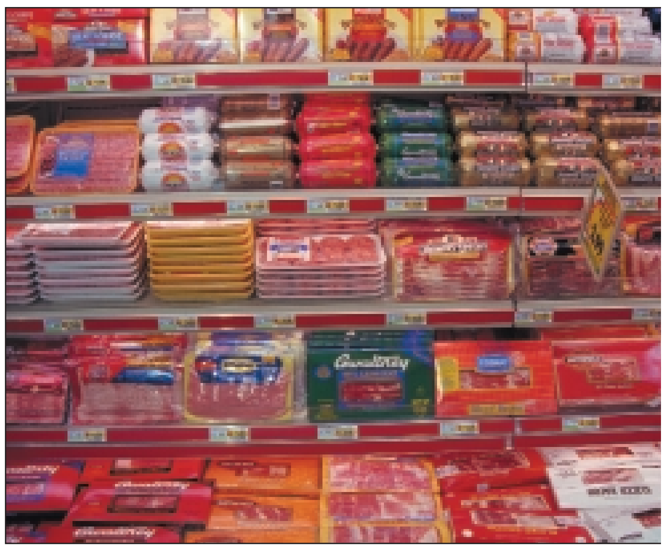
Churning Out the LINKS

Vertical Integration in the Beef and Pork Industries

BY MARVIN HAYENGA, TED SCHROEDER, AND JOHN LAWRENCE



photos courtesy USDA

For the livestock and meat industry, the 1990s were a period of marked vertical integration. By the end of the decade, the use of production contracts, marketing agreements, and other ownership linkages between beef and pork producers and meat packers had provoked such controversy that Congress began to consider legislation to abolish many types of market linkages. We analyze the transition from cash markets in the beef and pork industries, the underlying forces driving the changes, and related issues.

Pork and beef packers have committed up to 40 percent of their output to customers under long-term arrangements. Because of this, at least in part, there are an increasing number of branded, case-ready consumer beef and pork products, along with merchandising programs and greater food safety concerns in both industries. More knowledgeable and demanding customers have raised the bar for raw product quality and consistency of supply.

Traditional spot markets in the pork and beef food chains have failed to offer incentives that provide sufficient high quality and consistency of supply to serve these new and more demanding product-market segments. Market failures, therefore, have driven changes in the relationships between packers and livestock producers — changes which include vertical integration.

Hog Heaven: A Look at the Pork Sector

The scope and prevalence of vertical linkages in the pork industry have changed dramatically in the last decade. Now, increased numbers of marketing contracts link packers with hog producers (Hayenga, et al.). Packers rarely moved into hog production until Smithfield Foods (the largest pork packer) acquired two of the largest hog producers: Murphy Family Farms and Carroll's. Presently, about 18 percent of packer volume comes from either the packers' own or contract producers' facilities.

Packers building plants outside historic production regions had to build hog production facilities or meet the demand for expanded production through contract arrangements. The Smithfield acquisitions kept two large suppliers in business to supply their plants. The acquisitions also give Smithfield the profits or losses from large scale, well managed hog production enterprises, and stabilize cyclical fluctuations of their packing plant profits.

Pork packers now control over 50 percent of total industry marketing contract volume. During the 1990s, the very large production units outside major hog production regions found long-term arrangements essential for financial security. Packers have significant incentives to use capacity fully and control costs. Marketing contracts proved to be a low cost way to stabilize the supply of hogs. Recently, the increasingly stringent quality demands of export customers and their own brand product managers have provided an even greater incentive to assure consistent high quality. Finally, the 1998-99 financial crisis in pork production probably stimulated more pork producers to seek contracts to stabilize their financial situations. As a result, cash market purchases account for fewer than 30 percent of all hogs.

A Look at the Beef Sector

The beef sector is significantly less vertically integrated than the pork sector. Slightly more than one-fourth of slaughter cattle come from long-term contracts and marketing agreements, and packers directly feed another five percent of slaughter cattle. While contract supplies have slowly increased their market share, packer-feeding has been stable for a long time.

Most beef packer feeding is a result of cattle producers (including producer cooperatives) buying packing facilities. Long term contracts between packers and cattle feeders have been used on a small scale for many years, but the number is gradually increasing.

