar Pops, he will be faced with higher buying, shipping, and inventory costs as he must now deal with two manufacturers.

Splitting the sales of Sugar Pops between two manufacturers is also likely to reduce the sales per unit of shelf space for the original Kellogg's item. Assume, for example, that a retailer currently sells

2,000 cases of Kellogg's Sugar Pops annually at an average gross margin of 10 percent. If the entry of a second brand of Sugar Pops causes the sales of the Kellogg's item to fall to 1,500 cases, to achieve the same dollar profit contribution on the shelf space allocated to the Kellogg's item, the retailer will need to obtain a higher gross margin on each unit of Kellogg's Sugar Pops that he now sells. Some of this upward adjustment of margins on a number of similarly affected items will be in the form of increased retailer selling prices.

A similar splitting effect is likely to occur from the introduction of private label versions of existing RTE cereal brands. The FTC has argued that a major reason for the over-pricing of RTE cereals has been the limited extent of private labelling in the industry. One of the objectives of the remedies is to increase price competition by inducing new entrants to produce private label RTE cereals for wholesale and retail food chains. The major incentive for new entrants to do this is expected to come from the need to utilize the excess capacity of the plants they are to be given through divestiture. For example, at present market share levels, the allocation of Rice Krispies to the new entrant receiving Kellogg's Memphis plant will absorb only 40 percent of that plant's capacity. Similarly, the production of Special K will absorb only 62 percent of the capacity of Kellogg's San Leandro plant.²² One of the options available to the entrant to absorb this excess capacity would be to manufacture private label versions of the brands for which they obtain licenses.

From the reseller's viewpoint, the existence of a private label alternative to a national brand means that the sales of the item again

are split between the products of two manufacturers. This can lead to a reduction in the sales per unit of storage or shelf space for these brands. The response to this by resellers is again likely to put upward pressure on margins and prices. The potential splitting problem of private labels was recognized by the National Commission on Food Marketing:

The rate of turnover is important in considering private label because the adoption of private label usually means splitting a product line among brands, with a subsequent slower turnover in each.²³

The likelihood of splitting occurring is greater with the entry of a private label brand than for the entry of a second national brand version of an existing product. The essence of private label merchandising is to generate sales of private label by allowing consumers to compare the prices of the nationally branded and advertised label with the less advertised private label alternative. This requires that both versions be carried on retail shelves. In the case of two national brand alternatives, the reseller may choose to carry only that version with the highest contribution-to-profit.

In summary, if the divestiture and licensing remedies cause sales per unit of space of a number of RTE cereal items to decline for either of the two reasons discussed above, resellers face the possibility of reduced contributions-to-profit per unit of space occupied by these items. In terms of the CTP model, the reseller will attempt to increase margins on these items as a profit control measure. One likely effect of this would be to put upward pressure on the retail prices of a number of cereal items. If margins cannot be adjusted, the reseller would drop the item and either replace it with another RTE cereal item yielding a
higher profit or not replace it at all thus reducing the overall amount of shelf space allocated to cereals. These reseller decisions have a direct effect on two measures of the industry's performance: (1) the level of retail prices and (2) the range of consumer choice.

Levels of Advertising Expenditures

The FTC argues that a major reason for the high level of retail prices for RTE cereals is the high level of advertising expenditures used by the large manufacturers to support their brands. A major objective of the trademark licensing remedy is to discourage intensive brand advertising. With several manufacturers producing the same brand, the effect of brand advertising would be reduced. 24 As a result, advertising costs would fall, thus providing a source of reduced retail prices. These cost savings, however, could be offset by the effects of licensing at the reseller level. The CTP model suggests that resellers place lower gross margins on those items with the highest unit sales. Examples are Kellogg's Corn Flakes, Rice Krispies, and All Bran; General Mills' Cheerios and Wheaties; and General Foods' Honeycombs and Grapenuts. These brands are the most likely candidates for licensing. The large unit sales of these brands allow resellers to achieve profit objectives at lower gross margins. These brands also receive the largest share of manufacturer advertising budgets.²⁵ One reason for the high unit sales of these brands is likely to be the level of advertising support they receive.

Studies in other consumer product areas suggest that advertising can have a significant effect on reseller margins and prices through its effect on the sales volume and turnover rates of items. In a study of

the toy industry, for example, Steiner found that the introduction of large-scale television advertising for toys enabled retailers to set lower margins and retail prices on toys because of the effects on item sales and turnover.²⁶ The implication for the cereal case is that if the remedies, directly or indirectly, cause manufacturers to reduce the level of advertising for a number of items, a reduction in sales could result. Any decrease in unit sales or turnover rates would force resellers to increase margins and prices. This could offset any opportunities to reduce retail prices by the decrease in brand advertising costs.

The relationship between manufacturer advertising and margins and prices at the reseller level must be considered when evaluating the likely effects of the restructuring proposals on retail prices. Several relevant aspects of this relationship were contained in the conclusions of the 1966 National Commission on Food Marketing study. On the basis of the 1964 cost structures of the six major RTE cereal manufacturers, the Commission concluded that if manufacturers' advertising expenditures were reduced by 50 percent (from approximately 16 to 8 percent of sales), the retail prices of cereals would fall only $2\frac{1}{2}$ cents per pound, or 6 percent. This analysis, however, assumed that the reduction in advertising expenditures would not be offset by increases in other costs and would be fully passed on to consumers.²⁷ It therefore did not consider the possibility that some of these cost savings could be offset by the effects of reduced advertising on reseller profit margins. Any increase in gross margins at the reseller level would cause an even smaller reduction in retail prices. In addition, discussions with cereal

manufacturers suggest that the average advertising-to-sales ratio for the six major manufacturers has declined to approximately 10 percent in recent years. If it can be assumed that the overall cost structure has not altered significantly, on the basis of the Commission's assumptions, a reduction in advertising expenditures now would have an even smaller effect on retail prices than would have been the case in 1964.

Effects of Remedies on Relationships between Manufacturers and Resellers

The implicit objective of the remedies is to alter the existing pattern of relationships between cereal manufacturers and resellers through the stimulus of increased price competition. A key feature affecting the relationship between manufacturers and resellers in the food industry is that the products of a single manufacturer, or a group of manufacturers producing different brands in a single product category, represent only a small proportion of the total number of items carried by the food reseller. Approximately 110 RTE cereal items are carried in the average retail supermarket. This is only a small percentage of the 6,000 or so total items carried. The products of cereal manufacturers also contribute only a small proportion of a reseller's total sales and profits. In the grocery chain used in this study, for example, the cereal category contributes less than five percent of the chain's total profits. Cereals are only one relatively small item within the larger portfolio of product categories carried by a grocery reseller. This has a significant impact upon the nature of economic and behavioral relationships between food manufacturers and resellers.

Cadotte and Stern have identified two other broad factors that affect the relationships between resellers and manufacturers: (1) the relationship between the benefits received from, and the costs incurred by, resellers on behalf of manufacturers and (2) the availability of viable alternatives to resellers.²⁸ Each of these factors is relevant to issues raised in the RTE cereal case. The CTP model provides a means of analyzing the role of each in the RTE cereal industry.

Reseller Benefits and Costs

The primary benefit accruing to food resellers from carrying an RTE cereal product is the contribution the product makes to the reseller's profit. While there may be other benefits associated with carrying the product, for example, improving the image of the retail store or generating traffic within the store, in the long term, it is the item's ability to contribute profit that determines its success from the viewpoint of the reseller. If an existing item does not yield an acceptable contribution-to-profit, ultimately it will be deleted from the reseller's assortment. Similarly, if a reseller considers that a new item will not contribute a suitable level of profit, it will not be added to the assortment.

There are two types of costs incurred by resellers when carrying a manufacturer's product: (1) the direct costs of carrying the product and (2) the opportunity costs of allocating storage or shelf space to the product. As was discussed previously, each of these costs can be analyzed in terms of an item's contribution-to-profit. The net effect of the remedies on these benefits and costs (or profits) at the reseller level will largely determine their ultimate success. The CTP model

provides a means of analyzing these effects.

Availability of Alternatives to Resellers

The issue of available alternatives raises two issues relevant to the RTE cereal case: (1) the number of manufacturers from which a reseller can purchase RTE cereals and (2) the opportunities for the private labelling of RTE cereals by resellers.

<u>The number of manufacturers</u>. A major objective of the FTC's divestiture and trademark licensing remedies is to increase the number of cereal manufacturers from which resellers can purchase RTE cereals. At present, six major manufacturers (the four respondents plus Ralston-Purina and Nabisco) account for approximately 98 percent of sales. This suggests that wholesalers and retailers have only a limited number of viable supplier alternatives from which to choose items for their RTE cereal assortment. In many other grocery categories, however, fewer than six manufacturers are represented.

A critical public policy question is the optimal number of manufacturers for any grocery product category. Among the relevant factors are the total sales volume of the product category, its rate of growth, the extent of the consumer's demand for variety, the importance of brand or manufacturer loyalty in consumer buying behavior, and the structure of the industry's production and distribution costs. In the RTE cereal industry, consumption per capita is relatively stable, consumer brand loyalty is low, and production economies are reached at approximately 5 percent of the market.²⁹ The effects of increasing the number of manufacturers on distribution costs, therefore, becomes a critical consideration. In product categories such as RTE cereals where consumers seek variety, the opportunities for standardizing production, that is for producing larger volumes of fewer varieties, are limited. In these industries, the primary sources of distribution efficiency are economies possible in the areas of buying and selling. J.M. Clark has identified three important areas of such economies: (1) economies arising from the ability of a selling force to handle a variety of related goods as compared with a more specialized line, (2) cost savings to both buyers and sellers of fewer, larger orders, and (3) savings in transportation and inventory costs from more frequent, car-load quantities shipped shorter distances from a single large manufacturer.³⁰

The divestiture and trademark licensing remedies would centralize the production of at least five large volume RTE cereals. This could increase reseller purchasing, transportation, and storage costs as resellers would be forced to spread their RTE cereal purchases over a larger number of manufacturers. This is likely to increase distribution costs because of the effects on overhead costs. The possibility of these increased costs must be considered when evaluating the likely effects of remedies designed to increase the number of cereal manufacturers.

<u>Private labelling by resellers</u>. Another objective of the remedies is to increase the number of private label RTE cereal brands. The willingness and ability of grocery wholesalers and retailers to manufacture their own private brands to compete with national brands has been viewed as a major source of countervailing power in grocery distribution channels.³¹ Private label brands provide a potential source of both price competition and shelf-space competition for national brands.

In 1975, the share of all retail food sales accounted for by private label brands was approximately 15 percent.³² This share has remained relatively constant since the early 1970s.³³ The strongest private label food categories are frozen and refrigerated food products. In 1975, private label brands accounted for an average of 23 percent of the retail sales of products in these categories.³⁴ The shares of private label retail sales for a selected group of food products are shown in Table 4-2.

Table 4-2. Private Label Share of Sales for Selected Food Products, 1975

Product Category	Share Private Label (%)	Product Category	Share Private Label (%)
Frozen vegetables	58.0	Pickles and relishes	24.6
Frozen juices and		Shortening and oils	17.5
arinks	40.4	Juice drinks	12.4
Frozen fruits	39.2	Coffee	12.0
Canned and bottled fruits	39.1	Candy	9.4
Margarine and butter	33.5	Soups	8.9
Canned vegetables	32.3	Baking mixes	6.4
Sugar	29.4	Pet foods	4.2
Canned and powdered	07.0	Cereals	1.7
milk	27.2	Baby foods	0.8
Canned and bottled juices	25.9		

SOURCE: "Progressive Grocer's Brand Power Study", <u>Progressive</u> <u>Grocer</u>, October 1976, pp. 48-49.

Characteristics of private labels. The FTC argues that a major cause of "shared monopoly" in the RTE cereal industry has been the respondents' ability to discourage the production of private label cereals. To evaluate this argument, it is useful to investigate the characteristics of those food product categories in which the private label share of sales is high. This will permit an assessment of RTE cereals as likely private label candidates. Table 4-2 shows that the strongest private label areas are frozen and canned fruits, vegetables, and juices. Cereals are among the weakest areas of private labelling. Resellers are attracted to private labels for several reasons. First, the more generic, commodity nature of products such as frozen and canned fruits, vegetables, and juices creates limited opportunities for physically differentiating these products. The cost advantages from manufacturing these commodity-type products in large volumes provides food resellers with the opportunity to offer these items at prices lower than those for national brand alternatives. In general, as the scope for differentiating a product declines, the opportunities for profitable private labelling tend to increase.

Another distinguishing characteristic of food products having high private label market shares is that they are categories in which consumers spend a relatively large proportion of their food bill. In 1975, for example, for every \$10 spent in retail stores on processed food products, approximately \$2.75 was spent on frozen and canned foods.³⁵ The relatively large dollar volume of these product categories allows retailers to achieve high turnover rates necessary to generate satisfactory levels of profit from private labels. In general, as the dollar

sales volume of a commodity-type product category increases, it becomes a more attractive private labelling opportunity for resellers.

The relationship between the pattern of private labelling and the dollar volume of sales can be seen from Table 4-3 in which the twelve largest food product categories in 1972 are listed.

Product Category	Value of Shipments (\$ million)	Product Category	Value of Shipments (\$ million)
Canned fruits and vegetables	4,044	Frozen fruits and vegetables	1,849
Canned foods	3,687	Cookies and crackers	1,764
Frozen foods	3,181	Sugar	1,743
Confectionery	2,473	Pickles, sauces, and	1 1 6 7
Flour	2,380	aressings	1,10/
Coffee	2,329	Cereals	1,126
Shortening and cooking oils	2,068		

Table 4-3. Value of Shipments, Food Products, 1972

SOURCE: 1972 Census of Manufacturers.

Frozen and canned products provide attractive private labelling opportunities because of their large sales volumes. Cereals, on the other hand, have a relatively small total sales volume. They are also more amenable to differentiation. Consumers are more likely to be responsive to price differentials for those items which they spend a sizeable portion of their food dollars. The fact that consumers spend only a small percentage of their food dollars on RTE cereals has other implications for proposals aimed at reducing retail prices. In a study done in conjunction with the National Commission on Food Marketing, Headen and McKie estimated that, in 1965, the annual savings for a median income family from a 20 percent reduction in RTE cereal retail prices would be only \$1.45 or approximately 45 cents per capita.³⁶ These characteristics help explain the low market share of private labels in RTE cereals.

The relative contribution-to-profit of private labels. The major advantage of private labels, from the retailer's viewpoint, is that lower retail prices are possible when compared to national brand alternatives. In 1966, the National Commission on Food Marketing estimated that the average retail price advantage of private brands over national brands was approximately 20 percent.³⁷ In recent years, however, this price differential has narrowed. A 1975 study by the trade magazine Progressive Grocer, however, indicated that the average difference had declined to approximately 5 percent.³⁸ Despite the lower average retail prices of private labels, however, retailer gross margins on national and private brands are not substantially different. The National Commission calculated that, in 1964, the average reseller gross margin on national brand food products was 22.4 percent and 24.8 percent for private labels.³⁹ The Progressive Grocer study confirmed that, in 1975, private label gross margins were still only marginally higher than those on national brands.⁴⁰ A major reason for this narrow margin differential is that the responsibilities and costs of performing certain channel functions are shifted from the manufacturer to the retailer for

private labels. Retailer selling costs increase, for example, as the retailer assumes responsibility for advertising private labels.

The CTP model, however, indicates that gross margins are only one side of the reseller's profit equation. An item's contribution-toprofit also depends upon its unit sales and turnover rate. This view of the reseller's profit equation was recognized by the National Commission:

Gross margin is...not a complete indicator of relative profitability. If one item sells much faster than another, it may generate much more profit for a given amount of shelf space. The rate of turnover is important in considering private label because the adoption of private label usually means splitting a product line among brands with a consequent slower turnover in each.⁴¹

The Commission concluded that, on a per unit of space basis, sales of private label brands were lower than those of advertised brands whereas gross margins per unit of space were not significantly different.⁴² The Progressive Grocer study confirmed that, in 1975, average turnover rates for private label brands were still lower than those for national brands. The turnover rates for food retailers and wholesalers in 1975 are shown in Table 4-4.

Brand	Turnover Rate Retail	(turns/year) Wholesale
National	21.0	20.1
Private	19.0	18.2

Table 4-4. Turnover Rates: National vs. Private Brands, 1975

SOURCE: "Progressive Grocer's Brand Power Study", Progressive Grocer, October 1976, p. 61.

The important implication is that from the viewpoint of relative contribution-to-profit per unit of space, while private labels have lower retail prices, this does not assure that they are a more attractive profit proposition to resellers than national brands. One likely reason for higher turnover rates of national brands is the large advertising expenditures that support them. The resulting higher sales per unit of space and turnover rates compensate retailers for the slightly lower gross margins of national brands.

For these reasons, the strategy of a profit maximizing reseller would be to explore private label opportunities only in those product categories where the net profit contribution from private label brands exceeds that of national brand alternatives. While the desire of a reseller to counterbalance the power of manufacturers may provide another reason for private labelling, over the long term, the primary motive will be the relative profit results of these alternative strategies. The fact that private label brands account for less than two percent of cereal sales in the United States may not necessarily imply that this is due to a tacit conspiracy on the part of manufacturers to avoid this form of activity. A more insightful explanation may rest with the profit considerations of resellers and the nature of consumer behavior for RTE cereals.

Private labelling opportunities in the cereal industry. Another important question when evaluating the likely effects of the proposed remedies is the extent of private labelling opportunities present in the RTE cereal industry. The major manufacturer of private label RTE cereals is Ralston-Purina, which is also the sixth largest national brand

manufacturer. This firm already supplies the three largest national food chains, Safeway, A and P, and Kroger and the largest voluntary food chain, IGA Stores, with a range of private label RTE cereals. The major private label items supplied are the four largest market share RTE cereal items: corn flakes, rice crispies, sugar frosted flakes, and raisin bran. The sales volumes of these items apparently are considered large enough by resellers to support private labelling. In 1976, the sales of national brands of these four types of RTE cereals accounted for approximately 25 percent of the total dollar sales of RTE cereals.⁴³ This means that for national brand items that account for approximately onequarter of all RTE cereal dollar sales, a private label alternative already exists. These private label alternatives, however, have only been able to achieve about two percent of total RTE cereal sales.

Another private label RTE cereal manufacturer, Van Brode Company, stated in the Trial Brief for the case that a private label alternative is only viable for those RTE cereal items having at least a five percent share of the market.⁴⁴ If this is the case, with a restructured market consisting of a larger number of manufacturers, only a very limited number of brands are likely to achieve such a level of sales. There may be, therefore, only limited private labelling opportunities available for a new cereal manufacturer. In addition, studies have shown that sales of private label food items tend to be heavily concentrated in the hands of the largest food chains.⁴⁵ Since Ralston-Purina already supplies private label RTE cereals to the three largest national chains and the largest voluntary chain, the extent of private labelling opportunities available to new entrants is limited further.

An alternative explanation for the relative lack of private labelling in RTE cereals may be, therefore, the reluctance of resellers to undertake this activity on any large scale because of the relative profit contribution levels on private label brands. This reluctance seems to be supported by consumer demand characteristics for RTE cereals. The heavy switching among RTE cereal brands that has been observed suggests that the consumer's desire for variety in RTE cereals is strong.⁴⁶ When these findings are coupled with research results indicating that consumers may not be particularly price conscious in their choice among cereals, RTE cereals may not be a very attractive category for private labelling.⁴⁷ Since the amount spent by consumers on cereals comprises a very small percentage of the total food bill, a 5-10 percent difference between the prices of a private label and a national brand RTE cereal represents a very small dollar saving which helps explain the observed lack of consumer price consciousness.⁴⁸

The major attraction of national brands to resellers is their higher sales and turnover per unit of space. For the grocery chain selected in this study, the average turnover of RTE cereal brands during the period 1973 to 1976 was approximately 29 times per year. This compares with about 20-23 times average turnover on all food grocery items. In terms of the CTP model, higher sales and turnover rates allow resellers to achieve profit contribution objectives at lower margins and prices. Any increase in the number of slower turning, private label RTE cereals would reduce profit contributions on RTE cereals unless resellers (1) increase gross margins, and hence prices, on private label cereals, (2) increase gross margins on other RTE cereals to achieve

profit objectives for the cereals category overall, or (3) increase margins on other grocery product categories to compensate for the lower profits contributed by the cereal category. The exact quantitative relationship between short-term changes in gross margins and prices is difficult to predict as it depends upon factors such as crosselasticities and local retailer competition. In the longer term, however, margins and prices will tend to move in the same direction.⁴⁹ As gross margins at wholesale and retail increase, prices at wholesale and retail will also tend to increase. The effects of the remedies on reseller profits, and the resulting profit control adjustments to margins and prices by resellers, will play a key role in determining the effects of the proposed remedies on the retail prices of RTE cereals. The CTP model provides a means of analyzing and predicting the likely responses of resellers.

