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MARKETING ORDERS, CARTELS, AND CLING PEACHES: A LONG-RUN VIEW*

The situation brought about by the marketing agreements, supplemented in the past by licenses and in the future by "orders," may be described as "controlled marketing" or as collective price making. It has many points of similarity with the cartel movement in industry (15, p. 316).

As noted by E. G. Nourse 30 years ago, the economic structure of an agricultural commodity-industry covered by a marketing order bears a striking resemblance to an industrial cartel. The similarity is especially noticeable in the long-run economic implications of the two types of institutions for the industry concerned and for the economy of which they are a part.

Under a marketing order, independent producing firms engage in collective activities which would otherwise be forbidden by the anti-trust laws.¹ Although, in general, public policy of the United States overwhelmingly favors the maintenance of competition and the prohibition of combinations in restraint of trade, such as industrial cartels, agriculture has received a number of specific exemptions from these avowed goals. These exceptions are an outgrowth of general recognition that farming differs in certain key respects from other industries. The legislation permitting these privileges to agriculture was developed during the depths of the Great Depression of the 1930's when alleviation of low farm prices and incomes became a major national policy objective.

Since the enactment of the original marketing order legislation as a part of the Agricultural Adjustment Act of 1933 great changes have taken place in the agricultural industries and in the general economy. As would be expected, the utilization and effects of marketing orders have also changed during this period. However, their goal remains the same—to enhance farmers' incomes through centralized control of certain marketing decisions.

The fact that a number of commodities have been subject to marketing order

* This article is based on portions of an earlier study in which the author collaborated with Karl Brandt, and his counsel is gratefully acknowledged. I have also benefited greatly from the many valuable suggestions offered by Roger W. Gray, William O. Jones, and Bruce F. Johnston.

¹ In this article, the term "marketing order" will include the combination marketing order and agreement procedure used under the federal legislation. Milk marketing orders have a number of unique characteristics and are not specifically considered here.

controls regularly since the 1930's makes available empirical evidence which can be used to appraise the long-run implications of this type of market intervention. This article presents a brief discussion of the economic characteristics of marketing orders and some relevant features of industrial cartels. Attention is then focused on the marketing order covering cling peaches produced in California, a major fruit crop which has been subject to such controls almost continuously since 1933. Data on this commodity-industry are utilized to test certain hypotheses suggested in part by cartel experience.

I. CHARACTERISTICS OF CARTELS AND AGRICULTURAL MARKETING ORDERS

Imposition of a marketing order upon an existing industry alters the structural characteristics of the industry and its markets in much the same manner as does the formation of any other type of cartel. This basic change provides the impetus for whatever economic consequences occur. This change is brought about by deliberate governmental policy intended to advance the economic well-being of a particular group of agricultural producers. This is the same result anticipated by the firms combined in an industrial cartel. It is not surprising, therefore, that much of the rationale and many of the operating policies of cartels seem quite familiar to students of agricultural marketing orders.

Some Economic Characteristics of Cartel Groups

According to Karl Pribram, "The general lines of cartel policy are dictated by the object of maintaining the existence and furthering the profit-making interests of all concerns combined for this common purpose. This objective is pursued through control of the market, which means essentially control of prices and control of market supply." The cartel generally attempts to control the expansion of productive capacity in close relationship with the trend in demand for the industry's products. Overcapacity is considered to be a constant problem and relief from the resulting marketing difficulties is the principal concern (17, pp. 62, 64; 5, pp. 164-92).

Overcapacity has been defined as "the capacity to produce more than the market will absorb at prices which are profitable to the relatively high-cost producers." Under cartel arrangements the usual objective is to adjust prices to costs. Pribram contrasts this activity with that expected under free competition among individual enterprises, that is, adjustment of costs to prices. This is a significant difference between the response of individual independent firms (large or small) to market conditions and that of a group of individual firms associated within a cartel (17, pp. 116, 118).

