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## **Pricing Power by Supermarket Retailers: A Ghost in the Machine?**

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During periods of rising prices, consumers, policymakers and media reporters alike tend to place the blame on food retailers (Boyle, 2009). Retail stores represent the final stop for most products on their way through manufacturers, distributors, brokers and wholesalers, so it is perhaps understandable why consumers tend to associate higher prices with profiteering, price-gouging and other nefarious conduct by retailers. Witness the well-publicized attempts to “cure” inflation in Zimbabwe and Venezuela by directly controlling retail prices, or the retailers themselves. Retailers represent a particularly easy target (no pun intended) because of their visibility and ubiquity. Indeed, the largest firm in the United States also happens to be the largest retailer—Wal-Mart Stores, Inc.

It is not hard to understand, therefore, why retailers are often asked to explain why they are not trying harder to keep prices down, and why they need to be so big. Whether the perception that retailers possess excessive pricing power is consistent with reality, however, remains an important academic question. In this article, we review the existing literature on market power in food retailing, and describe an empirical framework necessary to provide a definitive answer to this question, if indeed one exists.

### **The Food Retailing Industry**

Implicit in all of these accusations is a presumption that retailers have market power, or the ability to set prices above marginal cost. Retail market power has been the subject of a considerable amount of research in economics, agricultural economics and marketing at least since the 1970s following our first experience with real food price inflation. Most of the early research was conducted within the structure-conduct-performance (SCP) paradigm, or the presumption that pricing, profitability and welfare outcomes were determined by market structure—level of concentration among firms in an industry.

On the surface, retail food markets appear to be highly concentrated. Although concentration ratios—as measured by the four-firm concentration ratio, or CR4, which is defined as the sum of the market shares of the top four firms—the national market are only about 50% (figure 1), food markets are local.