Conclusion

The objective of this chapter was to investigate the behavior of a hypothetical, profit-maximizing reseller operating within a distribution channel of the type found in food product markets such as RTE cereals. The contribution-to-profit model was put forward as a description of this behavior. With this model, the relationships between food manufacturers and resellers were analyzed. If, in fact, resellers behave in the manner described by the model, some serious questions were raised concerning the likelihood of the FTC's proposed remedies producing a reduction in the retail prices of RTE cereals. The possibility even exists that such remedies could cause retail prices to increase. Up to this point, however, the arguments presented have been basically hypothetical in nature. A series of questions have been raised which must be developed into more formal hypotheses concerning issues relevant to the RTE cereal case. The focus now shifts to the specification of these hypotheses and to their empirical investigation. The focus of this investigation is to test the validity of the theoretical contribution-to-profit model with actual data on RTE cereals obtained from a representative food reseller.

Chapter IV--Footnotes

¹The traditional grouping of marketing (or channel) functions is as follows: buying, selling (exchange functions); transportation, storage (physical distribution functions); standardization, market financing, risk bearing, market information and research (facilitating functions). These functions are discussed in Theodore N. Beckman and William R. Davidson, <u>Marketing</u> (New York: The Ronald Press Company, 1962), p. 390.

²Bruce Mallen, "Functional Spin-Off: A Key to Anticipating Change in Distribution Structure", Journal of Marketing 37 (July 1973): 18-25.

³Louis W. Stern and Jay W. Brown, "Distribution Channels: A Social Systems Approach" in <u>Distribution Channels: Behavioral</u> <u>Dimensions</u>, ed. Louis W. Stern (Boston: Houghton Mifflin Co., 1969), pp. 6-17.

⁴Frederick J. Beier and Louis W. Stern, "Power in the Channel of Distribution" in Distribution Channels, ed. Louis W. Stern, pp. 92-116.

⁵Larry J. Rosenberg and Louis W. Stern, "Conflict Measurement in the Distribution Channel", <u>Journal of Marketing Research</u> 8 (November 1971): 437-442.

⁶Louis W. Stern, "The Concept of Channel Control", <u>Journal of</u> <u>Retailing</u> 43 (Summer 1967): 15-20, 67 and Louis P. Bucklin, "A Theory of Channel Control", <u>Journal of Marketing</u> 37 (January 1973): 39-47.

⁷Bruce Mallen, "A Theory of Retailer-Supplier Conflict, Control, and Cooperation", <u>Journal of Retailing</u> 39 (Summer 1963): 24-32 and Robert W. Little, "The Marketing Channel: Who Should Lead this Extracorporate Organization?", <u>Journal of Marketing</u> 34 (January 1970): 31-38.

⁸Ernest R. Cadotte and Louis W. Stern, "A Process Model of Interorganizational Relations in Marketing Channels" in <u>Research in</u> <u>Marketing</u>, ed. Jagdish N. Sheth (Greenwich, Conn.: JAI Press, forthcoming).

⁹Stern and Brown, pp. 12-13.

¹⁰Louis W. Stern, "The Interorganization Management of Distribution Channels: Prerequisites and Prescriptions" in <u>New Essays in Marketing</u> <u>Theory</u>, ed. George Fisk (Boston: Allyn and Bacon, Inc., 1971), p. 308. ¹¹For research on the criteria used by retail buyers see: John F. Grashof, "Supermarket Chain Product Mix Decision Criteria: A Simulated Experiment", Journal of Marketing Research 7 (May 1970): 235-242; "How Buyers Foretell New Product Success", Chain Store Age: Cooperatives and Voluntaries Edition (December 1974): 30-32; and Michael D. Hutt, "The New Product Selection Process of Retail Buying Committees: An Analysis of Group Decision-Making" (Ph.D. dissertation, Michigan State University, 1975).

¹²Assumptions 2 and 3 are also used by Naert in his model of a vertical market structure. See Philippe A. Naert, "Optimizing Consumer Advertising, Intermediary Advertising and Markup in a Vertical Market Structure", Management Science 18 (December 1971): P-91.

¹³The short-run and long-run are linked as follows: In the longrun, I will increase if rI is greater than normal (for example, as in the case of expanding retailers such as Sears and K-Mart) and I will be reduced if rI is less than normal (for example, in the cases of A and P, and W.T. Grant).

¹⁴McKinsey-General Foods Study: The Economics of Food Distributors (White Plains, N.Y.: General Foods Corporation, October 1973), p. 28.

¹⁵<u>The McKinsey Manual of Direct Product Profit</u> (Washington, D.C.: McKinsey and Company, Inc., October 1964).

¹⁶Harvey E. Krapnick, Jr., "Merchandise Management Accounting" in <u>The Frontiers of Marketing Thought and Science</u>, ed. Frank M. Bass (Chicago: American Marketing Association, 1958), pp. 120-134.

¹⁷"Progressive Grocer's Brand Power Study", <u>Progressive Grocer</u>, October 1976, pp. 69, 71.

¹⁸Edward W. Smykay, Mary A. Higby, and Brian F. Harris, <u>Marketing</u> <u>Processes</u> (Chicago: Mindenhall Press, 1976), p. 288.

¹⁹Ibid., pp. 473-478.

²⁰Grashof, pp. 235-242.

²¹Peter Doyle and Charles B. Weinberg, "Effective New Product Decisions for Supermarkets", <u>Operational Research Quarterly</u> 24 (March 1973): 45-54.

²²FTC's Complaint Counsel Trial Brief - In the Matter of Kellogg Company et al., Docket No. 8883, Federal Trade Commission, 1976, Volume I, p. 123.

²³National Commission on Food Marketing, <u>Organization and</u> <u>Competition in Food Retailing: Technical Study No. 7</u> (Washington, D.C.: Government Printing Office, 1966), p. 133 ²⁴Trial Brief, Volume IV, p. 127.

²⁵Willard F. Mueller, "Marketing Competition in Oligopolistic Industries: The Attack on Advertising" in <u>Public Policy and Marketing</u> <u>Practices</u>, ed. Fred C. Allvine (Chicago: American Marketing Association, 1973), p. 301.

²⁶Robert L. Steiner, "Does Advertising Lower Consumer Prices?", Journal of Marketing 37 (October 1973): 19-26.

²⁷National Commission on Food Marketing, <u>Studies of Organization</u> <u>and Competition in Grocery Manufacturing: Technical Study No. 6</u> (Washington, D.C.: Government Printing Office, 1966), p. 231.

²⁸Cadotte and Stern, p. 3 (mimeographed).

²⁹National Commission on Food Marketing, <u>Study No. 6</u>, p. 53 and Trial Brief, Volume IV, p. 117.

³⁰John M. Clark, <u>Studies in the Economics of Overhead Costs</u> (Chicago: University of Chicago Press, 1923), pp. 130-131.

³¹Louis W. Stern, "The New World of Private Brands", <u>California</u> <u>Management Review</u> 8 (Spring 1966): 43-50.

³²"Progressive Grocer's Brand Power Study: National Brands, Private Labels and how they compare", <u>Progressive Grocer</u>, October 1976, p. 49.

³³Ibid.

³⁴Ibid., pp. 48-49.

³⁵"How the Average Shopper Spent a \$20 Bill", <u>Supermarketing</u>, September 1976, p. 36.

³⁶Robert S. Headen and James W. McKie, <u>The Structure, Conduct, and</u> <u>Performance of the Breakfast Cereal Industry: 1956-64</u> (Cambridge, Mass.: Arthur D. Little, Inc., 1966), pp. 76-77.

³⁷National Commission on Food Marketing, Study No. 7, p. 137.

³⁸"Progressive Grocer's Brand Power Study", <u>Progressive Grocer</u>, January 1977, p. 44.

³⁹National Commission on Food Marketing, Study No. 7, p. 133.

⁴⁰"Progressive Grocer's Brand Power Study", <u>Progressive Grocer</u>, January 1977, p. 44.

⁴¹National Commission on Food Marketing, <u>Study No. 7</u>, p. 133.

⁴²Ibid.

⁴³John C. Maxwell, Jr., "New cereals paved way for gains in 1976", Advertising Age, 1 August 1977, p. 34.

⁴⁴Trial Brief, Volume I, p. 323.

⁴⁵The FTC concluded that 61 percent of private label production was purchased by the ten largest grocery chains compared to only 20 percent of national brand production. See FTC, <u>Economic Inquiry Into Food</u> <u>Marketing</u>, Part II (Washington, D.C.: U.S. Government Printing Office, 1962), pp. 12-13.

⁴⁶Evidence of high levels of brand switching has been found in the following studies: National Commission on Food Marketing, <u>Study No. 6</u> and "1976 Guide to Product Usage Profiles", <u>Progressive Grocer</u>, July 1976, pp. 53-54.

⁴⁷Progressive Grocer, November 1974, p. 41.

⁴⁸Supermarketing, September 1976, p. 36.

⁴⁹Joel B. Dirlam, "The Food Distribution Industry" in <u>The Structure</u> <u>of American Industry</u>, 5th ed., ed. Walter Adams (New York: <u>MacMillan</u> Publishing Co., Inc., 1977), p. 59.

CHAPTER V

RESEARCH DESIGN

Introduction

In the previous chapter, a theoretical model of the behavior of a profit maximizing food reseller was developed. The major proposition of this model is that a food reseller's optimal pricing, assortment, and space allocation decisions will be based on an item's net (or gross) profit contribution per unit of storage or shelf space. While this optimal behavior will be constrained by factors such as the nature of local retail competition, the characteristics of consumer demand, and the relative power of resellers and manufacturers, the model can be adjusted to take account of these factors. From the viewpoint of the RTE cereal case the most important conclusion of the previous chapter is that, if the contribution-to-profit (CTP) model describes reseller behavior for RTE cereals, restructuring the manufacturing sector through divestiture and trademark licensing may cause the retail prices of RTE cereals to increase.

The "shared monopoly" theory implicitly assumes that the primary determinant of retail RTE cereal prices is the behavior of large cereal manufacturers. The objective of the FTC is to reduce the level of retail prices by changing the structure of the manufacturing sector of the

industry. The expectation is that this will change the behavior of both manufacturers and resellers in such a way that retail prices will fall. For grocery products such as RTE cereals, however, retail prices are determined by the decisions of both manufacturers and resellers. The responses to the remedies by existing and new entrant manufacturers and by food wholesalers and retailers must be considered, therefore, when evaluating the likely effects of the remedies on retail prices.

In the empirical section of this study, data from an actual RTE cereal channel are used to investigate the relationships among some key variables that influence the level of retail prices for RTE cereals. On the basis of these relationships, the likely effects of the remedies on retail prices can be analyzed. This chapter describes the structure of the models used to analyze these relationships, the nature and sources of data used, and the specific research hypotheses investigated. Chapter VI will present the findings of the empirical investigation.

The Models

The level of retail prices for RTE cereals reflects the structure of profit margins throughout the distribution channel. The National Commission on Food Marketing (NCFM) calculated that the average manufacturer gross margin on RTE cereals was approximately 15 percent in 1964.¹ Discussions with cereal manufacturers during the course of the present study indicated that this was still a reasonably accurate average figure. The average reseller (wholesale plus retail) gross margin on RTE cereals during the period 1970 to 1976 was also approximately 15 percent.² This suggests that approximately one-half of the total gross margin on RTE cereals is accounted for by decisions made at wholesale and retail levels. Since gross margins are closely related to price levels, the influence of resellers on the level of retail prices for RTE cereals is significant.

The role played by resellers in the level of retail prices is highlighted by the multiplier effect of the gross margin decisions of resellers on prices. This is illustrated in Table 5-1.

Table 5-1. Relationship between Margin Structures and Prices for a Hypothetical Grocery Item

Manufacturer Cost/Case	\$10.00
Manufacturer Selling Price	\$11.75
Manufacturer Gross Margin (%)	15%
Manufacturer Gross Margin (\$)	\$1.75
Reseller Cost/Case	\$11.75
Reseller Selling Price	\$13.85
Reseller Gross Margin (%)	15%
Reseller Gross Margin (\$)	\$2.10

Table 5-1 shows that at the manufacturer level, a 15 percent gross margin represents a \$1.75 per case increase in cost. At the reseller level, however, the same gross margin produces a \$2.10 increase in cost and hence price. These relationships have important implications for the FTC's proposed remedies because they indicate the size of margin changes that would be needed to achieve a specified reduction in retail prices.

Table 5-2 analyzes some of these implications using actual data for a representative RTE cereal item carried by the grocery chain used in this study. The effects on margins and prices under a series of different assumptions are discussed. The manufacturer gross margin is assumed to be 15 percent.³ If it is assumed that the costs to the manufacturer of producing, selling, and distributing RTE cereals remain constant and wholesalers and retailers maintain gross margins at current levels to achieve profit objectives, any changes in retail prices will have a strong leverage effect on manufacturer margins. As shown in situation 2 in Table 5-2, to reduce retail prices by 10 percent (from \$16.30 to \$14.67 per case), for example, manufacturer gross margins would have to fall from 15 to 5.6 percent. This is well below the approximate 10 percent gross margin estimated by the NCFM for the average food manufacturers.⁴ At such low profit margins, few firms. existing or potential manufacturers, are likely to view the cereal industry as a suitable investment. On the other hand, if manufacturers' margins are reduced to 10 percent, again assuming resellers maintain their margins at existing levels, retail prices would fall by only 5.5 percent (from \$16.30 to \$15.40 per case). This is shown in situation 3. These relationships are generally consistent with the findings of the NCFM study which concluded that a 50 percent reduction in cereal manufacturers' gross margins (for example, from 15 to 7.5 percent) would cause retail prices to fall by only 6 percent.⁵

Retail prices could be reduced further if wholesale and retail margins as well as manufacturer margins were reduced. In terms of the CTP model, however, for resellers to maintain profit objectives, a fall

		Manufact	urer	WhoTesa	ler	Re	taller	
	Situation		Margin		Margin		Margin	
		COSt/Lase	(%)	COST/Case	(%)	COSt/Case	(%)	Price
1.	Initial situation	\$11.83	15	\$13.92	5	\$14.65	10	\$16.30
2.	Retail price reduced 10%	\$11.83	5.6	\$12.54	S	\$13.20	10	\$14.67
 Э	Manufacturer margin reduced to 10%	\$11.83	10	\$13.15	5	\$13.85	10	\$15.40
4.	Manufacturing costs increase 10% at 10% margin	\$13.01	10	\$14.45	2	\$15.21	10	\$16.95
5.	Manufacturing costs increase 10% at 15% margin	\$13.01	15	\$15.30	5	\$16.10	10	\$17.90

Relationship between Margins and Prices for a Representative RTE Cereal Item Table 5-2.

in an item's gross margin must be compensated for by an increase in sales per unit of space. Resellers can be expected to resist any attempt to reduce margins on RTE cereal items unless they believe that offsetting increases in unit sales are likely to occur. As was discussed in the previous chapter, the possibility exists that the FTC's remedies could cause a decline in the sales per unit of space for a number of RTE cereal items. If this is the case, wholesalers and retailers would resist any reduction in gross margins on RTE cereals.

It should also be recognized that the average reseller gross margin on RTE cereals is already below the average gross margin of grocery items. During the period 1970 to 1976, the average gross margin on RTE cereals carried by U.S. supermarkets was approximately 15 percent. The average gross margin for all grocery items carried was 21 percent.⁶ Resellers are compensated for these lower gross margins on RTE cereals, however, by their higher turnover rates and sales per unit of space.

There are several possible reasons for these higher sales levels and turnover rates. First, purchasing and delivery scheduling may allow resellers to maintain in-stock and in-transit inventories at minimal levels. If the proposed remedies lead to less frequent and more costly stock replenishment, however, the average level of inventory carried per cereal item is likely to increase. Second, the advertising expenditures of manufacturers, supported by shelf-space management programs that minimize out-of-stock situations, may generate higher than average levels of sales per unit of retail shelf space. Any effects of the remedies on these factors that cause unit sales to decline will lead resellers to resist any reduction in margins.

The possibility of the remedies causing an increase in manufacturers' costs was also discussed in the previous chapter. Table 5-2 shows the effects on retail prices if manufacturers' costs rise. If these costs increase by 10 percent, for example, situation 4 shows that retail prices will increase by 4 percent (from \$16.30 to \$16.95 per case) even if manufacturers' gross margins are reduced to 10 percent. If manufacturers maintain margins at 15 percent as shown in situation 5, a 10 percent increase in costs will raise retail prices by 9.8 percent (from \$16.30 to \$17.90 per case). These relationships suggest that it will be difficult to achieve a reduction in retail prices if the remedies cause an increase in manufacturers' costs.

In summary, since the level of retail prices for RTE cereals reflects the overall structure of gross margins within the channel, the empirical section of the study focused on an analysis of the factors that determine gross margins at the various levels of the RTE cereal distribution channel. This provided insights into the likely effects on retail prices of the FTC's proposed restructuring remedies. The general methodology used in the study is summarized in the following relationships:

```
Retail prices of RTE cereals = f(Structure of gross margins realized
throughout channel)
Gross margins of RTE cereals = f(Variables used by cereal manufactur-
ers and resellers when setting gross
margins on RTE cereals)
```

It was not possible, however, to obtain manufacturer gross margins at the individual RTE cereal item level. These data are considered highly confidential by manufacturers. An average manufacturer gross margin figure only was available. The NCFM investigated the cost

structures of the six largest cereal manufacturers in 1964 and calculated that the <u>average</u> manufacturing gross margin on RTE cereals was approximately 15 percent. Discussions with industry representatives during the course of this study suggested that this 15 percent figure is still a reasonably accurate average figure. Using the NCFM's average gross margin and cost structure data, it is possible to make certain assumptions concerning the likely effects of the remedies on manufacturers' gross margins. Table 5-2 illustrated, however, that the ability to reduce retail prices by reducing manufacturer gross margins is likely to be limited because of (1) the minimum profit margins acceptable to manufacturers and (2) the resistance of wholesalers and retailers to any decrease in their gross margins. For these reasons, the major emphasis of the empirical section of this study was on investigating the behavior of resellers when setting gross margins for RTE cereals.

The relationships between reseller gross margins and a set of factors that are considered likely to influence reseller gross margin decisions were investigated using multiple regression models. Separate models were analyzed at wholesale and retail levels. The general structure of the regression models investigated was as follows:

GMW =	$\beta_0 + \beta_1$ SAL	ESW + β_2 LSALESW + β_3 TORW + β_4 ROGS +
	β_5 manadv +	^β 6 ^{CUBE}
GMR =	^β 0 + β ₁ SAL	ESR + β_2 LSALESR + β_3 TORR + β_4 ROGS +
	^b 5 manadv +	β ₆ CUBE
where:	GMW = SALESW = LSALESW = TORW = ROGS =	gross margin of RTE cereal item at wholesale unit sales of RTE cereal item at wholesale log of SALESW turnover rate of RTE cereal item at wholesale unit sales growth rate for RTE cereal brand

MANADV	=	manufacturer advertising expenditures for
		RTE cereal brand
CUBE	=	cubic size of case lot of RTE cereal item
GMR	=	gross margin of RTE cereal item at retail
SALESR	=	unit sales of RTE cereal item at retail
LSALESR	z	log of SALESR
TORR	=	turnover rate of RTE cereal item at retail

The ability of the models to account for variations in the two dependent variables, gross margins at wholesale (GMW) and gross margins at retail (GMR), was analyzed using different formulations of these general models. These formulations consisted of different combinations of the independent variables. The specific formulations of these general models that were investigated are discussed in Chapter VI.

The Data

Data for the study were obtained from one of the largest cooperative grocery chains in the United States. In 1976, sales at the wholesale level of the chain were approximately \$500 million and the total retail sales of its 450 member stores were approximately \$700 million.

A grocery cooperative chain is defined as "a cooperatively owned retail buying group in which both multi-unit and single unit owners [retailers] band together to achieve strength of chain patterns of distribution".⁷ A cooperative grocery chain must be distinguished from a voluntary chain and a corporate chain. Most importantly, the locus of power differs in these three types of reseller organizations. In a cooperative chain, power effectively rests with the retail members. Wholesale operations of the chain are supervised by a board of directors consisting of representatives of member retailers. The management at the wholesale level is appointed by this retailer-controlled board. In a voluntary chain, retailers affiliate with a wholesaler usually under a common house name. Examples are the Supa Valu and IGA voluntary groups. Here the locus of power lies at the wholesale level. While the objective of cooperatives and voluntaries is to achieve economies through large volume purchasing, the locus and distribution of power and control differs in each of these two structures. In corporate chains such as A and P, Kroger, and Safeway, wholesale distribution centers and retail stores are owned and operated by a single corporate entity. Operating policies are standardized and controlled at the corporate level. The locus of power and control lies at the corporate head office.

