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**COMPETITION IN THE U.S. FOOD MARKETING
INDUSTRIES: SOME LESSONS FROM
THE 1980s**

by

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WP 105

January 1994

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COMPETITION IN THE U.S. FOOD MARKETING INDUSTRIES: SOME LESSONS FROM THE 1980s

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During the last decade, there has been widespread recognition that market economies have some major advantages over centralized economies. The stories now coming out of Eastern European countries indicate that centralized economies are often extremely inefficient, insensitive to buyer/consumer preference, and technologically deficient. By comparison, most market economies (including the United States) look very good.

However, market economies also have strengths and weaknesses. Some markets and industries perform better than others. And, we learned in the 1980s that markets are not necessarily self-perpetuating.

Since the Sherman Act was passed in 1890, the United States has relied on its antitrust laws to maintain and preserve a market economy. Although the antitrust laws did not change during the 1980s, the Reagan and Bush administrations largely followed a philosophy of minimum enforcement of these laws. Mergers, vertical restraints and predatory tactics that would have been challenged under previous administrations were not challenged. The underlying principle of competition policy was, "Reduce government interference and let the markets work."

Data are now becoming available to evaluate this policy experiment. Did competition thrive during the 1980s? Is competition in U.S. industries better than it was in the 1970s? In some industries, such as autos and steel, imports have provided strong pro-competitive forces. International competition has stimulated competition far more than would have been possible using the antitrust laws. For example, the number of auto companies selling cars in the United States has mushroomed since the 1950s. Competition has been more effective during the last two decades than when the Big 3 U.S. auto companies had the market to themselves.

But, international competition has much less influence on many domestic industries, including most U.S. food processing and manufacturing industries. With a few notable exceptions like wine, competition in U.S. food manufacturing is predominantly driven by U.S. companies. In this article, I examine how competition has fared in the U.S. food manufacturing industries, with special attention to changes that have occurred in the meat packaging industry.

Competition in Food Manufacturing Industries

Judging the status of competition is always somewhat subjective and difficult. How do we know when competition is vigorous and leading to good performance, and when that is not the case? Scores of studies have addressed this topic. And there is still a good bit of debate among academicians. However, it appears that the following affect the intensity of competition in most markets:

- Number of sellers and the degree of dominance of leading sellers.
- Number of buyers and the degree of dominance of leading buyers.
- Barriers to entry into selling and buying industries.
- Degree to which products are differentiated
- Importance of imports and exports—influence of international competition.

The number of sellers and the market share of leading sellers in most U.S. industries is readily available from the U.S. Census of Business and from private sources. Frequently expressed as "concentration ratios," these data indicate the share of sales accounted for by the top four, eight, or 20 firms. A large number of studies have found that industry concentration has an important linkage to industry performance. Many economists believe that increases

in concentration are either beneficial or neutral when the top four firms have less than 40 percent of market sales. At higher levels, concentration tends to become more negative in its influence. A single dominant firm or highly concentrated group of firms usually does not perform as much in the public interest as industries with more fragmented market shares. Thus, measures of industry concentration provide us with one indicator of industry competition—and how it has changed.

