



UPDATE

Agricultural and Resource Economics

Vol. 5 No. 5

MAY/JUNE 2002

Grocery Retailer Pricing and Its Effects on Producers: Evidence for California Fresh Produce

by

Richard J. Sexton, James A. Chalfant, Humei Wang and Mingxia Zhang

Retailers are becoming the dominant players in the food marketing chain. This study examines retailers' pricing practices for some major California produce commodities, and concludes that, on balance, retailers' pricing strategies are not good news for grower-shippers.

Most food sector analysts agree that retailers are becoming the dominant players in the food marketing chain. During the 1990s food retailing experienced unprecedented structural change due to a wave of mergers and acquisitions and new entry, most notably by discount retailer Wal Mart, which expanded into food retailing in the late 1980s and today is the nation's fourth largest food retailer. The national market share of the four leading retailers rose from 23% in 1993 to 28% in 1999. Because most grocery chains do not operate in all regions of the country, the market concentration is much higher within any local metropolitan area. The population-weighted average of the four-firm market share in the 100 largest U.S. metropolitan statistical areas (MSAs) rose from 65.7% in 1992 to 69.8% in 1998. The four-firm market shares for California MSAs in 1992 and 1998 are indicated in Table 1 on page 2.

Most of the discussion associated with the emerging domination of retailers in food marketing has focused on the impact upon consumers. The antitrust authorities have also emphasized the potential consumer impacts in evaluating proposed mergers in food retailing. Compelling divestiture of stores in areas where merger partners have

overlapping markets has been a common prerequisite to approving mergers. For example, the Federal Trade Commission required Albertsons and American Stores (Jewel, Osco) to jointly divest 144 stores in 57 cities where both operated, before granting approval for their merger.

Much less emphasis has been given to the impact of powerful grocery retailers on the welfare of growers and shippers. However, we have recently completed work that focused upon this question for various California fresh produce commodities. One dimension of structural change in the food chain has often been the streamlining of the marketing process. Many produce commodities are sold directly from grower-shippers to retailers, with little or no involvement from market intermediaries. Traditional wholesale or terminal markets still operate in many major cities, but they serve primarily small retailers, food service, and institutional buyers. Because of the direct link from the grower to the retailer for produce commodities, the impact of retailers' pricing practices is felt directly by the producer.

The California commodities we studied included iceberg lettuce, iceberg-based bagged salads, vine-ripe and mature-green

Also in this issue.....

Agriculture and the Environment in the Brazilian Amazon

by Stephen A. Vosti, Julie Witcover, Chantal Lane Carpentier, Samuel Oliveira and Jair Santos.....3

Giannini Conference Brings Water Stakeholders Together to Discuss the Future of the West Side

by David Sunding.....7

In the next issue.....

The 2002 Farm Bill: Implications for Commodities and Trade

by Daniel A. Sumner

Table 1. Four-Firm Grocery Retailer Market Shares for California MSAs

MSA	Four-Firm Market Share	
	1992	1998
Fresno	67.7%	65.8%
LA-Long Beach	78.6	67.1
Oakland	78.4	79.0
Orange County	65.5	74.7
Sacramento	61.7	65.6
San Diego	79.9	77.6
San Francisco	75.5	72.1
San Jose	71.7	72.4
Stockton-Lodi	55.3	64.5
Vallejo-Fairfield-Napa	61.2	NA
Ventura	63.0	82.1

tomatoes, and red and green table grapes. Lettuce and fresh tomatoes were studied as part of a cooperative agreement with the USDA Economic Research Service, while table grapes were examined in work conducted for the California Table Grapes Commission. In both studies, we had access to weekly store-level pricing information for a sample of MSAs across the U.S.--20 chains in total for iceberg lettuce and fresh tomatoes and 24 chains in total for table grapes. In some cases, concerns about the accuracy of the data caused us to work with less than the full sample of chains.

Retailer Pricing Practices for Produce Items

We encountered remarkable variety among retailers in how they chose to set prices for produce commodities. Sellers in perfectly competitive markets are sometimes called “price takers” because they don’t have the power to influence prices and must take them as given. The marked differences in retailers’ pricing strategies for these basic commodities within given MSAs directly refute any notions that retailers act as competitive price takers.

