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A MODEL OF WEEKLY PRICE DISCOVERY FOR FLORIDA CELERY: COMMENT

Nelson J. Updaw

In their article entitled, "A Model of Weekly Price Discovery for Florida Celery," Shonkwiler and Pagoulatos provide an analysis of the pricing power of the Florida Celery Exchange, a marketing cooperative that represents all of that state's major celery producers. In their description of the activities of the Exchange, the authors cite several factors which indicate that Florida celery producers may have the ability to raise prices above levels that would prevail in a competitive U.S. celery market. Such factors include a market share of approximately 40 percent and a marketing allotment program which has prevented other producers from entering the industry since 1965. Shonkwiler and Pagoulatos then proceed to estimate the weekly demand faced by the Exchange and conclude, on the basis of the point estimate of an own-price elasticity, that the prices charged over the period 1972-1978 are inconsistent with those that would have been charged by a profit-maximizing monopolist. This conclusion leads them to state that the Exchange is socially beneficial because, they claim, it has provided price stability and market information without raising prices much above competition levels.

Without dwelling on the numerous inconsistent comments contained in the paper, such as the alleged ability of the Exchange to stabilize prices while at the same time setting prices at competitive levels, I would like to comment on the analysis performed in the study. The "striking result" reported may well reflect the demand model used, as well as a misinterpretation of the empirical results, rather than the market structure for Florida celery. My objections to the authors' conclusions stem from two concerns: (1) that the demand model may have been misspecified and (2) that the use of weekly average prices and quantities in the estimation of the demand curve might provide a biased estimator that would practically ensure that the point estimate of the own-price elasticity would be inelastic.

Because the demand for Florida celery is derived from the retail U.S. demand for celery, traditional demand shifters, such as changes in real income and market population, ought to

have been included in the demand model. Furthermore, changes in the marginal cost of transporting the commodity to retail outlets should also have influenced demand. The inclusion of the dummy variable YEAR in equation 2 (p. 116) undoubtedly captures these effects to some extent, but the exclusion of these variables from the demand specification may have altered the estimated price coefficient (Kmenta, ch. 10). A more serious error, perhaps, may be the inclusion of both the quantity of California celery sold in the previous week and the price received. These variables very likely are correlated, and, if so, have introduced bias to the estimated price coefficient (Kmenta, p. 387). Given the demand model specification used, with quantity as the endogenous variable, the appropriate explanatory variable that would detect the influence of California marketings on Florida demand would be the price of California celery.

My second reservation, the effects of the use of weekly prices and quantities in the study, arises from the results of earlier studies which indicate that the length of time of adjustment affects estimated price elasticities (Manderscheid). Shonkwiler and Pagoulatos explicitly recognize this relationship in their treatment of "interim elasticities" in Table 2 (p. 116). Their results indicate that the own-price elasticity changes from -0.48 to -0.98 as the length of adjustment expands from one week to four weeks. This may indicate that the demand for Florida celery would have been estimated to be elastic at observed prices and quantities if quarterly or annual observations had been used. Though there may be nothing inherently wrong in estimating a weekly demand curve, it seems to me that the use of a weekly elasticity estimate for obtaining inferences about market structure is unacceptable. I find it quite conceivable that a profit-maximizing monopolist could operate in the elastic range of the demand curve, as it is usually defined, and still appear to face inelastic demand over a one-week period of time.

The conclusions of the study may yet be substantiated upon the reestimation of the demand curve or the provision of additional evi-

dence by the authors. Other measures of monopoly power, such as the rate of return on investment in celery production or a comparison of celery land values with values of similar land not included in the allotment program, may indicate that monopoly prices have not

been charged by the Exchange. I would encourage the authors to expand their analysis of celery marketings in Florida so that the extent of monopoly power exercised by the Florida Celery Exchange might be more fully documented.

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