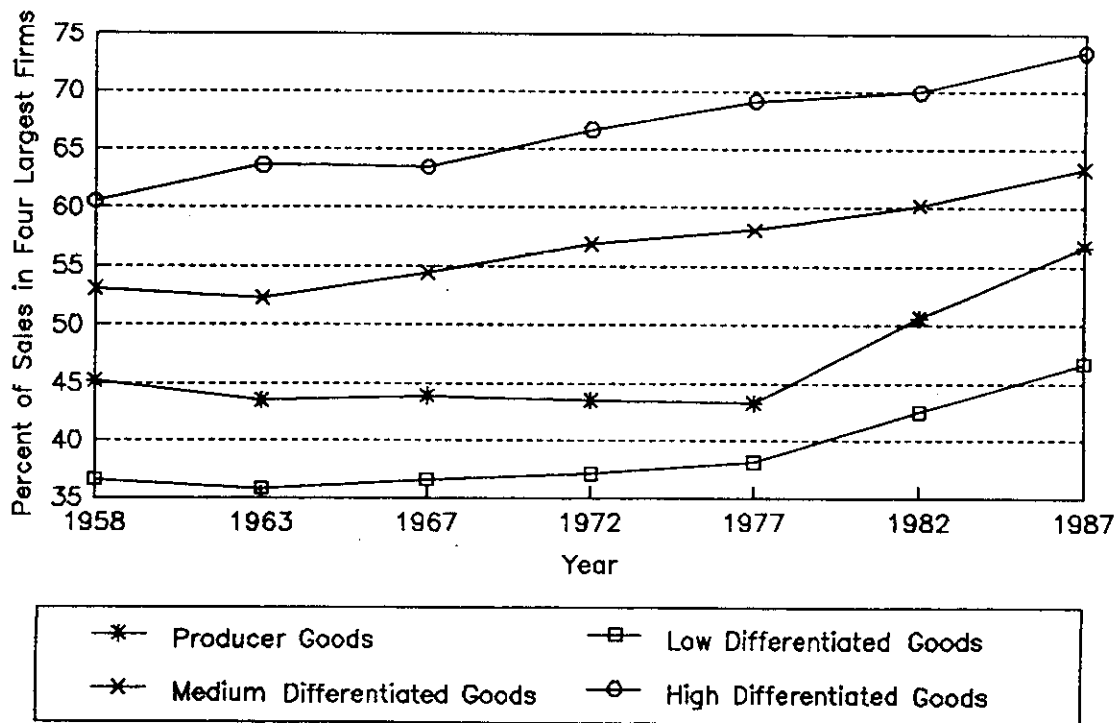
Mergers and LBOs

The 1980s witnessed a great surge in merger activities, including more large mergers than at any time in our history. In addition, many firms went through leveraged buy-outs (LBOs) or some other substantial replacement of equity with debt. Several of the LBOs were followed by divestitures. Hence,

both the consolidation and the splitting up of companies took place during the 1980s.

The food manufacturing industries had their share of mergers and LBOs during the 1980s. What was the net effect on industry concentration? Figure 24 shows the trend in concentration for four groups of food manufacturing industries from 1958 to 1987. "Producer goods" industries are those in which most of the output is sold to other manufacturers. For example, most of the flour produced by flour millers is sold to bakeries; only 10 percent is packaged and to consumers. "Consumer goods" industries in Figure 24 are split into three groups, depending on the level of product differentiation. "Low differentiation" industries are those like fresh beef in which brands and advertising are not important. "High differentiation" industries, like breakfast cereals, are those in which brands and advertising are very important. "Medium differentiation" industries fall in between.

FIGURE 24. CONCENTRATION TRENDS IN 78 U.S. FOOD MANUFACTURING INDUSTRIES, GROUPED BY DIFFERENTIATION OF PRODUCTS



Source: Rogers and Ma.

These figures indicate the importance of antitrust enforcement. A decade of lax enforcement can result in substantial restructuring of industries. Markets are not self-policing and self-correcting. Without government oversight, cannibalism and predatory instincts can result in one or a few "elephants dancing among the chickens." And when one or a few firms dominate a market, competition suffers. To demonstrate this more concretely, the remainder of this article focuses on concentration changes in meat packing, and the implications for livestock farmers.

Restructuring of U.S. Meat Packing Industries

During the 1960s and 1970s, the U.S. meat packing industry was frequently identified as an industry that had become more competitive over time. Product differentiation was generally minor except for processed and cured pork products. In part because of USDA grades, brands of beef have never been successfully established. National concentration of meat packing, which was high at the turn of the century and at the time of the 1920 Consent Decree, experienced a long decline until the 1960s or early 1970s.

Until the 1960s, the "old line packers" (Swift, Armour, Wilson, Morrell) continued to lead the industry with older multi-species (e.g., hogs, beef and lambs) plants. In the 1960s, specialized beef slaughtering plants operated by "new breed" packers began to penetrate the industry by locating new plants in the Western Corn Belt and High Plains where cattle feeding was increasing. Today, plants tend to be specialized by species (hog or beef) and may also be specialized by function (slaughter or processing). Although pork and beef compete to some extent for consumers' meat dollars, they are in separate product markets at earlier stages in the production-marketing system. Beef packers also tend to specialize in either fed beef, which is sold as steaks, roasts and other cuts through supermarkets and restaurants, or in cows and bulls which are boned out and used in ground beef and a variety of processed meat products. Cows and bulls are mostly cull dairy animals. Plants slaughtering these animals are located in the major dairy states. Fed beef slaughterers are concentrated in the major cattle feeding states.