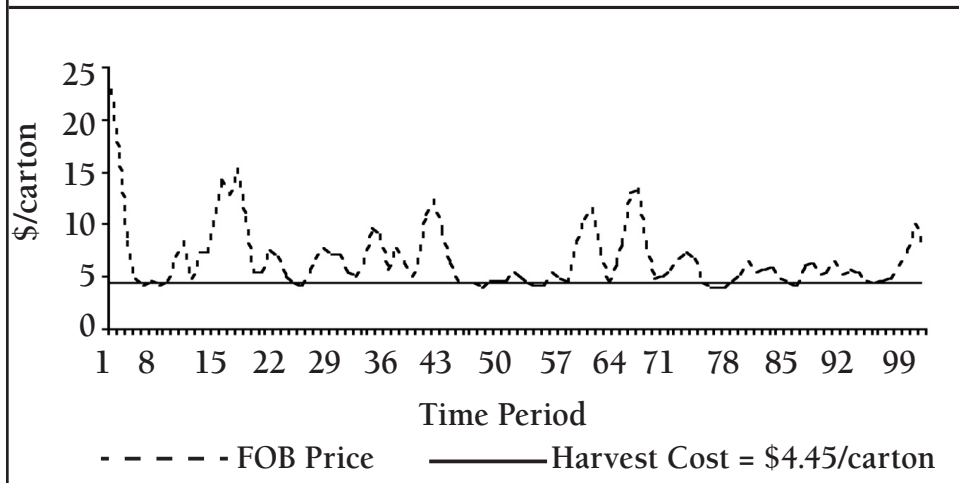
Table 2 illustrates the wide variability among Los Angeles retailers in setting prices for iceberg head lettuce and iceberg-based bagged salads. We had information for four LA-area chains, denoted as Chain 1 through Chain 4 (based upon an agreement with the data vendor, we cannot reveal the chain names). The table contains the correlations in the weekly retail prices charged by the various chains for head lettuce and the various brands of bagged salads (Dole, Fresh Express, Ready Pac and private label). Correlation with the FOB (farm gate) price for iceberg lettuce is also provided. Correlation coefficients fall in the range of -1.0 (perfect negative correlation) to 1.0 (perfect positive correlation), with values near zero indicating very little correlation between the movements over time for the particular price pair. Each chain’s head lettuce price is positively correlated with the FOB price (column 1), but the correlations are much lower than if the retailers were merely adding a cost-based mark

PRODUCE PRICING- *Continued on page 10*

Table 2. Farm and Retail Price Correlations for Iceberg Lettuce Los Angeles Retail Chains

	FOB	LA 1 Private Label	LA 1 Head	LA 2 Fresh Express	LA 2 Dole	LA 2 Ready Pac	LA 2 Head	LA 3 Dole	LA 3 Ready Pac	LA 3 Head	LA 4 Fresh Express	LA 4 Ready Pac	LA 4 Head
FOB	1.000												
LA 1 Private Label	0.110	1.000											
LA 1 Iceberg	0.688	0.073	1.000										
LA 2 Fresh Express	-0.133	0.124	-0.035	1.000									
LA 2 Dole	-0.169	0.015	-0.279	0.389	1.000								
LA 2 Ready Pac	0.103	0.021	0.139	-0.083	-0.063	1.000							
LA 2 Head	0.446	0.174	0.613	0.005	-0.238	0.125	1.000						
LA 3 Dole	-0.237	0.015	-0.405	0.179	0.385	-0.330	-0.146	1.000					
LA 3 Ready Pac	0.011	0.133	-0.007	0.018	0.216	-0.349	0.072	0.137	1.000				
LA 3 Head	0.534	0.029	0.775	-0.047	-0.465	0.122	0.717	-0.332	-0.078	1.000			
LA 4 Fresh Express	0.033	0.009	0.027	-0.078	-0.002	0.065	-0.008	-0.155	-0.027	0.014	1.000		
LA 4 Ready Pac	-0.201	-0.032	-0.280	0.221	0.214	-0.014	-0.178	0.058	0.032	-0.272	0.028	1.000	
LA 4 Head	0.456	0.063	0.660	0.063	-0.268	-0.032	0.659	-0.192	0.046	0.733	0.019	-0.232	1.000

