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**CONCENTRATION OF OWNERSHIP  
IN FOOD RETAILING:  
A REVIEW OF THE EVIDENCE  
ABOUT CONSUMER IMPACT**

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# **CONCENTRATION OF OWNERSHIP IN FOOD RETAILING: A REVIEW OF THE EVIDENCE ABOUT CONSUMER IMPACT**

**Jean Kinsey**

## **ABSTRACT**

Increased concentration in ownership of retail and wholesale food companies in the United States naturally leads to the question “How does concentration of ownership affect consumers?” Does it lead to higher or lower food prices, better or worse service, more or less choice between stores and among products, and more or less employment and earning opportunities in the food sector?

Since the early 1980's the percent of total sales captured by the top four supermarket chains have gone from 18 to 22 percent; food prices decreased, food expenditures relative to income and employment and earnings have all fallen modestly. Choice and service are harder to measure. Competition at the local level appears to be alive and well since numerous types of food retailers offer attractive substitutes for food purchased in a grocery store.

The relationship between concentration, prices and profits has been studied and examined for several decades using various economic and business theories and several sources of data. These studies speak to the overall behavior and performance of the industry and provide a perspective on the consolidation and shifts in power that appear to be taking place. The results of many of these studies are summarized in this paper.

Findings focus on two major questions: 1) Does the concentration of retail food firms in local markets increase food prices and firms' profits? 2) Has the retail sector become relatively more profitable and, thus, more powerful than the manufacturing sector? The results are mixed, especially with regard to price. Concentration tends to be associated with both increased and decreased prices. Recent work indicates prices tend to increase in dry grocery items, but not in fresh and chilled foods. And, concentration at the wholesale level may lower food prices. Profits of the parent company generally rise with concentration, but the reason is unclear. Most studies conclude it is due to lower costs made possible by economies of scale in procurement or vertical coordination with suppliers and better use of information technology. There was no evidence that retailers' profits are increasing faster than food manufacturers' profits.

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# CONCENTRATION OF OWNERSHIP IN FOOD RETAILING: A REVIEW OF THE EVIDENCE ABOUT CONSUMER IMPACT

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# **Concentration of Ownership in Food Retailing: A Review of the Evidence About Consumer Impact**