Cartels are often viewed as "children of depression," and most were in fact formed during depression periods. Apparently, during phases of business contraction, with an increasing rate of business failure, individual producers who face the severe risk of heavy losses are willing to surrender some independence of action which they would not be willing to forego under conditions of general prosperity. Machlup argues that no amount of prospective profits will persuade a rugged individualist to give up the right to make his own business decisions, but that a serious threat of bankruptcy will. He also suggests that cartel arrangements may be more practicable in depressed periods because the problem of entry is diminished due to low profit potentials in the industry (13, pp. 522-23).

Cartel success under conditions of free entry according to Machlup depends on whether newcomers can be made to join the cartel and share in all the costs of idle capacity.² If so, he says, "the cartel will be able to maintain prices that are profitable at the onset; but excess capacity and total cost will steadily increase until profits are eliminated; the cartel will either collapse or continue a precarious existence" (13, p. 530).

Don Patinkin presents a theoretical structure which shows why the long-run equilibrium of a cartel is highly unstable. The cartel is characterized, in the long-run, by excess capacity and overinvestment. The individual firm operates with marginal revenues sufficiently greater than marginal cost to provide a strong incentive to raise profits by expanding production and sales. Thus, the temptation for "bootlegging, smuggling, and chiseling" is strong. An additional cause of instability is the basic conflict of interest between high and low cost firms within the cartel. The member firms of course do not have uniform cost curves; hence, almost any allocation of quotas creates internal dissension and bickering (16, pp. 198-200).

Typically the policy of a cartel is to maintain the relative position of each member firm as it was at some specified time, such as when the collective arrangement was initiated. This is often accomplished by restricting each firm's output to a percentage of some historical base. On the other hand, maximum profits for the total group cannot be achieved unless production is concentrated in the most efficient firms (19, pp. 382-84).³ As a result, such arrangements do not increase efficiency as they might in a single firm monopoly where concentration of production in the most efficient plants is much more likely to occur. On the contrary, the member firms find the flexibility of their quality and quantity policies arbitrarily limited, and the permitted output may have little relationship to the optimum position for the individual firm.

A common warning running through discussions of cartels concerns the possible misuse of the monopoly power inherent in agreements of these kinds. Students of these institutions state that overt utilization of this power is likely to result in public clamor for suppressive governmental action or increased internal friction among the members or both.

These economic characteristics and the potential results of cartel activities clearly resemble those of marketing order groups. Before examining some of these similarities in detail, let us consider the principal characteristics of marketing orders as they are used in American agriculture.

Marketing Order Characteristics

Market intervention in agriculture has been justified largely because of the demonstrated general conditions of inelastic demand and short-run inelasticity of supply for most farm products. Under these conditions, proponents of marketing controls argue that "excessive" price fluctuations and reduced total revenues to producers may be expected to result from "unregulated" marketing. Growers of perennials, such as tree fruits and nuts, are particularly vulnerable to the un-

² Government aid to cartels in Germany and other European countries has been quite common where, if entry is not strictly regulated, entrants are forced by government action to join the cartel by one means or another (13, pp. 527-28).

³ See discussion of these issues in 19.

certainities of weather and marketing conditions for crops in which a substantial fixed investment has been made. A principal purpose of marketing orders is to provide a vehicle for controls designed to alleviate some of these problems.⁴

Marketing orders for fruits, tree nuts, and vegetables usually regulate one or more of the following economic variables: grades, sizes, maturity, and quantity sold. Price is not controlled directly. Industry-wide advertising and promotion programs are carried on with funds made available through compulsory assessments. Among the controlled variables, the quantity sold is of most strategic importance since it has the most direct impact on the industry supply schedule and upon the gross returns to the member firms. Stringent quality regulations also tend to reduce the marketable supply.

Marketing order legislation does not limit entry by new producers or expansion by existing producers, but the entrant is obliged to participate in the marketing order group. Centralized decisions, binding on all members of the industry covered, are recommended by an administrative board composed of industry members and must be approved by the supervising governmental authority. A California marketing order can be established with the assent of as few as 51 per cent of the producers affected if they produce 65 per cent of the volume produced. A federal order requires approval by two-thirds of those voting in a referendum or by producers of two-thirds of the volume represented in the referendum. However, California marketing order administrators indicate that if as few as 20 per cent of the producers do not support the order its objectives can be frustrated and enforcement becomes prohibitive.⁵ It is apparent that a wide consensus must obtain, and as in industrial cartels, sufficient compromise in meeting the dissatisfactions of members is required.