National concentration of fed steer and heifer slaughter increased from 26 percent for the largest four packers in 1972 to 30 percent in 1979. Four-firm concentration then rose sharply over the following seven years to 55 percent by 1986 (Packers and Stockyards Administration data). As a result of three large acquisitions by ConAgra (E.A. Miller, Monfort and Swift Independent) and Excel's acquisition of Sterling Beef, all in 1987, four-firm concentration increased to 68 percent by the end of 1987 and hit 72 percent in 1990 (Figure 26). This rate of concentration increase is unprecedented. There is no parallel in any other industry. The industry is now dominated by three large companies, IBP, ConAgra and Excel (Cargill), which collectively slaughter nearly two-thirds of all steers and heifers in the U.S.

"Boxed beef" has been one of the major developments in beef packing in the last 20 years. Whereas in the 1960s, nearly all beef left the packer as forequarters or hindquarters, most of it is now cut into primals and subprimals, placed in a box, and sold as boxed beef. Boxed beef accounted for 44 percent of fed steers and heifers slaughtered in 1979 and 86 percent in 1990 (Packers and Stockyards Administration data). The four largest sellers accounted for about 60 percent of boxed beef sales in 1979, and an estimated 80 percent after the mergers in 1987.

Economies of scale exist in both beef slaughtering and processing. In the major cattle feeding areas, a specialized slaughtering plant that kills 250 thousand head per year using two shifts will realize most of the scale economies available. This represents about 1 percent of the U.S. fed cattle slaughter in recent years. Economies of scale appear to be greater in boxed beef processing. Most of the new combination beef slaughtering-processing plants have a slaughtering capacity of 500,000 to one million head per year. For this and other reasons, boxed beef processing is almost solely the domain of the largest 20 packers.

Feedlot-packer negotiations nearly always occur at the feedlot. Whereas 39 percent of *cattle* were sold directly by feedlots to packers in 1960, this had increased to 80.2 percent by 1987; 91 percent of *steers and heifers* were sold direct in 1987. Cattle feeders depend on packer buyers coming to the feedlot, inspecting their cattle, and making an offer.

Figure 24 shows that high and medium differentiated industries experience a fairly consistent upward trend in concentration from 1958 to 1987. Highly differentiated industries also tend to be highly concentrated.

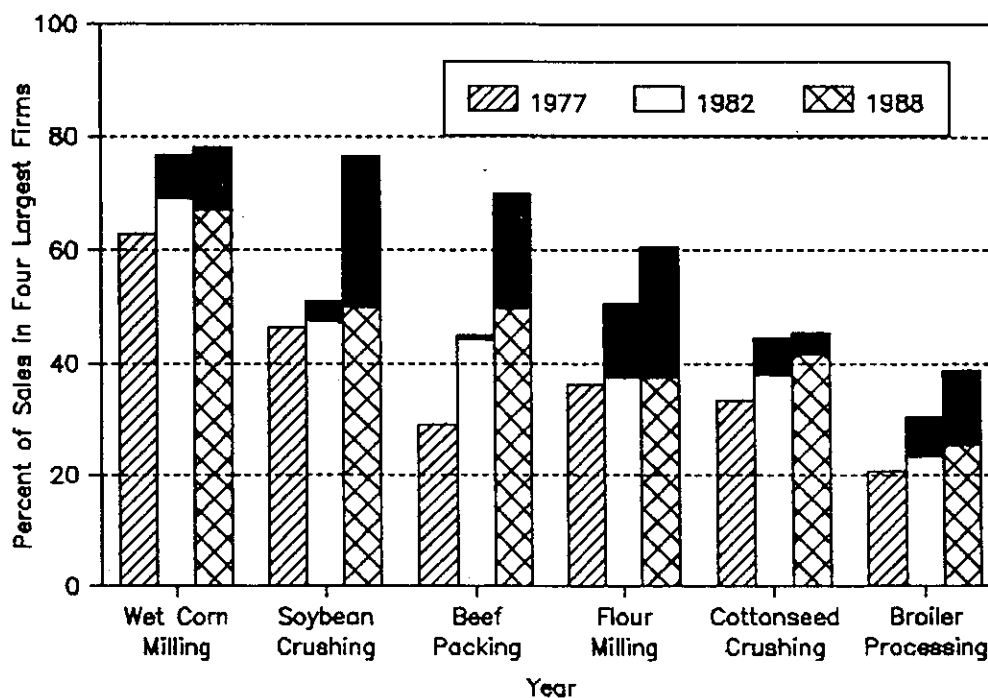
Producer goods and low differentiation consumer industries show a different pattern: concentration was essentially flat in these industries from 1958 to 1977, then increased sharply in 1982 and 1987.

