My comments today will provide a historical perspective with two dimensions:

1. How has the field of industrial organization (I.O.) evolved over the last 30 years? What were the important questions in the 1970s, 80s, and 90s? How were the research agendas influenced by politics, public policy, data, theoretical development, and other issues?

2. From its start in 1974, what have been the notable research efforts of UW’s Food System Research Group? What types of issues did we address during 1974-1997? What were some of the highlights of that work?

I acknowledge a clear structuralist and empiricist bias in my perspective. Many of you will differ some in how you might paint the historical landscape.

The Status of Industrial Organization Economics in the 1970s

When I came to Wisconsin in 1974, UW boasted two of the foremost empirical I.O. researchers in the country, Fritz Mueller and Leonard Weiss. Having returned to Wisconsin in 1969 after eight years in Washington as chief economist of the FTC, Fritz maintained many connections in Washington, was intimately familiar with the competition policy arena, and was called on frequently to testify at congressional hearings or to participate in national symposiums.
This gave the Food System Research Group a sense that we were very close to the action. And it certainly influenced our research agenda. Several of our projects were collaborative efforts with Congressional Committees which were interested in certain competitive questions. And our research was mindful of some of the critical economic questions affecting antitrust policy.

At that point in time the I.O. community largely used the S-C-P framework of Joe Bain in its analysis. Much research focused on the influence on market performance of the various market structure dimensions; particularly concentration, market share, entry barriers, and product differentiation.

In the early 70s there was a growing consensus that market concentration was directly linked to market power and to firms’ abilities to extract monopoly rents. Leonard Weiss had completed a comprehensive review in 1971 of empirical studies of market structure’s linkage to various aspects of market and economic performance (Weiss, 1971). This was followed in 1974 by a careful summary of concentration-profit studies in which he concluded:

“In general the data have confirmed the relationship predicted by theory, even though the data are very imperfect and almost certainly biased toward a zero relationship” (Weiss, 1974, p.231).

Both of Weiss’ summary pieces were thorough and balanced reviews. For those of us in the so-called “structural school,” the role of market structure seemed clear. And the appropriate policy prescription also seemed clear: discourage increased concentration in industries, especially where it was unnecessary to achieve scale economies.

For those wondering why the heavy emphasis on market structure, especially market concentration and market dominance, this reflected both the type of research that
was feasible based upon the available data and the perception that market shares were something that antitrust policy could influence. If in fact there was an inverse relationship between concentration and market performance, enforcement agencies could seek to enhance competitive performance by influencing concentration.

Data availability at the time resulted in many studies using census data to conduct cross-sectional studies (across industries) of concentration-profit (or price-cost margin) relationships. At that point in time, there were relatively few within industry, across market studies of structure-price or structure-profit relationships.

This then was the stage for the first serious challenge to the accepted view of the role of market structure. The Airlie House conference in 1974 included both Weiss’ summary paper and a paper by Harold Demsetz, “Two Systems of Belief about Monopoly.” Demsetz argued that the positive relationship found in many studies between profits and seller concentration and/or firm market share was the result of firm efficiency, not higher prices. His paper laid the base for what became known as the “superior efficiency” argument. Peltzman (1977), Mancke (1974) and others added to the criticism of concentration-profit studies.

The debate over the role of market structure, particularly market concentration, in influencing market performance continued throughout the 1980s. The agnostic view of the role of market structure, usually identified with the University of Chicago, was given added influence with the election of Ronald Reagan in 1982. The Reagan administration welcomed a conceptual basis for reducing the role of antitrust structural policies.

After reviewing the debate between traditional and revisionist views of industrial organization, Pautler (1983) concluded:
It seems that much of the difference between the traditional and revisionist views boils down to a difference of opinion on two crucial issues: the extent of barriers to entry, and the presumption of efficiency. If barriers are generally low, then high profitability should be a transitory phenomenon or due to nonreproducible advantages of large firms. Where barriers are substantial, both sides would agree that high profitability can be maintained. The difference is that the revisionists see competition eroding any barriers rather quickly (with the exception of governmentally imposed barriers), whereas traditionalists see a broader menu of more durable barriers to entry, including advertising intensity, scale economies, absolute capital requirements, natural-resource monopoly, patent protection, strategic predation, etc.

