

Consolidation in U.S. Meatpacking. By James M. MacDonald, Michael E. Ollinger, Kenneth E. Nelson, and Charles R. Handy. Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Agricultural Economic Report No. 785.

Abstract

Meatpacking consolidated rapidly in the last two decades: slaughter plants became much larger, and concentration increased as smaller firms left the industry. We use establishment-based data from the U.S. Census Bureau to describe consolidation and to identify the roles of scale economies and technological change in driving consolidation. Through the 1970's, larger plants paid higher wages, generating a pecuniary scale diseconomy that largely offset the cost advantages that technological scale economies offered large plants. The larger plants' wage premium disappeared in the 1980's, and technological change created larger and more extensive technological scale economies. As a result, large plants realized growing cost advantages over smaller plants, and production shifted to larger plants.

Keywords: Concentration, consolidation, meatpacking, scale economies, structural change.

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Summary

U.S. meatpacking has been transformed in the last two decades. Far fewer meatpackers now slaughter livestock, but their plants are much larger. Consolidation toward larger plants led to sharply increased concentration in cattle slaughter and persistent concerns over the future of competition in that industry. Hog slaughter has also consolidated, with important shifts toward larger plants and increased concentration.

Consolidation in slaughter features three other important elements: changes in plant location, product mix, and labor relations. Consolidation brought geographic changes in slaughter plants, which followed changes in the location of animal feeders. Cattle slaughter shifted to the Great Plains from the Corn Belt, while hog slaughter shifted west within the Corn Belt and from the Corn Belt to the Southeast.

In the early 1970's, cattle plants were usually slaughter-only, shipping carcasses to wholesalers and retailers for processing into retail products. Hog slaughter plants often had extensive processing facilities for production of bacon, hams, and sausages. Today, large cattle plants, and most large hog plants, slaughter and cut up carcasses into smaller cuts for shipment to wholesalers, retailers, and specialized meat processors. Product mix influences costs, and mixes vary widely across plants and over time. Because product mixes are correlated with plant size (larger cattle plants produce almost all boxed beef, for example), their omission in models can lead to biased estimates of scale economies and of the extent of technological change and productivity growth.

Our statistical analysis aims to uncover the causes of consolidation into larger plants, particularly the roles played by technological change and scale economies. Two distinct scale concepts are important: technological scale economies, relating to economies of resource use as plant sizes increase; and pecuniary scale diseconomies, relating to changes in labor compensation as plants grow bigger. We find extensive technological scale economies in hog and in cattle slaughter in 1992, and those scale economies have become more pronounced over time. Scale economies are small—the industry's largest plants can deliver meat to buyers at costs 3-5 percent below those of plants only a quarter as big—but cost advantages extend over the entire range of plant sizes.

Wages rose sharply with plant size in the 1960's and 1970's, and those wage premiums generated a pecuniary scale diseconomy that largely offset the cost effects of technological scale economies. But changes in labor relations accompanied industry consolidation—strikes, plant closings, and deunionization struggles at slaughter plants in the 1980's led to sharp declines in union membership and in average hourly wages. Moreover, the wage distribution narrowed sharply as the large plant wage premium disappeared. Without that pecuniary diseconomy, and with growing technological scale economies, large plants realized growing cost advantages over smaller plants, and production shifted to larger plants.

We argue that slaughter concentration has increased for three reasons: (1) shifts in scale economies provided larger plants with modest cost advantages; (2) aggressive price competition forced prices to quickly move near the costs of the low-cost market participants; and (3) slow demand growth limited the number of efficient large plants in the market. For hogs, scale economies and strong price competition also forced small plants to exit the industry, but modest demand growth has allowed for more plants and lower concentration.