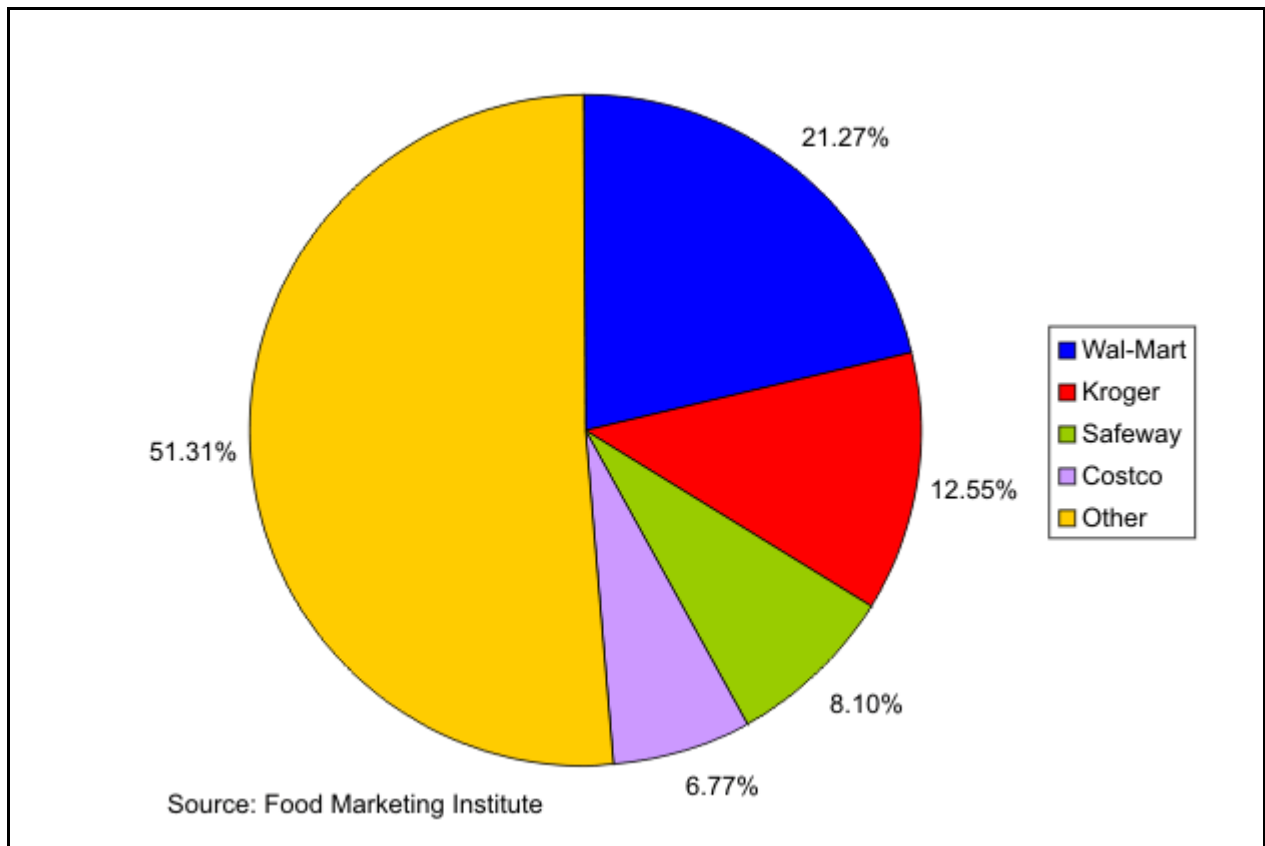


Figure 1. National Market Shares of Top Four Supermarkets: 2008

In some local markets, the CR4 is above 80%—a figure that typically would incite concern among Federal Trade Commission or Department of Justice officials (figure 2). Dobson, et al. (1999) compare supermarket concentration ratios between the U.K., European Union (EU) and the United States and note an apparent correlation with retail food prices. By 1996, the CR5 for UK supermarkets was already 64% while the CR4—the nearest comparable figure—was 23.2% in the United States (Franklin, 2001). Constructing a comparable basket of groceries in the UK and the United States, they find that if the basket cost \$100 in the U.K., it would cost only \$69 in the United States. While only indirect and partial evidence, it is suggestive of some sort of relationship between concentration and retail prices.

