

## Evaluation of California Commodity Marketing Programs

by Hoy F. Carman

**G**OVERNMENT mandated commodity marketing programs continue to be both popular and controversial. These programs, which are requested, approved, and funded by California producers, have the stated objectives of contributing to orderly marketing and/or improving producers' returns. Their popularity is reflected by their long-standing use and the number of California commodity groups which have approved these programs.

Currently, California has 13 federal marketing orders and 48 state marketing programs, including state marketing orders, commodity commissions, and councils. California commodity producers have recently assessed themselves upwards to \$150 million annually to operate these marketing programs, with about 75% of budgeted expenditures devoted to generic advertising and promotion. These programs cover commodities that account for over 50 percent of California's agricultural output, based on value.<sup>1</sup>

The use of these marketing programs is in a continuous state of flux. A total of 24 new state programs were added since 1980 and 15 were terminated. Of the 17 federal marketing orders operating in 1993, four were eliminated by January 1996, with none added. The federal programs that were terminated included the marketing order for desert grapes and the long-standing marketing orders for California-Arizona navel oranges, Valencia oranges, and lemons. Five of the currently effective California programs have been in continuous operation for over 50 years.

Although supported by an overwhelming majority of covered producers, government mandated commodity marketing programs have encountered organized and powerful opposition. The opponents, who have largely failed in the political arena, have concentrated on filing legal actions against various provisions of individual programs. These legal challenges were largely ineffective until 1995, when the U.S. Ninth Circuit Court declared that federally required funding of commodity promotion programs for peaches and nectarines violated the First Amendment rights of the producers funding them. This decision, which had a potentially adverse impact on all state and federal mandatory commodity promotion programs, was appealed by the government to the United States Supreme Court and the case, *Daniel R. Glickman, Secretary of Agriculture v. Wileman Bros. & Elliott, Inc., et al.* was heard December 2, 1996. In a 5-4 decision handed down on June 25, 1997, the Supreme

Court upheld the constitutionality of federally required funding of commodity promotion programs. This action, which reversed the Ninth Circuit's 1995 decision, will severely restrict First Amendment challenges to marketing programs, but likely it will not end the legal challenges to these programs. A number of pending court cases involving constitutional challenges to the marketing programs for kiwifruit, plums, apples, grape rootstocks, cut flowers, almonds, milk, and cling peaches are expected to be dismissed as a result of the Supreme Court decision.

### Economic Evaluation of Marketing Programs

Legal actions have focused producer, legislative, and administrative attention on the effects of mandated marketing programs. Provisions in the 1996 Farm Bill require all Federal Research and Promotion Boards to do an economic evaluation of their programs at least every five years. While evaluations are not required for state programs, some of the largest and most visible programs have begun to investigate the impacts and effectiveness of their program expenditures. There is increasing interest in verifying and documenting the costs and returns associated with expenditures on (1) advertising and promotion, (2) minimum maturity, size, and quality standards, (3) quantity controls in the form of reserves, pro-rate, and set-aside, and (4) research programs.

Faculty in the Department of Agricultural and Resource Economics at UC Davis have a long tradition of conducting research on important California commodity problems and issues. Recent industry sponsored research include projects on California almonds, walnuts, table grapes, avocados, prunes, and dairy products. The almond research focused on the specification and estimation of a detailed econometric model of both domestic and export market almond supply and demand that can be used to assess the impacts of industry programs. The walnut research was designed to determine the impact of market development efforts in Japan. The research projects for table grapes, avocados, and prunes had an objective of computing benefit/cost ratios for industry funded domestic advertising and promotion programs. Reports for each of the projects have been submitted to the commodity groups, and publications from the almond, walnut, and table grapes projects are available. For the other projects, manuscripts prepared for publication are in

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various stages of the review process. Research procedures, data sources, and results will be of interest to California commodity groups who are considering the evaluation of their own programs' economic impacts. Following are some brief comments on each of the research efforts.

**California Almonds**

Details on the econometric model of the almond industry are contained in a Giannini Foundation Monograph.<sup>2</sup> This model, which can be used for industry simulations and the evaluation of alternative marketing programs, shows that industry actions which increase short-run returns can be expected to lead to increased almond plantings in California and in competing areas, such as Spain.<sup>3</sup> The model has been updated and frequent projections of acreage adjustments with pricing projections are available to California almond producers to help guide investment decisions.

