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Grocery Retailers' Dominant Role in Evolving World Food Markets

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The major structural changes influencing world agricultural markets include increasing consolidation and market domination by large processing, trading, and retailing firms, disappearance of traditional auction or spot markets for exchange of farm products and their replacement by various forms of contracts and vertical control, and a growing emphasis on product differentiation and increasingly broad dimensions of product and selling-firm quality. None of these changes is consistent with the tenets of traditional models of competitive agricultural markets.

Despite consolidation throughout the food market system, grocery retailers, oftentimes with international scope, have emerged as the dominant players in the food chain in most parts of the world. These retailers through marketing contracts exercise considerable vertical market control over upstream suppliers in terms of varieties produced, inputs utilized, production schedules, etc. Yet we know little about grocery retailer pricing and promotion strategies or how these strategies affect both the level and variability of prices at the farm level. This paper describes these key trends and their implications for farmer welfare and the analysis of agricultural markets.

Key Forces Shaping World Agricultural Markets

Rising Concentration and Consolidation Worldwide

The food industry is highly concentrated in most developed countries at both the retail and processing stages, and concentration is rising over time (Sexton, 2000; Kaufman, 2000; Rogers, 2001; Dobson, Waterson, and Davies, 2003). Mergers and acquisitions have been a major factor contributing to increasing concentration. However, ability to track these trends has been diminished by reduced data collection at national levels, so in many cases the most recent statistics are quite dated.

Concentration in food retailing has risen rapidly in developing countries due to the supermarket revolution that began in the larger cities of richer Latin American countries and then quickly spread to smaller cities and poorer countries on the continent. By 2000, the supermarket share of retail sales in Latin America was in the range of 50-60%, only slightly less than the 70-80% share attained in the United States over several decades. East and Southeast Asia experienced a similar diffusion, although beginning several years later than in Latin America. Africa is the most recent front in the global development of retail chains, with South Africa at the forefront, where Reardon et al. (2003) reported a 55% supermarket share of all retail food sales. Particularly noteworthy from the perspective of power in the global food market is that much of this growth has been accomplished by the large, international grocery chains, in particular, Wal-Mart, Carrefour, and Royal Ahold, although smaller multinationals and regional chains have also played a key role (Reardon et al., 2003).

Increasing Emphasis on Many Dimensions of Product and Firm Quality

The term “quality” can refer to many dimensions of a food product including traditional attributes such as taste, appearance, convenience, brand appeal, and healthfulness, but also to broader dimensions such as characteristics of the production process—usage of chemicals,

sustainability, physical location, or confinement conditions of animals—and implications of production and consumption of the product for the environment.

Product quality in all of its dimensions is critical in modern food markets. Numerous studies have documented consumers' willingness to pay premiums for food products that satisfy the quality dimensions that are important to them. Most of these studies are focused on developed-country consumers, but, given the emergence of high-value export chains in developing countries, the issues resonate there as well. Given the great heterogeneity among consumers in what food product attributes matter to them, considerable opportunities exist for product differentiation and exploitation of market niches.

Of course, most firms do not sell directly to consumers, but instead sell to market intermediaries who transmit information regarding consumer demands upstream toward producers and also introduce additional considerations relating to their own preferences. As downstream buyers, especially retailers, have become increasingly powerful, transactions in the food sector have become more complex, involving more than the mere transfer of a food product. Thus, a second dimension of "quality" pertaining to the attributes of the firm producing and/or marketing the product has come to matter in modern, vertically coordinated market chains in terms of the firm's abilities to satisfy the characteristics in a supplier sought by downstream buyers. These include ability to provide product reliably year around and in volumes necessary to meet demand; provide ancillary services, such as category management, third-party product-safety certification, and electronic data interchange; and supply products across a category of food items.

The ability to meet many of the characteristics sought by grocery retailers relates at least indirectly to size or scale of the seller, a fact which helps to explain the steady trend towards

increasing firm size and concentration in the food marketing sector. However, when the desired quality characteristics of the food products themselves are considered, opportunities are created for well-positioned, small firms to exploit market niches.