The trends in Figure 24 are important because they indicate that technological requirements and economies of scale are probably not major causes of increasing concentration. Were this the case, we would have expected concentration to increase in producer and low differentiated consumer good industries from 1958 to 1977. Economies of scale and the scale requirements of new technology are expected to be as important in producer goods

industries as they are in highly differentiated consumer goods industries. However, up until 1977, the increases in concentration that occurred appear to have been closely linked to product differentiation activities, especially advertising.

The sharp change in concentration between 1977 and 1987 in the producer good and low differentiated consumer good industries appears to be a direct result of the change in antitrust enforcement during that period. That is the most plausible explanation for the sharp change in trend. To further examine this explanation, we did a case study of six food manufacturing industries. The role of mergers in increasing concentration was estimated. Figure 25 shows the change in concentration that occurred from 1977 to 1988, and the portion attributable to mergers (in black). Mergers were a major cause of increased concentration in most of these industries. Several of these mergers would have been challenged by the antitrust agencies under previous administrations.

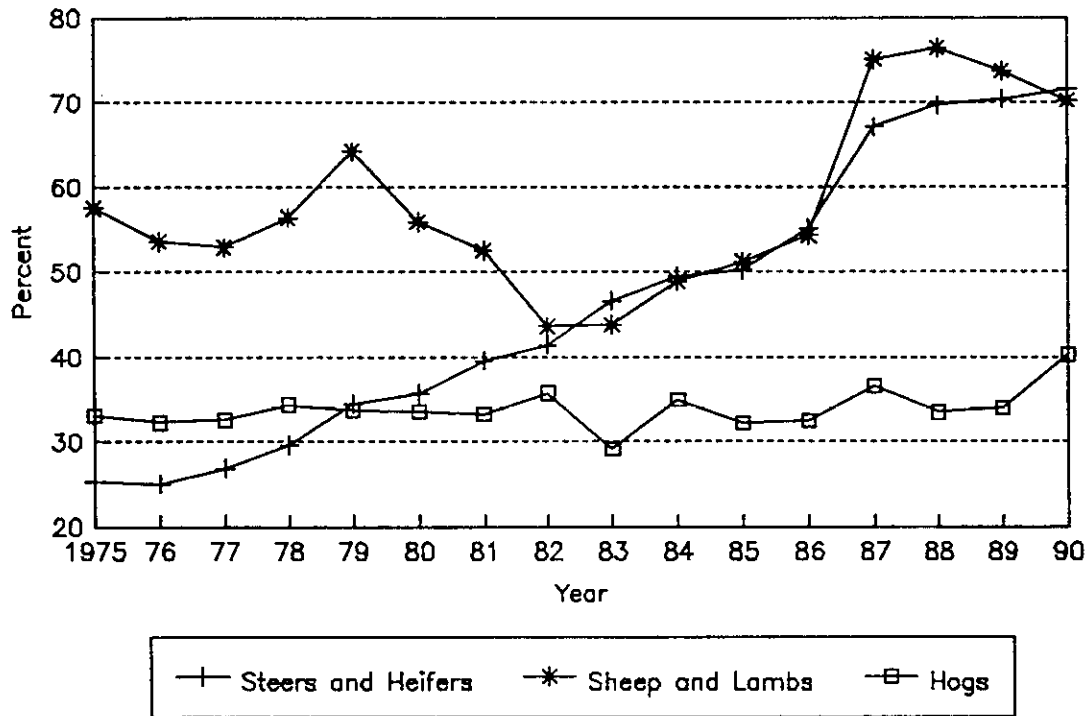
FIGURE 25. CONCENTRATION OF SALES IN SELECTED FOOD MANUFACTURING INDUSTRIES, 1977-1988



Note: Solid Fill Area Is Increase Due To Mergers.

Source: Marion and Kim.

