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The impact of increased market concentration in the agriculture sector is an issue that has been the focus of much research, discussion, and government regulation over the past century. The traditional model of agricultural markets, where many sellers interact with many buyers via a public price discovery mechanism such as a livestock saleyard or wool auction, and no single market participant has what could be described as market power, has often been supplanted by markets that have a small number of dominant buyers, and which do not have a transparent price discovery mechanism. These market structures result in an increased risk of anti-competitive behaviour, and governments have on occasions implemented regulations that aim to prevent this behaviour occurring.

At the same time, it needs to be recognised that large and well-resourced corporations have the capacity to deliver goods and services more efficiently than small organisations, are more likely to be able to invest in research and development (R&D), and have the capital required to successfully compete in global markets which are often beyond the reach of smaller organisations.

Finding the right balance between markets that are highly concentrated, and markets that exhibit healthy competition, is an enduring challenge that confronts agricultural policy-makers, and is the topic of the three papers included in this edition of the *Farm Policy Journal*.

The first paper, by Tina Saitone and Richard Sexton, takes a broad look at the issues by

considering the impacts of concentration through the entire United States (US) food chain right through to consumers.

The paper first discusses the various different theoretical approaches that have been used by researchers in order to better understand the impact of food system concentration on prices and margins throughout the US food system. Earlier theories focused on structural issues such as the number and size distribution of buyers and sellers, the extent of product differentiation and the barriers to market entry. The assumption was that structure determined market conduct, including prices, output and product characteristics. Using this framework, it was estimated that oligopolistic market structures resulted in consumers paying between 6–10% higher prices than would be the case in a more competitively-structured market. Subsequent theoretical approaches which focused on analyses of buyer's and seller's market power through vertical supply chains found much smaller departures from 'competitive' outcomes, and concluded that the efficiency gains arising from consolidation outweighed the small consumer price increases that typically occurred.

Leaving aside discussions about theoretical approaches, the paper then looks at empirical evidence of changes that have occurred in US food markets. The authors report that, at a national level, concentration measures indicate only modest increases occurred between 2007 and 2012, although they stress that many farm produce procurement and consumer food markets are geographically limited rather than national, rendering national statistics of limited value. They also note that the continuing decline in the significance of expenditure on food as a proportion of household budgets, combined with very comprehensive food aid programs operated by US governments, has meant there has been declining focus on consumer impacts and a refocusing on farmer impacts arising from concentrated food markets.

The paper then analyses the impact of market structures on farm returns, with a particular focus on the role of contracts and vertical coordination. The authors note that 35% of the total value of US farm product sales occurs via

contract, with contracts being the dominant market channel for virtually all livestock and horticultural products. The authors conclude that the vertical coordination facilitated by contracting can be beneficial to farmers as well as enhance food system efficiency, and that laws to limit or regulate vertical coordination may in fact disadvantage both farmers and consumers. This conclusion is not universal to all markets, and the authors note that small farms in particular may be disadvantaged by such market arrangements.

The second paper, by James MacDonald, examines concentration and competition in the US food system, using the US dairy industry as a case study, before considering the US agriculture sector more broadly. The paper reports that US dairy farm numbers have declined by 70%, and herd sizes have increased almost six-fold over the past 25 years, while milk production has moved from the north-east to the west, and much of the pasture-based production has been replaced by feed-based production.

Similar consolidation has occurred in other US farm commodity sectors, with the exception of the beef cattle breeding sector. MacDonald considers that technology has likely played the major role in enabling this consolidation, irrespective of the effect of government farm support programs.

The paper discusses similar consolidation which has occurred in US agribusiness, and what available research indicates are the effects of that consolidation on prices and innovation. While the evidence is not unequivocal, there are strong indications that horizontal mergers between competing firms frequently resulted in substantial price increases for consumers. On the question of the effect of mergers on research and development investment and subsequent innovation by agribusiness companies, the evidence is much less clear, according to MacDonald. He notes that the links between concentration, R&D investment and innovation are quite complex. In some cases, R&D investment increases post-merger, while in other less competitive markets it decreases.

The final paper examines these same issues in Australian agricultural markets, albeit noting that distinct weaknesses in the availability of relevant

statistics in Australia severely limit the extent to which these issues can be analysed in an objective manner. Unlike the US, Australian agricultural markets were relatively highly regulated prior to the competition reforms of the 1990s, but have been substantially deregulated since that time. The level of concentration of various farm input and output markets has generally increased over the past two decades, although there is only limited empirical data available, and only for limited subsectors.

The extent to which the market structure changes over the past 20 years have disadvantaged farmers is difficult to determine. In general terms, farm profitability and terms of trade have improved over the past five years, and the real value of farm output has also increased, suggesting that the efficiency gains arising from more concentrated pre- and post-farm markets have at least in part been transferred to farmers in the form of increased prices.

The paper then examines recent changes to competition laws in Australia and the implications these may have for agricultural markets, before turning to the potential impact that the digital farming revolution may have in relation to competition in the future. Digital farming systems have the potential to facilitate increases in farm productivity, but also to lock farmers in to particular technology brands and production systems, thereby having anti-competitive effects. Developing future strategies and policies to successfully manage both the opportunities and challenges arising from these developments will be a major challenge.

A conclusion available from all three papers is the need to be wary of broad-ranging or simplistic conclusions about either the benefits or the costs of market consolidation in agriculture. Close analysis of each particular market is required to fully understand potential impacts, and the digital revolution provides opportunities to conduct such analysis in a cost-efficient manner.