Vertical Coordination and Control

Vertical coordination and control and the use of production and marketing contracts is difficult to measure in a quantitative way because the extent of vertical relationships exists on a continuum, ranging from essentially none in open-market transactions to complete control in the case of vertical integration. Although contracts have been widely used in agriculture for a long time, their incidence is increasing and extending to the developing world and, further, the amount of control exercised is increasing, in large part due to the market's increasing demand for multifaceted product quality.

Contracts are a device to surmount the information problems that can lead to lower product quality. By actually controlling use of key inputs, including their application, downstream firms prevent problems from misalignment of incentives that could otherwise diminish product quality and increase food safety issues. Contracts can also specify quality standards and thereby address adverse selection problems that might be caused by failure of the open market to adequately recognize and reward quality.

Thus, there is little doubt that contract production can improve market efficiency and align production with the demands of the market for particular quality attributes. Contracts, however, may also be a device to consolidate buyer market power, and they may result in the exclusion of the smallest producers, leading to further consolidation at the farm sector.

This latter issue is especially important in developing countries and is a topic of considerable debate and on-going research. Concomitant with the development of high-value

export chains in these countries is the upsurge of contract production to insure the quality attributes desired by consumers in the European Union (EU) and United States. Is the growth of these markets providing opportunities to improve smallholder welfare, or does contract production and vertical integration by exporters cause the smallest and poorest farmers to be excluded?

Grocery Retailer Power and Farmer Welfare

High concentration among food retailers raises legitimate concerns about retailers' ability to influence prices charged to consumers through exercise of oligopoly power by a few dominant sellers, and prices paid to suppliers through exertion of oligopsony power by a few dominant buyers. Consumers are distributed geographically and incur nontrivial transaction costs in traveling to and from stores. The relevant geographic markets for assessing retailer market power are local in scope, making grocery retailing a "natural oligopoly" in the words of Ellickson (2007). Further, as grocery stores become larger in both their physical dimensions and the number of products they carry, there will be fewer of them in a given geographical area, exacerbating the spatial oligopoly aspect. Retailer oligopoly power is also likely to be an important consideration in developing countries due to the generally poor transportation infrastructure, and, hence, high transportation costs, that exist in these locations.

Of course, an argument can be made that consumers benefit on net from the food-retailing revolution due to lower prices caused by economies of size and scope generated by large chains and by the access they offer to a vast array of products. The best empirical evidence on this point is several studies that show Wal-Mart sets prices lower than conventional retailers, and, moreover, induces a "yardstick of competition" effect by causing conventional supermarkets who compete in close proximity to Wal-Mart to charge lower prices.

On the procurement side, large food manufacturers with prominent brands may be able to countervail retailer buying power, but grower-shippers when they sell directly to retailers and also private-label manufacturers lack similar bargaining power. The imbalance of bargaining power is exacerbated in industries where the farm product is highly perishable because grower-shippers cannot access outside selling opportunities or defer sale through storage in hopes of attracting a better price. High transportation costs relative to product value for many commodities mean that procurement markets are local or regional in geographic scope, making market definition a critical component of any analysis of oligopsony power in food markets.

What are the consequences of retailer market power for the welfare of farmers? A first basic point is that either oligopoly power or oligopsony power is detrimental to farmers because either causes diminished sales of the farm product, and, since farm price in all cases is determined at the intersection of total sales volume with the farm supply curve, any sales-reducing market power reduces farm price along a normal upward-sloping supply curve.

However, things are more complex than this simple analysis would suggest due to the ways in which modern retailers set their prices. I present three observations about grocery retailer pricing and the link between prices at farm and retail. Empirical support for these observations abounds, but is mainly based on analysis of retailing data for the United States and EU and is summarized in Sexton, Zhang and Chalfant (2003) and Li, Sexton, and Xia (2006). Jointly these factors cause the farm and retail prices nowadays to bear little relationship even for basic produce commodities, so a traditional model specifying retail price as a simple mark-up function of the farm price has almost no predictive power.

- Observation 1: Prices across retailers in a given city or region for a given commodity exhibit wide dispersion and low correlation.

- *Observation 2*: Retail price changes are at most loosely related to price changes for the farm commodity, and thus acquisition costs play a comparatively minor role in the retail pricing decision.
- *Observation 3*: Transmission of farm price changes to retail is (a) delayed, (b) incomplete, and (c) asymmetric.