**Figure 1. California-Arizona Iceberg Lettuce
FOB Price and Harvest Cost: 1998-1999**



PRODUCE PRICING-Continued from page 2

up to the FOB price. Note, however, that any correlation between retail and farm pricing essentially disappears for the bagged salads. In all cases, the correlations are nearly zero, and in some cases are negative, meaning the retail price moved on average in the opposite direction of the farm price. Note further that there is little correlation among stores in the prices they charge for the various iceberg products (the bold numbers in Table 2 on page 2). This result is evidence that the retailers are not pursuing any type of coordinated pricing strategy for these products, as some have alleged.

FOB prices for iceberg lettuce are notoriously volatile, as Figure 1 illustrates for 1998-99. Note that the FOB price is near the estimated \$4.45 per-carton combined cost for harvesting, packing and marketing for over one-third of the weekly observations. Despite the volatility in the farm price, six of the 20 retail chains in our sample maintained the same price per head throughout the two-year period of our study. When one segment of the market does not allow price to vary, it means that the price must vary even more widely in the segments of the market with flexible prices, in order for the market to clear. We showed for a very general set of market conditions that producer average income is reduced when some retailers hold price constant despite fluctuating supplies and farm prices.

We also examined the farm-retail price spread for the various commodities. We specified the price spread (the difference between the retail and farm prices for an equivalent amount of the commodity) as

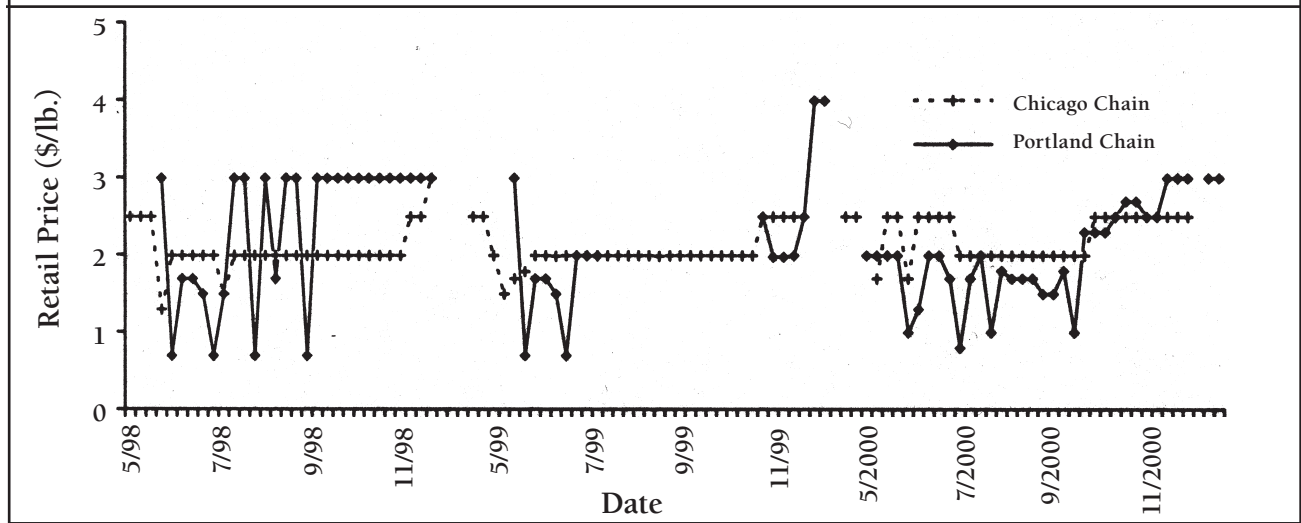
a function of per-unit shipping costs, a time trend, and the total volume of the harvest. Inclusion of the harvest variable in the price-spread equations was based on prior research that suggested buyers were able to use relatively large harvests of a perishable produce commodity to reduce producers' relative bargaining power and increase the price spread. This effect was confirmed in the case of iceberg lettuce for 11 of

the 12 chains studied. The volume of shipments was associated with a higher price spread in seven of nine chains for vine-ripe tomatoes and all eleven chains analyzed for mature-green tomatoes. Conversely, the volume of harvests had little impact on the price spread for table grapes. The likely reason for the difference is that table grapes can be stored, meaning that large harvests do not have to be committed to the market at one time, whereas highly perishable lettuce and fresh tomatoes must be marketed in the harvest period, giving producers little bargaining power when supplies are plentiful.