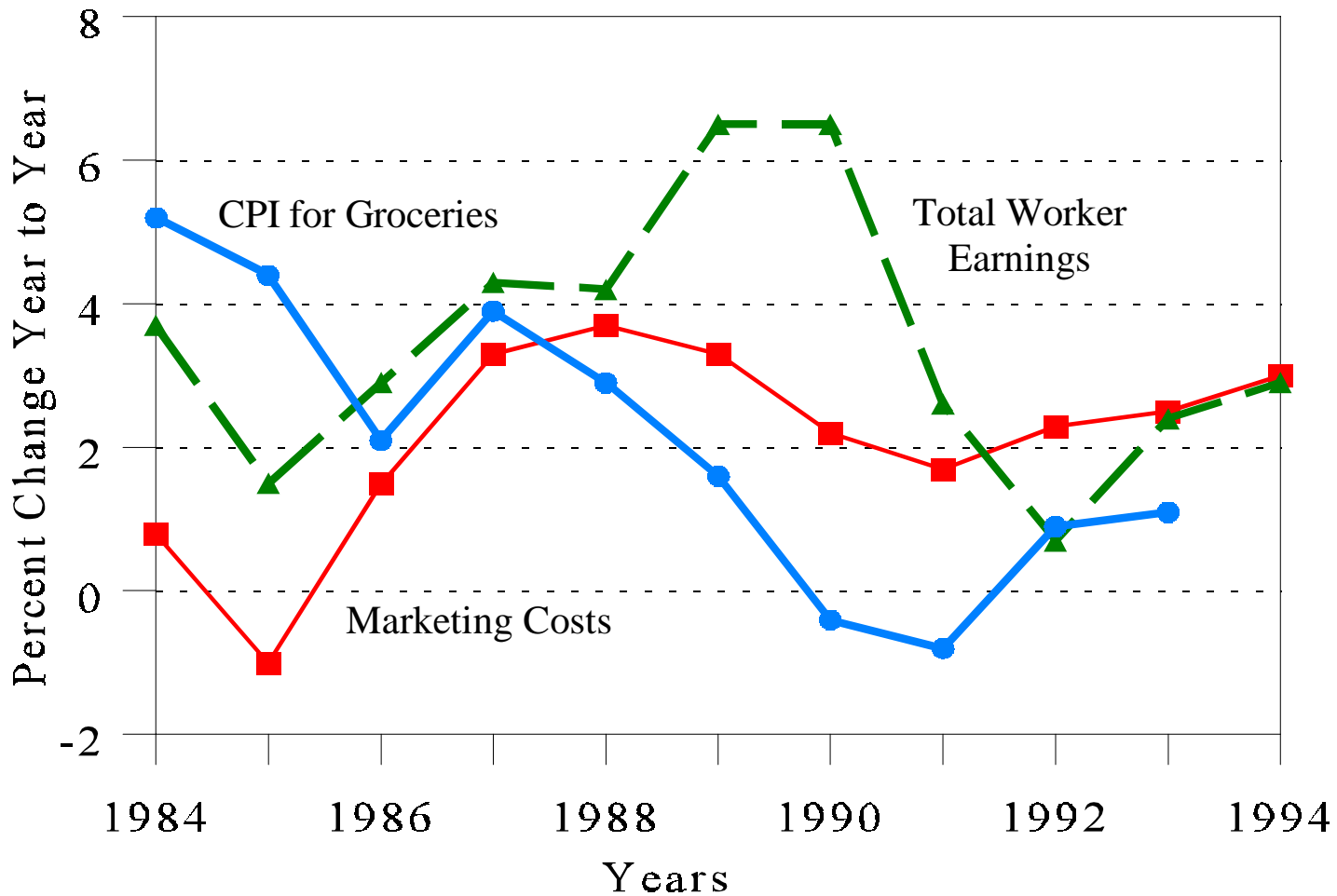
## **Introduction**

Increased concentration of ownership in retail and wholesale food companies in the United States is catching the attention of the press, academics, and government regulators. Following the announcement that Albertson's was buying American Stores, the headlines in the Los Angeles Times on August 5, 1998 read "Mergers, Food and Fears; Trend Among Supermarkets Raises Consumer Concern." The national ranking, by sales, among the top ten retail food (supermarket) companies is volatile. Wal-Mart moved from number ten to seven to two within a few months between 1996 and early 1998. (Food Institute Report, 1998; Top 100 Grocery...,1997). Albertsons will move from number seven to number one, pending approval of their buy out. There is an average of 54 mergers or acquisitions a year in this business sector, but the number of stores that enter and exit annually are about equal (USDA,1996). In September of 1998, the top four retail food companies (Albertsons, Kroger, Wal-Mart, Safeway) account for 22 percent of annual retail grocery sales and have 18.5 percent of individual supermarket stores, but only 4.4 percent of the total retail food stores (Food Institute Report, 1998).

In an environment where mergers and acquisitions are common and local or regional companies buy out each other to gain market share, it is natural to ask, "How does concentration of ownership affect consumers?" In searching for metrics to measure the effect on consumers, one typically looks at differences in retail food prices and profits in localities with and without high concentration. Other metrics of interest are levels of service, a choice among stores, the variety of products available, and employment and earnings opportunities available in the retail food sector.

Figure 1

# Food Prices, Wages, and Costs



Source: USDA, 1996

Examining changes in these metrics at the national level show that between 1984 and 1994 percentage changes in retail food prices, marketing costs, and workers' earnings all moved both up and down from year to year, but prices and workers earnings trended down and marketing costs, as measured by the United States Department of Agriculture (USDA), trended up (Figure 1). The percent of total retail grocery sales captured by the top four retail chains went from 18 to 22 percent during this time. Food expenditures as a percent of personal disposable income has fallen steadily since 1960, reaching about 11 percent in 1998. Food prices tend to be more volatile than the overall consumer price index, but they fall in line with general price changes in the long run. Employment and earnings in the industry have declined in real terms. Measuring levels of service and choice is less precise, but casual observation indicates that when there are more large and similar stores in an area, small firms tend to enter to fill niches with unique products and services. Some examples are Trader Joe's, Whole Foods, Peapod, Streamline, other Internet companies, and a whole host of local delicatessens, caterers, and specialty shops. There are some 126,000 retail food (grocery) outlets in the United States; supermarkets make up only 24 percent of them by number, though 76.6 percent by sales (Table 1). At the local level there is still a lot of competition for retail food stores, even where a very few large national or international store brands (chains) dominate the market. It is relatively easy to enter the food business, and there are numerous competitive retail outlets for food, including fast food places, restaurants, and nontraditional places like gasoline stations, convenience stores, and discount general merchandise stores. Furthermore, large stores with the same "brand" name often compete with each other for the same customers, especially if some of them are franchised to independent operators and others are company owned. Parent company ownership does not, necessarily decrease local competition.



Table 1

**Total Retail Grocery Stores: Share of Stores and Share of Sales - 1997, U.S.**

Type	Number of Stores	Percent Units	Percent Sales
Supermarkets	30,300	24.1	76.6
Chains	18,955	15.1	60.0
Independents	11,345	9.0	16.6
Convenience	56,000	44.4	6.3
Wholesale			
Clubs	730	0.6	4.7
Other	38,970	30.9	12.4
Total	126,000	100%	100%
Total Sales			\$436.3 bil.

Food Institute Report, 1998.

Determining whether increased concentration in ownership is associated with higher consumer food prices, or other outcomes that might harm consumers, is not as straight forward as one might expect. Well-known concentration measures such as the Herfindahl Index (see Appendix A) or the CR-4 ratio (percent of sales by the top four companies)<sup>1</sup> mask intra-company and intra-community competition. Almost half of local communities, (metropolitan statistical areas, MSA) have a CR-4 ratio of more than 80 percent (Geithman and Marion, 1993). Food prices are increasingly difficult to

compare from one firm (or community) to the next as special discounts, coupons, and loyalty programs offer price discrimination opportunities to many shoppers within a store. So, the metrics are not clean, and theories about the motivation for mergers and acquisitions conflict. The most commonly spoken motivation in 1998 is that concentration of ownership at the retail/wholesale level gives larger companies economics of scale which gives them bargaining power with suppliers of food. This bargaining power results in procuring food at lower cost. If, simultaneously, local competition from a variety of food retailers prevents monopoly pricing, consumers are likely to benefit.