Table 1. Shipping-Point and Retail Price Correlations for California Hass Avocados—Los Angeles-Area Chains

	LA-1-L	**LA-1-S**	**LA-2-L**	**LA-2-S**	**LA-3-L**	**LA-3-S**	**LA-4-L**	**LA-5-L**	**LA-5-S**
LA1-L	1								
LA1-S	0.53	1							
LA2-L	0.31	0.16	1						
LA2-S	0.09	0.11	0.19	1					
LA3-L	0.12	0.32	0.16	0.01	1				
LA3-S	-0.09	0.3	0.04	0.35	0.33	1			
LA4-L	-0.2	0.32	0.43	0.09	0.17	-0.05	1		
LA5-L	0.51	0.55	0.31	0.24	0.22	0.38	0.34	1	
LA5-S	0.31	-0.15	0.23	0.02	0.08	-0.26	0.25	0.04	1
Shipping-L	0.13	0.27	0.13	0.34	0.14	0.13	0.36	0.35	0.32
Shipping-L-1	0.16	0.29	0.15	0.33	0.17	0.15	0.34	0.35	0.31
Shipping-S	0.28	0.35	0.26	0.45	0.1	0.16	0.4	0.43	0.35
Shipping-S-1	0.28	0.38	0.27	0.48	0.12	0.18	0.34	0.44	0.33

Notes: LAi-L (LAi-S) denotes large (small) avocados sold at retail chain i (i = 1,…,5) in Los Angeles; shipping-L and shipping-L-1 denote contemporaneous and one-week lagged shipping-point prices for large avocados shipped to Los Angeles, respectively.

An illustration of observations 1 and 2 is provided in table 1 for Los Angeles area grocery chains for Hass avocados. The example is chosen because the Hass avocado is a primary agricultural product that is produced in close proximity to Los Angeles and undergoes little "processing" in moving from farm to retail, meaning that factors intervening between the farm and retail price are relatively limited. Yet we see that the correlations of prices among the Los Angeles retailers are very low and in some cases negative, as are the correlations between the shipping-point price for Los Angeles area shipments and the various retail prices.

A model of competitive food retailers and simple, cost-based margins cannot explain any of these outcomes. Under perfect competition product prices for stores within a city should be highly correlated with each other and also with the price for the farm commodity. Under competitive retailing, price changes at the farm transmit fully and quickly, based upon shipping time, to retail.

However, these observations are also mostly inconsistent with traditional models of market power and single-product sellers. Without question a key but little understood factor in grocery retailer pricing and marketing strategies is the multiproduct nature of food retailing. Modern U.S. supermarkets supply 40,000 or more distinct product codes and use a variety of strategies to differentiate themselves from their competitors.

Models of unilateral seller market power can explain retail prices that respond only partially, or in extreme cases not at all, to changes in price at the farm level. Partial absorption of a farm price increase can represent the outcome of balancing the marginal impact of a lower profit per unit from not fully transmitting the cost shock with lower profit from reduced sales if the cost shock is transmitted fully.

Price rigidity can also be explained by repricing or menu costs within a competitive market framework, or by some retailers' use of everyday-low-pricing as an overarching marketing strategy in a differentiated oligopoly framework. However, menu and other costs associated with adjusting prices should cause prices to not change at all in response to minor shocks and to adjust fully to major shocks. The empirical evidence showing partial adjustment to shocks in the farm price is consistent with a market-power model, but not an adjustment-cost model.

How Does Retailers' Pricing Behavior Affect the Farm Product Market?

Retailer market power, by reducing purchases and sales, causes lower prices at the farm gate. However, retail prices that adjust only partially, or not at all, to shocks in the farm market are also harmful to farmers, tending to reduce average farm income and increase its variability. The fundamental point is that, if some share of the final sellers of a commodity stabilize price relative to market conditions and thus only partially transmit farm price changes or pursue pricing policies unrelated to market conditions at the farm level, then final price must fluctuate more widely for all other sellers, in order for the market to clear. Marginal revenues are, thus, not equated across the alternative outlets selling the farm product, decreasing total revenue available from a given level of production. In addition to the potential farm income loss, retailers' pricing strategies increase the volatility and riskiness of farm income compared to the baseline mark-up pricing case, further reducing the welfare of risk-averse farmers.