A cooperative chain was considered to be most suitable for this study. To investigate the major issues of the study, it was essential to obtain data for RTE cereal items at wholesale and retail levels separately. Of the three grocery chain structures, it was necessary to select the one in which wholesale and retail operations can be separated most meaningfully. A cooperative chain was most suitable for this purpose.

A major benefit arising from membership in a cooperative chain is the periodic cash rebates given to retail members. These rebates are essentially the rewards of operating efficiently at the wholesale level. In the chain used in the study, for every \$100 worth of purchases made by a member retailer from the chain's wholesale operation in 1976, a cash rebate of approximately \$1.00 and non-cash returns (for example, advertising and promotional support) of approximately \$2.20 was given. For every \$100 worth of wholesale purchases, therefore, the member retailer received \$3.20, or a 3.2 percent rebate. The financial

significance of these incentives is highlighted when it is recognized that, in 1976, the average food retailer's before-tax profit margin on sales was only 1.3 percent.⁸ Member retailers, therefore, have a strong financial interest in ensuring that the wholesale functions of the chain are performed as efficiently as possible. In an effort to maximize these rebates, the wholesale function of a cooperative chain is designed to operate essentially as a separate business unit. For this reason, it was possible to obtain separate wholesale and retail level data for the study.

A major reason for selecting the actual chain used in this study was the availability of a large volume of accurate data made possible by the chain's use of a computerized information system that generates item level gross margin, unit sales, contribution-to-profit, and turnover data at regular intervals. Such data were made available for all RTE cereal items carried at wholesale and retail levels during the four year period, April 1973 to March 1977.

The 450 member retailers of this chain are served from two distribution centers. The wholesale purchases of RTE cereals by all 275 stores served by one of the distribution centers provided the wholesale level data for the study. These 275 stores account for 70-75 percent of the total wholesale sales volume of the chain.

At the retail level, a sample of eight of these 275 stores was selected. A large number of the member retailers of this cooperative are multi-unit members, that is, groups of two or more retail stores under common ownership. One of these groups, consisting of eight retail supermarkets, was selected as a representative sample of all the

stores within the chain. Data at the retail level were obtained from the computerized information system used by this group. In 1976, the total annual sales of these eight stores were \$52 million. This represented approximately 7.5 percent of the total retail sales of the chain's 450 member stores.

To test the representativeness of the chain and stores selected, three comparisons were made. Table 5-3 presents data for the overall distribution of sales by department for the 275 stores analyzed at the wholesale level, the eight stores analyzed at the retail level, and the averages for all supermarkets within the United States. Except for minor variations, the departmental sales patterns closely match the national average. The percentage of total sales contributed by the grocery department which includes the RTE cereal category is virtually the same for all three groups.

Department	Wholesale Level Sample (n=275)	Retail Level Sample (n=8)	Average all U.S. Supermarkets ^a
Groceries	62	63	62
Meat	20	19	20
Produce	7	7	8
General Merchandise			11
TOTAL	100%	100%	100%

Table 5-3. Sales by Major Department: Selected Stores vs. U.S. Average, 1975-1976

^aAdapted from Supermarketing, September 1976, p. 37.

The patterns of RTE cereal sales in the chain and stores selected were also compared with the national pattern. Tables 5-4 and 5-5 present data relevant to this comparison.

Company	Wholesale Level: % Total \$ Sales RTE Cereals	Retail Level: % Total \$ Sales RTE Cereals	U.S. Average \$ Shares % ^a
Kellogg	40.5	39.4	42. 5
General Mills	22.6	22.6	21.4
General Foods	17.7	18.1	16.8
Quaker Oats	8.7	9.0	8.9
Nabisco	5.0	5.8	4.2
Ralston-Purina	3.2	3.2	3.4
Other	2.3	1.9	2.8
TOTAL	100.0	100.0	100.0

Table 5-4. Market Shares of RTE Cereals by Manufacturer: Sampled Stores vs. U.S. Average, 1976-77

^aMaxwell data: Advertising Age, 1 August 1977, p. 34.

Tables 5-4 and 5-5 indicate that the sales of RTE cereals by manufacturer and by brand for the selected chain and stores are representative of the sales patterns for supermarkets generally. The similarity between the pattern of RTE cereal brand sales for the chain and the national figures suggests that consumer demand patterns for RTE cereals in the geographic areas served by the stores are similar to the overall national pattern. The major population center served by the retail store group selected is, in fact, frequently used by national brand manufacturers as a test market for consumer grocery products. In summary, even though the chain and stores used in the study were not randomly selected, they appear to have characteristics similar to those of food resellers generally.

Table 5-5. Market Shares of Top Ten RTE Cereal Brands: Sampled Stores vs. U.S. Average, 1976-77

Brand ^a	Wholesale Level: % Share \$ Sales	Retail Level: % Share \$ Sales	National % Share \$ Sales ^b
Cheerios (GM)	6.1	6.5	6.4
Sugar Frosted Flakes (K)	5.0	4.9	5.4
Corn Flakes (K)	4.7	5.3	5.0
Rice Krispies (K)	5.0	5.5	5.0
Raisin Bran (K)	3.8	4.1	4.4
Raisin Bran (GF)	3.7	3.6	3.6
Froot Loops (K)	3.1	3.0	3.1
Special K (K)	3.1	2.7	3.0
Wheaties (GM)	2.8	2.6	2.5
Grapenuts (GF)	2.3	2.0	2.4
TOTAL	39.6%	40.2%	40.8%

^aK = Kellogg, GM = General Mills, GF = General Foods. ^bMaxwell data: <u>Advertising Age</u>, 1 August 1977, p. 34.

The Variables

The following section presents a description of each variable used in the regression models, the methods used to collect data for each variable, and the relationships between the dependent variable, gross margins, and each independent variable suggested by theory and previous studies. The independent variables used in both wholesale and retail models consist of a set of demand and cost variables suggested by the literature as likely to influence the gross margin decisions of food wholesalers and retailers.

<u>Gross Margins at Wholesale (GMW) and</u> <u>Retail (GMR)</u>

The level of gross margins at wholesale and retail for each RTE cereal item provided the dependent variables in their respective models. For each RTE cereal item of the six major manufacturers carried at wholesale and retail for each of the four annual periods, 1 April 1973 to 31 March 1974, 1 April 1974 to 31 March 1975, 1 April 1975 to 31 March 1976, and 1 April 1976 to 31 March 1977, the percentage gross margin at wholesale and retail was calculated. The data were obtained from purchase and sales records maintained for each item either at the wholesale distribution center or at the head office of the group of retail stores selected.

For every purchase or sale of an RTE cereal item at wholesale or retail, the quantity (in cases) and prices of the transaction are recorded. Buying and selling prices are adjusted to take account of any discounts or allowances. The gross margin calculated for each transaction is, therefore, the actual margin earned on the item. At both wholesale and retail levels, a computerized information system compiles this quantity and price data and calculates a cumulative gross margin percentage for each RTE cereal item. In the regression models used in the study, the annual cumulative gross margins at wholesale and retail for each year ending 31 March were used as the wholesale gross margin (GMW) and retail gross margin (GMR) values for each item. The year end gross margin for each item is, therefore, the annual percentage values of the ratio: (selling price minus purchase price) ÷ selling price aggregated over all the purchases and sales of that item at either wholesale or retail during that year.

<u>Unit Sales at Wholesale (SALESW) and</u> <u>Retail (SALESR)</u>

Data for the annual unit sales (in cases) of each RTE cereal item made by the wholesale distribution center to the 275 retail stores it serves and by the eight stores at the retail level were obtained from the cumulative purchase and sales records maintained for each item at both these levels.

The major proposition of the CTP model is that gross margins and unit sales are inversely related at both the wholesale and retail levels. The rationale for this relationship can be illustrated by considering the nature of manufacturer and reseller behavior over the life cycle of an RTE cereal brand. For new brands to be accepted by resellers, their initial low unit sales must be offset by higher gross margins. As the level of sales increases, margins, and therefore prices, can be lowered. This pattern of reseller pricing behavior is consistent with the view of manufacturer pricing behavior expressed in the product life cycle theory.⁹ This theory proposes that in the introductory stage of a product's life, manufacturer selling prices are likely to be high to offset new product development costs and to take advantage of lags in competitor response. As sales increase, prices will tend to decline as competitors appear. For grocery products, such as RTE cereals, the
accompanying changes in retail prices reflect the adjustment of gross margins and selling prices by resellers in response to increases in unit sales as a product gains consumer support.

If the CTP model is a realistic description of reseller behavior in the RTE cereal category, an inverse relationship between an item's gross margin and its unit sales at both wholesale and retail would be expected. In both wholesale and retail level models, the natural logarithms of the unit sales variables (LSALESW and LSALESR) were used as alternative independent variables to the unit sales variables (SALESW and SALESR). These logarithmic transformations of the unit sales variables were used to assess whether the relationship between gross margins and unit sales is linear or non-linear.

Turnover Rates at Wholesale (TORW) and Retail (TORR)

The annual turnover rate of each RTE cereal item at wholesale (TORW) was measured by the ratio: total unit sales \div average unit inventories. Data for both these variables are recorded on a weekly basis for each RTE cereal item. The average level of inventory carried during each annual period was calculated from these weekly inventory figures and the annual turnover rate thereby determined.

It was not possible to obtain inventory data to allow the turnover rate of each RTE cereal item at retail (TORR) to be calculated. Due to the throughput nature of the chain's operations, however, over a period of a year, it could be expected that the turnover rate for an item within the <u>average</u> retail store of the chain should be

approximately equal to the turnover rate for the same item at the wholesale level. The value of the ratio: unit sales ÷ average unit inventory for an item at retail should be approximately equal to the value of this ratio at wholesale. Also, since the re-order cycles for RTE cereals at both wholesale and retail are approximately the same duration (weekly), the turnover rates at both levels should be similar. For these reasons, TORR was assumed to be equal to TORW in the retail level model.

The turnover rate variable was included in the models to allow the influence of inventory costs on gross margins to be investigated. These costs exert a strong effect on reseller profits. In general, the higher the turnover rate per unit of storage or shelf space of an item, the higher is its contribution to reseller profit. A profit maximizing reseller, therefore, would place higher gross margins on slower turning items.

This inverse relationship could be expected to be stronger at the wholesale level because of the larger number of items carried and the higher proportion of the value of merchandise inventories to total assets. The effect of slow moving items is likely to be even more significant on wholesaler profits than on retailer profits. It is expected, therefore, that wholesalers would pay particular attention to turnover rates and inventory carrying costs when setting gross margins.

In a study conducted in the United Kingdom, Ward found that differences in turnover rates were a significant factor in explaining variations observed in the level of both wholesale and retail gross margins among a range of product categories. Ward's cross-sectional

study used data for seventeen different kinds of wholesale businesses and thirteen kinds of retail businesses to test this proposition. Using regression models similar to those used in this study, he found that 53 percent of the variation in gross margins at wholesale and 57 percent of the variation at retail was explained statistically by differences in inventory carrying costs (measured at the inverse of dollar sales ÷ average dollar inventory). In terms of regression coefficients, he found that a five percentage point decline in the turnover rate at wholesale was associated with a three percentage point increase in gross margins. At retail, a five percentage point decline in turnover was associated with a 4.5 percentage point increase in gross margins.¹¹ A strong inverse relationship between turnover rates and gross margins was observed, therefore, at both wholesale and retail levels.

Ward's analysis was conducted at the product category level. In terms of a food retail operation, this is equivalent, for example, to comparing gross margin differences between the RTE cereal category and the soaps and detergents category. But the concern in this study focuses on the differences in gross margins among items within the RTE cereal product category. There is no reason to expect that the turnover rate is of lesser importance at this level. Turnover is a major variable in the reseller's profit equation and as such is expected to be an important factor considered by resellers when setting gross margins at the item level.

Turnover rate was used as an alternative independent variable to unit sales in the regression models at both wholesale and retail levels. The inclusion of both sales and turnover variables simultaneously would

present serious colinearity problems within the multiple regression models. If the CTP model is a realistic explanation of reseller behavior in the RTE cereal category, an inverse relationship between turnover rates and gross margins at both wholesale and retail would be expected.

Brand Growth Rate (ROGS)

The rate of growth of unit sales for each RTE cereal brand (the brand Kellogg's Corn Flakes, for example, consists of three items: Corn Flakes 12 ozs., 18 ozs., and 24 ozs.) was measured by the average annual percentage change in the brand's unit sales for the two most recent years. The unit sales data were obtained from the computerized purchase and sales records for each item.

The rate of growth of sales of a brand is likely to be a factor affecting reseller gross margin decisions. The product life cycle theory suggests that as a brand moves through various stages of its life cycle, pricing, and therefore gross margin, policies of manufacturers and resellers will be altered. In the introduction and growth stages, manufacturer selling prices and gross margins will tend to be high as manufacturers attempt to recoup development costs and take advantage of lags in competitor response. Prices and margins are also likely to be high to induce resellers to accept the new brand. As a brand's unit sales increase and it moves into the mature stage of its life cycle, competing brands will force manufacturers to reduce prices and margins. But since sales increase, resellers will be prepared to accept lower margins as they are able to achieve profit objectives at lower margins and price levels.

Buzzell has studied the nature of the RTE cereal product life cycle. He identified the most unique aspect of this category's life cycle as its "innovative maturity" phase.¹² Since 1945, the pattern of overall industry sales has been a relatively constant annual growth rate of approximately four to six percent. This overall industry growth trend, however, is comprised of separate growth trends for the different types of cereals: regular, pre-sweetened, nutritional, and more recently, natural cereals. The industry sales pattern consists of the introduction and growth phases of brands in newer cereal categories such as nutritional and natural cereals, superimposed upon the mature phases of regular and pre-sweetened cereals. For the period 1947 to 1964, Buzzell found that the growth that occurred in total industry sales was due entirely to the introduction of pre-sweetened cereals beginning in the late 1940s and nutritional cereals which entered the market in the mid 1950s. 13 The implication is that industry growth arises primarily from the development of new product categories. This provides a reason for the use by manufacturers of intensive new product development activities as a key strategy for achieving profit and growth objectives.

In this study, the average rate of growth of unit sales of a brand over the last two years was used to determine a brand's position in its life cycle. For reseller gross margin decisions, the most relevant distinction is likely to be between new and established brands. Both the product life cycle theory and the CTP model predict that gross margins on newer brands will be higher than those on established brands. It would be expected, therefore, that brands with higher growth rates are more likely to be newer brands. Higher growth rates, therefore,

should be associated with higher gross margins. As the growth rate approaches the industry average and brands enter the mature stage, gross margins should tend to decline. A positive relationship, therefore, would be expected between the gross margin of an item and the growth rate of its brand category.

Manufacturer Brand Advertising (MANADV)

Annual advertising expenditures for each RTE cereal brand carried at wholesale and retail were obtained from Multi-Media Reports published by Leading National Advertisers Incorporated. These data represent RTE cereal brand advertising expenditures at the national level. Approximately 85 percent of total manufacturer advertising expenditures for RTE cereals, however, is spent on television. 14 Of this, about 75 percent is spent on national network television and 25 percent on local spot television. With such a heavy emphasis on national television, the regional pattern of brand advertising expenditures should not differ significantly from the overall national pattern. The fact that the RTE cereal brand sales pattern within the geographic area served by the chain closely matches the national pattern suggests that the national pattern of advertising expenditures should be a reasonable representation of the expenditure pattern within this region. It was not possible to confirm this, however, as brand advertising data at levels less than the national level were not available.

The level of manufacturer advertising for a brand can affect reseller gross margins by (1) increasing the unit sales of an item, (2) reducing reseller selling costs, and (3) influencing reseller new product acceptance and merchandising decisions. If advertising increases the unit sales of an item, it exerts a direct influence on the reseller's profits. In terms of the CTP model, as the unit sales of an item increase, resellers are able to achieve profit goals at lower levels of gross margin per unit sold. The relationship between reseller gross margins and manufacturer advertising expenditures, however, may not be as strong as expected. In product categories such as RTE cereals, all major manufacturers find it necessary to advertise heavily to maintain market shares of established brands and to introduce new brands successfully. The <u>differential</u> effects of advertising on retail sales across RTE cereal items, therefore, may not be as significant as expected. The threshold levels of advertising expenditures are likely to be so uniformly large that significantly different sales effects for competing brands do not occur.

In several studies of advertising in the RTE cereal industry, the advertising elasticity of sales of established brands was found to be small.¹⁵ Relatively large advertising expenditures, therefore, are needed to offset sales gains by competing brands. This has resulted in overspending on advertising for many established RTE cereal brands. The desire of manufacturers to maintain market share especially for large volume, established brands, is likely to produce a defensive advertising strategy. From the reseller's viewpoint, the stability of market shares of brands may result in a belief that <u>differential</u> effects on sales of advertising will not be significant across RTE cereal brands. The expectation is that manufacturers will advertise roughly in proportion to a brand's sales or market share in which case manufacturer advertising expenditures may not be as significant an influence on reseller gross

margin decisions as might be expected.

Advertising can also influence reseller gross margin decisions through its effects on reseller costs. The pre-selling effect of manufacturer advertising means that reseller selling expenses are reduced. This is evident in the case of private label brands. For these brands, reseller selling costs are higher because resellers assume the costs of advertising. The implication is that since selling costs for manufacturer advertised brands are lower, gross margins on these brands would be expected to be lower. This is supported by the studies of Ward and the NCFM. Ward found that product categories in which manufacturer advertising levels were high had lower reseller gross margins.¹⁶ The NCFM found that gross margins on private label brands were higher than those on national brands.¹⁷

Manufacturers' advertising expenditures also play a role in reseller decisions concerning the acceptance or rejection of a new brand and the amount of merchandising support, such as special displays or additional facings, a brand should receive. Most studies have verified that this factor does appear on the reseller's list of decision criteria. The extent of its importance, however, is less certain. Several studies indicate that the amount of advertising may be only a secondary consideration. Montgomery's investigation of the decisions of supermarket buyers concerning 124 new product proposals revealed that factors such as an item's price, its category sales volume, and its perceived newness, had a more important influence upon adoption decisions than the level of manufacturer advertising support.¹⁸ Doyle and Weinberg found that U.K. supermarket buyers did not include manufacturer advertising within the

eight most important criteria used.¹⁹ It appears that the main importance given to manufacturer advertising by resellers is its anticipated effect on factors such as the unit sales of the brand and the sales growth of the brand's product category.

The relationship between manufacturer advertising at the <u>brand</u> level and retail sales at the <u>item</u> level for food products is not likely to be a simple one. It depends upon a number of factors including competitive manufacturer and retailer advertising, consumer purchase behavior, and the nature of local retail competition. In product categories such as RTE cereals, it is likely that resellers merely assume that manufacturers will undertake at least a minimum level of advertising based upon factors such as the market share of an established brand and the costs of a national advertising campaign for a new brand. In this situation, factors other than the level of advertising expenditures may have more effect on reseller gross margin decisions.

In summary, an inverse relationship would be expected between manufacturer brand advertising expenditures and the reseller gross margins of items of this RTE cereal brand. The strength of this relationship, however, may not be as significant as expected.

Cubic Size of Case (CUBE)

Data for the cubic size of a case of each RTE cereal item carried at wholesale and retail were also obtained. This variable was included as a measure of the direct costs associated with carrying each item.

Studies of the direct costs associated with warehousing, delivering, unloading, and shelving grocery products indicate that as the cubic size of a unit of the product (for example, a standard case lot)

increases, its direct costs to wholesalers and retailers also increase. The McKinsey-General Foods Study, for example, concluded that the direct costs for case-lots of bulky grocery products such as cereals, paper, detergent, and flour, were up to 50 percent higher than those for less bulky products such as soup, soap, and canned tuna fish. If it is assumed that retailers use only full case restocking for shelf stock replenishment, then it would be expected that products and items with higher direct costs will carry higher gross margins.

Direct costs are a function of more than the cubic size of the case. The weight of a case is a relevant factor. But it is an item's cubic size that determines how much shelf space is occupied. In general, the larger the cubic size of a case, the more shelf space will be occupied. Also, in a single product category such as RTE cereals, substantial differences in the weight of cases of the various items do not occur. The cubic size of a case of an item, therefore, is likely to provide a reasonable measure of an item's direct costs. It would be expected, therefore, that gross margins will be higher on RTE cereal items with larger cubic size case lots.

Other Factors Affecting Reseller Gross Margins

The pricing and gross margin decisions of resellers are also affected by the price elasticities of demand and the extent of price competition for RTE cereals among local retailers. If demand is price elastic, a reseller can increase unit sales and contribution to profit by reducing the price and gross margin. The more price elastic is the demand for an item, the lower would be its gross margin, ceteris paribus, and the less elastic, the higher would be the gross margin.

For items with inelastic demand, a decrease in price and gross margin would only reduce the per unit profit contribution of each unit sold. For items with inelastic demand, therefore, profit maximizing resellers would not attempt to increase sales by reducing prices and margins.