The academic literature pertaining to market structure, power, and performance speaks to the overall behavior and performance of the industry and provides a perspective on the consolidation and shifts in power that we observe in the retail food industry today. The effects of concentration have been studied and examined for several decades using various economic and business theories and several sources of data.

Academic literature on the relationship between market power, food prices, and food firms' profitability, is reviewed in the remainder of this paper. That which is reviewed have been published in the United States and the United Kingdom over the past twenty years. The basic frameworks for analyses are presented, followed by a review of findings from several research studies. The overall results of academic research are consistent with observed change in the retail food industry, even though there is notable disagreement among researchers about the effect of market concentration on prices and profits and about why the observed relationships occur. (What follows draws heavily from Kinsey, 1998a.)

## **Market Structure /Market Power/ Performance**

An extensive body of literature has grown up around the question of whether there is market power among retail grocery stores that leads to higher food prices. Public policy makers are particularly concerned about monopoly power in retail food firms because this retail sector sells necessities that sustain life. Therefore, rising food prices can infringe on household budgets, slow discretionary spending for other consumer goods, and limit national economic growth. In addition, rising food prices can jeopardize the nutrition and health of poor people and increase government expenditures for food stamps and other public programs. In the 1970's, inflation in the United States and much of Europe was often more than 10 percent and rising rapidly. In this type of an economic environment, anything that contributes to inflation is of concern. Congressional hearings were held to investigate whether lax enforcement of antitrust policy had lowered retail competition and lead to higher food prices.

Indeed, concentration, as measured by the percent of local market sales shared by the four largest grocery store (supermarket) chains in 164 metropolitan statistical areas (MSA) in the United States, increased from 71 percent in 1977 to 77 percent in 1987. During that time the percent of MSAs that had a four-firm concentration ratio of more than 80 percent went from 27 to 46 (Geithman and Marion, 1993).

In the late 1970's, research about monopoly power in food retailing was commissioned from the University of Wisconsin by the United States Congress. Bruce Marion and several colleagues (1977, 1979) produced the seminal work in this area. Like most economists at that time, they used the well-known structure-conduct-performance model of industrial organization put forth by Bain (1968) and Mason (1939). A truncated version of this model in Figure 2 helps to identify the

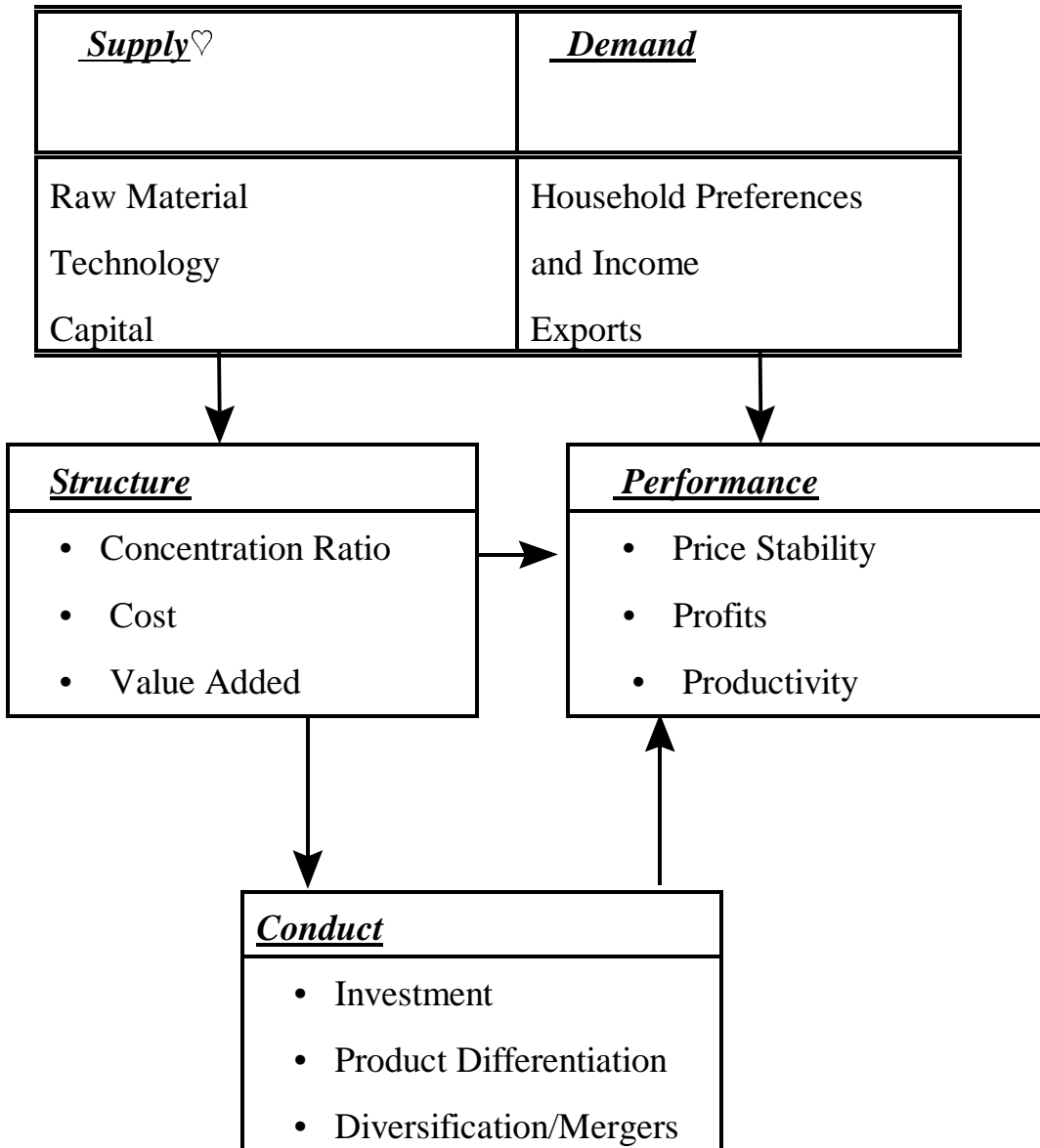
proposed relationship between the structure, conduct, and performance of an industry or its subsectors. This model represents a synthesis of many oligopoly models that assume firms behave in a cooperative manner. Cooperation leads to collusion in more concentrated markets, and this leads to market power with monopolistic pricing. This framework has been criticized in the economics profession because it does not emanate from a general theory and it yields limited predictability. It does, however, provide a visual framework for thinking about the structure and performance of sets of firms in given locations. In general, this model hypothesizes that as the structure is more concentrated and/or the products have more value added, profits and prices will increase.