The revisionist views came largely from two directions: (1) the superior efficiency and low entry barrier argument\(^2\) of the Chicago School, and (2) the theory of contestable markets. These efforts amounted to a direct frontal attack on traditional industrial organization theory.

The theory of contestable markets, developed by Baumol, Panzar, and Willig (1982) was initially embraced by those anxious for an explanation of why dominant firms and concentrated markets might perform competitively. Indeed – perfectly contestable markets allowed us to “have our cake and eat it too”; the benefits of large firms could be enjoyed without sacrificing a decline in competitive vigor. The lack of relevance of this theory to real markets soon became apparent (Shepherd 1984). By the late 1980s, empirical I.O. economists largely dismissed contestable market theory. However, this theory did shift the emphasis placed on different elements of market structure – raising the attention paid to entry and exit barriers. Absent barriers, even monopolists have limited power over price. Unfortunately, entry and exit barriers are very difficult to measure and therefore to empirically study.

\(^2\) For fuller discussion of alternate views of entry barriers, see B.W. Marion, 1987.
A further test of the linkage between concentration and profits was made possible by the rich data supplied by the FTC line-of-business (LB) program. The LB data enabled researchers to include individual firm own-market share, as well as market concentration and other variables, in exploring structure-profit relationships at the firm level for the years 1974-1977. Ravenscraft (1983) found that the effect of concentration disappeared when firm market shares were added to the models. A survey of 15 studies based upon LB data reported that none found a significant positive relationship between profits and concentration when market share was included as an independent variable (Scherer et al 1987).

Because of the unusually good data and the reputation of the scholars involved, these results raised serious questions about the influence of market concentration. The stage was set for the next major step – the analysis of the impact of concentration and market share on prices rather than profits.

Concentration-Price Studies

Throughout the 70s and 80s, a strong emphasis on understanding the influence of market structure characterized much industrial organization research. In response to the many questions raised about concentration-profit studies, more research focused on within industry, across market studies of prices. These avoided most of the criticisms of structure-profit studies and across industry studies. They represented cleaner and more direct studies of the structure-performance linkage. Leonard Weiss, one of the nation’s most respected empirical I.O. economists, took on the task of summarizing the 100+ studies of concentration and price. His 1989 edited volume included three of our studies
and was compelling in the evidence presented. Weiss comments, “I believe that our evidence that concentration is correlated with price is overwhelming” (p.283).

For many devotees of the traditional I.O. view, Weiss’ review answered many of the criticisms levied by the revisionists. Concentration and firm market share really did matter.

The research of the 1980s and Michael Porter’s seminal piece (1979) on strategic groups also made it clear that understanding the organization and strategies within industries was important to understand the complexity of factors affecting competition. At least for non-durable consumer goods like food, branded products and private labels differed greatly in their profit margins, entry barriers, and product differentiation. Since then, the interest in differentiated product markets has increased. Today—in large part because of the availability of scanner data—modeling competitive behavior in differentiated product industries is one of the hot areas of I.O. research.

I must confess to some envy at the feasibility of doing demand analysis at the brand level, based upon scanner data, to determine the degree of substitution of brands and hence to define relevant markets. Scanner data coupled with more powerful computers and more sophisticated econometric models has opened up an exciting new world of I.O. research.³ I believe market power and the dynamics of competition can be better understood at the brand and strategic group level. Before scanner date, finer levels of analysis were often only possible through data obtained in antitrust cases.

³ One of the first studies to examine market power at the brand level was done at Wisconsin. See Robert Wills, 1983.
The foregoing provides my perspective of the major factors affecting industrial organization economics in the 1970s and 1980s. Research of the Food System Research Group and NC117, the regional research effort of which we were part from 1974 to 1986, were mindful of these broader debates in the field, even as we examined competition and control issues in the U.S. food system.

Our first major splash has become known as the Joint Economic Committee Study because it was a report done in collaboration with that committee. The study findings, *The Profit and Price Performance of Leading Food Chains, 1970-1974*, were presented at hearings held by the committee in the spring of 1977 (see Marion et al, 1979). Because of the unusually good data made available to us from data subpoenaed by the committee from 17 of the nation’s largest food chains, the study was able to examine the relationship of local market concentration and firm market share to both firm profits and prices. Because it was a within industry, across market study and analyzed prices and profits, the study provided an important contribution to the broader debate about the relevance of market structure. The study avoided or answered directly many of the criticisms of the revisionist school.