FIGURE 26. NATIONAL MARKET SHARE CONCENTRATION AMONG THE FOUR LARGEST STEER-HEIFER, SHEEP-LAMB, AND HOG SLAUGHTER FIRMS, 1975-1990



Source: Heyneman, 1992, based upon USDA data.

During the period of our analysis fed cattle marketed from commercial feedlots (greater than 1,000 head capacity) grew substantially. In 1971 commercial feedlots accounted for 62 percent of fed cattle marketings in the 13 major cattle feeding states. In 1988, commercial feedlots accounted for 84 percent of fed cattle marketings. These same 13 states accounted for 85 percent and 87 percent of total fed cattle during 1971 and 1988.

The regional procurement markets used in our analysis are shown in Figure 27. Concentration of fed steer and heifer slaughter in regional procurement markets is 20 to 25 points higher than national concentration. The four leading packers in each region, slaughtered, on average, 53 percent of the region's steers and heifers in 1971 and 58 percent by 1978. By 1986, average regional CR4 had mushroomed to 85 percent (special tabulation by

Packers and Stockyards Administration). Mergers in 1987 and 1988 along with plant closures by smaller packers increased regional concentration to 87 percent by 1988.

One of the central questions raised by trends toward increased concentration is how does it affect competition? Does concentration affect the price paid by packers for cattle or the price for which packers sell wholesale beef? Does concentration give packers some degree of market power—the ability to control prices and market entry?

Answering those questions is not easy in an industry in which prices are as volatile as they are in beef. Figure 28 shows variations in live cattle and wholesale beef prices during 1971-87. Average steer prices during this 17-year period ranged from \$32 in 1971 to \$68 per cwt. in 1979 and 1980.

FIGURE 27. GEOGRAPHIC BOUNDARIES OF 14 REGIONAL FED CATTLE MARKETS

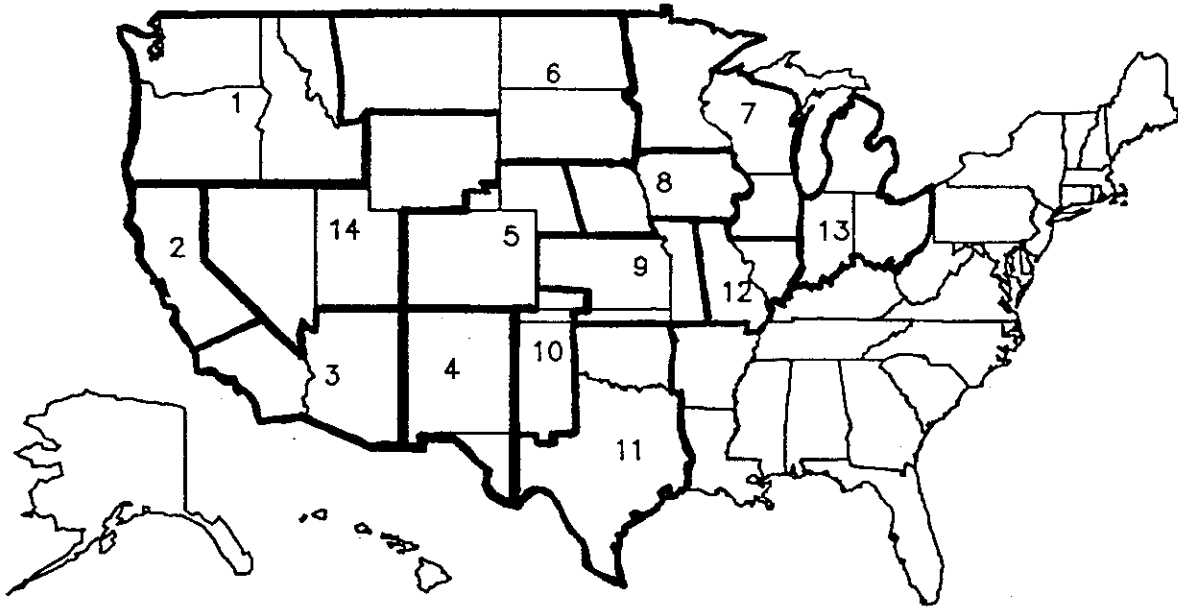
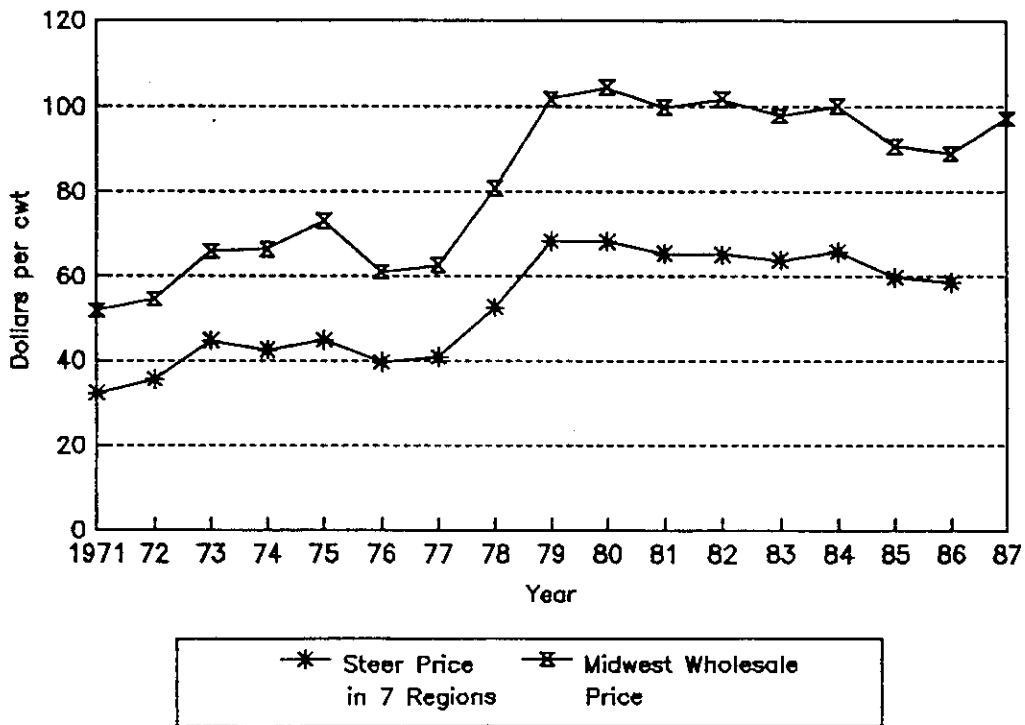