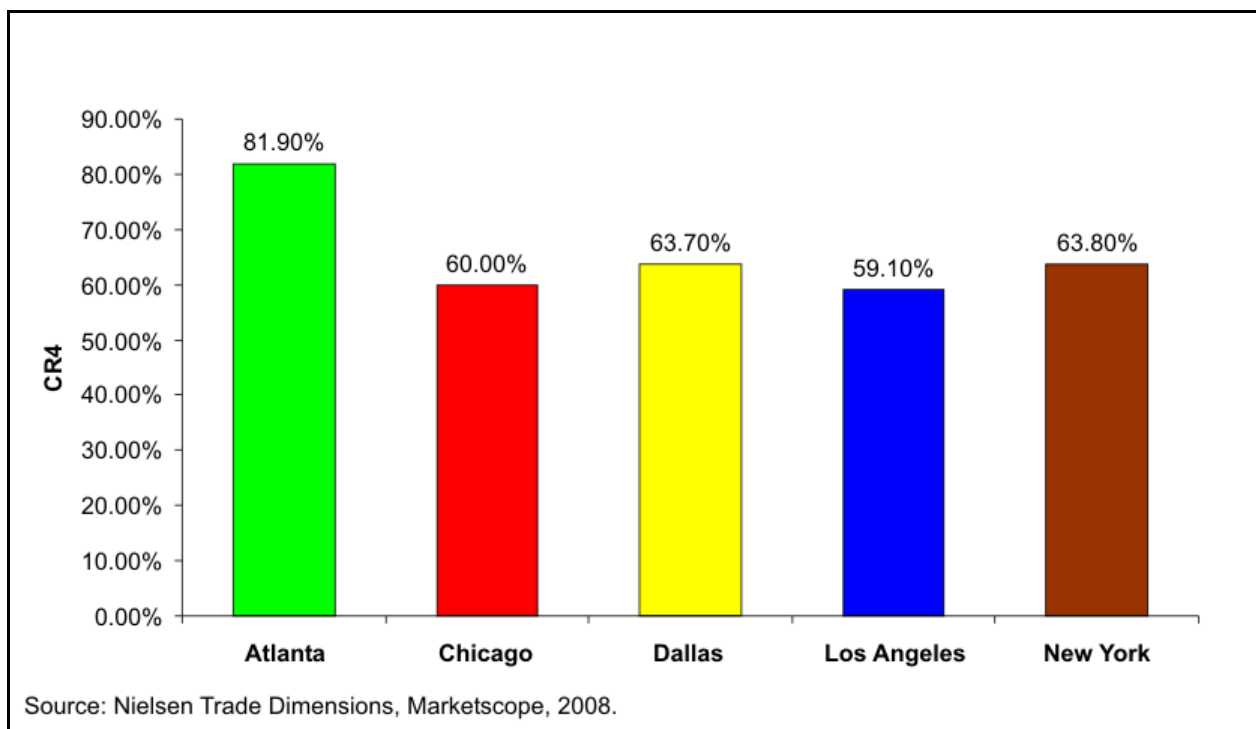


Figure 2. Retail Supermarket CR4 in 5 U.S. Markets: 2007

Concentration does not necessarily imply market power. Gross margin, defined as operating income as a percentage of sales, is often used as an indicator of profitability. By this measure, figure 3 shows that grocery retailers have become distinctly more profitable, particularly relative to the rest of the retail sector, over the past two decades. Financial indicators

are only indirect measures of economic performance, however. Whether retailers exercise market power in reality is a matter for more detailed consideration of retail prices or, more appropriately, retail margins in specific markets.