The JEC study found that both relative firm market share and local market concentration were significantly and positively related to supermarket prices. The study had a strong influence on antitrust action to challenge retail mergers during the remainder of the 20th century.

This was the first of the large scale studies done by our group. Large scale studies of this type are only possible with substantial resources and are one of the justifications
for the continued existence of UW’s Food System Research Group and Connecticut’s Food Marketing Policy Center.

**Studies of Competition in Food Processing/Manufacturing Industries**

Another major focus of our group during 1975 to 1985 was the food manufacturing industries. Several of the efforts were collaborations with the Economic Research Service of the USDA. Russell Parker, economist with the Federal Trade Commission, also spent four years with our group and made significant contributions.

The end result was the book, *The Food Manufacturing Industries: Structure, Strategies, Performance, and Policies* (J. Connor et al 1985). This may be the best piece that has come out of our group. Professor John Sutton, who used the book extensively in the research for his book, *Sunk Costs and Market Structure*, comments on the Connor et al book: “This book draws on a decade of research and remains the key point of departure for Industrial Organization economists beginning research in this area.”

Mueller, in his 1983 Fellows address to the American Agricultural Economics Association, indicated one of the bottom lines of the food manufacturing research:

> The evidence shows that high market concentration accompanied by significant entry barriers enhances both prices and profits. Because their prices are elevated more than their profits, the most powerful firms in an industry appear to have higher costs as well. The resulting monopoly profits and consumer overcharge measure only part of the fruits of market power. There is evidence that this market power contributes to inflation, results in disparity in wages, causes an excessive proliferation of products and enormous outlays for advertising and promotion, distorts consumer buying preferences among brands, and defines consumers’ nutritional habits.

What then determines firm shares and market concentration? In some industries scale economies dictate large relative firm size and concentrated markets. Not so in food manufacturing. Prior to the merger wave of the 1980s—allowed by near abandonment of
the merger antitrust statutes under Reagan—the food manufacturing industries exhibited contrasting trends. In industries selling undifferentiated food products, concentration was low and remained steady or declined. However, industries with highly differentiated products experienced high concentration that was persistent and increasing. The major causal force propelling increasing concentration during the 60s, 70s, and early 80s was the large scale advertising and promotion of products lending themselves to product differentiation (Mueller and Rogers, 1984). Economies of plant size and capital requirements were not major causes of centralization.

Two other areas of research warrant brief mention. Both received some attention from our group during 1974-97.

• The organization and coordination of commodity subsectors, including pricing and thin markets

• Vertical relationships and restraints in the food system

Organization and Coordination of Commodity Subsectors

Agricultural economists have had an on-going interest in the vertical organization of agricultural commodities, especially as it impacts farmers. Contracts and vertical integration in broilers and processed fruits and vegetables were of concern 50 years ago. These vertical arrangements threatened the independence of farmers, their access to markets, their bargaining power, and created “thin markets.”

But – there has also been considerable interest in the extent to which contracts and vertical integration lead to improved vertical coordination in commodity subsectors. Ray

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4 Space prevents my lifting up a third area, agricultural cooperatives and their role in the food system. The antitrust treatment of cooperatives under the Capper Volstead Act was the focus of a 1983 monograph (Jesse et al, 1983) and an award winning book (Mueller, Helmberger and Paterson).
Goldberg of the Harvard Business School has been one of the leading advocates of this perspective.

A major effort of NC117 was in studying vertical commodity subsectors and the instruments of coordination. Comprehensive studies of the organization and coordination of five subsectors were published as monographs. In the book summarizing the findings of NC117 (B.W. Marion and NC117 Committee, 1986), we commented:

> Contract coordination is often seen as the antithesis of market price coordination when it may more properly be viewed as an intermediate state on the open market to integration continuum. A contract with a firm price entered into at the time of production commitment may serve very well as a coordination device. It is the unpriced contract that provides an incentive to manipulate the market that will determine the final contract price…The problem of contracts is the way in which they are negotiated…and the use of formula pricing against a spot market thinned as a result of contracting (p.109).

Because “thin markets” emerged as a topic in which there was considerable interest, a conference in 1978 examined pricing problems in the food industry with an emphasis on thin markets. This was one of the first attempts to determine what was known about thin markets and under what circumstances they might cause problems.