Improved market coordination between cattle feeders and beef packers results in significant cost savings for beef slaughtering and processing. The cost savings have been passed on in part to cattle feeders and consumers. Packers ranked access to high quality and consistency in quality as the most important forces behind marketing agreements. Value-based pricing is becoming more commonplace in long-term fed cattle marketing agreements between beef packers and cattle producers, and is beginning to improve cattle quality. The recent growth of branded beef merchandising programs is likely to lead packers to demand even more long term supply arrangements with producers in order to facilitate the ability to track products through the system and reduce food safety risks.

Meaty Questions for Policy-Makers

In 1998, the USDA estimated that contract arrangements of one form or another were common among all

Can anyone play...: Contract beef production may benefit small producers who are able to identify and occupy favorable and profitable niches where they can specialize and command premium pricing.

photo courtesy USDA

types of U.S. farms, accounting for 35 percent of total farm production. More than two-thirds of this contract volume consisted of marketing contracts, the other third being production contracts. The beef sector is near this 35 percent norm. The pork sector is rapidly moving toward the vertical configuration of the broiler industry, where there is very little independent production.

Recent beef and pork packer surveys (Hayenga, et al.) suggest that food safety and associated liability concerns, the explosion of branded products, and more discriminating customers will lead packers to rely more on long-term linkages with both their customers and their key suppliers — livestock producers. Even though this is likely true, industry members — particularly producers not involved in contracts with packers — have voiced several concerns.

A Voyage of Price Discovery

As more cattle and hogs are sold under contract, a thinner cash market may become problematic. Until volumes sold in the cash markets become extremely small, the prices probably will still reflect supply and demand. Although hog volume in the cash market declines, a large volume is still traded. While the fed cattle cash market volume is proportionately much larger than the cash market for hogs, most transactions occur on one or two days each week, creating some concern regarding the liquidity of the market on other days.

The quality composition of cash market hogs and cattle is likely to change gradually as higher quality livestock are tied up in contracts or are sold using some variation of value-based pricing. Thus, more care may be necessary in the use and interpretation of reported prices; producers will need to focus on prices for specific quality classes to avoid being misled.

More and more formula-priced animals are being sold for prices which are based on sales of fewer and fewer animals in the spot market. To compensate, some formula-based contracts consider prices from other markets such as wholesale meat prices or feed prices.

However, carried to extremes, the rapid growth and success of formula pricing may lead to its demise. Too little transparency in price discovery, preferential treatment of contract producers, and market manipulation were addressed by the mandatory spot and contract price reporting law USDA implemented in 2000. It is not clear how much that law will contribute in addressing these concerns.

Captive Supply: How Many Captives?

The issue of "captive supplies" owned directly or committed by contract to packers has primarily origi-

...or is this the future of beef? Some say the future of the beef industry will mirror the relatively recent history of the poultry industry.

photo courtesy USDA

nated from cattle feeders, despite the fact that the cash market for fed cattle is clearly dominant. Evidence suggests that cash market prices are slightly lower when the volume of captive cattle being slaughtered is high. Although the precise reason for this price effect has not been determined, it is probably partly attributable to cattle quality differences and contract cattle feeders (not packers) adjusting contract deliveries to benefit from short term price changes (Schroeter and Azzam; Hayenga et al.).

Independent producers face the decision of linking with packers to capture part of the benefits of those vertical linkages...or being residual suppliers inherently bearing more risk in an increasingly thin market.

Undue Preference… Or Recognition of Value?

Prices received by contract suppliers often differ significantly from cash market prices. This should not be surprising as contracts offered by packers change in response to needs, market conditions and competitor behavior. Quality and transaction cost differences between cash market and contract animals may explain some or all of the differences observed. Some contracts, which offer a smoother short-term cash flow to producers, have provisions requiring that short-term gains and losses stemming from comparisons with cash market prices balance out.

Concern that packers held undue preference for contract suppliers spurred the USDA to file suit against one beef packer-cattle feeding group contract arrangement (Palmer, USA v. IBP, 1997). The courts found that the agreement was not in violation of the law — that the higher prices paid to contract suppliers were reasonable and justified by the added value received (greater capacity utilization, ability to buy only high quality animals, having first option on all cattle from certain suppliers, etc.).