The NCFM study concluded that the demand for RTE cereals is price inelastic:

[cereal] manufacturers do not engage in price rivalry because the consumer is not responsive to price as a major determinant of her purchase behavior. It is extremely doubtful if an acrossthe-board, industry wide price cut of 10 to 20 percent would increase the total amount of cereal consumed....

Because the demand for cereals is price inelastic, it is possible, even likely, that the net effect of lower prices and reduced advertising would be reduced consumption of breakfast cereals.²¹

The extent of price elasticity is also a function of the degree of demand cross-elasticity between RTE cereals and other breakfast foods. The NCFM study also concluded that cross-elasticity of demand is likely to be low for RTE cereals.²² Since the NCFM study, several new breakfast food categories have appeared, for example, instant breakfast preparations and toaster pastries. This may have increased the degree of demand crosselasticity although its extent is still unlikely to be high.

Another factor affecting reseller gross margins for many grocery products is the extent of price competition among local retailers. RTE cereals, however, have generally not been used as price specials or loss leaders. The most common price special categories are those such as meat, produce, and coffee, in which consumers spend a relatively large proportion of their total food bill. Consumers tend to be more price conscious in their purchases in these products. The consumer's desire for variety in RTE cereals may be a more important determinant of purchase behavior than the level of price.

The conclusions of the recent study of the profit and price performance of retail food chains conducted by the Joint Economic Committee of the United States Congress highlighted the effect of competition among local retailers on retail price levels.²³ The study found that the strongest single factor influencing the price level of a representative basket of national and private brand food products was the "market rivalry" among retailers in local markets. The extent of "market rivalry" was measured by "the absolute change, between 1972 and 1974, in the combined market share of the four leading firms of 1974".²⁴ The implication is that retailer price and gross margin decisions have a significant effect on the level of food prices. When the "market rivalry" variable was included in a multiple regression model in which the dependent variable was the price level of a representative group of food products and the independent variables were relative firm market share, four-firm concentration ratio, average store size, and rate of local market growth, the model's R^2 value increased from .38 to .66.²⁵ The result supports the concention of this study that the behavior of resellers must be considered when evaluating the price performance of an industry such as the RTE cereal industry.

While price elasticity and retail price competition are identified as factors that influence reseller gross margins, it was not possible to obtain suitable data to allow these variables to be included in the models. Any contribution of these factors in explaining variations in gross margins among RTE cereal items will only appear, therefore, as unexplained variance in the regression models.

Data Analysis

The relationships among the variables included in the wholesale and retail level regression models were investigated by analyzing the data with the multiple regression program of the Statistical Package for the Social Sciences (SPSS). The general format of the data used in the regression analyses is shown in Table 5-6. Separate analyses were conducted for each of the four annual periods: 1 April 1973 to 31 March 1974 (Period 1); 1 April 1974 to 31 March 1975 (Period 2); 1 April 1975 to 31 March 1976 (Period 3); and 1 April 1976 to 31 March 1977 (Period 4) for both the wholesale and retail regression models.

Two sets of regression analyses were conducted for each of these four periods. First, <u>industry level regressions</u> in which data for all the items supplied by the six manufacturers were analyzed. Items supplied by these firms account for over 90 percent of the complete line of RTE cereals carried by resellers. These analyses, therefore, investigate the variations in gross margins across virtually the complete RTE cereal category. From Table 5-6, the data format for the four industry level regressions was as follows:

Regression Period

Data

1	1	$N_1 = n_{K_1} + n_{GM_1} + n_{GF_1} + n_{Q_1} + n_{RP_1} + n_{Nab_1} = 82$
2	2	$N_2 = n_{K_2} + n_{GM_2} + n_{GF_2} + n_{Q_2} + n_{RP_2} + n_{Nab_2} = 81$
3	3	$N_3 = n_{K_3} + n_{GM_3} + n_{GF_3} + n_{Q_3} + n_{RP_3} + n_{Nab_3} = 80$
4	4	$N_4 = n_{K_4} + n_{GM_4} + n_{GF_4} + n_{Q_4} + n_{RP_4} + n_{Nab_4} = 83$
where N	14 =	otal number of items of six major manufacturers arried by the reseller for periods 14.
	n =	umber of items of particular manufacturer carried by the reseller.

Table 5-6. General Format of Data for Regression Analyses

Period 1:	l April	1973 to 31 March 1974							
Item No.	Firm	Item (examples)	CMW CMC	MS I ECM	Variabl SALFSD	es TODU	DUCC	CIRE	MANADV
•	RP	Corn Chex 16 oz.		JALLUN			CDON	COUL	
•	•	Rice Chex 12 oz.							
•	•	Wheat Chex 22 oz.							
•	•	•							
• • "	•	•							
"RP1 °	•	•							
•	Nab	Shredded Wheat 10 oz.							
•	•	Shredded Wheat 15 oz.							
•	•	Team Flakes 9 oz.							
•	•	•							
• 1	•	•							
n _{Nabl} ⁵ 5	•	•							
TOTAL N ₁ =	. 82								
-									
Period 2: Period 3: Period 4:	1 April 1 April 1 April	1974 to 31 March 1975 (N 1975 to 31 March 1976 (N 1976 to 31 March 1977 (N	2 = 81 3 = 80 4 = 83						
athr	Poundhout 1	the emnirical section of t	he study	the follc	wing abbr	- viat	ie suo	Le lice	

Table 5-6 (cont'd.).

-inrougnout the empirical section of the study the following abbreviations are used to denote the six major cereal manufacturers: K = Kellogg, GM = General Mills, GF = General Foods, Q = Quaker Oats, RP = Ralston-Purina, Nab = Nabisco.

Second, <u>firm level regressions</u> were analyzed in which separate regressions were run with the data for the items supplied by each of the following five manufacturers: (1) Kellogg, (2) General Mills, (3) General Foods, (4) Quaker Oats, and (5) Ralston-Purina plus Nabisco. (It was necessary to combine the items supplied by Ralston-Purina and Nabisco to obtain sufficient data points for meaningful regression analysis.) The data format for the twenty firm level regressions was as follows:

Regression	Period	Data
1	1	n _{K1} = 25
2	1	n _{GM1} = 16
3	1	$n_{GF_1} = 15$
•	•	1
•	•	•
•	•	•
20	4	$n_{RP_A} + Nab_A = 13$

The results of these two sets of analyses were used to investigate the major research hypotheses of the study.

The Research Hypotheses

The General Research Question

The principal objective of the study to this point has been to show how the gross margin decisions of food resellers affect the level of retail prices for grocery products such as RTE cereals. The contributionto-profit (CTP) model was put forward to describe the process by which a profit maximizing reseller would establish gross margin and pricing policies. If this model is a realistic description of reseller behavior for RTE cereals, it can be used to investigate some of the possible effects on the retail prices of RTE cereals if the FTC's divestiture and trademark licensing remedies were implemented.

The general hypothesis investigated in the study was the FTC's claim that the restructuring proposals will <u>reduce</u> retail prices for RTE cereals. An alternative view based on the CTP model is that implementation of these remedies will affect the unit sales, turnover rates, gross margins, and profit contributions on RTE cereals at the reseller level in such a way that retail prices will <u>increase</u>. These opposing arguments were investigated empirically by analyzing the nature of reseller pricing behavior for RTE cereals. The focus of the analysis was to determine whether the theoretical CTP model provides a realistic explanation of the actual behavior of a representative reseller in the RTE cereal product category.

Specific Hypotheses

To test the major propositions of the study, the regression models were used to investigate hypotheses in the following three areas:

- Relationships between the dependent variables (GMW and GMR) and various combinations of the independent variables in the industry level regressions
- Relationships between the same dependent variables and sets of independent variables in the firm level regressions
- 3. Relationships between the levels of gross margins on (a) new RTE cereal items accepted by wholesalers and retailers and (b) RTE cereal items deleted by wholesalers and retailers and the market shares of the manufacturers supplying these items.

Relationships at Industry (or Product Category) Level

Variations in gross margins at wholesale and retail across all the items supplied by the six major manufacturers were investigated with the results of the industry level regressions. The ability of the wholesale and retail models to account for these variations was investigated by testing the following null hypothesis:

<u>Hypothesis 1</u>: At both wholesale and retail, the set of indepentent variables do not account for a significant proportion of the observed variation in gross margins across RTE cereal items supplied by the six major manufacturers.

This involved testing the following alternative propositions for each model and for each of the four periods:

 $H_0: R^2 = 0$ $H_1: R^2 \neq 0$

This is equivalent to testing the following propositions for each model:

 $H_{0}: \ \beta_{1} = \beta_{2} = \beta_{3} = \beta_{4} = \beta_{5} = \beta_{6} = 0$ $H_{1}: \ \beta_{1} \neq \beta_{2} \neq \beta_{3} \neq \beta_{4} \neq \beta_{5} \neq \beta_{6} \neq 0$

To investigate whether the variations in gross margins could be accounted for by the CTP model, the existence of inverse relationships between gross margins and unit sales, and between gross margins and turnover rates at both wholesale and retail was tested using the regression coefficients for the unit sales and turnover rate variables generated in the industry level regressions. The specific propositions tested were the following:

<u>Hypothesis 2(a)</u>: RTE cereal items with higher unit sales carry higher gross margins at both wholesale and retail. This involved testing the following alternative propositions for each model and for each of the four periods:

 $H_0: \beta_1 > 0$

 $H_1: \beta_1 < 0$

<u>Hypothesis 2(b)</u>: RTE cereal items with higher turnover rates carry higher gross margins at both wholesale and retail.

This involved testing the following alternative propositions for each model and for each of the four periods:

 $H_0: \beta_3 > 0$

 $H_1: \beta_3 < 0$

The industry level regression results were also used to investigate a major proposition of the "shared monopoly" theory. The FTC has argued that the heavy advertising expenditures of large cereal manufacturers are a major reason for the high retail prices of RTE cereals. If this is the case, it would be expected that gross margins and the level of advertising expenditures are strongly positively related, that is, heavily advertised items will carry higher reseller gross margins and therefore higher retail prices. It would be expected, therefore, that the regression coefficient for the brand advertising variable (MANADV) in both the wholesale and retail level models will be <u>positive</u> and significant.

The CTP model, however, predicts that since the most heavily advertised RTE cereal items tend to be those with the largest unit sales, and since larger unit sales items are expected to have lower gross margins, a <u>negative</u> relationship would be expected between the level of advertising and the levels of wholesale and retail gross margins. These opposing views were tested by the following:

<u>Hypothesis 3</u>: The RTE cereal items of brands with higher levels of manufacturer advertising carry higher gross margins at both wholesale and retail.

This involved testing the following alternative propositions for each model and for each of the four periods:

$$H_0: \beta_5 > 0$$

 $H_1: \beta_5 < 0$

Relationships at Firm Level

The regression models were also used to investigate the variations in gross margins at wholesale and retail across the RTE cereal items supplied by the following five manufacturers: (1) Kellogg, (2) General Mills, (3) General Foods, (4) Quaker Oats, and (5) Ralston-Purina plus Nabisco. In particular, the results of the firm level regression analyses were used to determine whether there were any consistent differences in reseller gross margins across the items supplied by the major cereal manufacturers. If, for example, for items with similar levels of unit sales, wholesale and retail gross margins on items supplied by the manufacturers with larger market shares (Kellogg, General Mills, and General Foods) were consistently higher than the margins for the items supplied by the manufacturers with smaller market shares (Quaker Oats, Ralston-Purina, and Nabisco), this would tend to support the FTC's claim that the large manufacturers are responsible for the high retail prices of RTE cereals. This proposition was tested using the regression coefficients for the two unit sales variables (SALESW and SALESR) generated by the firm level regressions.

Assume that the firm level regressions revealed that the regression coefficients for the unit sales variables (SALESW and SALESR) for manufacturers with larger market shares were consistently higher than those for manufacturers with smaller market shares. This implies that for items with similar levels of unit sales, resellers consistently set higher gross margins on items supplied by a large market share firm (for example, Kellogg) than on items supplied by a small market share firm (for example, Ralston-Purina). Such a finding would tend to support the FTC's position which can be stated more formally as follows: for the same level of unit sales, items supplied by manufacturers with larger market shares carry higher gross margins at wholesale and retail than items supplied by manufacturers with smaller market shares. In terms of the regression models, this suggests that the sizes of the regression coefficients for the unit sales variables in wholesale and retail models would be positively related to the size of a manufacturer's market share.

The CTP model, however, suggests that the primary factor determining an item's wholesale or retail gross margin is its level of unit sales. This implies that as the sales and therefore the market share of an item increase, its gross margin should fall. Since the largest market share manufacturers supply the majority of large unit sales RTE cereal items, gross margins and the level of manufacturer's market share would be expected to be negatively related.

These two opposing views were tested by the following:

<u>Hypothesis 4</u>: RTE cereal items supplied by manufacturers with larger market shares carry higher gross margins at the same level of unit sales than those carried by items supplied by manufacturers with

smaller market shares.

This involved testing the following alternative propositions for each model and for each of the four periods:

$$\begin{array}{ll} \mathsf{H}_{0} \colon & \beta_{1} \; (\mathsf{Kellogg}) > \beta_{1} \; (\mathsf{General Mills}) > \beta_{1} \; (\mathsf{General Foods}) \\ & > \beta_{1} \; (\mathsf{Quaker Oats}) > \beta_{1} \; (\mathsf{Ralston-Purina + Nabisco}) \\ & \mathsf{H}_{1} \colon & \beta_{1} \; (\mathsf{Kellogg}) < \beta_{1} \; (\mathsf{General Mills}) < \beta_{1} \; (\mathsf{General Foods}) \\ & < \beta_{1} \; (\mathsf{Quaker Oats}) < \beta_{1} \; (\mathsf{Ralston-Purina + Nabisco}) \end{array}$$

Reseller Acceptance and Deletion Decisions

Hypothesis 4 investigated whether resellers adopt different gross margin and pricing policies towards the items supplied by different manufacturers. Similar arguments can be made regarding the behavior of resellers with respect to the conditions under which new items are accepted or existing items are deleted.

If resellers consistently accept new items of manufacturers with larger market shares at lower levels of reward (gross margins) than new items of manufacturers with smaller market shares, this implies that larger manufacturers receive preferential treatment from resellers in gaining access for their new items. This represents a barrier to smaller manufacturers and to potential new entrants.

The FTC has argued that the ability of larger market share manufacturers to gain easier access for their products is a major source of "shared monopoly" power in the RTE cereal industry. The major proposition of the CTP model, however, is that when setting gross margins on RTE cereal items, resellers are primarily concerned with the level of unit sales of an item. Since all new items have similar levels of unit sales,

no significant differences should exist between the reseller gross margins carried by a new item supplied by a manufacturer with a large market share and a new item supplied by a manufacturer with a smaller market share.

These opposing views were investigated with data for gross margins on 52 new RTE cereal items accepted at the wholesale level of the chain during the period April 1970 to March 1977 and 23 new items accepted at the retail level during the period April 1973 to March 1977. The data were used to analyze the gross margins on new items of the three largest cereal manufacturers compared to the three smallest manufacturers.

The two views were investigated as follows:

Hypothesis 5:

- H₀: Wholesale and retail gross margins on new RTE cereal items supplied by the three manufacturers with the largest market shares are lower than gross margins on new items supplied by the three manufacturers with smaller market shares at both wholesale and retail.
- H₁: No significant differences exist between the gross margins on new items supplied by the larger and smaller market share manufacturers.

A similar argument can be made for reseller deletion decisions. If, at comparable levels of sales, the gross margins on deleted items supplied by manufacturers with smaller market shares are consistently higher than those for deleted items supplied by manufacturers with larger market shares, the latter would appear to receive preferential treatment from resellers. Data for 54 items deleted at wholesale during the period April 1970 to March 1977 and 20 items deleted at retail during the period April 1973 to March 1977 were used to investigate the following propositions:

Hypothesis 6:

- H₀: Wholesale and retail gross margins on deleted items supplied by the three manufacturers with the largest market shares are lower than gross margins on deleted items supplied by the three manufacturers with smaller market shares.
- H₁: No significant differences exist between the gross margins on deleted items supplied by the larger and smaller market share manufacturers.

In the following chapter, the findings of the investigation of the research hypotheses developed in this chapter are presented.

Chapter V--Footnotes

¹National Commission on Food Marketing, <u>Studies of Organization</u> <u>and Competition in Grocery Manufacturing: Technical Study No. 6</u> (Washington, D.C.: U.S. Government Printing Office, 1966), pp. 206-207.

²"Annual Sales Manual: Breakfast Foods", <u>Chain Store Age</u>, July edition, each year 1970-1976.

³The highly confidential nature of manufacturer gross margin data at the individual RTE cereal item level precluded their availability to the study. Discussions with executives of major cereal manufacturing companies, however, indicated that the 15 percent average margin found by the National Commission in 1966 would be a realistic <u>average</u> figure to use for the study.

⁴National Commission, Study No. 6, p. 41.

⁵Ibid., p. 231.

⁶"Annual Sales Manual", <u>Chain Store Age</u>, July edition, each year 1970-1976.

⁷Ibid., July 1975, p. 46.

⁸T.M. Hammonds, Vice-President (Research), Food Marketing Institute, "State of the Supermarket Industry 1976", speech delivered at Michigan State University, 14 April 1977.

⁹Chester R. Wasson, <u>Dynamic Competitive Strategy and Product Life</u> <u>Cycles</u> (St. Charles, Illinois: Challenge Books, 1974).

¹⁰T.S. Ward, <u>The Distribution of Consumer Goods: Structure and</u> <u>Performance</u> (Cambridge: Cambridge University Press, 1973), pp. 164-176.

¹¹Ibid., p. 173.

¹²Robert D. Buzzell, "Competitive Behavior and Product Life Cycles" in <u>New Ideas for Successful Marketing: Proceedings of the 1966 World</u> <u>Congress</u>, ed. John S. Wright and Jac L. Goldstucker (Chicago: American Marketing Association), pp. 46-47.

¹³Ibid., p. 61.

¹⁴Frank M. Bass and Leonard J. Parsons, "Simultaneous-Equation Regression Analysis of Sales and Advertising", <u>Applied Economics</u> 1 (May 1969): 106. ¹⁵Ibid. Also see Leonard J. Parsons and Frank M. Bass, "Optimal Advertising - Expenditure Implications of a Simultaneous-Equation Regression Analysis", <u>Operations Research</u> 19 (May-June 1971): 822-831.

¹⁶Ward, p. 171.

¹⁷National Commission on Food Marketing, <u>Organization and</u> <u>Competition in Food Retailing: Technical Study No. 7</u> (Washington, D.C.: U.S. Government Printing Office, 1966), p. 133.

¹⁸David B. Montgomery, "New Product Distribution: An Analysis of Supermarket Buyer Decisions", <u>Journal of Marketing Research</u> 12 (August 1975): 255-264.

¹⁹Peter Doyle and Charles B. Weinberg, "Effective New Product Decisions for Supermarkets", <u>Operational Research Quarterly</u> 24 (March 1973): 51.

²⁰McKinsey-General Foods Study: The Economics of Food Distributors (White Plains, N.Y.: General Foods Corporation, October 1963), pp. 30-31.

²¹National Commission, Study No. 6, pp. 191, 231.

²²Ibid., p. 175.

²³U.S., Congress, Joint Economic Committee, <u>The Profit and Price</u> <u>Performance of Leading Food Chains, 1970-74</u>, by Bruce W. Marion et al., Joint Committee Print (Washington, D.C.: U.S. Government Printing Office, 1977).

²⁴Ibid., p. 62.

²⁵Ibid., Table 3.3, p. 63.

CHAPTER VI

RESEARCH FINDINGS

Introduction

The hypotheses of the study were tested with the results of three separate analyses conducted on the data. First, the results of the industry level regression analyses allowed hypotheses 1, 2(a), 2(b), and 3 to be tested. Second, the results of the firm level regression analyses allowed hypothesis 4 to be tested. Third, the recent addition and deletion decisions for RTE cereals by the selected reseller were analyzed to test hypotheses 5 and 6. The overall results of these analyses were used to assess some of the likely effects of the FTC's proposed divestiture and trademark licensing remedies on the retail prices of RTE cereals.

Results of Industry Level Regressions

Hypotheses 1, 2(a), 2(b), and 3 were tested at both wholesale and retail levels with the results of the industry level regressions. In each regression, the dependent variable was the level of gross margins at wholesale (GMW) or retail (GMR). Different sets of independent variables, however, were used. Table 6-1 describes the six regressions that were analyzed for each of the four annual periods. A total of 24 industry level regressions, therefore, were investigated.