Implications for Agricultural Market Analysis

Are our traditional competitive models of agricultural markets capable of usefully analyzing modern markets and the forces discussed in this paper? The conclusion based upon my work in recent years, conducted jointly with various colleagues and current and former students, is that for many important questions even modest departures from perfect competition, such as the presence of relatively weak oligopoly or oligopsony power, are sufficient to lead analysis based upon the competitive model to severely biased conclusions.

Some summary observations are as follows:

- Efficiency losses from modest departures from competition in the food-marketing sector are minor (Sexton, 2000). This point is well known, and can be seen intuitively by visualizing the basic deadweight loss triangle—the economic loss from failure to produce

and consume the economically efficient amount. For a small departure from competition, this triangle is small—in the limit infinitesimally small.

- The deadweight loss increases at an increasing rate, so if market power is severe or is exercised at multiple stages along the market chain (Sexton et al. 2007), deadweight losses become large and consequential, approaching upwards of 25% of the total market surplus—benefit from consuming the product over and above the costs of producing it—that would be available under perfect competition.
- The efficiency consequences of oligopoly power are relatively greater than the consequences of oligopsony power for a given level of market power, other factors constant. Oligopsony power matters to market efficiency only to the extent that the farm input matters as a factor in producing the final product. In the United States for example, the aggregate farm share as a fraction of the food retail dollar is now less than 20%, making oligopsony power quite inconsequential as a source of overall economic inefficiency.
- The distributional consequences of market power are much greater than the pure efficiency consequences. The profits earned by the marketing sector represent a rectangle with height equal to the retail price minus farm price and marketing costs and width equal to the market output. Any market power that causes output to decrease even slightly raises price to consumers and reduces price to farmers, expanding the height of the entire rectangle and generating concomitant reductions in consumer and producer surplus. This point is of considerable importance because much of our market analysis is policy oriented, with specific policies designed to help farmers and oftentimes also poor consumers.

- Market intermediaries with even rather modest amounts of market power can capture large shares of the benefits from policies intended to benefit farmers. Sexton et al. (2007) demonstrate this point for tariff reductions by developed countries, considered a key strategy to improve developing country welfare. Downstream entities with market power, such as trading companies and retailers, were shown to capture the lion's share of the benefits from tariff reduction, especially when both oligopoly and oligopsony power were exercised or if market power were exercised at successive stages in the market chain.
- Farmer investment decisions are distorted by the presence of market power. Production decisions are of course distorted by market power, but this distortion will be small for modest levels of market power. However, it is the much larger distributional consequences of market power that influence incentives to invest because downstream market intermediaries with market power will capture a large share of the benefits of such investments.
- Accepted "wisdom" regarding agricultural policies based upon analysis of competitive markets may not be true for imperfectly competitive markets. One example is the commonly perceived pro-development impacts of trade liberalization already discussed. Another regards decoupled agricultural income support programs, which need not improve welfare relative to price floor or deficiency payment programs when downstream markets are imperfectly competitive (Russo, 2008). By fixing a minimum farm price outside of the market process these policies restrict downstream buyers' ability to exert oligopsony power. Thus, coupled support policies can, depending upon where minimum support prices are set, have a precompetitive and welfare-enhancing effect that is usually not considered when evaluating alternative policies.

The Bottom Line

Agricultural markets throughout the world have undergone a rather dramatic transformation marked by consolidation and market domination by large processing, trading, and retailing firms, disappearance of traditional auction or spot markets for exchange of farm products and their replacement by various forms of contracts and vertical control, and a growing emphasis on product differentiation and increasingly broad dimensions of product and firm quality.

Large international grocery retail chains have emerged through this process as the dominant players in the food system. Despite their unquestionably important role in the food system, we know rather little about retailers' behavior in terms of choices of products and brands carried, pricing strategies, and strategies concerning sales and promotions. Although consumers likely have benefitted from cost-reducing efficiencies introduced into the market chain and the entry of discount retailers, the impact on producers, especially small-scale producers, is probably less favorable. There is little evidence that the efficiencies generated by streamlining and coordinating food marketing through vertical control have contributed to higher prices at the farm level, as would be predicted in a competitive model of a vertical market chain.

For More Information

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