**California Walnuts**

Weiss, Green, and Havenner examined the impact of the USDA's Market Promotion Program (MPP) for walnuts in Japan. They concluded that the program had been very effective in the Japanese market, with a cumulative increase in shelled walnut shipments totaling 4.5 tons for every \$1,000 of promotion expenditures. In total revenue terms, each promotional dollar spent in Japan increased revenues by approximately \$5.85.<sup>4</sup>

**Table Grapes**

Work completed and underway documents significant increases in product demand as a result of commodity advertising and promotion programs, with net monetary benefits to producers being much greater than costs. For example, Alston, *et al.* (1997) estimated that the elasticity of demand with respect to promotion for California table grapes was 0.16.<sup>5</sup> Using this promotion coefficient, they estimated that the promotional activities of the Table Grape Commission had increased per capita consumption by about 1.5 pounds over that which would have existed in the absence of a promotional program. This increase was about one-third of recent total per capita consumption. The benefits to producers were very high in both the short and long-run. The short-run marginal benefit-cost ratio was estimated at over 80:1 which indicates that, for every \$1 spent on the program, the industry gained net benefits of \$80. When producer supply response was factored into the analysis, the benefit-cost ratios decreased. Using a supply elasticity of 5, the average benefit-cost ratio was about 10:1 and the marginal benefit-cost ratio for a 10 percent increase in promotional expenditures was about 5:1.

**Avocados**

Carman and Craft found that industry advertising and promotion programs have significantly increased the demand and price for California avocados.<sup>6</sup> Based on estimated price flexibilities of demand, a 10 percent increase in advertising and promotion expenditures was associated with a 1.3 percent increase in the price of California avocados. Estimated discounted short-run (month-to-month and year-to-year) returns ranged from \$5.33 to \$6.35 for every dollar spent on advertising and promotion over the period of analysis. After allowing for increased production due to improved returns, discounted real long-run returns from advertising and promotion expenditures still averaged \$1.71 to \$1.78 for every dollar of advertising and promotion expenditures over the 34-year period of analysis. While the estimated benefit-cost ratios for avocado advertising and promotion were below those for table grapes, estimated returns were still quite attractive in both the short and long-run.

**Prunes**

Our most recent research results indicate that expenditures on promotion by the California Prune Board and by Sunsweet Growers have significantly increased the demand for prunes.<sup>7</sup> For the various models estimated using ordinary least squares (OLS), the elasticity of sales with respect to promotion generally ranged from 0.17 to 0.22, meaning that a 10 percent increase in expenditures on promotion would have induced about a 2 percent increase in sales, holding price and other explanatory variables constant. The marginal benefit-cost ratio for promotion of California prunes hinges importantly on the value of the price elasticity of supply and on whether growers bear the entire burden of funding the expenditures or some of the burden is shifted to consumers.

For values of the price elasticity of supply of prunes in the range of 0.0 to 0.5, the means of the simulated marginal producer benefit-cost ratios range from 9.0:1 to 20.7:1 for 1992-1996 if only the producers' share of the assessment burden is considered (*i.e.*, some of the burden is shifted to consumers), and from 1.1:1 to 2.4:1 if producers are assumed to bear the entire burden of the assessment. Only when the supply elasticity is increased to 1.0 and producers are (implausibly) assumed to bear the entire cost of the promotion, is it possible to derive average benefit-cost ratios less than 1:1. Over the four-year period analyzed, investments by prune growers in promotion yielded them marginal returns of at least \$2.65 for every dollar spent. Moreover, marginal benefit-cost ratios in the range of 2.7:1, and

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higher, indicate that the industry could have profitably invested even more in promotion during this period.

**Dairy Products**

A research team, working with the Dairy Council of California, examined the costs and returns of nutrition education programs sponsored by the council in California schools.<sup>8</sup> The focus of the study was on one of their programs, the "Exercising Your Options" (EYO) program for sixth, seventh, and eighth grade students. The EYO program consists of materials provided by the Dairy Council to help teachers explain the USDA's Food Pyramid and other nutrition related topics. While nutrition education has potential benefits to several groups, in addition to the individual students, the main focus was on the private benefits to the California milk producers and processors who fund the programs. Research questions included the effect of the nutrition education program on consumption of dairy products and other food groups, the persistence of changes in consumption (the "wear-out" effect), and the effect of any demand changes on total revenues received by California milk producers.

Three sets of detailed food records completed by all of the students in a representative sample of over 100 California classrooms were collected and analyzed. The "Exercising Your Options" program did affect the eating habits of the children who participated in the program, at least in the time frame sampled. Under a number of reasonable assumptions, the benefits to milk producers from increased fluid milk consumption outweighed the costs of the program, and the private benefit-cost ratio was greater than one. The overall benefit-cost ratio would have certainly been even greater when the positive externalities and the full, long-run benefits generated by the program were included.

**The Future**

Commodity marketing administrative committees will continue to face questions concerning the economic effectiveness of their individual marketing program expenditures. Given standards of evidence and information presently available, many California commodity groups are in the position that they would be hard-pressed to defend their marketing programs in a court of law should the need arise. The studies described above provide important information for selected commodities, but empirical evidence concerning the impact of marketing order programs on producers, marketing intermediaries, and consumers has a large number of gaps. Review of these studies will provide interested readers with details on data requirements and some of the gaps and deficiencies encoun-

tered, as well as an appreciation for the analytical techniques employed. California commodity groups who have a serious interest in an economic evaluation of their programs, however, may want to consult with UC Davis Department of Agricultural and Resource Economics researchers to determine the adequacy of data resources and analytical requirements.

**Publications Cited**

The citation numbers below correspond to those used in the text.

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