Regression	No. Level	Dependent Variable	Independent Variables		
1	Wholesale	GMW	SALESW, ROGS, MANADV, CUBE		
2	Wholesale	GMW	LSALESW, ROGS, MANADV, CUBE		
3	Wholesale	GMW	TORW, ROGS, MANADV, CUBE		
4	Retail	GMR	SALESR, ROGS, MANADV, CUBE		
5	Retail	GMR	LSALESR, ROGS, MANADV, CUBE TORW, ROGS, MANADV, CUBE		
6	Retail	GMR			
where	: GMW = SALESW = ROGS = MANADV = CUBE = LSALESW = TORW = GMR = SALESR =	gross margin at who unit sales at wholes rate of growth of be manufacturer brand cubic size of case log of SALESW turnover rate at who gross margin at ret unit sales at retai	lesale sale rand unit sales advertising olesale ail l		

Table 6-1. Summary of Relationships Investigated: Industry Level Regressions

The results of the industry level regression analysis and their implications for the study are summarized under the following headings: (1) means and standard deviations of variables, (2) correlation coefficients, (3) coefficients of determination (\mathbb{R}^2), and (4) regression coefficients of the independent variables (β).

LSALESR = 1 og of SALESR

Means and Standard Deviations

Table 6-2 presents a summary of means and standard deviations (S.D.) of the major variables used in the industry level regression models.

Variable	1973/74 (n=82)		1974/75 (n=81)		1975/76 (n=80)		1976/77 (n=83)	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	<u>S.D.</u>
GMW (%)	5.15	1.14	5.98	.81	6.35	.75	6.33	.67
SALESW (cases)	4410	2458	4969	2624	5549	3103	5859	3336
TORW (turns/yr.)	27.5	8.4	28.2	7.9	29.9	8.8	31.7	9.2
GMR (%)	9.20	2.32	10.55	2.26	11.45	2.70	9.33	2.97
SALESR (cases)	340	204	466	280	576	359	636	393
CUBE (cu.ft./case)	2.05	1.00	2.10	1.04	1.98	1.11	2.10	1.08

Table 6-2. Means and Standard Deviations: Industry Level Regressions

The summary data in Table 6-2 reveal the following:

1. The most significant change in reseller gross margins over the four year period was the relatively large increase in the average gross margins of RTE cereals that occurred in 1974/75. This was primarily a result of upward adjustment of margins by resellers following the decline in margins on a large range of grocery products that occurred during the period 1972-74 as a result of inflation and the "Where Economy Originates" (WEO) price-cutting program conducted by the A and P chain.¹

2. The high turnover rate of RTE cereals can be seen. The average turnover rate for RTE cereal items for the entire four year period was approximately 29 times per year. This compares to 20-23 times for all grocery products. This high turnover rate is an important factor explaining the lower than average reseller gross margins on RTE cereals. This inverse relationship between gross margins and turnover rates has important implications for the likely effects of the proposed remedies on retail RTE cereal prices. If the remedies cause the turnover rates of a number of RTE cereal items to decline, resellers will be forced to increase gross margins, and therefore retail prices, to protect their profit objectives.

Correlation Coefficients

The correlations among the independent variables are of particular concern in situations where multiple regression techniques are used to analyze data. The presence of excessive colinearity among independent variables will produce biassed R^2 and β coefficient values. If excessive colinearity exists, the specification of the models must be adjusted to remove this source of error. Table 6-3 presents a summary of the average correlation coefficients for the four year period of the major variables used in the wholesale and retail regression models.

The summary correlation data in Table 6-3 reveal the following: 1. Except for the relationships between gross margins at both levels (GMW and GMR) and the cubic size of the case of an item (CUBE), the signs of the correlation coefficients between dependent and independent variables are as predicted in Chapter V. At wholesale and retail levels, gross margins are inversely related to unit sales, turnover rates, and manufacturer brand advertising and positively related to the rate of growth of unit sales. In addition, the strongest correlations exist between gross margins and unit sales, and gross margins and turnover rates.

A possible reason for the negative correlations between gross margins at wholesale (GMN) and retail (GMR) and the case size variable (CUBE) is the strong negative correlations between gross margins and unit sales at both levels. The positive correlations between unit sales at wholesale (SALESW) and CUBE, and between unit sales at retail (SALESR) and CUBE suggest that cases of items with large unit sales tend to have the largest cubic sizes. Analyzing the data confirms that a large number of the high unit sales items such as Corn Flakes 18 ozs., Rice Krispies 13 ozs., Cheerios 15 ozs., and Wheaties 18 ozs., also have large values for CUBE. Since unit sales and gross margins are strongly negatively correlated at both wholesale and retail levels, the relationships between CUBE and GMW, and CUBE and GMR are likely to be dominated by the sales effect. This is likely to produce negative correlations between cube and unit sales variables in both models.

Table 6-3. Summary of Correlation Coefficients: Industry Level Regressions

	GMW	GMR	SALESW	LSALESW	TORW	SALESR	LSALESR	MANADV	CUBE	ROGS
GMW	-									
GMR	.45	-								
SALESW	58	a	-							
LSALESW	65	a	a	-						
TORW	81	46	a	a	-					
SALESR	a	64	a	a	.43	-				
LSALESR	a	74	a	a	a	a	-			
MANADV	34	27	. 37	.30	.29	. 37	.32	-		
CUBE	47	39	.36	.35	.28	. 32	. 32	.29	-	
ROGS	.27	.28	04	15	28	01	07	.11	13	-

^aCorrelation coefficient not listed as variables do not appear in the same regression.

2. The most likely sources of colinearity problems are the correlations between unit sales and advertising, turnover rate and advertising, unit sales and cube, and turnover rate and cube. Each regression model was tested for excessive colinearity using a procedure developed by Farrar and Glauber.² Excessive levels of colinearity were not present in any of the models investigated.

3. The relative strengths of the independent variables can be observed from Table 6-3. The ranking of independent variables in terms of the absolute value of their correlation coefficients at the wholesale level was turnover rate (TORW), log of unit sales (LSALESW), and unit sales (SALESW). At the retail level, the ranking was log of unit sales (LSALESR), unit sales (SALESR), and turnover rate (TORW). These results suggest that the level of unit sales and the turnover rate of RTE cereal items are the most important factors that account for differences in the gross margins of RTE cereals.

Coefficients of Determination

Table 6-4 summarizes the coefficient of determination (R^2) values obtained from the 24 industry level regressions. The summary data in Table 6-4 reveal the following:

1. For both the wholesale and retail regression models, the independent variable sets used were able to account for a statistically significant proportion of the variation in the wholesale and retail gross margins across items in the RTE cereal category for each of the four periods analyzed. These results support the theoretical specification of each regression model. The actual percentage of variation explained, however, varied considerably across the different independent variable sets.

2. At the wholesale level, the highest R^2 values were obtained in regression 3 in which the turnover rate variable (TORW) was used in place of unit sales (SALESW) or the log of unit sales (LSALESW). The relative strength of the TORW variable in the wholesale level regression model is an expected result. The strong influence exerted by inventory carrying costs on wholesaler profits requires that food wholesalers pay particular attention to the relative turnover rates of items when setting gross margins. At the retail level, the highest R^2 values were obtained in regression 5 in which the log of unit sales (LSALESR) was used in place of unit sales (SALESR) or turnover rate as an independent variable.

Table 6-4. Summary of R²'s: Industry Level Regressions

			R ² Values ^a							
Regression No.	Level	1973/74 (n=82)	1974/75 (n=81)	1975/76 (n=80)	1976/77 (n=83)					
1	Wholesale	. 58	. 50	.38	. 38					
2	Wholesale	.65	. 58	.43	.40					
3	Wholesale	.66	.64	.68	.72					
4	Retail	.51	. 50	. 41	. 47					
5	Retail	. 56	. 58	. 55	.65					
6	Retail	.31	.29	.28	.29					

 $^{a}\mbox{All}$ the \mbox{R}^{2} values shown are significant at the 99 percent confidence level.

The larger R^2 values obtained when the logarithmic transformations 3. of unit sales (LSALESW and LSALESR) were used instead of unit sales (SALESW and SALESR) in both wholesale and retail models suggest that the inverse relationship between gross margins and unit sales at both wholesale and retail levels tends to be more curvilinear than linear. Investigation of the data indicated that the majority of high gross marginlow unit sales RTE cereal items are relatively new items while the low margin-high sales items tend to be the more established items, for example, Cheerios, Corn Flakes, and Rice Krispies. This finding is consistent with both the product life cycle model of manufacturer pricing behavior and the CTP model of reseller pricing behavior. For resellers to accept a new RTE cereal item, its initial low unit sales must be compensated for by a higher gross margin. As the unit sales of an item increase, gross margins and prices decline. This suggests that resellers will only accept new RTE cereal items produced by new entrant manufacturers at relatively high gross margins. This profit control requirement of resellers will constrain the attempts of new entrants to increase price competition and bring about a reduction in the retail prices of RTE cereals. In addition, if the existence of a larger number of manufacturers and the desire of existing manufacturers to maintain profit and growth goals increases the proportion of new items in the total RTE cereal product category, this will tend to increase reseller gross margins on RTE cereals as newer items tend to carry higher margins.

4. Among other factors likely to account for the unexplained variance in gross margins are differences in price elasticities among RTE cereal items and the nature of local retail competition. If suitable data were

available, the inclusion of these factors as additional independent variables would most likely increase the explanatory power of the models. It is also recognized that the realities of wholesale and retail food operations make it unlikely that a reseller will be able to adhere rigidly to the optimal profit maximizing behavior pattern described by the CTP model despite the fact that most large food chains now receive the information necessary to use this approach. The results of industry level regression analyses, however, indicate that over the four year period studied, contribution-to-profit is a major factor considered by resellers when setting gross margins on RTE cereals. The results indicate that relative unit sales levels and turnover rates of RTE cereals are key determinants of the wholesale and retail gross margins carried by RTE cereal items. Strong inverse relationships between margins and sales and margins and turnover exist in a number of models with R^2 's in the range .50 to .60. This suggests that over each 12month period, the behavior of the reseller being studied tended to conform to the general behavior pattern described by the CTP model. A small number of RTE cereal items actually carried at wholesale 5. or retail were deleted from the final regressions. The number of items deleted in each period were: 1973/74 (8 items), 1974/75 (7 items), 1975/76 (9 items), and 1976/77 (9 items). These items were either new RTE cereal items that had not yet achieved full distribution throughout the stores sampled or were items for which unusually large, once-off discounts had been granted by manufacturers. These items were not included in the regressions as the objective of the study was to analyze the relationships among the variables for an average RTE cereal product

category carried by a representative food reseller.

6. Each regression was tested for the presence of heteroskedasticity. One of the assumptions for the use of multiple regression is that the array of values of the dependent variable, gross margins used in each regression must have the same variance.³ The homogeneity of variance assumption was investigated by examining the residual values of the dependent variable from the scatterplots of each regression. Two possible sources of heteroskedasticity were investigated: (1) that the residuals varied systematically with the level of unit sales, or market share of an item and (2) that the residuals varied in some systematic manner depending upon the manufacturer that supplied the item. No systematic patterns were found in any of the regressions analyzed.

Regression Coefficients

Table 6-5 summarizes the regression coefficients for each of the periods analyzed and for each of the models investigated. The column headed " R^2 " indicates the percentage of the overall variance explained by the model (the model's R^2 value) accounted for by each particular independent variable. For example, in regression 1 for 1973/74, of the 58 percent of variation in wholesale gross margins accounted for by the set of independent variables, 72 percent of this (or 42 percent of the R^2 value) was accounted for by the unit sales (SALESW) variable, 18 percent by the growth rate of sales (ROGS), 7 percent by manufacturer advertising (MANADV), and 3 percent by the cubic size of a case lot of the item (CUBE). The summary data in Table 6-5 reveal the following: 1. In both wholesale and retail models, the strongest independent variables were consistently unit sales (SALESW), the log of unit sales
Regressions
Level
Industry
Coefficients:
Regression
of
Summary
Table 6-5.

per-	icant at 95	ignifi	el. ^C Not si	t leve	: 95 percent	ant at	^b Significa	ercent level. n 1 percent.	cant at 99 p KR ² less tha	^a Signific cent level. ^d
P	024 ^c	P	031 ^c		062 ^c	m	174 ^b	CUBE		
φ	.00002 ^c	φ	00001 ^c	1	00003 ^c	7	00005 ^a	MANADV		
φ	.00011 ^c	P	.00053 ^c	Ρ	.0018 ^c	9	.0082 ^a	ROGS		
66	063 ^a	66	070 ^a	98	075ª	84	069 ^a	TORW	GMW	c
17	155 ^a	9	113 ^b	~	088 ^c	ε	170 ^b	CUBE		
S	00002 ^C	2	00003 ^c	9	00006 ^b	9	00005 ^a	MANADV		
4	.0025 ^c	8	.0038 ^b	2	.0046 ^a	9	.0079 ^a	ROGS		
74	318 ^a	84	589 ^a	88	681 ^a	86	980 ^a	LSALESW	GMW	2
24	165 ^b	6	133 ^c	~	082 ^c	m	186 ^a	CUBE		
6	00001 ^c	4	00004 ^c	m	00006 ^c	7	00006 ^b	MANADV		
13	.0036 ^c	13	.0044 ^b	8	. 0049 ^b	18	.012ª	ROGS		
62	00006 ^a	74	00008 ^a	87	00015 ^a	72	00019 ^a	SALESW	GMW	
%R ²	8	%R ²	8	%R ²	ß	%R ²	в	Variables	Variable	Regression No.
	1976/	76	1975/	75	/\$/61	74	/8/61	Independent	Dependent	

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ε	211 ^c	18	488 ^c	30	637 ^a	ω	442 ^c	CUBE		
ω	00025	11	00026 ^c	Ρ	00006 ^c	ę	- 00005c	MANADV		
Ρ	.0038 ^c	e	.010 ^c	10	.014 ^c	9	.0088 ^c	ROGS		
89	136 ^a	68	088 ^a	60	063 ^b	82	100 ^a	TORW	GMR	9
q	183 ^c	æ	296 ^c	Э	333 ^b	7	488 ^b	CUBE		
σ	.00007 ^C	-	00011 ^C	-	00001 ^c	2	00003 ^c	MANADV		
2	.010 ^c	m	.107 ^c	14	.017 ^a	æ	.012 ^b	ROGS		
98	-4.32 ^a	93	-2.51a	82	-1.80 ^a	84	-2.05ª	LSALESR	GMR	5
2	327 ^c	2	313 ^c	5	390 ^b	8	524 ^a	CUBE		
q	.00002 ^C	4	00014 ^C	1	.00004 ^c	2	00002 ^c	MANADV		
2 2	.014 ^C	10	.018 ^b	25	.019 ^a	12	.014 ^b	ROGS		
93	0049 ^a	83	0040 ^a	70	0042 ^a	79	0066 ^a	SALESR	GMR	4
%R ²	ø	%R ^Z	в	%R2	8	%R ²	8	Variables	Variable	Regression No.
	19/6/	76	1975/	75	1974/	74	1973/	Independent	Dependent	

"Significant at 95 percent level. "Not significant at 95 per-"Significant at 99 percent level. cent level. d%R² less than 1 percent.

(LSALESW), and the turnover rate (TORW). The regression coefficients for these variables were consistently negative and were all significant at the 99 percent confidence level. These results suggest that the relationships between gross margins, unit sales, and turnover rates expressed in the CTP model provide a reasonable explanation for the behavior of the reseller with respect to setting gross margins on items within the RTE cereal product category.

2. The other three independent variables only accounted for an average of approximately 20 percent of the total variance in gross margins accounted for by the overall models. The rate of growth of sales variable (ROGS) was the strongest of the remaining variables, followed by the cubic size variable (CUBE) and the level of manufacturer advertising support (MANADV). With the exception of the CUBE variable, the signs of the regression coefficients for these variables support the theoretical arguments. However, in the majority of the regressions, the regression coefficients for the ROGS, CUBE, and MANADV variables were not statistically significant. The ROGS variable was significant at the 95 percent or higher level in only twelve of the 24 regressions, CUBE in only eleven regressions, and MANADV in only four of the regressions. The relatively weak relationship between gross margins and manufacturer advertising (MANADV) suggests that manufacturer advertising expenditures are not a major factor influencing reseller gross margin and pricing decisions for RTE cereals.

3. In all but three of the 24 industry level regressions, the regression coefficient for the MANADV variable is negative. This suggests that, in general, reseller gross margins are <u>lower</u> on RTE cereal items that

receive high levels of advertising support. This has significant implications for the "shared monopoly" theory. Since items with the largest share of unit sales tend to be most heavily advertised, and since unit sales are strongly negatively related to gross margins, heavy advertising expenditures allow resellers to set lower gross margins and prices on heavily advertised items. A reduction in advertising expenditures may lead to increased reseller margins and prices through reduced levels of unit sales for a number of items. The FTC has argued that intensive advertising by the large cereal manufacturers is a major cause of the high retail prices for RTE cereals. When the behavior of resellers is considered, however, intensive advertising allows resellers to achieve profit contribution objectives at lower gross margins. This allows resellers to set lower retail prices on RTE cereals. An attempt to reduce retail prices by reducing advertising expenditures must take into account the relationships between manufacturer advertising expenditures and reseller gross margins and profits.

Tests of Hypotheses 1, 2, and 3

The results of the industry level regressions allow some of the hypotheses described in Chapter V to be tested. These results are summarized as follows:

1. The wholesale and retail level models generally provided a satisfactory explanation for the observed variations in gross margins for RTE cereals as a category. The null hypothesis of Hypothesis 1 that variations in gross margins of RTE cereal items at wholesale and retail cannot be accounted for by the level of unit sales, turnover rates, rates of growth of unit sales, manufacturer advertising expenditures,

and the size of a case of each RTE cereal item was, therefore, rejected. These variables are able to account for a statistically significant proportion of the variance in gross margins.

2. The strongest variables were consistently unit sales and the turnover rate. A consistent inverse relationship existed between gross margins and unit sales (in both SALES and LSALES forms) at both whole-sale and retail levels. The null form of Hypothesis 2(a) that reseller gross margins and unit sales of RTE cereal items are positively related was therefore rejected. Similarly, a consistent inverse relation existed between gross margins and turnover rates at both levels. The null form of Hypothesis 2(b) that reseller gross margins and turnover rates at both levels. The null form of Hypothesis 2(b) that reseller gross margins and turnover rates at both levels. The null form of Hypothesis 2(b) that reseller gross margins and turnover rates at both levels.

3. The consistent inverse relationship observed between reseller gross margins and the level of manufacturer brand advertising expenditures fails to support the null form of Hypothesis 3 that the levels of gross margins and advertising expenditures for RTE cereal items are positively related. This hypothesis was also rejected.

Results of Firm Level Regressions

The objective of the firm level regression analyses was to investigate variations in reseller gross margins for the RTE cereal items supplied by each major manufacturer. This would reveal any apparent differences in the behavior of the reseller towards individual suppliers.

Separate regressions were run on the wholesale and retail models using data for the RTE cereal items supplied by each of the following manufacturers: (1) Kellogg, (2) General Mills, (3) General Foods, (4) Quaker Oats, and (5) Ralston-Purina plus Nabisco. It was necessary

to combine the items of the two smallest manufacturers, Ralston-Purina and Nabisco, to obtain sufficient data points for meaningful regression results. The six regressions that were analyzed for each firm and for each of the four annual periods are listed in Table 6-6. A total of 120 firm level regressions (6 regressions x 5 firms x 4 periods) therefore, were run.

Table 6-6. Summary of Relationships Investigated: Firm Level Regressions

Regression	No. Level	Dependent Variable	Independent Variables
1	Wholesale	GMW	SALESW, ROGS, MANADV, CUBE
2	Wholesale	GMW	LSALESW, ROGS, MANADV, CUBE
3	Wholesale	GMW	TORW, ROGS, MANADV, CUBE
4	Retail	GMR	SALESR, ROGS, MANADV, CUBE
5	Retail	GMR	LSALESR, ROGS, MANADV, CUBE
6	Retail	GMR	TORW, ROGS, MANADV, CUBE

The results of the firm level regression analyses are summarized under the following headings: (1) means and standard deviations of variables, (2) coefficients of determination (R^2), and (3) regression coefficients (β).

Means and Standard Deviations

Table 6-7 summarizes the means and standard deviations of the variables of major interest to the study that were used in the firm level regressions.

