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Pork Quality and the Role of Market Organization

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Abstract

This study addresses changes in the organization of the U.S. pork industry, most notably marketing contracts between packers and producers, by exploring their function in addressing pork quality concerns. A number of developments brought quality concerns to the forefront. These include health concerns and corresponding preferences for lean pork, a decline in other quality attributes, heightened concerns over food safety and related regulatory programs, and expansion into global markets. Organizational arrangements can facilitate industry efforts to address pork quality needs by reducing measuring costs, controlling quality attributes that are difficult to measure, facilitating adaptations to changing quality standards, and reducing transaction costs associated with relationship-specific investments in branding programs.

Keywords: Contracts, transaction costs, measuring technology, measuring costs, pork, quality, leanness, safety, carcass pricing, vertical integration.

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Summary

In the U.S. pork industry, hogs sold through marketing contracts account for approximately 69 percent of total hog sales, compared with 11 percent in 1993. The rapid growth in marketing contracts corresponds to several developments that brought pork quality concerns to the forefront. This suggests possible contract advantages related to changes in quality emphasis.

In the 1990s, several events combined to heighten interest in U.S. pork quality. In response to health concerns related to fat and cholesterol, packer adoption of advanced measuring technology and substitution of live hog grading with carcass pricing grids provided strong incentives for leaner hogs. At the same time, a pork quality condition, referred to as pale, soft, exudative (PSE), was associated with the Porcine Stress Syndrome gene (stress gene), carried by some of the leaner genetic lines. This condition led to pork with poor processing qualities, less attractive appearance to consumers, and a tougher/dryer cooked product. As hogs became leaner, they became more susceptible to producing PSE pork.

Meat safety also gained increasing attention in response to several major meat recalls due to pathogen content. In 1996, mandated use of a new regulatory program for meat and poultry, referred to as Hazard Analysis and Critical Control Point (HACCP), reflected a growing interest in preventing and controlling food hazards before reaching the consumer.

PSE and safety concerns were further ingrained by U.S. efforts to expand globally. In the 1990s, the United States experienced unprecedented growth in pork exports, supported by the passage of free trade agreements. Considerable headway was made into the Japanese market, the leading U.S. export customer, where quality concerns are especially important.

Growing interest in improving pork quality likely increased the importance of measuring and sorting costs associated with hog quality attributes and price determination. Adoption of carcass pricing programs, which vary by packer, may have increased producer costs associated with evaluating alternative packer bids. Carcass grading programs with more narrowly defined quality groupings also likely raised packer costs of sorting and pricing hogs. Efforts to reduce these costs provided impetus for packers and producers to enter into long-term contracts with minimum hog volume delivery requirements. Long-term agreements with packers allow producers to reduce the number of times that alternative packer pricing programs must be evaluated. Also, large numbers of uniform hogs produced under similar production conditions allow packers to reduce the costs of measuring and sorting hogs into narrower quality groupings.

Packer costs of measuring PSE pork and food safety attributes are significant, which provided additional impetus for contract adoption. In particular, a strong link between hog production inputs, PSE, and safety attributes suggests that contracts that specify and monitor production activities can reduce these measuring costs. For example, genetic selection and proper handling procedures to reduce hog stress can reduce the incidence of PSE pork.

Analysis of a small sample of marketing contracts offered in the Midwest between 1996 and 2001 provides some additional insight into recent hog marketing contracts. Most of these contracts rely on formula pricing, adjusted by a carcass pricing grid, and give the packer some control over production inputs. Rather than detailed input requirements, however, many contract provisions express packer expectations for adjusting producer inputs, or plans for working together to determine input specifications. Such "relational" terms likely facilitate adaptations to changing pork quality needs as companies establish branding programs, expand internationally, and respond to changing food safety standards.

To the extent that packers become dissatisfied with the quality and consistency of hogs obtained through carcass pricing programs, they may chose to own or work with genetic companies. Packer branding programs that rely on a particular type of genetics products may lead to further changes in the organization of pork markets. Packers may craft more complex marketing contracts to protect their investments or own and raise their own hogs (i.e., vertical integration). In addition to marketing contracts, a host of other organizational arrangements that blend elements of both spot markets and vertical integration may be used, including packer-owned hogs that are raised using production contracts. Such "hybrid" arrangements may offer advantages in adapting to uncertain market conditions, providing incentives for efficient resource use, and facilitating coordination through control devices, such as monitoring.