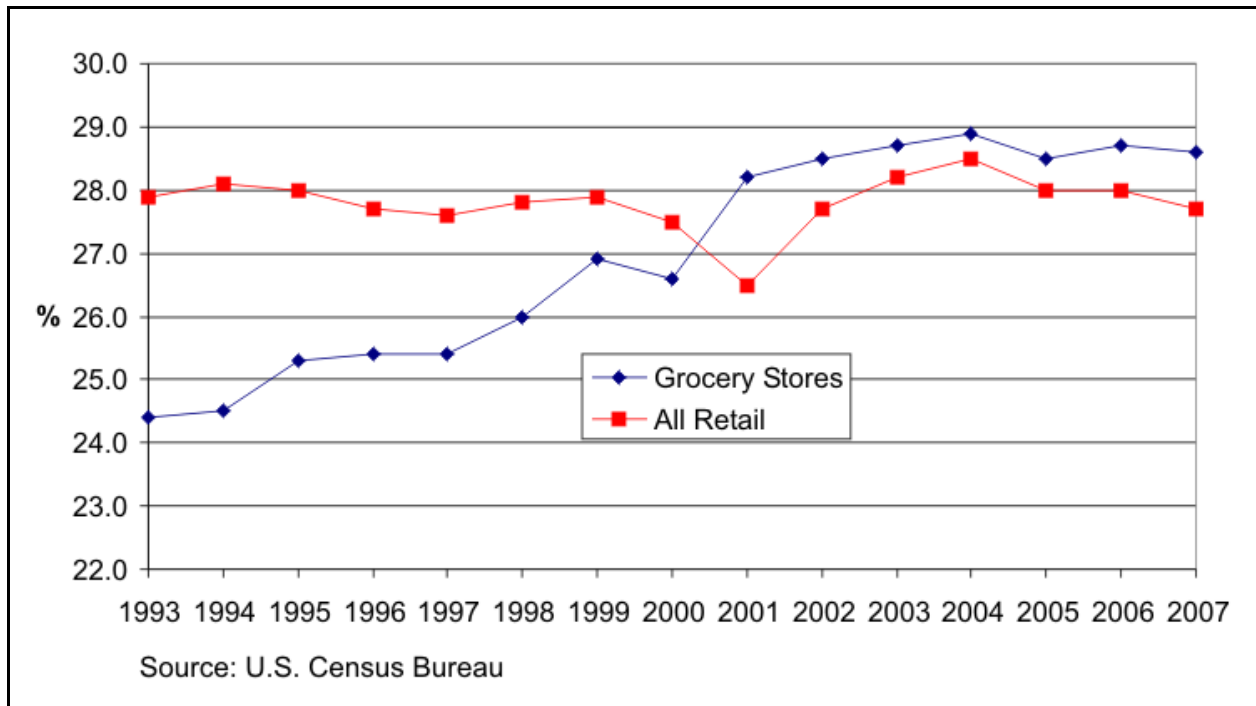


Figure 3. Retail Grocery Stores: Gross Margin as a Percentage of Sales

Concentration does not imply market power *per se*. Other features of food retailing may, in fact, be more important to retailer margins than simply concentration. First, retailers sell multiple products. Because shoppers incur significant fixed costs in searching for a particular store, retailers can indeed act as local monopolists once a store choice has been made. Because each store generally offers all the food products a consumer may need, and most potential substitutes, the store-choice decision typically does not change when prices of specific items change. Rather, consumers buy a substitute in the same store. This ability to internalize all of the pricing externalities that would be lost to competitors in any other shopping format, means that large retailers have an inherent source of pricing power.

Second, retailers have an incentive to be large regardless of the implications for pricing power. Spreading fixed costs of distribution, advertising and the like over thousands of products, retailers with huge selections are likely to be able to set lower prices than smaller, more focused retailers due to economies of scale and scope.

Third, retail markets are spatial, and local. Because much of the fixed cost of shopping involves driving to the store of choice, most consumers frequent the store that just happens to be the closest to home.

Fourth, retailers increasingly differentiate themselves by their private label offerings, in-store bakeries, or prepared and local foods. Fully 41% of shoppers described themselves as frequent buyers of private labels in 2007, whereas only 12% did in 1992 (Iposos, 2007). By competing in nonprice dimensions, retailers attempt to soften price competition, even in relatively fractured retail markets.

Fifth, there is considerable academic debate over whether scale economies are a significant factor in the rise of the “big box” food retailers such as Wal-Mart and Target. If scale economies are important, then a positive relationship between concentration and profit may, in fact, describe the structure of costs and not the exercise of market power.

Sixth, Devine and Marion (1979) use a unique experiment to show that price information, or the lack thereof, can be a source of market power as well. While supermarkets communicate prices often through food-page ads in local newspapers, and flyers through the daily mail, it is nonetheless impossible for consumers to know and compare the prices of all 30,000 stock-keeping-units (SKUs) in a typical supermarket. Without ready access to cheap price information, higher search costs raise the market power of stores that are able to attract customers through non-price methods.

Finally, if margins earned by retailers do indeed appear to be higher than they “should be,” it may be due to market power in their role as buyers as much as in their role as sellers. In fact, much of the concern regarding retail concentration from farm-interests lies with the potential for oligopsony, or buyer, and not oligopoly, or seller, market power. Taken together, however, these attributes of food retailing mean that modeling pricing behavior in retail food markets is more complicated than in commodity markets. Nonetheless, arriving at a useful empirical conclusion on the question of retail market power requires that each of these potentially confounding factors be taken into account.

## **The Evidence**

Despite the importance of retail supermarkets in the food distribution system, there is surprisingly little recent empirical research on market power exercised by retailers. In the 1980s, Lamm (1982) and Kaufman and Handy (1989) both find a positive relationship between concentration, or the potential for the exercise of market power, and prices. Cotterill (1986) uses a unique, store-level data set of prices charged for a typical grocery-basket of items for supermarkets in Vermont and finds that more concentrated markets have significantly higher prices than others, even when scale and organizational form are appropriately accounted for. Newmark (1990), on the other hand, argues that the existing set of retail concentration-price studies are flawed in that they use nonrandom retailer samples and, more importantly, do not allow for variation in income among store-markets. Correcting for these flaws, the relationship between concentration and price levels disappears. All of these studies are *ad hoc*, however, in that they do not attempt to explain the relationship between concentration and market power, only describe it.

More recently, structural models of wholesale and retail food pricing have attempted to fill this gap. A structural model attempts to explain a retailer's pricing decisions in a way that is consistent with market demand, and its strategic environment, both vertically with suppliers and horizontally with respect to competing retailers. Generally, this research has produced mixed results with respect to finding evidence of retail market power. Sudhir (2001) was the first to allow for both vertical—between retailers and suppliers—and horizontal—between suppliers—market power in the same model. He finds support for a model in which food manufacturers enjoy a first-mover advantage relative to retailers, but retailers use a simple, constant markup rule in which they do not compete against each other.