An alternative approach, embodied in the New Empirical Industrial Organization is based on assumptions of noncooperative behavior; it places conduct rather than structure at the center of inquiry (Bresnahan, 1989). It elaborates on three well-known models of noncooperative behavior: 1) Cournot's model, where firms conjecture that other firms hold output constant; 2) Bertrand pricing, where firms conjecture that other firms' prices are held constant; and 3) the dominant firm theory where it is assumed that fringe firms are price takers (Connor, 1996). Noncooperative models have produced a number of analyses that quantify the degree of cooperation by a measure called "conjectural variation." Analysis is typically based on time-series and intra-industry data; average firm conduct (cooperation) is determined in each time period. These models do not produce information about the sources of change in industry-wide conduct or performance (Connor, 1996). They are, however, preferred by most analysts in recent times. The dominant firm model seems to fit the manufacturing end of the food sector rather well, in that many food categories have dominant national brands (over 40 percent of the market share) (Connor and Schiek, 1996).

Figure 2

**Industrial Organization Model**  
**Structure, Conduct, Performance**

**Basic Conditions:**



Private labels are, however, on the rise. Supermarket and drug store chains are selling their own private label brands in direct competition with well known and long standing national brands. Between 1989 and 1997, the unit share of private label products sold increased from 16.4 percent to 20.6 percent. In dollar terms, private labels' share rose from 11.6 to 15.9 percent over the same time period. Since 1995, dollar sales of private labels have increased more than 11.4 percent, three times faster than the dollar sales of national brands. These percentages may seem small, but a 1 percent change in sales equates to about \$1.8 billion and one billion units of products (PLMA; Angrisani; Kinsey, 1998b ).

Most of the economic studies discussed in this review of literature on retail food firms were formulated around the relationship between structure and performance. They can be divided into two main branches: 1) The relationship between concentration ratios and prices; 2) The relationship between concentration ratios and profits. Extensions of these works examine barriers to entry and shifts in power between manufacturers and retailers.

### **Concentration and Prices**

There are two dominant hypotheses about the relationship between market concentration and product prices. One, the mainstream school that relies on specific oligopolistic (cooperative) models, predicts more concentrated markets lead directly to higher prices. The second is the Demsetz (1973) hypothesis which postulates that concentrated markets can experience economies of scale, lower costs, and higher profits. Lower consumer prices can exist in tandem with these conditions denying the positive relationship between concentration and retail prices. In addition, Anderson (1990) suggests that when more concentrated markets offer higher levels of service; their prices may be

higher, but this is due to consumers' demand for services. These hypotheses suggest testing the effects of concentration (a measure of market power) on profitability and changes in retail price.

Weiss (1989) reviewed more than 70 studies on the relationship of concentration and price and found them to be positively correlated in 73 percent of the cases. Schmalensee (1989) also reviewed literature on concentration and price and concluded that there is strong evidence that concentration raises prices. Newmark (1990) cites five studies from the 1970's and 1980's (Marion et al, 1977, 1979; Hall et al, 1979; Lamm, 1982; Meyer et al, 1983; and Cotterill, 1986) that test the relationship between grocery store concentration and the price of a typical market basket of food. All found that increased concentration was significantly correlated with higher prices. For a set of stores in Vermont in the 1980's (Cotterill, 1986) and another set of stores in and around Arkansas's metropolitan areas, Cotterill (1995) found that concentration is unrelated to service and positively related to price. In this region other factors related to prices were store format, store costs, market demand factors, and whether the firm competes with a warehouse store.