Market Access : Depends on the Market

Cattle feeders have little cause for concern regarding market access. Most of what beef packers buy consists of cash market purchases. However, access to markets for independent hog producers is becoming limited. This is especially true outside the Midwest, where a very high proportion of hogs produced are owned by or contracted to packers under long term arrangements. In the Midwest — where a high proportion of the nation's hogs are still raised — there is no real problem with market access except when slaughter capacity is reached, as occurred in 1998. Independent producers face the decision of linking with packers to capture part of the benefits of those vertical linkages (perhaps via farmer cooperative plants, marketing groups, or contracts with current packers), or being residual suppliers inherently bearing more risk in an increasingly thin market.

Can Independent Operators Compete?

Some in the pork sector express concern regarding the ability of independent operators to compete against ventures that are vertically linked by ownership or long term contract. A survey of packers suggested that packers linked to producers did not produce hogs at lower cost than independent producers. However, customer demand and merchandising programs, reduced quality and quantity risk, and related operating economies from tighter coordination may give vertically linked businesses a significant competitive advantage. This competitive advantage may be essential for the U.S. to compete with competitors like Denmark and Canada in key Southeast Asian export markets.

Implications: Taking Stock of the Livestock Industry

The beef and pork sectors are changing as they respond to new economic imperatives driving industry organization. This is stressful for many industry participants as they ponder their best competitive strategy. In the pork sector, the changes envisioned over 30 years ago ("Will the pork industry become another broiler industry?") have only recently become reality as spot market volume declined rapidly when displaced by contract links and vertical integration. The beef sector has been much slower to change, but the expected introduction of large volume branded merchandising programs and the need for traceability through the value chain are likely to speed the beef sector's evolution toward tighter coordination.

What are the pros and cons of relying less on the cash market? Producers, packers, and meat merchandisers involved in tighter linkages generally benefit. The industries become more effective competitors that serve consumers more effectively. These forces are likely to be stronger in the future.

But concerns about the effects of vertical arrangements continue. Are these concerns sufficiently important and supported by fact? The debate will focus on the comparative importance of these perceived problems and their consequences, versus the benefits from the vertical linkages in the beef and pork industries. What would we give up, and what would we gain through abolishing these tighter linkages? Who would win and who would lose? A continuing examination of and discussion on the consequences of the changing pricing and coordination system in these industries is worthwhile to assure both well-informed policy development and strategic planning.

Get along, little vertical integrator: Producers without contract relationships will bear increased economic risk to go along with substantial production risk

photo courtesy USDA

For More Information

Barkley, A.P. and T.C. Schroeder. "Long-Run Impacts of Captive Supplies." In *Role of Captive Supplies in Beef Packing,* pp. 1-51. Pub. No. GIPSA-RR 96-3, USDA/Grain Inspection, Packers and Stockyards Administration, Washington DC, May 1996.

Hayenga, Marvin L., et al. *Meat Packer Vertical Integration and Contract Linkages in the Beef and Pork Industries: An Economic Perspective,* May 22, 2000, American Meat Institute, Arlington, VA. http://www.meatami.org/indstructure_6700.pdf

Lawrence, John , Glenn Grimes, and Marvin Hayenga. "Production and Marketing Characteristics of U.S. Hog Producers." Department of Economics Staff Paper 311, Iowa State University. December, 1998. http://agecon.lib.umn.edu/isu/isu311.pdf

Lawrence, John D., V.J. Rhodes, G. A. Grimes, and Marvin L. Hayenga, "Vertical Coordination in the U.S. Pork Industry: Status, Motivations, and Expectations." *Agribusiness: An International Journal* 13, no. 1, (January-February, 1997): 21-32.

Palmer, Victor W., *In re IBP, Inc.,* Decision and Order, P&S Docket No. D-95-49, USDA, September 25, 1997.

Schroeter, J.R. and A. Azzam; "Econometric Analysis of Fed Cattle Procurement in the Texas Panhandle." USDA, Grain Inspection, Packers and Stockyards Administration. November 1999. http://www.usda.gov/gipsa.

Ward, C.E., S.R. Koontz, and T.C. Schroeder. "Impacts from Captive Supplies on Fed Cattle Transaction Prices." *Journal of Agricultural and Resource Economics* 23 (December 1998): 494-514.

Marvin Hayenga is professor in the Department of Economics at Iowa State University. Ted Schroeder (not pictured) is professor of agricultural economics at Kansas State University. John Lawrence is an associate professor in the department of economics at Iowa State University.

This paper is extracted from a much longer report (Hayenga, et al., 2000) which was supported financially by the American Meat Institute. See that paper for more in-depth discussion and more extensive references.