Using data from a single product category, many others either assume retailers do not compete against each other (Besanko, Gupta and Jain, 1998; Chintagunta, 2002) or provide empirical evidence that they don't (Slade, 1995; Sudhir, 2001). Each of these studies bases its conclusion on data for one or two relatively minor product categories, however, so it is not surprising that they find little interaction in prices. Richards and Hamilton (2006) find that retailers in a major U.S. market compete both in prices and variety, but tend to use variety—defined as the number of products offered in a category—as a strategic tool to soften price competition. Berto Villas Boas (2007) considers a number of different models of the vertical interaction between yogurt manufacturers and retailers in a single-market context. She finds that a model in which wholesale margins are set to zero and retailers set profit-maximizing prices provides the best fit to her yogurt data—implying that retailers enjoy both upstream and downstream market power. Still, these studies only indirectly address the issue of market power.

## **New Research**

Following the food price spike of 2008, there has been a renewed interest in retail pricing behavior and the potential role of retail market power. As just one example, the authors of this article attempt to take each of the structural elements above into account in estimating a model of retail market power under the assumption that retailers play the role of platform managers, or intermediaries, in a two-sided market. Consumers have a preference for variety, and manufacturers demand retail distribution. Consequently, retail margins reflect the supply and demand for shelf space. Using retail scanner data from multiple retailers in a single, nonWal-Mart market, we found that retailers are slightly more competitive than what would be expected if they competed as rivals in a differentiated-products market. More importantly, retail market power increases in the number of products offered. In this regard, we provide an alternative explanation for the correlation between concentration and prices noted above. Our finding, however, suggests that supermarket retailers may not be perfect competitors, but we wouldn't expect them to be given the differentiated nature of the product they sell. The prices they charge are somewhat below what they would be were they to exploit the market power available to them.

Many industry commentators regard the movement toward private labels as an indicator of a sea-change in the shift of market power from manufacturers toward retailers. By marketing products that are nearly identical to national brands, retailers accomplish three things: they are able to build loyalty for their own store by offering a high-quality product at a lower price, they can price discriminate between consumers willing to pay more for their loyalty to a particular brand, and they are able to force national brand manufacturers to lower wholesale prices. In another recent study conducted by the authors using data from the same market as described



above, we show that this latter effect—shifting pricing power from manufacturers—is the most important. To the extent that private labels are, in a sense, wringing pricing power out of the whole system, this movement of pricing power downstream may be beneficial in terms of lowering consumer prices.

## **Market Power Implications of Supermarket Retailing Trends**

Recent developments in food retailing suggest that supermarkets may face a more competitive landscape in the coming years, but critical questions remain. No discussion of market power in food retailing is complete without highlighting the role of Wal-Mart in enforcing competitive discipline on the entire market. A growing volume of empirical research confirms what most shoppers found out for themselves long ago—that retail food prices fall when a Wal-Mart opens nearby (Hausman and Leibtag, 2007). Until Wal-Mart's business model fails, prices will continue to be driven down due to their focus on supply chain efficiency, bulk buying power and their ubiquity in nearly every U.S. market.

At the same time, however, the growing strength of the organic / natural / local food sector represents somewhat of a challenge to the mass-market appeal of retailers like Wal-Mart, Target and Kroger. While each of these has developed their own strategy designed to take advantage of these trends, the big-box retailers are not seen as credible sources for local, healthy food. Witness the simultaneous growth in farmers markets, high-end supermarkets such as Whole Foods, and the movement toward community-supported agriculture. Finally, rising commodity prices may again bring the spotlight back to retailers' willingness to pass-through higher input prices to retail foods. To the extent that the average consumer does not appreciate the relatively minor role commodities play in the cost of processed foods (Leibtag, 2008),

retailers and manufacturers alike will be able to exploit this lack of transparency to create an opportunity for pricing power.

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