However, those who focus on the cost/efficiency side (known as the Demsetz or the Chicago hypothesis) argue that higher prices can reflect the higher costs of services from which consumers receive value. Individual stores in more highly concentrated markets can use service (nonprice competition) as a competitive strategy to attract customers who are willing to pay for it. Newmark (1990) included consumers' income as a proxy for the demand for services when explaining prices and found no significant relationship between retail grocery prices and concentration. He regressed grocery-basket price on seller concentration, household income, market size, market growth and average store sales using data from 27 cities. In all cases, concentration was insignificant and income was positive and significant, supporting the hypothesis that higher prices are related not to

concentration but to a demand for more retail services in higher income areas. It does not directly defeat or support the Demsetz hypotheses since it says nothing about costs, but it contributes to the debate about the impact of concentration. For example, neither Cotterill (1986) nor Binkley and Conner (1996) found a positive relationship between income and prices when studying concentration in metropolitan grocery markets.

Kaufman and Handy (1989) found a negative correlation between concentration and prices. This study, conducted by the Economic Research Service of the United States Department of Agriculture, set out to correct some perceived flaws in earlier studies. They deliberately selected a random sample of product prices and stores, rather than using stores in one locality and prices of a market basket limited to identical brands and sizes of products. Unfortunately, this study has been highly criticized for its city sample, which included New York City and coding problems, because product quality and (brand) differentiation was not held constant across stores (Geithman and Marion, 1993). Kauffman and Handy (1993) rebut these criticisms, claiming that competing stores rarely sell identical items and that price indices based on random sampling are a better way to collect price data for this type of study. They also point out that a review of literature back into the 1960's reveals that a negative relationship between concentration and prices is not as unusual as Geithman and Marion (1993) assert. Indeed, they claim that the limited data used in many of the studies in the 1970's and 1980's may have biased the results in favor of a positive relationship between prices and concentration.

This debate is not settled yet. In the real world, as new superstores (e.g. Wal-Mart, Kmart, Sainsbury, Carrefour) enter the retail food business, with known economies of scale and competitive price cutting behavior, it is unknown which of the prior research outcomes will hold. These new,



bigger-than-ever food stores may well capture a larger-than-ever percent of food sales in local areas by offering consumers lower prices. Furthermore, as stores manage their revenues and tailor prices to individual customers through consumer loyalty programs, it is increasingly difficult to know what price the average consumers face and what services they are choosing. Loyalty programs enable the retailer to identify their best customers (who have agreed to join a shopper's program) and electronically track purchases and reward those that shop most often or spend the most money. Often the reward is in the form of discounted prices on specific items or a percentage discount on the total purchase.

Anderson (1993) points out that in concentrated markets where similar large supermarkets have similarly large market shares, they will offer lower prices because they have real economies of scale and they will compete for customers by lowering prices. This is the "contestable market" hypothesis. Cotterill (1993, p. 227) categorically denies these types of markets exist in the retail food sector. I suggest the evidence is evolving and incomplete.

In a new study of the relationship between concentration and pricing in the late 1980s, Binkley and Connor (1996) incorporate new forms of competition into a model to explain grocery prices. They conclude that the degree of supermarket rivalry is no longer the only important competitive force and that competition from new store formats (warehouse stores, superstores), fast food places, and small niche sellers can affect grocery prices. They discovered that market concentration positively affected the price of dry groceries and health and beauty aids (the traditional parts of the store), but that there was no effect on the prices of fresh and chilled foods. This is an important finding because fresh and chilled food categories are growing as a portion of total store sales while dry grocery is declining. As consumers buy more of their foods in fresh, chilled or ready-to-eat form,

the prices of dry grocery will have less impact on the cost of the total market basket and be less important for public policy or private profit.

### **Retail versus Manufacturer Power and Profits**

Over the last decade a popular observation is that “power” has shifted downstream from food manufacturers to food retailers. Changes leading to this widespread belief include continued consolidation among retailers, ever bigger stores, improved inventory control, and more information about customers obtained through scanner technology, loyalty programs, and higher quality management. Budgets for media advertising are said to be decreasing, while sales promotions within stores, private label products, and consumer loyalty programs are increasing. Retail concentration appears to be increasing at the local and regional levels, while manufacturing concentration is increasing at the national and global level.

Mainstream economic theory predicts that increased concentration implies increased market power, and increased market power should increase profits. The concentration-profit relationship is a thoroughly tested hypothesis. Profits are generally found to be positively correlated with concentration (Scherer and Ross, 1990). Marion et al (1977) verified this prediction result for six of the top twelve food chains in the United States and twenty-eight A&P stores during the 1970's. After several studies, Cotterill concludes: “Profits are higher in more concentrated markets due to the exercise of market power”(Cotterill, 1993, p. 233).

Table 2

**Return on Sales and Equity of Nine Leading U.S. Supermarket Chains:  
1996 or 1997**

Chain	Return On Sales	Return on Assets	Return on Equity
	Percent		
Kroger	1.4	6.0	NA
Wal-Mart	2.9	7.7	17.8
Safeway	2.7	8.3	52.8
American Stores	1.5	3.3	33.0
SUPERVALU	1.1	4.1	21.4
Fleming	0.2	0.7	34.2
Albertsons	3.5	9.9	21.0
Ahold	1.7	4.3	30.5
Winn-Dixie	1.5	7.0	15.3
Average for top 9:	1.8	5.7	26.6
Average for Industry (Large Stores)	1.3	3.7	18.3

Source: Lexis/Nexis: Standard & Poors WEB site.