1. A

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		No 14000	Ϋ́ς Ϋ́ς	3	SALE	MS	20 ×	¥.	SALESF	~ 1	TOR	3
lear			Mean	'S.D.	Mean	S.D.	Mean	's.D.	Mean	<u>S.D.</u>	Mean	S.D.
1973/74	×	25	4.80	1.14	5524	3080	8.11	2.00	411	246	29.4	8.9
	GM	14	5.09	1.14	4592	2975	8.94	3.50	386	245	28.3	11.5
	GF	15	5.96	.74	4378	1728	8.82	1.77	379	239	25.7	5.7
	ð	15	6.46	.89	2866	1038	9.65	2.52	290	168	24.0	6.2
	RP+Nab	6	4.69	.80	4135	1732	9.68	1.61	290	131	31.2	9.2
1974/75	×	28	5.77	.72	5546	2942	10.98	2.10	474	255	29.4	6.5
	GM	18	6.02	.71	4695	3318	10.79	2.59	458	353	28.2	10.9
	GF	13	5.82	.45	5573	1989	9.32	1.41	542	319	29.5	4.7
	ъ	13	6.63	.57	3734	1161	11.86	1.95	405	244	23.5	6.0
	RP+Nab	11	5.97	.67	4415	1832	11.86	1.55	436	185	29.1	10.0

Table 6-7. Means and Standard Deviations: Firm Level Regressions

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Year	Firm	No. Items	GM (%)	-	SALE	ESW ies)	30	R ()	SALES! (cases	~	TOR (turns	W /vr.)
			Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	\$.D.	Mean	S.D.
1975/76	×	28	6.01	.74	6358	3442	11.44	2.63	629	333	32.8	8.8
	GM	19	6.14	. 53	5359	3670	11.89	3.14	581	413	30.8	10.8
	GF	14	6.32	.42	6040	2569	10.26	1.35	621	348	29.2	4.7
	Ø	12	6.94	.45	4275	1848	12.60	3.86	500	421	23.1	6.0
	RP+Nab	12	6.40	. 59	5051	2506	12.80	2.16	504	239	27.9	7.9
1976/77	~	27	5.89	.62	6460	3477	9.03	2.71	619	310	36.5	7.7
	GM	19	6.26	.59	5731	3693	9.26	3.40	668	425	35.2	8.5
	GF	15	6.47	. 33	6791	3269	8.17	1.94	833	493	31.9	5.8
	ð	13	6.63	.49	4732	2764	9.99	3.19	553	426	24.1	6.1
	RP+Nab	13	6.64	. 59	5523	3291	11.38	3.73	539	294	27.0	8.0

The most important result is the relationships between gross margins and unit sales, and between gross margins and turnover rates at both wholesale and retail. In general, the average wholesale gross margin for the items supplied by a firm were inversely related to the average turnover rate and the average level of unit sales for the items of a firm. In 1973/74, for example, the 25 items supplied by Kellogg had an average turnover of 29.4 times and an average wholesale gross margin of 4.80 percent. The 15 items produced by Quaker Oats, however, had an average turnover of only 24 times and an average wholesale margin of 6.46 percent. At the retail level similar relationships existed. The average retail gross margin on the items supplied by a firm tended to be inversely related to the average level of unit sales of the items a firm supplied to retailers. In 1973/74, for example, the average unit sales of the 25 items supplied by Kellogg were 411 cases. The average retail gross margin on these items was 8.11 percent. Average unit sales of the 15 items supplied by Quaker Oats were 290 cases. These items carried an average gross margin of 9.65 percent.

These results support the major propositions of the CTP model. They also contain implications for the likely effects of the FTC's proposed remedies. The fact that the RTE cereal items supplied by the three largest manufacturers (Kellogg, General Mills, and General Foods) tend to have higher average levels of sales and turnover at the reseller level means that resellers are able to achieve profit contribution objectives on items supplied by these firms at lower gross margins. This allows resellers to set lower gross margins and prices on these items. If by increasing the number of manufacturers through divestiture,

the average sales and turnover of a number of RTE cereal items decline, the results suggest that resellers will attempt to increase gross margins, and therefore retail prices, on these RTE cereal items.

Coefficients of Determination

Table 6-8 summarizes the R^2 values obtained from the firm level regressions. The summary data in Table 6-8 reveal the following: The regression models in general provide a better explanation for 1. the variations in gross margins across the complete line of RTE cereals than for the variations in gross margins across items supplied by individual firms. Only 71 of the 120 firm level regressions produced R^2 values significant at the 95 percent confidence level or higher. At the wholesale level, only 34 of 60 regressions were significant and at the retail level only 37 of 60 regressions were significant. By comparison, all 24 industry level regressions were significant at the 99 percent confidence level. These results suggest that the reseller tends to view the RTE cereal category as a single entity when making gross margin and pricing decisions rather than as a series of sub-groups consisting of the items of individual manufacturers. The former view supports the CTP model which suggests that the major factors affecting gross margins at the reseller level are the relative unit sales and turnover rates of items within a product category and not which manufacturers supply the items. The "shared monopoly" theory, on the other hand, suggests that larger manufacturers have greater influence on reseller behavior than smaller manufacturers.

2. The firm level regressions provide the best results when the models are applied to data for the items supplied by the two

	<u></u>			R ² V	alues		
Year	Firm	Wholes	ale Level	Models	Retail	Level	Models
1073/74			2	<u>_</u>	50g	<u>_</u>	0 26C
19/ 3/ / 4		. 55	.00	./4*	. 50-	.00-	.20-
	GM	.72ª	.82ª	.71ª	.82ª	.84ª	.63 ^a
	GF	.45 ^b	.45 ^b	.75 ^a	.44 ^b	.41 ^a	.07 ^c
	Q	.46 ^b	.41 ^b	.36 ^C	.80 ^a	.40 ^a	.60 ^a
	RP+Nab	.61 ^C	.57 ^C	.48 ^C	. 39 ^c	.31 ^c	.03 ^c
1974/75	к	.43 ^a	. 53 ^a	.63 ^a	. 58 ^a	. 59 ^a	.37ª
	GM	.67ª	.78 ^a	.87ª	. 59 ^a	.82 ^a	.60 ^a
	GF	. 48 ^b	. 47 ^b	.44 ^C	.05 ^C	.07 ^C	.06 ^C
	Q	. 53 ^b	. 53 ^b	.19 ^C	.82 ^a	.84 ^a	.15 ^C
	RP+Nab	.82ª	.85ª	.52 ^C	. 39 ^c	.33 ^c	. 50 ^C
1975/76	к	.44ª	. 58 ^a	.51 ^a	. 40 ^a	.49 ^a	.35a
	GM	.53 ^a	.64 ^a	.73 ^a	.49ª	.65 ^a	. 42 ^b
	GF	.12 ^C	.11 ^c	.11 ^c	. 26 ^C	.13 ^C	. 34 ^C
	Q	.09 ^C	.01 ^c	.32 ^C	.37 ^C	. 59 ^b	.25 ^C
	RP+Nab	.39 ^C	.35 ^C	.10 ^c	.17 ^c	.11 ^c	.76 ^b
1976/77	к	.12 ^c	.21 ^c	.76 ^a	.43 ^a	.57ª	.06 ^c
	GM	.32 ^C	.40 ^b	.36 ^b	. 49 ^a	.68ª	. 40 ^b
	GF	.35 ^C	.36 ^C	. 29 ^c	. 52 ^b	.61ª	.33c
	Q	.28 ^C	. 29 ^c	.27C	.56 ^b	.79ª	.24 ^c
	RP+Nab	.47 ^C	.39C	.62 ^c	.15 ^C	.12 ^c	.84b
	1	1			1		

Table 6-8. Summary of $R^{2's}$: Firm Level Regressions

^aSignificant at 99 percent level. ^bSignificant at 95 percent level. ^cNot significant at 95 percent level.

manufacturers with the largest market shares, Kellogg and General Mills. Of the 48 regressions using data for the items supplied by these two firms, 43 were significant at the 95 percent level or better. By contrast, of the 72 regressions that used data for items of General Foods, Quaker Oats, Ralston-Purina, and Nabisco, only 25 R² values were significant at these confidence levels.

These results have important implications for the likely effects of the FTC's proposed remedies. A large number of the items most likely to be affected by divestiture and trademark licensing are supplied by Kellogg and General Mills as these firms account for a large percentage of the well established brands now on the market. The firm level regression results suggest that resellers are more likely to apply contribution-to-profit considerations when setting gross margins and prices for items supplied by these two firms. If the remedies cause the unit sales or turnover rates for items supplied by these firms to decline, resellers are likely to increase gross margins to protect their profit objectives. This would put upward pressure on retail prices.

Regression Coefficients

Table 6-9 summarizes the regression coefficients for each independent variable used in the six firm level regressions run for each of the four periods analyzed. These summary data reveal that the only independent variables to have consistently significant relationships with gross margins were unit sales (SALES and LSALES) in both wholesale and retail level models and turnover rate (TORW) in the wholesale level model. The regression coefficients for these variables were consistently negative and these variables had the strongest effect on gross

B., -

Table 6-9. Summary of Regression Coefficients: Firm Level Regressions

ILUNEJJION NO.	R	E	GF	₹E	SS	I	ON	NC).	1
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			Reg	ression (Coefficient	ts		
Firm	SALESW	ROGS	MANADV	CUBE	SALESW	ROGS	MANADV	CUBE
		1973	3/74			1974,	/75	
K	00018 ^a	.015 ^a	00003	032	00012 ^a	.0029 ^a	0001	.012
GM	00029 ^a	.0063	.00001	116	00019	0006	.00016	419
GF	00046 ^a	.0081	0001	478 ^a	00029	0040	00006	085
Q	00046 ^a	0016	.00014	661	00029 ^a	.0081	00005	037
R+N	00047 ^a	.0031	.00004	603	00031	.0007	00005	137
		197	5/76			1976	/77	
K	00008 ^a	197 0059 .	5/76 00013	098	00005	1976, .0020	/77 00008	797
K GM	00008 ^a 00005 ^a	197 . 0059 . 0045	5/76 00013 .00025 ^a	098 533 ^a	00005 00004	1976 .0020 0054	/77 00008 .00001	797 415 ^a
K GM GF	00008 ^a 00005 ^a 0001 ^a	197 .0059 .0045 0052	5/76 00013 .00025 ^a 0005	098 533 ^a 043	00005 00004 00002	1976 .0020 0054 .0083	/77 00008 .00001 00002	797 415 ^a 014
K GM GF Q	00008 ^a 00005 ^a 0001 ^a 0001 ^a	197 .0059 .0045 0052 0057	5/76 00013 .00025 ^a 0005 .00044	098 533 ^a 043 345	00005 00004 00002 00002	1976 .0020 0054 .0083 .0052	/77 00008 .00001 00002 00007	797 415 ^a 014 .155
K GM GF Q R+N	00008 ^a 00005 ^a 0001 ^a 0001 ^a	1979 .0059 .0045 0052 0057 0013	5/76 00013 .00025 ^a 0005 .00044 .00013	098 533 ^a 043 345 182	00005 00004 00002 00002 00012 ^a	1976 .0020 0054 .0083 .0052 .0037	/77 00008 .00001 00002 00007 .00005	797 415 ^a 014 .155 117

^aSignificant at 95 percent level or higher.

Table 6-9 (cont'd.).

			Reg	ression (Coefficien	ts		
Firm	LSALESW	ROGS	MANADV	CUBE	LSALESW	ROGS	MANADV	CUBE
		1973	3/74			1974,	/75	
K	-1.02 ^a	.014	00002	05	56 ^a	.0097 ^a	00013 ^a	03
GM	-1.23ª	.0024	00002	.117	46 ^a	.0005	.00011	306 ^a
GF	-1.16 ^a	.0096	0001 ^a	46 ^a	53	0032	00006	075
Q	90 ^a	0004	.00008	503	-1.04ª	.0084	00008	.0035
R+N	-1.28 ^a	.0019	.00006	583	-1.42 ^a	0027	.00016	187
		1975	5/76			1976,	/77	
K	742 ^a	.0065	00011	076	51 ^a	.0022	00007	057
GM	524 ^a	.0029	.00023 ^a	396 ^a	512ª	.0010	0001	314
GF	519	0055	0008 ^a	035	045	.0028	.00002	019
Q	673	007	.0005 ^a	356	071	.005	00008	.174
R+N	932 ^a	007	.0003	138	294 ^a	.0026	00012	.035

^aSignificant at 95 percent level or higher.

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Table 6-9 (cont'd.).

			Regi	ression (Coefficier	its		
Firm	TORW	ROGS	MANADV	CUBE	TORW	ROGS	MANADV	CUBE
		1973	3/74			1974	/75	
K	101 ^a	.0032	00001	063	064 ^a	.0081 ^a	00009	169
GM	054 ^a	.0072	00011	.086	04 ^a	0025	.00009	33 ^a
GF	074ª	.014	00008ª	282ª	017	0086	00004	071
Q	076	.0053	00002	455	015	.014	00011	061
R+N	038	.013	0006	51	035	0025	0004	.015
		197	5/76			1976	/77	
K	06 ^a	.0018	00006	231 ^a	07 ^a	.0019	00009	008
GM	- 03g	- 0008	00024a	- vvg	- 024	0010	00001	27
	05	0000	.00024	++	024	0018	.00001	3/
GF	031	014 ^a	00007	026	04 ^a	0018	.00001	028
GF Q	031 044	014 ^a 0019	00007 .00024	026 095	04 ^a 011	0018 0016 .0056	.00001 .00002 00013	028 .272

^aSignificant at 95 percent level or higher.

Table 6-9 (cont'd.).

			Reg	ression (Coefficien	ts				
Firm	SALESR	ROGS	MANADV	CUBE	SALESR	ROGS	MANADV	CUBE		
		1973	3/74			1974	/75			
К	0065 ^a	.015	00004	.156	0040 ^a	.032 ^a	.00019	55		
GM	0079 ^a	.0068	.00034	-2.11ª	0035 ^a	.006	.00022	93		
GF	0074a	029	00001	331	0051	023	.00027	217		
Q	0084 ^a	.009	.00004	-2.53 ^a	0069 ^a	026	.00071 ^a	. 458		
R+N	0092	. 02	.00019	-1.54	0069	.017	.0005	70		
		197	5/76			1976	1976/77			
K	0027 ^a	.012	.0002	188	003 ^a	.0085	.00013	419		
GM	0027 ^a	.037	0007	483	0038 ^a	.02	.00017	-1.45		
GF	0024 ^a	.019	0004	.203	0035 ^a	044	00027	419		
Q	0034 ^a	.048	00073	843	0051 ^a	002	.0001	2.44		
R+N	0045 ^a	.025	00011	.243	0043 ^a	.009	.0014	-2.16		

^aSignificant at 95 percent level or higher.

Table 6-9 (cont'd.).

R	EG	iR	ES	S	I	ON	NO.	5
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			Reg	ression (Coefficien	its		
Firm	LSALESR	ROGS	MANADV	CUBE	LSALESR	ROGS	MANADV	CUBE
		197	3/74			1974	/75	
K	-1.94 ^a	.014	.00002	. 39	-1.63 ^a	.037ª	.00014	70 ^a
GM	-3.70 ^a	.006	.00034	-2.02 ^a	-1.75 ^a	.006	.00003	49
GF	-1.82 ^a	022	00002	. 22	175	018	.00024	25
Q	-2.31 ^a	.012	.00012	-1.90 ^a	-3.49 ^a	022	. 00047	15
R+N	-2.36	.015	.00017	-1.40	-2.77	.014	.00054	61
		197	5/76			1976	5/77	
K	-2.70 ^a	.016	.0002	40	-4.15 ^a	.011	.00007	43
GM	-2.91 ^a	.032	0007	. 09	-4.55ª	.025	.00013	73
GF	-1.45	.022	.00044	.14	-2.16 ^a	035	00014	14
Q	-2.27ª	.03	00073	10	-4.39 ^a	031	.00056	2.09 ^a
R+N	-2.27 ^a	.029	00094	.21	-1.11	003	.0016	-2.38

^aSignificant at 95 percent level or higher.

Table 6-9 (cont'd.).

			Reg	ression	Coefficier	nts		
Firm	TÓRW	RÓGŚ	MANADV	CUBE	TORW	ROGS	MANADV	CUBE
		197	3/74			1974	/75	
К	174 ^a	013	.00005	.42	10	.03 ^a	.00012	-1.0 ^a
GM	117	.006	00006	-1.21	115 ^a	.0003	00006	83
GF	014	059	000012	49	017	019	.00025	25
Q	215	.028	0002	-1.46	093	.001	.00022	41
R+N	058	.056	0002	71	137	.036	0012 ^a	44
		197	5/76			1976	/77	
K	186 ^a	006	.00015	77	094	.008	0016	56
GM	042	.023	00093	40	082	.008	00009	-1.43
GF	036	.006	.00003	. 27	065	047	0004	71
Q	243	.067	0022	. 41	032	006	0009	3.86
R+N	016	.003	.00014	13	-519 ^a	009	00087	1.06

^aSignificant at 95 percent level or higher.

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margins. Similar relationships were also present in the industry level regressions.

These results confirm that the CTP model performs best at the overall product category level. The implication is that when setting gross margins on RTE cereals, the reseller is primarily concerned with the relative levels of unit sales and turnover among RTE cereals as a group and not with the unit sales and turnover among items supplied by each manufacturer. In other words, the reseller would set similar gross margins on items with similar unit sales or turnover rates regardless of which manufacturers supply the items.

Test of Hypothesis 4

The null form of Hypothesis 4, that items supplied by manufacturers with larger market shares carry <u>higher</u> reseller gross margins at the same level of unit sales than items supplied by manufacturers with smaller market shares was tested using the regression coefficients for the unit sales at wholesale (SALESW) and at retail (SALESR) variables obtained in the firm level regressions. If the regression coefficients for SALESW and SALESR for manufacturers with larger market shares, such as Kellogg and General Mills, are consistently higher than those for manufacturers with smaller market shares, such as Quaker Oats, Ralston-Purina, and Nabisco, this would imply that the reseller has tended to place <u>higher</u> gross margins on the items of manufacturers with larger market shares. This would support the "shared monopoly" theory in which the largest manufacturers are considered to be primarily responsible for the high retail prices for RTE cereals. If, on the other hand, the unit sales regression coefficients for manufacturers having larger

market shares are consistently smaller than those for manufacturers with smaller market shares, the reseller has tended to place <u>lower</u> margins on the items supplied by manufacturers with larger market shares. This view would support the CTP model and would suggest that as a manufacturer's share of total RTE cereal unit sales increases, gross margins on the items it supplies would decrease.

Table 6-10 summarizes the relevant unit sales regression coefficients needed to investigate these alternative propositions. It reveals that the general pattern at both wholesale and retail levels has been for the values of the unit sales regression coefficients to be lower for the items supplied by firms with the largest market shares. This implies that the reseller tended to place <u>lower</u> gross margins, for the same level of unit sales, on the items supplied by manufacturers with larger market shares than on the items supplied by manufacturers with smaller market shares. This also suggests that, as the average market share of existing manufacturers declines due to new entry, margins at the reseller level are likely to increase. This would put upward pressure on retail prices. On the basis of these results, the null form of Hypothesis 4 was rejected.

Analysis of Addition and Deletion Decisions

The null form of Hypothesis 5 stated that resellers accept new items supplied by manufacturers with larger market shares at lower gross margins than they accept the new items of manufacturers with smaller market shares. The objective of testing this hypothesis was to determine if resellers treat manufacturers with large and small market shares

Regressions
Level
Firm
Coefficients:
Regression
Sales
Unit :
Table 6-10.

Firm	Market Share				kegression	Coefficient	Si		
	1976 (%)		SAL	.ESW			SAL	ESR	
		1973/74	1974/75	1975/76	1976/77	1973/74	1974/75	1975/76	1976/77
×	41	00018	00012	00008	00005	0065	0040	0027	0030
GM	23	00027	00019	- , 00005	00004	0079	0035	0027	0038
GF	18	00046	00029	00007	00002	0074	0051	0024	0035
ð	6	00046	00029	00010	00002	0084	0069	0034	0051
RP+Nab	ω	00047	00031	00017	00012	0092	0069	0045	0043

differently in their new RTE cereal item acceptance decisions. The FTC argues that a major barrier to entry into the cereal industry has been the power of larger manufacturers to obtain easier access to retail shelf space for their products. One manifestation of this power would be the ability of larger manufacturers to gain entry for their new cereal items at reseller gross margins lower than those on new items offered by smaller manufacturers. This suggests that smaller manufacturers are forced to offer higher rewards to resellers to obtain distribution for their new products. An alternative proposition contained within the CTP model, is that the major factor considered by a reseller in setting gross margins and selling prices on new items is their expected levels of unit sales. Since the unit sales of any new item will not be high in the early introductory stages, there will be no significant differences in the reseller gross margins on new items supplied by different manufacturers.

Hypothesis 6 presented a similar argument with respect to deletion decisions. The null form of this hypothesis stated that resellers delete the low unit sales items supplied by manufacturers with larger market shares at lower gross margins than those on deleted items supplied by manufacturers with smaller market shares. If this is the case, larger manufacturers have a relative advantage as resellers will carry their low sales items at lower margins than low sales items of smaller manufacturers. Data were available for all RTE cereal items accepted and deleted at the wholesale level of the chain during the period April 1970 to March 1977 and for all items accepted and deleted by the group of retail stores used in the study for the period April 1973 to March 1977.