In many ways, the thin market conference laid the base for our four year study of the National Cheese Exchange 15 years later. My colleague, Fritz Mueller, came out of retirement to direct that study.

For those of you who aren’t familiar with the study, the National Cheese Exchange (NCE) was an auction market in Green Bay, Wisconsin. Cheese manufacturers and marketers met there weekly for about 30 minutes to buy and sell car lots of bulk cheddar cheese to each other in 40 pound blocks or 500 pound barrels. Although only 0.2
percent of all cheese made in the U.S. was sold on the NCE, it was used to formula-price 90-95 percent of the bulk cheese in the U.S.

Each year about five sellers and five buyers made virtually all trades on the NCE. Kraft General Foods, the largest buyer of cheese in the U.S., was the dominant seller on the NCE during 1988-1993, accounting for 75 percent of sales. The NCE had several characteristics of a thin market: relatively few transactions, few traders, and low absolute trading volumes. Although cheese manufacturing and marketing are only moderately concentrated, NCE trading was highly concentrated in both buying and selling. It was a bilateral oligopoly with a dominant seller. Our study concluded that the NCE facilitated market manipulation, with Kraft and other seller-traders with similar interests being the main beneficiaries. Following its acquisition by Phillip Morris in 1988, Kraft became particularly aggressive, both in selling on the NCE to drive bulk cheese prices lower and by increasing the selling prices and gross profit margins on their finished cheese\(^5\). The result was significantly higher prices to consumers and lower prices to suppliers of bulk cheese (Mueller, W.F. and B.W. Marion, 2000).

The after-shocks of the study were not what they prepare you for in graduate school. The governor appointed a task force to investigate the topic, the U.S. House Committee on Agriculture held two days of hearings, Kraft threatened us with libel charges on three occasions\(^6\), the USDA changed its procedures for pricing milk, and in

\(^5\) Before 1985, both the wholesale price of Kraft’s cheese and the price it paid for bulk cheese were tied to the NCE price. Changes in the NCE had no effect on Kraft’s margins. In January 1985, Kraft’s wholesale cheese prices were decoupled from the NCE, allowing them to increase selling prices at the same time their buy prices were declining.

\(^6\) Fortunately, the University of Wisconsin protects researchers in such situations if the research was done as part of their university appointment. A lawyer with the Wisconsin Dept. of Justice worked with us on this matter. Fortunately, Kraft chose not to carry out its threats.
May 1997 the NCE closed its doors and was replaced by a spot cheese market on the Chicago Mercantile Exchange.

The NCE study was perhaps the first study to fully document the ways in which thin markets are vulnerable to manipulation. Hopefully the study provides a basis for examining other thin markets of concern in the agricultural commodities.

**Vertical Restraints and Relationships in the Food System**

Vertical restraints and relationships have received less attention over the past 30 years from I.O. economists than horizontal restraints associated with market power. However, vertical conflicts are often the cause of private antitrust cases. And, in the U.S. and Europe, as consolidation has occurred among supermarket chains, concern about retail buying power has increased. Retail buyer power is manifested through such things as slotting allowances, listing fees, exclusive supply obligations and retroactive discounts, as well as in transaction prices and payment terms.

Over time, I believe retail buying power will lead to greater market power among large branded suppliers by weakening smaller suppliers and increasing entry barriers. Kraft, P&G, Unilever and Nestle have no problem paying slotting allowances, listing fees, end-of-year rebates and extended payment terms. For small and start-up companies, these are enormous hurdles. The host of vertical restraints/concessions demanded by large chains are also more difficult for small retailers and their wholesalers to match. With little if any enforcement of the Robinson-Patman Act, large chains have learned how to tilt the playing field in their favor.

This area is ripe for a thorough study, perhaps involving a congressional committee in order to obtain data. Four British economists recently completed a large
study of retail buying power in Europe (R. Clarke, et al, 2002). Nothing similar has been attempted in the U.S.

We initiated little research on vertical restraints in the food system during 1974-1997. A significant contribution to the literature came as a byproduct of Fritz’s involvement in a private lawsuit challenging the licensing system of Sealy Mattress franchises. This was one of those happy opportunities in which consulting provided both income and invaluable data for academic purposes. Fritz’s analysis indicated that market power was the apparent reason for territorial restraints. The free rider and efficiency hypotheses were rejected (Mueller and Geithman, 1991). Frequently, so-called vertical restraints are actually restraints on horizontal competition at one or more levels.