Looking at current returns on sales, assets, and equity of the top nine publicly held supermarket chains show that return on sales is not always higher than the industry average of 1.3 percent. (The tenth firm, H.E. Butt is privately held; financial data is not available.) Neither the return on assets nor the return on equity is uniformly higher than the industry average (Table 2). This snapshot provides no insight into the accounting methods or dynamics of individual firms, but the results tend to be consistent with theoretical predictions. The average of all three returns for the nine companies is higher than the overall industry average.

Messinger and Narasimhan (1995) and Farris and Ailawadi (1992) analyzed the relationship between power shifts and profits in the food industry. Their basic premise was that if power has shifted to food retailers, then profits of retailers should have increased relatively more than profits of food manufacturers over the last twenty years. They found that manufacturers' profits had increased while the profits of retailers were steady. Therefore, they concluded that power had not shifted in the direction of retailers.

### Measuring Profit

Research testing whether relative profitability has changed, includes testing new and better measures of profitability. This quest for better measures is stimulated partly by the failure of early studies to find any evidence that retail stores were garnering more power and because profit-concentration studies were known to have measurement and interpretation problems (Newmark, 1990). Using accounting data to measure economic profits was sharply criticized by Anderson (1993). The Lerner Index, an economic measure of monopoly power, is the difference between price and *marginal economic cost* divided by price. The accounting profit margin is often used as a proxy for this index even though it is equal to price minus *average accounting costs* divided by price

(Anderson, 1993). Nevertheless, it is common practice to use gross margins and before tax return on sales and/or assets to measure profits. Messinger and Narasimham (1995) added return on equity and returns on stock portfolios to provide further evidence on the relative changes in profitability between food manufacturers and retailers. They found an increase in returns to retail companies in 1982, just when the Justice Department published more liberal merger guidelines.<sup>2</sup> Overall, however, there were no significant differences in the relative performance of the portfolios of retail stores and manufacturers of packaged goods between 1976 and 1990.

Ailwadi, Borin and Farris (1995) added the costs of capital to the cost side of the profit equation and incorporated stock market evaluations of the value of a firm. A unique feature of this study is the ability to distinguish between *power exercised* and *latent or potential power*. In most studies, the various measures of profitability are considered a proxy for power that has already been exercised, since profits are the observed outcome of having power. These measures of profit include gross margins, return on sales, return on investment, return on assets, and economic value added (EVA). EVA is gross revenue (sales) minus the cost of goods sold, operating costs, and capital costs. (See Appendix A for definitions.)

To measure latent or potential power, a measure of market value added (MVA) was designed by Ailwadi, Borin and Farris (1995) which indicates the present value of the expected future EVA. It is sometimes called the “goodwill” of a firm or the market power which is being accumulated for future use. It is calculated as the sum of the firm’s stock market value minus the book value over some time period which translates into the present value of future EVA. This measure depends on the assumption that capital markets are perfectly informed and efficient so that the market value of a stock accounts for the future “power” or expected profitability of a firm.

### Evidence of a Power/Profit Shift?

Ailwadi, Borin and Ferris (1995) then used the MVA to look at the relative profitability of retailers and manufacturers in thirteen industries including food between 1982 and 1992. They found that in only three industries were retailers' profits increasing faster than manufacturers' – apparel, computers, and jewelry. They also removed the effect of Wal-Mart from the “other general merchandisers” category and found that without Wal-Mart, the MVA of general merchandisers was actually somewhat less than for retail food stores, but less than 1 percent of the MVA of Wal-Mart. Wal-Mart clearly drives the overall MVA of general merchandisers. Although Wal-Mart’s return on sales and assets has been rather flat, its meteoric rise in EVA and MVA is due to its relatively low operation costs. In fact, the Wal-Mart phenomenon may be an example of the Demsetz hypothesis which predicts that when concentration is due to economies of scale; a few large stores will operate even in small markets. The economies of scale for Wal-Mart are widely believed to be due to their central buying power and modern distribution system. Their profitability comes from lower cost of goods sold and operating efficiencies, rather than the ability or propensity to raise prices. Where they force other large retailers to compete with them on price, they may help to create a contestable market situation.

Connor et al (1996) also failed to find any empirical support for the idea that retailers were gaining market power. At least they were unable to show concentration among food manufacturers. They measured retail power using market shares for private labels (versus national brands) of 48 individual food product classes. The hypothesis was that increased retail power would be identified by an increase in the market share of private retail brands (private labels). Their measure of concentration on the manufacturing side was the change in the CR-4 between 1967 and 1987. Like

others, they found that starting in the 1980's, the theoretical and structural/empirical relationships between concentration and private labels' share of the market, total advertising to sales ratios, and minimum efficient size began to crumble. Historical patterns no longer seem to hold. They speculate that perhaps the new age of information and technology and a proliferation of products and brands has dramatically changed the nature of the relationship between food manufacturers and retailers. Or, that the aggregated data which is available to researchers and which worked well on (older) more nearly homogeneous consumer goods (like milk or beef) is inadequate to test relationships in the modern world of highly differentiated products, electronic scanning data and niche markets with global sources.