Table 6-11 presents a summary of the average wholesale and retail gross margins and unit sales on accepted and deleted items during these periods.

The summary data in Table 6-11 reveal the following findings: 1. There has been a general trend in recent years for the reseller to delete an existing RTE cereal item for every new RTE cereal item that has been added to the line. During the period 1970 to 1977, a total of 52 new items were accepted and 54 items were dropped at the wholesale level. For the period 1973 to 1977, 23 items were accepted by the retail group and 20 items were dropped. This virtual one-for-one relationship could be explained by the profit control measures adopted by resellers. In terms of the CTP model, resellers will resist increases in the total amount of storage or shelf space allocated to RTE cereals unless such an increase would cause the contribution-to-profit of the cereal category to increase relative to other categories that compete for the limited space available. The profit contribution of RTE cereals could be increased either by higher gross margins or increased sales per unit of space (or a combination of both). The possibility of the proposed remedies causing a reduction in the average sales per unit of space was discussed in Chapter IV. If sales per unit of space decline for a number of high unit sales RTE cereal items, resellers will only accept new RTE cereal items if the average gross margins on RTE cereal items increase. This would put upward pressure on retail prices.

This one-for-one relationship could also be explained if cereal manufacturers adopt a substitution strategy in their new product development activities. With such a strategy, new items would be developed

Total	Margin		20.8	19.6	<u>-</u> 20.5	22.7	21.7	<u>21.0</u> 21.8			19.2	18.5	<u>10.4</u> 18.7	15 0	10.8	20.7	18.8	
3/77)	Average SALESR (cases)		238	241	<u>-</u> 240	212	260	<u>263</u> 245			138	164	<u>201</u> 168	218	193	136	182	
Retail (197	Average GMR (%)		14.6	13.8	$\frac{14.2}{14.2}$	15.1	14.6	<u>15.8</u> <u>15.2</u>			13.4	13.5	<u>12.0</u> 13.2	10.3	13.3	13.9	12.5	
	No. Items	IT I ONS	4	6	<u>13</u>	2	4	10	23	SNOIT	4	• ى	<u>13</u>	~) (• M	7	20
-77)	Average SALESW	ADD	1911	1917	<u>2327</u> 2052	2322	2414	<u>1771</u> 2169		DELI	1440	1506	<u>1456</u>	1410	1427	1408	1418	
sale (1970-	Average GMW (%)		6.2	5.8	<u>6.8</u> 6.3	7.6	7.1	<u>5.2</u> 6.6			5.8	5.0	<u>5.5</u>	67	. r	5.8	6.3	
Wholes	No. Items		11	17	<u>34</u>	11	4	<u>18</u> 3	52		6	11	<u>14</u> 34	σ	י ע	0	20	54
Firm			¥	GM	GF LARGEST 3	δ	Nab	R-P SMALLEST 3	TOTAL		×	Μŋ Γ	ur LARGEST 3	C	den den	R-P	SMALLEST 3	TOTAL

Table 6-11. Summary of Item Additions and Deletions

specifically to replace items being discontinued. Such a policy would be aimed at allowing the manufacturer to protect market share through keeping the number of items he produces at approximately a constant level.

The recent addition and deletion decisions for RTE cereals for the reseller used in the study, however, suggest that reseller behavior plays a major role in explaining this one-for-one relationship. A casestudy example is provided by analyzing the decision made by the chain in April 1977 to accept eight new private label RTE cereal items supplied by Ralston-Purina. To make way for these eight additions, eleven existing RTE cereal items were dropped from the reseller's line. The total space occupied by a case of each new item was approximately 17 cubic feet while the items deleted occupied approximately 20 cubic feet of space. The decision to add the eight private label items increased the total amount of space occupied by RTE cereals by only three cubic feet. This is a small percentage of the total space occupied by a single case of each RTE cereal item carried in 1976/77 (approximately 225 cubic feet). Executives of the chain confirmed that a major factor considered when deciding which items to delete was the requirement to avoid a large increase in space allocated to the RTE cereals. Of the eleven items deleted, four were manufactured by General Mills, three by Kellogg, two by Quaker Oats, one by Ralston-Purina, and one by a small manufacturer outside of the six largest producers. Six of the eleven deleted items, therefore, were well established items produced by the two largest manufacturers. Manufacturers with large market shares did not appear to receive any preferential treatment from the reseller in this particular decision.

2. Table 6-11 also reveals that there were no significant differences in the reseller gross margins for new items added or items dropped among the major manufacturers. This can most clearly be seen from the figures in the column headed "Total Margin". Total margin is the sum of wholesale and retail gross margins for the item. The reseller accepted the new items of the three largest manufacturers at margins only slightly lower than those for the new items of the three smaller manufacturers. The average level of unit sales (in cases) of the items in the first year of distribution at both levels for both groups was approximately the same. Similarly, the reseller gross margins on deleted items were virtually the same for the two groups of firms.

These results suggest that the reseller's decisions to add new RTE items or delete existing items have been made primarily on the basis of unit sales levels. Since there were no significant differences in the average unit sales of items added or dropped among the manufacturers, average gross margins carried on these items were not significantly different. This suggests that the major factors considered by resellers when deciding to add or drop an RTE cereal item are the levels of unit sales and the gross margins on items and not which manufacturer is supplying the item. On the basis of this evidence, the null forms of Hypotheses 5 and 6 were rejected.

Conclusion

The results of the three sets of analyses conducted with the available data were presented in this chapter. The results tend to confirm that for the reseller selected in the study, the CTP model

provides a reasonable explanation of the observed variations in gross margins on RTE cereals at wholesale and retail levels.

The fact that item profit contributions are a major factor in the reseller's gross margin decision process for RTE cereals has some important implications for the likely effects of the FTC's divestiture and trademark licensing remedies. If these remedies cause profit contributions of a number of RTE cereal items to fall at wholesale and retail, primarily through a decline in sales per unit of space for a number of affected RTE cereal items, reseller profits will be threatened. This will force resellers to increase gross margins and therefore retail prices on a number of RTE cereal items, including some large volume items. Any increase in retail prices is diametrically opposed to the objectives of the FTC. The results of the empirical analyses of this study illustrate how effects at reseller levels induced by the remedies can lead to the possibility of higher, not lower, prices for RTE cereals. Any price-reducing effects of the remedies at the manufacturing level may be more than offset by price-increasing effects induced by the remedies at the reseller levels of the channel. An overall channel view clearly is required when evaluating the suitability of remedies such as those being proposed in the RTE cereal case.

Chapter VI--Footnotes

¹A and P conducted the WEO program during the period Spring 1972 to Spring 1974. The major feature of the program was the drastic reduction in retail prices and gross margins on a large range of food products in an attempt to reverse the chain's deteriorating financial position. The extent of the cuts in gross margins that resulted can be seen from the following figures: during the WEO program, gross margins ranged from a low of 9 percent to a high of 13 percent compared to an estimated 21 percent margin prior to the program. In areas in which the WEO program operated, including the area served by the chain used in this study, other chains were forced to reduce margins also. For an analysis of the effects of the WEO program see: <u>Business Week</u>, 20 May 1972, p. 76 and Federal Trade Commission, <u>Staff Economic Report on Food</u> <u>Chain Profits</u> (Washington, D.C.: U.S. Government Printing Office, July 1975), p. 18.

²D.E. Farrar and R.R. Glauber, "Multicolinearity in Regression Analysis: The Problem Revisited", <u>Review of Economics and Statistics</u> 69 (February 1967): 92-107. The essence of this procedure for testing the extent of multicolinearity present in multiple regression models is that colinearity is considered serious and likely to produce biassed regression coefficient values if the correlation coefficient (r) between any two independent variables in the model exceeds the value of R^2 for the model being used.

³Norman H. Nie et al., <u>Statistical Package for the Social Sciences</u>, 2nd ed. (New York: McGraw-Hill Book Company, 1975), pp. 341-342.

CHAPTER VII

SUMMARY AND CONCLUSIONS

The study focused on two major issues. First, the theory of "shared monopoly" being advanced by the FTC in the RTE cereal case was investigated. This was undertaken in Chapters I, II, and III. Second, the possible effects of the FTC's proposed divestiture and trademark licensing remedies on the retail prices of RTE cereals were investigated. Data from a representative reseller were used to test a set of propositions concerning the nature of reseller behavior with respect to the setting of wholesale and retail gross margins on RTE cereals. A theoretical contribution-to-profit model of reseller behavior provided the framework for the empirical analysis. The data were analyzed using multiple regression models at both wholesale and retail levels of the channel.

The contribution-to-profit model was discussed in Chapter IV. Chapter V outlined the research design used to test the research hypotheses of the study and Chapter VI presented a summary of the research findings. The final chapter presents an overall summary of the study and its principal conclusions. Some of the more important limitations of the study that should be recognized and some suggestions for future research are also indicated.

The "Shared Monopoly" Theory

The general dimensions of the "shared monopoly" theory as expressed in the RTE cereal case and some important research questions and implications of the theory were discussed in Chapter I. The unique features of the theory and the case contain far-reaching implications for antitrust regulation and marketing. The major points to emerge from Chapter I were the following:

1. The major aspect of the case is that for the first time in U.S. antitrust history, four firms have been charged with "sharing" a monopoly. This labels the case as one of the important recent antitrust initiatives undertaken by the FTC.

2. Two dimensions of the "shared monopoly" theory were identified. First, the FTC has charged that the behavior of the four largest RTE cereal manufacturers constitutes a tacit conspiracy to discourage price competition and to prevent the entry of potential competition into the industry. This has resulted in excessive retail prices for RTE cereals and excessive profit levels for the major cereal manufacturers. Of particular importance for marketing is that the principal forms of behavior identified by the FTC are the non-price marketing practices of intensive advertising, extensive new product development, product differentiation, and the use of manufacturer controlled retail shelfspace allocation programs. The tacit conspiracy is allegedly policed through the information collection activities of company salespersons, the use of industry monitoring reports, such as Neilsen and SAMI reports, and the membership of the four firms in the Cereal Institute. The FTC alleges that this tacit conspiracy encourages interdependence in

pricing decisions, discourages the use of practices that might stimulate price competition, and restricts competitive behavior to the above set of non-price marketing practices which have deterred entry into the industry. This behavior pattern, it is charged, violates Section 5 of the FTC Act.

The second dimension of the theory is the FTC's charge that even if a tacit conspiracy does not exist, the <u>structure</u> of the industry provides sufficient evidence by itself that competition has been lacking. The major structural characteristics identified are the industry's high concentration, the stable market shares of the major manufacturers, the presence of extensive product differentiation, and the existence of high barriers to entry. The structure of the industry is considered sufficient grounds, per se, to constitute a violation of Section 5 of the FTC Act.

The FTC charges that the behavior and the structure of the industry have led to the poor economic performance. The most adverse effect identified is the "monopoly overcharge" that is alleged to be present in the retail prices of RTE cereals. The FTC estimated that in 1970 these overcharges amounted to \$128 million. This represents a 15-20 percent excessive retail price level for the average RTE cereal item produced by the large cereal manufacturers.

3. To remedy this poor economic performance, the FTC has recommended two courses of action. First, the three largest manufacturers should be ordered to divest themselves of a total of five plants. This will allow five existing small manufacturers to expand their market or five new firms to enter the industry. Second, to ensure the viability of

these plants and firms, each will initially be given the exclusive license to manufacture an established brand of the divesting firm. These licenses will be granted on a royalty-free basis for a period of twenty years and will include product formulae and package designs. In addition, any other trademarked brands of the three largest manufacturers that have been on the market for a period of five years must be licensed to an applicant on similar terms, although not necessarily on an exclusive basis. Approximately forty-five trademarked brands could be affected by this proposal.

The objective of these remedies is to increase price competition in the industry and thereby reduce or eliminate the "monopoly overcharges" that are alleged to currently exist in the retail prices of RTE cereals. Both these remedial proposals are based on the proposition that by altering the structure of the manufacturing sector of the cereal industry, the behavior pattern of existing and new entrant <u>manufacturers</u> <u>and resellers</u> of RTE cereal products will be affected so as to lead to a reduction in the retail prices of RTE cereals. A major focus of the study was to analyze the likely effects of the remedies on resellers.

4. The RTE cereal test case has far-reaching implications for antitrust regulation and marketing. Approximately one-quarter of U.S. manufacturing output is produced by oligopolistically structured industries and the behavior pattern being criticized is widely used especially in consumer packaged goods industries. A legal precedent supporting the FTC's position would pave the way for the application of the "shared monopoly" theory to a wide range of industries. It would provide a mechanism for expanding the scope of existing antitrust statutes,

in particular Section 5 of the FTC Act and Section 2 of the Sherman Act, to the regulation of oligopolies.

The case raises fundamental questions concerning the social welfare effects and the legality of widely used marketing practices. The charge that advertising, new product development, promotional techniques, and shelf-space planning programs have exclusionary effects and, therefore, violate major antitrust statutes is a fundamental challenge to contemporary marketing theory and practice. Among the marketing concepts and practices being criticized, either explicitly or implicitly, are: the use of advertising and promotional techniques to differentiate products and create consumer loyalties, the use of market share goals to achieve profit objectives, the use of market segmentation as a basis for new brand development, the use of non-price marketing practices as an alternative to price changes within an integrated "marketing mix", and the use of salespersons and standard industry competitive monitoring reports to obtain information on the activities of rivals. The assertion that the use of these practices allows firms to "share" a monopoly represents a fundamental challenge to the nature of marketing itself.

Theoretical Foundations of the Theory

The major theoretical propositions of the "shared monopoly" theory are drawn from two sources of economic theory: (1) the theory of oligopoly and (2) the theory of industrial organization. The relationship between the "shared monopoly" theory and each of these theories was discussed. Chapter II examined the theory of oligopoly and Chapter III discussed the theory of industrial organization.

Chapter II investigated the relationships between the "shared monopoly" theory and a number of theoretical explanations for the structure, behavior, and performance of oligopolies found in the economics literature. Important aspects of the theories of oligopoly put forward by Cournot, Chamberlin, Fellner, and Stigler were discussed as were the following more specific concepts that have been put forward to explain the behavior of firms in oligopolistic industries: game theory, conscious parallelism, the kinked demand curve, pricing rules, price leadership, and limit pricing. The focus of the analysis was to assess how well these theories and concepts provided a basis for the "shared monopoly" position being advanced in the RTE cereal case.

The major points to emerge from this investigation were the following:

1. Redefining oligopoly as "shared monopoly" is an attempt to develop a theoretical basis upon which to extend the application of existing antitrust statutes to the regulation of oligopolistic industries.

 None of the existing theoretical explanations of oligopolistic behavior provide a satisfactory explanation for the situation that exists within the RTE cereal industry. The major emphasis of the existing theories is upon the price behavior of firms in undifferentiated oligopolies. This reflects the classical and neo-classical principles of economics upon which these theories are based and limits the scope for applying these theories to industries such as the cereal industry.
The "shared monopoly" theory can best be viewed as an attempt to extend existing theories of oligopoly to encompass differentiated

oligopolies in which non-price competition is the major form of competitive activity. In particular, in the "shared monopoly" theory, the effects and roles of advertising, new brand development, product differentiation, and shelf-space allocation programs are integrated into a theoretical explanation of the behavior and performace of the differentiated RTE cereal oligopoly. The "shared monopoly" theory, therefore, represents an important theoretical development in the area of oligopoly.

Chapter III investigated the second major theoretical foundation for the "shared monopoly" theory, the theory of industrial organization. Emphasis was placed upon investigating the relationships between these two theories and, in particular, upon the need to recognize several key limitations of the theory of industrial organization when applying it to the RTE cereal case.

The main points to emerge from the analysis were the following: 1. Some of the major propositions of the "shared monopoly" theory and arguments of the RTE cereal case are based upon the propositions of the theory of industrial organization and the findings of empirical studies that have tested these propositions. Of particular importance are the theoretical and empirical relationships between concentration and profits and between advertising and profits. These two relationships have produced the "structuralist" model of industrial organization theory. The central proposition of this model is that a direct causal link exists between the structure and the economic performance of an industry. This model plays a major role in the arguments of the RTE cereal "shared monopoly" case. The FTC has argued that the structure of this industry is sufficient evidence to explain its poor economic

performance and as such is sufficient grounds for charging the major manufacturers with violating major antitrust statutes.

2. The rationale for the two proposed remedies, divestiture and trademark licensing, is provided by the propositions of the "structuralist" model. Plant divestiture is designed to increase the number of manufacturers and, therefore, to reduce concentration below the "critical levels" identified in several key empirical studies testing the propositions of the theory of industrial organization. Trademark licensing is designed to lower the entry barriers to potential new competition by reducing the potency of the advertising, product differentiation, and new brand development activities of existing manufacturers. These two remedies are designed, therefore, to alter the structure of the manufacturing sector of the RTE cereal industry as a means of improving the economic performance of the industry. The ultimate objective is to reduce or eliminate the "monopoly overcharges" that are alleged to currently exist in the retail prices of RTE cereals.

3. Several important limitations of the theory of industrial organization that affect its use in the RTE cereal case were identified. First, the use of perfect competition as the benchmark model of industrial organization means that: (1) the performance of an industry is viewed primarily from the standpoint of its economic efficiency, in particular its levels of prices and profits, (2) the conditions of supply are given primary emphasis, (3) consumer demand is viewed primarily as the process by which consumers allocate income among <u>products</u> as distinct from the process of <u>interbrand</u> choice which is the concern when a consumer is facing the choice of alternative products within a
single product class such as RTE cereals, and (4) the thermometer of industrial performance is an industry's, or a firm's, level of profits. The persistence of high profits over a long period of time is viewed as a manifestation of the market power of a firm or a group of firms acting in concert to charge excessive selling prices. Other sources of profits, for example, superior performance or attitudes toward risktaking are not considered.

The second major limitation of the theory arises from its traditional emphasis upon the structure, conduct, and performance of an industry at only one level of the distribution process. This horizontal orientation has limited the theory to investigations of the structure, conduct, and performance of the manufacturing or reselling sectors of an industry separately. The influence of this view can be seen in the RTE cereal case. The FTC argues that by restructuring the manufacturing sector of this industry, prices at the retail level will fall. In vertical structures such as food product channels, this assumes that manufacturers either dominate the channel through vertical integration or have the power to control the pricing decisions of large numbers of food resellers. In the RTE cereal industry, the "relevant industry" for antitrust regulation purposes includes both manufacturers and resellers. The vertical dimensions of this industry's structure, conduct, and performance must be considered as the decisions of food wholesalers and retailers affect the level of retail prices for RTE cereals. This perspective provided the focus for the empirical analyses of the study in which the nature of RTE cereal pricing decisions by a representative food reseller was investigated.

The Nature of Food Reseller Behavior

The empirical analyses of the study were conducted in Chapters IV, V, and VI. In Chapter IV, a theoretical contribution-to-profit (CTP) model describing how a profit maximizing food wholesaler or retailer would make optimal pricing, merchandising, and space allocation decisions for grocery products such as RTE cereals was put forward. The essence of this model is that these decisions are based upon the level of profit contributed by items per unit of storage space (wholesale) or shelf space (retail). Contribution-to-profit, therefore, provides resellers with basic profit control guidelines. This model was subsequently tested empirically using a research design developed in Chapter V. The findings of the empirical analyses were summarized in Chapter VI.

The major proposition of the CTP model is that reseller pricing, merchandising, and space allocation decisions are based upon the inverse relationship between gross margins and the level of unit sales of an item. The higher the sales per unit of space for an item, the lower can be its gross margin, and therefore its selling price, for the reseller to achieve profit contribution objectives on that item. This decision behavior will maximize a reseller's profit and rate of return on investment.

The CTP model was used to analyze the possible effects of the FTC's proposed divestiture and trademark licensing remedies at the reseller level under a range of possible conditions. If the average food reseller uses contribution-to-profit considerations to set gross margins and selling prices for RTE cereals, the model can be used to assess the feasibility of the remedies producing a decline in the levels

of retail prices of RTE cereals.

The main points to emerge from Chapter IV were the following: 1. If the proposed remedies cause sales per unit of space for a number of RTE cereal items to decline, resellers will be forced to increase gross margins on RTE cereals to protect profit objectives. Increases in reseller gross margins on RTE cereals are likely to lead to increases in retail prices. Such a result would be diametrically opposed to the objective of the FTC.

2. The remedies could cause unit sales levels to decline for three reasons. First, the plant divestiture and exclusive trademark licensing proposals would shift the production of a number of large unit sales brands to a single plant. These brands are now produced at a number of geographically dispersed plants which serve as both production points and distribution centers. This is likely to increase distribution costs thereby making it more difficult for manufacturers, especially new entrant firms, to compete profitably on a price basis and also to cause increased availability problems leading to increased out-of-stock situations and reduced unit sales. Second, the trademark licensing remedy would split the unit sales of a number of items between two manufacturers. This is likely to increase reseller ordering, delivery, and inventory costs. This would place upward pressure on costs and prices throughout the channel and would be likely to cause sales per unit of space to decline as the total sales of an item would be split between two versions of the item. This result will be even more likely with new private label brands as retailers must stock both national brand and private label versions to reveal the price advantages of

non-advertised private label brands to consumers. Any decline in sales per unit of space would force resellers to increase gross margins to protect contribution objectives. Third, the FTC hopes that brand advertising expenditures for RTE cereals will fall as a result of the remedies. If the reduction in advertising causes unit sales to fall, resellers are again likely to increase gross margins.