FIGURE 28. ANNUAL LIVE CATTLE PRICES AND MIDWEST WHOLESALE PRICES FOR CHOICE STEER CARCASSES, 1971-1987



Statistical analysis indicated that regional packer concentration had a significant negative effect on live cattle prices. When all else was held constant, a region in which the top four packers slaughtered 50 percent of the fed beef had prices that were roughly \$1.00 per cwt. higher than a region in which the top four packers slaughtered 90 percent of the fed cattle. While this is a significant amount, it is minor when compared to the \$30+ variations in Figure 28. Packer buying power should be of concern to cattle feeders, but it is doubtful that packer buying power has much effect on cattle cycles or shifts in consumer demand—two major influences on price in the 1970s and 1980s.

Concentration of Lamb and Hog Slaughter

Figure 26 also shows the national concentration of lamb and hog slaughter. Lamb slaughter became less concentrated in the early 1980s—but then jumped to a CR4 of 75 in 1987—in part due to the mergers in that year. Unlike beef, lamb is a small volume product (roughly 2 percent the value of beef in 1987). With small volume products, high concentration is sometimes difficult to avoid.

National concentration of hog slaughtering and pork packing has not followed the trend in beef packing—at least not yet. Figure 26 indicates a slight increase in the percent of hogs slaughtered by the top four packers since 1986, but nothing like the changes experienced in cattle and lamb slaughtering. However, IBP and ConAgra both entered hog slaughtering in the early 1980s and now rank number one and two. Concentration of hog slaughtering is expected to increase, though perhaps not to the same extent as in beef packing.