Conclusions

These are my perceptions of some of the major happenings in industrial organization research in the last 30 years and some of the notable contributions of the Food System Research Group. I have focused particularly on work that has been relevant to antitrust policy. The substantial NEIO literature I have ignored in part because I don’t feel comfortable commenting on it, and because it seems of limited relevance to antitrust policy.

To me – the current emphasis on brand-level demand analysis supplements rather than replaces traditional structural analysis of market power. As a firm expands the number of brands in its portfolio, it also likely expands market share and internalizes cross-price effects for brands of products like cereals. This results in price levels increasing as market share increases. In food manufacturing, unilateral power based
Upon advertising, market segmentation and product proliferation is likely more important than tacit or explicit collusion.

Although industrial organization research of the last decade has focused more on market conduct and firm strategic behavior, I hope this does not indicate a decline in interest for the role of market structure. Public policies that influence the structure of markets, such as the recent FCC decision to permit greater consolidation of the radio, T.V. and newspaper industries, have enormous long-run consequences. Although the bulk of antitrust laws are directed at anticompetitive conduct, the statutes dealing with structure are potentially the most powerful policies. We need solid economic research to guide the use of those policies.

A Postscript

As I was finishing this paper last week, I read the Science Times section of Tuesday’s (June 17) New York Times. One of the great pleasures of retirement is having the time to read my beloved N.Y. Times. An article, “Brain Experts Now Follow the Money,” described the new field, neuroeconomics, in which researchers scan the brains of people as they make economic and strategic decisions in games designed by experimental economists.

For now, neuroeconomic experiments tell more about individuality and small groups than about markets and economies. But – perhaps, in time, this research will help explain how individuals respond to a lack of tough competition vs. the pressure of tough competition.

In my opinion, we have had many market “experiments” in the last 30 years that indicate a lack of competition negatively affects most dimensions of market performance.
State-run firms, regulated public utilities, cartels, firms with exclusive geographic
territories, and tight oligopolies or dominant firm industries have one thing in common: a
lack of tough competition. And there are similarities in the performance characteristics
of these markets and firms: poor technical efficiency; bloated costs; high prices relative
to costs; slowness in adopting new technology and developing new products; slow
responsiveness to customer desires; and managers that are bureaucratic, unimaginative
and risk averse.

There are no redeeming market virtues from the quiet life. Perhaps this is simply
the way human beings respond to an environment of pressure versus one of no pressure.
Neuroeconomics may help us understand the behavior of managers in different market
settings. For instance, in athletics, there is considerable research that indicates athletes
show the most improvement when their competitors are strong. In universities, the most
productive period of faculty is often prior to tenure. As individuals, we often grow the
most during period of great pain and suffering such as coming to terms with death,
disease or divorce.

Are people in their business roles any different? Is the “crucible of pain and
pressure” important there also for good performance? The evidence from the above
“experiments” supports Michael Porter’s conclusions: industries that experience “tough
competition” because of demanding customers and intense competitive rivalry in their
home markets are more likely to be efficient, at the cutting edge in their products, and
therefore able to compete well in global markets. Porter contends that tough antitrust
policy enhances the global performance of a country’s firms. Protecting one’s firms from
competition does the reverse.
A variety of things can influence the degree of pain and pressure on management. Leveraged buy-outs and “lean and mean” cost-cutting certainly create pressure and frequently improve efficiency temporarily. In the long run, however, the discipline of the market environment may be the most important determinant of tough versus soft competition. The degree of industry concentration and leading firm dominance, the level of entry barriers, the degree of product differentiation, and international trade policies largely determine whether firms and managers experience “the quiet life” or the crucible of “pain and pressure.” The market environment represents a force external to firms and is not easily controlled. Competition policies that encourage highly competitive markets are likely to result in a higher level of performance in the long run than policies that encourage consolidation, protection from foreign competition and cooperative behavior.

These are some of my conclusions from roughly 40 years of observations. Perhaps in the future, neuroeconomists will shed more light on the nexus between the market environment and the performance of individual managers in that market.
References