3. The CTP model was also used to investigate the feasibility of increased private labelling of RTE cereals as a result of the remedies. The most attractive private label food categories are the generic, commodity-type products such as canned fruits, juices, and vegetables and those in which consumers are most conscious of price, that is in categories where consumers spend a sizable portion of their food budget. RTE cereals do not fit into either of these categories. Of particular importance to the reseller is that while the retail prices of private label brands are lower than national brand alternatives, reseller gross margins on private label brands are only slightly higher and sales per unit of space are actually lower for private label brands. In terms of the CTP model, this suggests that private label cereals may not be an attractive profit proposition to resellers especially if the space allocated to bulky private label cereals could be allocated to higher profit contributing items. This suggests that major reasons for the relative lack of private labelling in RTE cereals are the reluctance of resellers to carry private label brands and the lack of price consciousness among consumers in their purchases of RTE cereals. The FTC argues that the lack of private labelling is due to the tacit conspiracy of the large manufacturers to avoid this form of behavior. Finally, the

opportunities for private labelling by new entrants are likely to be limited as major private label manufacturers already provide a number of the largest food chains with private label versions of the four largest product groups of RTE cereals.

Chapter V developed the research design used to test the major research hypotheses of the study. The design chosen used multiple regression models to test the major propositions of the CTP model with wholesale and retail data collected from a representative grocery chain. The dependent variables in the regression models were the wholesale and retail gross margins on RTE cereal items carried at these two levels. The models employed various combinations of the following independent variables: unit sales at wholesale and retail, turnover rates at wholesale and retail, unit sales growth rates at wholesale and retail, manufacturer brand advertising, and the space occupied by each RTE cereal item. These variables were considered most likely to influence reseller gross margin, and therefore pricing, decisions for RTE cereals. Annual data for each RTE cereal item at the wholesale and retail levels were obtained for four annual periods beginning in April 1973. Separate regressions were run on these data for each yearly period at both wholesale and retail levels.

Three sets of research hypotheses were tested with the data. First, the regression models were used to investigate the variations in gross margins across the complete line of RTE cereal items carried at each level. These regressions were identified as <u>industry level</u> <u>regressions</u>. Second, the models were used to investigate the variations in gross margins across the RTE cereal items supplied by the different

manufacturers. Separate regressions were run with the data for the items supplied by the following firms: (1) Kellogg, (2) General Mills, (3) General Foods, (4) Quaker Oats, and (5) Ralston-Purina and Nabisco. These regressions were identified as <u>firm level regressions</u>. The results of the industry and firm level regression analyses allowed the nature of reseller gross margin decision behavior for RTE cereals to be investigated. Third, the recent history of RTE cereal item acceptance and deletion decisions by the reseller was investigated. The objective was to determine whether manufacturers with larger market shares have been able to obtain easier access to distribution for their RTE cereal products. This had been suggested by the FTC as one of the reasons for the "shared monopoly" that allegedly exists in the industry.

The Empirical Results

The major conclusions and implications of the study were contained in the research findings presented in Chapter VI. The findings of each of the three areas of analysis are summarized below.

Industry Level Regressions

In the first set of regressions, data for the complete line of RTE cereal items carried were used in the wholesale and retail level regressions models. The major results of these regression analyses were as follows:

1. The contribution-to-profit model was able to consistently account for a significant proportion of the observed variations in both wholesale and retail gross margins for the items within the RTE cereal product category. Unit sales and turnover rate were the strongest

factors influencing the level of reseller gross margins. Both of these variables were strongly inversely related to gross margins in both wholesale and retail models. This implies that resellers can be expected to increase the gross margin and selling price on an RTE cereal if its unit sales or turnover rate declines. In Chapter IV, a number of reasons were put forward suggesting the possibility of the proposed divestiture and trademark licensing remedies causing a decline in sales and turnover per unit of space for a number of RTE cereal items. Among these were the possibilities of increased distribution costs and decreased retail availability, and the splitting effect on unit sales arising from the entry of additional versions of existing brands and private label brands.

2. The best fitting inverse relationship between unit sales and gross margins at wholesale and retail was found to be curvilinear. The main reason for this is that the RTE cereal product category contains several distinct groups of items. Items with high margins and low unit sales tend to be relatively new items while those with low margins and high unit sales tend to be the more established items, for example, Corn Flakes, Rice Krispies, Cheerios, and Wheaties. This has several implications for the possible effects of the proposed remedies. First, any decrease in the unit sales of established items is likely to cause resellers to increase gross margins on these items. These are the most likely items to be affected by the divestiture and trademark licensing remedies. Second, any increase in the proportion of new items to total items in the RTE cereal category will tend to increase reseller gross margins and prices. The remedies are, in fact, specifically designed

to encourage new entrants to enter the market with duplicate versions of existing products, private label brand alternatives, or completely new items. The remedies are also likely to encourage existing manufacturers to maintain intensive new product development activities in an attempt to replace profitable brands lost through divestiture and trademark licensing. The history of the industry reveals that this has been the primary means of achieving growth and profit goals. Any increase in the proportion of new RTE cereal items will increase reseller gross margins on a number of RTE cereals. This will ultimately cause retail prices to rise.

3. A consistent inverse relationship existed between reseller gross margins and the level of manufacturer brand advertising for RTE cereals. More heavily advertised brands tend to have higher unit sales and turnover rates at wholesale and retail. This allows resellers to place lower gross margins on heavily advertised RTE cereals. Any decline in unit sales or turnover rates at the reseller level due to reduced levels of manufacturer advertising will adversely effect resellers' profits. This will force resellers to increase margins and prices on a number of RTE cereal items.

4. The average turnover rate for RTE cereals is high at wholesale and retail compared to other grocery products. The high turnover rate allows resellers to achieve profit contribution objectives at lower than average gross margins. High turnover, therefore, plays an important role in keeping retail prices down. If the FTC's proposed remedies cause either unit sales to decline or average inventory levels to rise, turnover rates will fall. This will put upward pressure on reseller

margins and prices. The possibility of the remedies reducing unit sales and increasing the inventory levels of a number of RTE cereals was discussed in Chapter IV. A decline in the average turnover rate for RTE cereals is, therefore, a distinct possibility.

5. The industry level regression results suggest that, even if the entry of new firms causes manufacturer selling prices to fall, this does not guarantee that retail prices will decline. The effects of a larger number of manufacturers on unit sales, turnover rates, gross margins, and therefore profit contributions of RTE cereals at the reseller level could force wholesalers and retailers to increase gross margins and selling prices as a profit control measure. A key argument of the FTC is that the brand proliferation activities of manufacturers are a major cause of the "shared monopoly". From the reseller's viewpoint, however, the issue of proliferation is not concerned with the number of items supplied by a single manufacturer but with the total number of items within a product category. While the remedies may cause the average number of items supplied by each cereal manufacturer to fall, divestiture and trademark licensing are likely to cause an increase in the total number of RTE cereal items seeking space on reseller shelves.

The net effect of the remedies may simply be to reallocate gross margins between manufacturers and resellers without causing any decrease in the level of retail prices. The results of the study suggest that: (1) even if new entrants are able to compete profitably on a price basis, this will not guarantee that retail prices will fall, (2) even if manufacturer gross margins are reduced, reseller gross margins will also have to decline to cause any appreciable fall in retail prices,

and (3) increases in distribution costs at manufacturer and reseller levels will reduce the scope for new entrants to compete profitably on a price basis. At least some of the increased costs in the channel can be expected to be passed on as higher selling prices to resellers and consumers. If the remedies succeed in reducing manufacturer profit margins only through raising costs and not increasing price competition, the usefulness of the proposed remedies must be questioned.

Firm Level Regressions

The second set of regressions used data for the RTE cereals supplied by each manufacturer in the regression models. The major results of these analyses were the following:

1. RTE cereal items supplied by manufacturers with larger market shares carried lower gross margins at the reseller level than items supplied by manufacturers with smaller market shares. This is due to the fact that manufacturers with larger market shares supply the majority of items with high wholesale and retail unit sales. This has implications for the proposed remedies. The large market share firms (Kellogg, General Mills, and General Foods) are the major targets of the divestiture and trademark licensing proposals. The results suggest that, if the remedies reduce the market shares of these firms, resellers will be forced to raise gross margins and prices on a number of RTE cereals to protect profit objectives.

There are two possible explanations for the lower reseller gross margins on items supplied by manufacturers with larger market shares. First is the nature of reseller profit control. In terms of the CTP model, resellers are able to place lower gross margins on high unit

sales items to achieve profit contribution objectives. Second, larger manufacturers may have the power to force resellers to accept lower margins on their items. This would result in manufacturers obtaining a greater share of the total rewards for these items. Manufacturer gross margins on these items, therefore, would be high. These two opposing views have important implications for the case. However, since data for gross margins at the manufacturing level for each item were not available, only the reseller behavior explanation could be investigated. The study did reveal, however, that reseller gross margins on new items accepted and items deleted did not vary significantly between large and small manufacturers. This suggests that the profit contribution considerations of resellers may provide a more feasible explanation for the pattern of gross margins on RTE cereals at the reseller level. Also, with respect to the level of retail prices, the multiplier effect on retail prices of the margin structures in the channel, as discussed in Chapter V, suggests that the level of reseller gross margins plays a very important role in determining the level of retail prices. The study showed that even if manufacturers' gross margins were reduced by 50 percent, retail prices will only fall by a significant amount if resellers also reduce their margins. The findings suggest that the remedies are more likely to increase than decrease reseller gross margins. A definitive investigation of these alternative explanations, however, would require the availability of manufacturer gross margin data at the item level. These data are generally highly confidential. 2. The contribution-to-profit model provided a better explanation of variations in reseller gross margins across all the RTE cereals

carried than of variations in gross margins across the RTE cereal items supplied by individual manufacturers. This implies that when setting gross margins and selling prices, resellers view RTE cereals as a complete category and not as a series of groups of items supplied by different manufacturers. The results suggest that the key factors considered by a reseller when setting margins and prices are the relative unit sales and turnover rates of items and not which manufacturers supply the various items. High unit sales items supplied by smaller manufacturers, therefore, are expected to carry the same reseller gross margins as the high unit sales items supplied by larger manufacturers.

3. The contribution-to-profit model, however, provided a better explanation for variations in reseller gross margins on the items supplied by the two manufacturers with the largest market shares, Kellogg and General Mills, than for the items supplied by other manufacturers. This implies that if the remedies cause the unit sales or turnover of items supplied by these two firms to decrease, resellers are more likely to increase gross margins on items supplied by these manufacturers than on items supplied by other cereal manufacturers. The firms likely to be most affected by the remedies are Kellogg and General Mills. Four of the five plants proposed for divestiture are owned by these firms and the large number of well-established brands supplied by these firms would be the main targets of trademark licensing. Sales and turnover of items supplied by these firms would be the most likely to be affected. The results of the study suggest that resellers would respond to this by increasing gross margins on RTE cereals.

Item Addition and Deletion Analysis

The analysis of the recent history of addition and deletion decisions by the reseller produced the following results:

1. Since 1970, the total number of RTE cereal items carried at wholesale and retail has remained relatively constant. For every new RTE cereal item accepted by the reseller, on average, one item has been deleted. This suggests that, as a profit control measure, resellers have been reluctant to increase the overall space allocated to RTE cereals at the expense of more profitable grocery product categories.

This finding has implications for the remedies. New entrants will find it difficult to obtain space on reseller shelves. Apart from the likelihood of having to offer larger rewards to resellers to obtain distribution for their brands because of the initial low unit sales of these items, new entrants will confront a reseller reluctant to further increase the amount of space allocated to space-consuming RTE cereal items. The highly selective approach of resellers to new entry RTE cereals can be seen from the recent experience of natural RTE cereal items. A large number of these items have unsuccessfully sought access to reseller shelves in recent years. A major barrier to the successful entry of new firms will continue to be the profit considerations of resellers.

2. The levels of gross margins and unit sales for RTE cereal items added were not significantly different for the items of larger or smaller manufacturers at either wholesale or retail. This was also the case for deletion decisions. This suggests that the major factor considered by the reseller in making addition and deletion decisions

for RTE cereal items is the item's contribution-to-profit and not which manufacturers supply the items.

Some Broader Implications

The findings also contain some important implications for broader issues raised in the study.

1. The principal argument in the RTE cereal case is the FTC's claim that the four largest cereal manufacturers "share" a monopoly through the use of a set of non-price marketing practices which have created and maintained a highly concentrated industry structure. The study explored the major theoretical propositions of the "shared monopoly" theory and empirically investigated several of these propositions.

Several findings of the study are especially relevant for assessing the validity of key propositions of the "shared monopoly" theory. First, the finding that reseller gross margins are typically <u>lower</u> on the items of the larger manufacturers (Kellogg, General Mills, and General Foods) raises questions concerning the FTC's implicit claim that the high level of retail prices for RTE cereals is primarily due to the power of large cereal manufacturers to control the pricing decisions of large numbers of RTE cereal resellers. The results of the study suggest that the large number of high sales items that account for the large market shares of these firms allows resellers to place lower gross margins and prices on the items supplied by these manufacturers. If the restructuring proposals for the manufacturing sector are implemented, it is possible that reseller profits in the RTE cereal category would be adversely affected. Any decrease in selling prices at the manufacturer level, therefore, could be offset by increases in gross margins and selling prices at the reseller level. Second, a key proposition of the theory is the FTC's claim that the heavy advertising expenditures of the large manufacturers are a major cause of high retail prices. The findings of the study suggest that, at the reseller level, heavy advertising expenditures have allowed wholesalers and retailers to achieve profit contribution objectives at lower levels of gross margins and selling prices.

These findings raise serious questions concerning the suitability of applying the "shared monopoly" theory to industries such as the food industry in which products are sold through grocery product resellers. Restructuring only the manufacturing sector of these industries may produce effects in the reseller sector that offset any potential improvement in the overall performance of the industry. Such an outcome appears possible for the attempts to reduce retail prices by restructuring the manufacturing sector of the RTE cereal industry. To achieve a significant reduction in retail prices, it is likely that reseller profit margins will have to be reduced. This may require that the reseller sector of the industry also be restructured. This greatly increases the complexity of the problem and the regulator's task. 2. The questions concerning the validity of the "shared monopoly" theory suggest that the theory may have serious limitations as a guide for antitrust policy in industries such as the RTE cereal industry. The remedies proposed in the case are based upon the propositions of the structure-performance model of the theory of industrial organization. The RTE cereal case, however, is the first time that this model has been

applied to a food industry. The theoretical development and empirical research conducted on the theory of industrial organization has primarily been concerned with industries in which the decisions of resellers do not have a strong influence on the performance of the industry. The application of the theory and its policy recommendations to the food industry requires that both the horizontal and the vertical dimensions of structure, conduct, and performance be analyzed in a more comprehensive model of industrial organization. The traditional horizontal emphasis of the theory rests upon implicit assumptions concerning the behavior of resellers and the nature of relationships between manufacturers and resellers. The validity of these assumptions is brought into question when they are made explicit in the process of evaluating the suitability of applying the theory to a food industry such as the RTE cereal industry. The structure, behavior, and performance of the reseller sector has an important effect on the overall performance of the food industry in such areas as the level of retail prices and the range of consumer choice. The findings of this study have illustrated how the behavior of resellers can affect the level of retail prices of RTE cereals. Above all, the study has indicated that the structure, behavior, and performance of both manufacturers and resellers must be considered in any attempt to devise antitrust policy aimed at improving the price performance of a food product industry such as the RTE cereal industry.

Limitations of the Study

Three main limitations of the study should be recognized. First, the data for the study were obtained from a single wholesale-retail

grocery cooperative chain. While every attempt was made to ensure that this chain was representative of the broader food reselling industry, the time and cost constraints of the study meant that the sample of stores was not chosen on a random basis. The objective of the study was to investigate the behavior of an average grocery reseller with respect to gross margin and pricing decisions for items within the RTE cereal product category. It would be possible to have greater confidence in the findings of the study if the results were shown to be consistent for representative corporate and voluntary chains also. However, as the nature of the reseller profit function is basically the same for all grocery chain structures, the results of the study should provide a basis for assessing the likely effects of the proposed remedies within the reseller sector of the RTE cereal industry. In addition, while it cannot be expected that all grocery resellers behave in the manner described in the CTP model, virtually all large reseller organizations receive the information necessary to control profits through a contribution-to-profit approach.

Second, the emphasis of the study was upon the <u>possible</u> effects on retail prices of the <u>proposed</u> restructuring remedies. As there are no suitable case histories to analyze, the research design chosen used historical data. It was necessary, therefore, to make certain assumptions about the possible effects of the remedies on the future course of the industry. The validity of the findings and conclusions rest largely upon the validity of three key assumptions: (1) the likely effects of the remedies upon manufacturing costs and distribution costs throughout the channel, (2) the likely effects on the unit sales and

turnover rates of RTE cereal items at the reseller level, and (3) the treatment of the existing smaller manufacturers as equivalent to new, smaller firm entrants.

Third, a major data limitation was the unavailability of manufacturer gross margin data at the individual RTE cereal item level. The reasons for this should be clear in view of the nature of the cereal case which is currently being heard. The lack of this confidential data is not an uncommon problem in research of this type. The only information available was an average manufacturer gross margin figure. This restricted the ability to investigate the structure of gross margins throughout the entire channel. The validity of some of the conclusions of the study concerning the likely effects of the proposed remedies, therefore, will depend upon the effects of the remedies on the cereal manufacturer's cost function.

Suggestions for Future Research

The study suggests that further research is warranted in a number of areas. First, the simple gross margin models developed in the study can be expanded to include additional independent variables, for example, measures of the extent of local retail competition at the product class or individual item level and measures of price elasticity. The inclusion of variables that allow the effects of reseller competition on margins and prices to be investigated would enrich the basic models significantly. It would allow the models to be used for more sophisticated analyses of the effects of competitive behavior at the reseller level on the performance of the overall industry. The recent Joint Economic Committee study of food chains has shown the impact that local market rivalry among retailers has upon the level of retail food prices generally. More elaborate models that extend the basic models developed in this study would allow both regulators and marketers to more accurately assess the effects of reseller behavior upon the retail prices of products within a particular category. The models could also be converted into time-series models by using lagged values of the dependent and independent variables. Data of the type obtained in this study are suitable for the development of more sophisticated time-series models.

Second, there is a need to develop improved theoretical and empirical models of marketing channels. The micro-foundations of current channel theory are found in a number of economic and behavioral theories. There is a need to integrate these theories into more comprehensive explanations of how channel structures operate in various industrial settings. The methodology used in this study could be applied to a range of other marketing channel structures. These could include alternative channel structures for RTE cereals, for example, corporate and voluntary chain resellers, and channel structures found outside the food industry such as those for other consumer products and for industrial and raw material products sold through various direct and indirect channel structures. The objective of these studies would be to develop a more general methodology for investigating the operation and performance of marketing channels. This would provide an improved means for regulators to assess the performance of an industry and for marketers to analyze the effects of changes at one level of the channel on the operation and performance at other levels of the channel.

Third, the difficulty of assessing the likely effects of remedies, such as those being proposed in the RTE cereal case, upon distribution costs throughout the channel highlights the need for improved methods for determing the conditions under which the most efficient distribution occurs for nationally marketed products such as breakfast cereals. The economies of scale in national distribution and the effects of the proposed remedies on distribution cost functions are important considerations in the case. This is an area, however, in which significant theoretical and methodological gaps need to be filled. It is possible, for example, that the proposed remedies could break the existing national market structure of the cereal industry into a series of separate regional markets. The existing state of knowledge, however, does not allow the effects of such changes on the costs of various distribution activities to be adequately investigated.

Finally, a major motivation for the study was provided by the recent work in the industrial organization area by Porter in which an attempt was made to extend the theory of industrial organization to include a consideration of the vertical, or channel, dimensions of an industry's structure, conduct, and performance. Porter's basic assumption is that the behavior of channel members and the relationships between manufacturers and resellers are primarily a function of the type of product that flows through the channel. The grouping of products that results, however, maintains the aggregative methodology of the traditional theory. Richer micro-level theories and models of vertical structure, conduct, and performance are needed. The models developed in this study are considered to be more adequate for this

task. These models provide the perspective necessary for investigating the most appropriate antitrust policy for improving the performance of industries in which reseller behavior and the relationships between manufacturers and resellers are important determinants of industry performance.

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