The concentration of hog slaughter in regional markets has increased more than national concentration. Wisconsin hog producers have experienced this first hand. With the closing of the Sara Lee & Jones Dairy Farm plants in 1986 and the Cudahy plant in

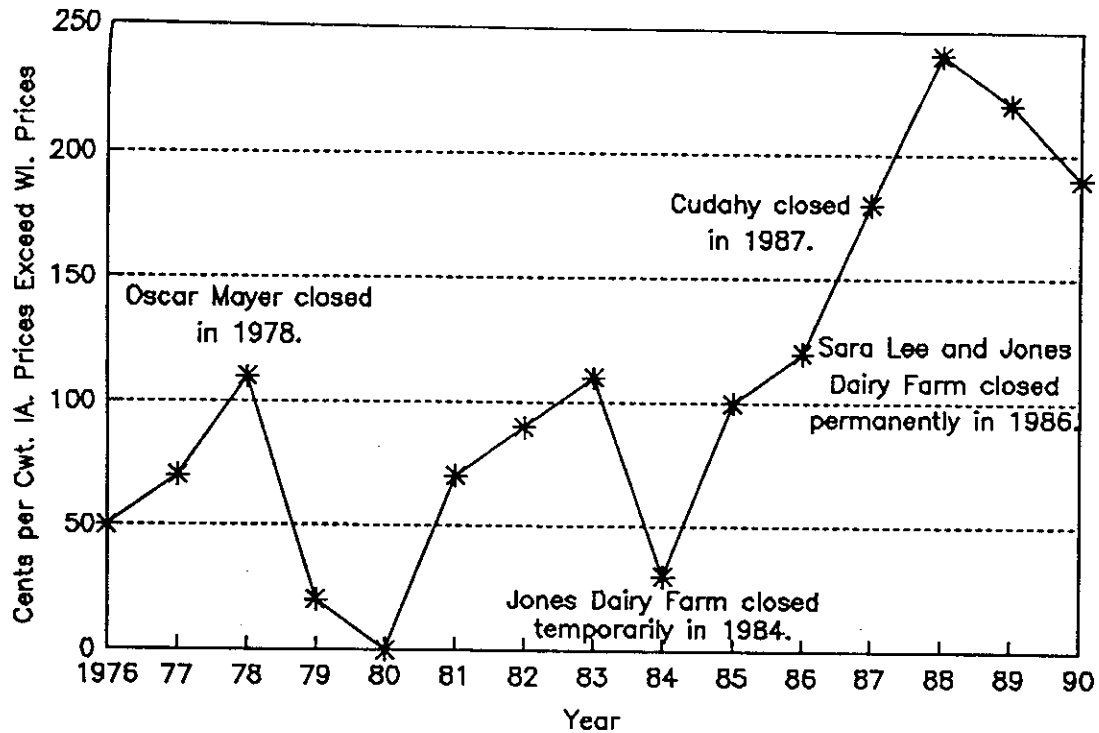
1987, Wisconsin lost its last plants that slaughtered barrows and gilts. The impact on Wisconsin hog prices was not surprising. Relative to Iowa prices, Wisconsin hog prices dropped by \$1 to \$2 per cwt. (Figure 29). Part of this price difference reflects the cost of shipping hogs to Iowa or Illinois plants; part of it appears to be due to the lack of competition in Wisconsin live hog markets.

A University of Wisconsin-Madison study of competition in seven regional hog markets indicated that packer concentration is negatively related to live hog prices (Heyneman). While this is similar to the findings in beef, the effect of concentration in hog markets appears to be greater. All else the same, hog prices during 1977-89 were roughly \$1.40 higher in regions where the top four packers slaughtered 50 percent of the market hogs than in regions where they accounted for 90 percent of the slaughter. In beef, the price difference was about \$1.00. A major difference, however, is that the two largest hog regions, accounting for 70 percent of U.S. hogs, had relatively low concentration of hog slaughter (CR4=52). In contrast, 10 of the 13 regional beef markets had packer CR4 greater than 80.

The bottom line is that competition is more seriously impaired in fed cattle-packer markets than in market hog-packer markets. However, the number and concentration of packer-buyers has an important effect on price in both commodities. In hogs, some of the major markets are still relatively competitive. National consolidation of hog slaughtering will likely follow the pattern in beef packing, although perhaps not as dramatically.

Competitive problems are always relative. When compared to the Eastern European markets, nearly all of our markets perform quite well. However, we tend to judge competition in markets on the basis of what could be. In most live hog and cattle markets, farmers would benefit from greater competition between packer-buyers.

FIGURE 29. PLANT CLOSINGS AND WISCONSIN-IOWA LIVE HOG PRICES



Source: Heyneman, 1992.

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