Additional explanations for the inability of various researchers to find a shift in power from manufacturers to retailers in the food industry are that a power shift might precede a profit shift and retailers may not be exercising all the power they have. Another explanation is that the numerous small specialty retailers have not gained much power, but a few large, well-informed, and efficient retailers have gained significant power. By aggregating all retailers' profits together, on average, they do not appear to have gained power. Also, there is intense inter-retailer competition which precludes a concerted effort by national or global companies to exercise monopoly power. While food retailers are busy competing with each other, big general merchandisers, and fast food places, the manufacturers (and perhaps the wholesalers and brokers) may be bargaining away profits in the distribution channel for themselves. A third possibility suggested by Farris and Ailawadi (1992) is that profits seem to have declined on both ends of the channel and consumers are enjoying the benefits through lower prices. The possibility of profits shifting to brokers and wholesalers is unexplored in this literature.

## International Evidence

Literature from scholars in the United Kingdom helps us understand the failure of economic models to tie profits and concentration together in the modern retail food business. Frances and Garnsey (1996) describe a shift in power to the retailers that derives from systematic coordination of the supply and distribution of products to the store. Vertical coordination made possible by the scanner data available to retailers has allowed a “quick response partnershiping” to ensure continuous replenishment of inventory and an accountability from suppliers to retailers in the name of service to the consumer. (An industry wide program to adopt this system in the United States is called Efficient Consumer Response (ECR)). This hegemonic system depends on an oligopolistic market structure to survive. Too many competitors would dilute the control over suppliers and a monopoly would reduce incentives to innovate and improve performance. This is like a patronage system where prices are set by method of “market price minus” rather than a “supplier cost plus.” It builds a managed market where everyone seems to benefit relatively to open market transactions, but it defies standard economic analysis and helps to explain why concentration does not always result in higher prices or in greater profits. In fact, profits are sometimes sacrificed to gain market share which may eventually increase profits by driving down costs. In this system the suppliers may make good profits as a dedicated supplier to a supermarket chain, but they have little power and often low concentration ratios.

Viane and Gellynck(1995) from Belgium points out that growing concentration in European retail food markets derive mostly from consumers’ demand for variety and quality and from improved costs. Costs have declined due to supply management and negotiated relationships (another way to refer to the quick response system) and due to penetration into external markets. They found the most



concentration in the United Kingdom. Looking at subsectors by types of food (chocolates, milk, etc.) they found that profits, prices, and productivity were greater in the more concentrated sectors. Profits were higher for more highly processed food, implying that consumers are willing to pay more than the production costs for the value added in ready-to-eat foods.

### **Barriers to Entry - Another Sign of Market Power**

One of the classic indications of monopoly power is a market with barriers to entry. The abilities of firms to enter the retail grocery market have been studied by Cotterill and Haller (1992) and Chevalier(1995). Cotterill and Haller estimated the probability of any one of the twenty top U.S. grocery chains entering markets in 129 different metropolitan areas between 1972 and 1981. They found that the probability of entry was increased by growing local market demand, competent management which was measured by return on equity<sup>3</sup> of the entering firm, and close proximity to warehouses they were already doing business with. The probability of entry was decreased by greater market concentration and the number of different chains already in the market. Overall, they found that there was an 8 percent chance that at least one potential entrant would enter a local market over a two-year period. An increase in the return on equity (competency) of 10 percent increased the probability of entry to 14.4 percent. The outstanding example of a successful firm entering several markets during this time was Albertsons, a firm known for competent management. Subsequently, in August 1998, Albertsons acquisition of American Stores made it the first U.S. retail supermarket chain with stores stretching from coast to coast.

The entry, exit, and expansion of supermarket chains was studied by Chevalier (1995) to see if a leveraged buyout (LBO) of one or more firms in an area leads to a softer or a tougher product-market. Softer competition is defined as firms having less variation among firms in the price-cost

margins. If either is true, it would establish that there is a link between financing and product-market effects. Chevalier's (1995) event study examined the daily stock market returns (1985-1988) of thirteen supermarkets that rivaled one that announced a LBO. For four separate LBO's the stock price of rivals went up after the announcement, indicating that competition becomes softer when a local firm announces a LBO. That is, the investors expected future profits of rival supermarket chains to rise when a competing supermarket announces it is undertaking a LBO.

Looking at the number of stores in each Metropolitan Statistical Area suggests that the announcement of a LBO with a 10 percent market share would lead non-LBO stores to expand by 6.5 percent, increase expectations about their future profitability, and increase the probability of entry by rival firms. This supports the idea that firms that undergo a LBO tend to be weak in the first place. By announcing an increase in debt financing they reveal their vulnerability and attract rival firms into the market which tends to narrow the variation in price-cost margins (profits).

This is consistent with Cotterill's (1993) conclusion that the effect of entry or merger is to challenge the largest chains. It may decrease the profits of individual leading firms, but it does not increase market rivalry. Profits of the industry as a whole rise.

### **Conclusions**

After reviewing several research studies that examined the relationship of market concentration and food prices and profitability of the retail food industry and finding mixed evidence, one is compelled to ask how important the questions and answers are in an economy where food prices and expenditures are falling relative to household incomes. Recall that much of this research started with a Congressional inquiry about whether retail level concentration was responsible for rising food prices in a time of high inflation. Since then, real household food expenditures in the

United States have fallen by about one-third and the proportion of household income spent on food has fallen from 18 percent to about 11 percent. Instead of jeopardizing consumers' disposable income, the food industries' offerings, in the face of rising incomes, has freed up increasing proportions of disposable income for consumers to spend on a growing variety of goods and services. Consumer welfare with respect to food and general economic growth seems to have benefitted from efficiencies in the retail food system. So, although research related to the question of monopoly power in the food industry has produced some intellectually interesting theories and measures of profitability, it has not richly informed consumers or public policy makers about the state of the industry as it operates today. This is not to say that the principles discovered and methodologies developed are not important; they can be applied to other markets or industries or countries where retail competition may be less and monopoly behavior more damaging to consumer and social welfare.