Shipping costs were not an important determinant of the farm-retail price spread for any of the commodities we studied. Under a competitive theory of retailer pricing, the price spread should rise and fall with increases and decreases in shipping costs. Although shipping costs vary considerably over time, most retailers paid no attention to them in setting prices to consumers. The trend variable also had little effect on the price spread, meaning that, in general, the spreads neither widened nor narrowed significantly over the two-year period of the sample.

To understand retailer pricing for fresh produce commodities, one needs to appreciate that the modern retailer sets prices for 30,000 or more product codes. Pricing decisions are not made with an eye towards profitability of any single product, but, rather, are oriented toward the profitability of the entire store. The produce section is traditionally a source of high profits for retailers, and, because of the importance consumers attach to produce, retailers can use their produce aisle as a way to differentiate themselves and attract

Figure 2. Retail Table Grape Prices: Chicago Chain and Portland Chain



consumers to the store. Accordingly, stores' pricing policies for produce vary widely. As we have already noted, some stores prefer to offer consumers stable prices week in and week out (referred to as everyday-low pricing). Other stores regularly feature produce as a sale item, so prices vary dramatically from week to week (often referred to as hi-lo pricing).

Figure 2 provides an illustration for green table grapes. It illustrates weekly price from May 1998 – December 2000 for a Chicago chain. This chain maintained a base price of \$1.99/lb. throughout the period, with only brief and minor deviations upward and downward from this base. Figure 2 also depicts pricing for a chain in Portland, Oregon over the same period. No base price is evident in the series, and price fluctuates over a wide range, with several weeks of sale prices below \$1.00/lb. Our statistical analysis indicated that this chain reduced price by \$1.15/lb. during weeks when grapes were on ad. Other chains, however, reduced prices much less, generally in the range of \$0.35 - \$0.60/lb. during advertised specials. Although it is often believed that retail prices are more stable than farm prices, our research indicates that the retail prices may be more variable, especially for products, such as produce, used frequently as sale items.

Conclusions

The produce aisle is a very important component of today's supermarket, and retailers employ a wide range of pricing strategies for produce. Our studies show that retail prices for produce bear little relation to the underlying farm price or to the marketing costs incurred in moving the product from the producer to

the consumer. Thus, the concept of a farm-retail price spread is today largely irrelevant for produce commodities. In general, the attenuation of the link between farm and retail prices is not good news for producers. Maintaining stable retail prices despite fluctuations in farm production means both lower revenue and wider price fluctuations at the farm level. Advertised sales of produce items represent a way to stimulate sales of the product and may benefit producers, but our work revealed no pattern between the timing of sales and the price at the farm level. In other words, there is no tendency for retailers to use advertised sales to move product during periods of high supply and low farm prices. Further, the downside to advertised specials often appears to be a high and stable price (e.g., \$1.99/lb. for table grapes) during non-sale periods. Further exacerbating the problems of produce grower-shippers is the asymmetry of bargaining power between buyers and sellers, due to the perishable nature of most produce commodities and the increasing consolidation of the retail sector. One manifestation of retailer power is the tendency of farm-retail price spreads to increase for perishable commodities during periods of abundant harvest.

Richard Sexton and James Chalfant are professors in the Department of Agricultural and Resource Economics at UC Davis. They can be reached by email at sexton@primal.ucdavis.edu and jim@primal.ucdavis.edu. Humei Wang is a post-doctoral researcher in the ARE department at UC Davis. Her email is wang@primal.ucdavis.edu. Mingxia Zhang is a principal economist at the California Independent System Operator. Mingxia's email address is mzhang@caiso.com.