Looking beyond the profits and prices of local grocery stores to distribution channels would improve the quality of questions and answers in this line of research. The article by Frances and Garney (1996) is particularly informative about the modern structure and it applies well beyond the boundaries of the United Kingdom. Regardless of the concentration of ownership of local grocery stores, there is great competition between them and, between them and other food outlets in a local retail market. The study by Binkley and Connor (1996) illustrates the importance of this on food prices. A recent industry publication (Chain Store Guide, 1997) indicates that of the 100 largest metropolitan areas of the United States, 24 had CR-4 ratios of more than 80 percent and 18 had a single grocery chain with more than 40 percent of the market share. In no area were there less than nine chains (or independents) to choose from and in most areas there were more than a dozen

choices. Most grocers consider their competition to be within three miles of their store, even if it is another store with the same name. The complicated ownership arrangements of chain stores make it possible for a company operated stores and a franchised store with the same name to compete directly for the same customers, each with its own pricing strategies.

The pace of concentration at the wholesale and broker levels is also intense and the opportunities for oligopolistic or monopolistic power at that level are probably greater than at the retail level. These distributors are acting to decrease costs through economies of scale while adding services to their customers - the retailers. A new study by Johnson and Connor (1998) found that greater concentration at the wholesale level (including self-distributing chains) was associated with lower retail food prices. This is consistent with monopolistic competition theory and with economies of scale being passed on to consumers in order to capture larger market share.

Summarizing the review of the evidence about relationships between market concentration and prices, power, and profits yielded mixed results, especially with regard to price. Concentration was associated with both increased and decreased prices in various studies. It was less likely to affect prices of foods in the expanding parts of the store, fresh produce, delicatessens, and chilled products. These are the so-called value added foods where prices reflect the costs of services performed for consumers and for which they are willing to pay.

Profits were more uniformly associated with concentration, but the reason is unclear. Most studies imply that it is due to lower costs in more concentrated industries. These costs have been and are being lowered in the retail food business through the use of information technology and vertical coordination with suppliers. There was no evidence that retailers' profits were increasing faster than the profits of food manufacturers.

The weakest links in terms of the research seem to be a lack of definitive relationships between concentration and cost and value added products and service. Most observers agree that concentration and economies of scale go together, implying that more concentrated industries should have lower costs and lower prices for consumers. This works as long as there is some mechanism to maintain a non-cooperative oligopolistic structure that prevents monopolistic pricing. Casual observation implies that retail food firms engage in fierce price competition and where prices are high, it is usually due to adding value and services for which consumers are willing to pay. A recent news article implied that concentration in the food manufacturing sector has forced them to decrease costs, but at the expense of creative talent to invent new value added products (McCarthy, 1997). This implies that value added and concentration may be negatively correlated and that innovation and value added will shift to smaller firms serving niche markets along side of the large, concentrated firms. This is, in fact, what we observe, especially in markets where consumers are diverse and demand quality and variety in their food supply.

Footnotes:

1. CR4 refers to the concentration of the four largest firms in a market area. For example, if the largest four retail food stores in a given market (usually a city) together have 70 percent of the market, the CR4 will be 70. In the case of a set of manufacturers, the market would be identified as the set of stores that are their customers.
2. In 1982 the U.S. Justice Department changed the rules for mergers which allowed more liberal vertical mergers, maintaining limitations on large horizontal mergers (Lovett, 1987).
3. Return on equity is not on Ailawadi et al's list of profit measures (Appendix A) but it is essentially the net income divided by equity where equity is assets adjusted for debt financing.

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## Appendix A:

### Definitions of Variables used to measure profit and/or concentration

#### Concentration Measures (Martin, 1988)

*Herfindahl Index* - Used in the 1984 Department of Justice Merger Guidelines to explain to business people which mergers the government would consider challenging. The government publishes the 4-digit SIC level Herfindahl Index beginning with the 1982 Census of Manufacturers. It is the sum of squares of the market shares of the firms in the industry.  $H = s_1^2 + s_2^2 \dots + s_{2N}^2$

The more firms in the industry the smaller the Index. If there is a single firm - a monopolist,  $H = 1$ .

*CR4* - the percent of the market shared by the top four firms in the industry on a local or regional basis.

#### Profit Measures (Ailawadi et al, 1995)

*Gross Margin* = Sales - Cost of Goods Sold / Sales

*Return on Sales* = Sales - Cost of Goods Sold - Operating Costs / Sales

*Return on Investment* = Sales - cost of Goods Sold - Operating Costs / Invested Capital

*Return on Assets* = Sales - Cost of Goods Sold - Operating Costs / Total Assets

*Economic Value Added* = Sales - Cost of Goods Sold - Operating Costs - Cost of Capital

*Market Value Added* = Stock Market Value<sub>t</sub> - Book Value<sub>t</sub> (Market power being accumulated for the future)

$$= \sum_{t=1}^T \text{EVA}_t / (1+r)^t \quad \text{where } r = \text{discount rate.}$$