Certainly a principal difference between the typical industrial cartel and a typical marketing order is the number and size of producing firms involved. Whereas industrial cartels usually are composed of a relatively few large firms, agricultural marketing orders generally encompass a large number of producers, even in the limited geographical areas to which they are applied. For example, in 1964, the number of producers under individual federal marketing order programs for fruits, vegetables, and tree nuts averaged 2,787 and ranged from 74 Colorado pea and cauliflower growers to 15,000 Florida citrus growers (20, p. 545). Obviously, a collective agreement among this number of firms presents different problems than one among a relatively few large industrial organizations. But the structure of marketing order groups is not completely specified by the number of individual firms involved.

Agricultural cooperatives provide another institution through which individual producers can combine and significantly alter the structure of an industry covered by a marketing order. The economic impact of such "double combinations" is likely to vary in accordance with the types of activities undertaken, the specific characteristics of the product and its markets, and the degree of concentration and centralized control achieved.

⁴ International commodity agreements have many objectives and characteristics that are quite similar to domestic marketing controls of this type. The extent to which they give rise to similar problems is a subject that invites careful study.

⁵ Interviews with officials of the California Department of Agriculture, 1963.

The principal objectives of marketing orders, as stated in the enabling legislation, are "orderly marketing" and better correlation of supplies with demand. Marketing orders are developed under either federal or state legislation, if available. The specified objective of the federal legislation is "parity" prices to farmers. The goal of the California legislation, under which the cling peach marketing order operates, can be paraphrased as follows, "Prices which will result in purchasing power adequate to maintain in business a sufficient number of producers of the commodities to supply the quantities and qualities necessary to fulfill the normal requirements of consumers" (6, p. 570).⁶

Marketing order programs, then, are concerned with the adjustment of production to market demand. Year-to-year stability in prices and incomes and the avoidance of economic waste are both deemed desirable. As with industrial cartels, the rationale for the controls imposed suggests that in addition to increasing the stability of the industry they will also benefit consumers through continual availability of the product, labor through job security, and capital investors in related industries through reduction of the perils of over-expansion and consequent contraction.

II. AN APPRAISAL OF THE LONG-RUN PERFORMANCE OF MARKETING ORDERS

Although for over 30 years marketing orders have been the major element of American farm policy applied to the "specialty crops," there have been almost no empirical studies of their success or failure in reaching their stated objectives. The principal reasons for this lack are not hard to find. Like any tool of economic policy, marketing orders operate in an environment that is continually being altered by technical developments, structural and organizational changes, shifts in consumer incomes, tastes, and preferences, and other changes in the determinants of supply and demand (II).⁷ Analysts of any policy applied under these circumstances are confronted with the necessity of abstracting from the "real world," usually by specifying a great number of qualifying assumptions. Attempts may also be made to reconstruct "what would have happened" if the order had not been used as it was. Analyses of policy issues using either of these approaches are likely to result in misleading or even absurd findings which are of little use to policy makers or administrators.

A more useful method for appraising the economic implications of long-existing marketing orders may be that suggested in the preceding sections of this paper—that is, observing the historical experience of industries utilizing these orders and appraising the actual results achieved in the light of the original objectives. In this procedure some aspects of economic theory and industrial cartel experience provide an appropriate framework for analysis. The marketing order for California cling peaches furnishes a wealth of material for this type of inquiry.

⁶ The exact wording of this objective is as follows: ". . . that such marketing order or amendments thereto will tend to reestablish or maintain such level of prices for such agricultural commodity as will provide a purchasing power for such agricultural commodity which is adequate to maintain in the business of producing such agricultural commodity such number of producers as is required to provide such supply of the quantities and qualities of such agricultural commodity as is necessary to fulfill the normal requirements of consumers thereof."

⁷ For a discussion of problems involved in evaluating marketing order results see *II*.

This industry has many of the characteristics usually considered necessary for marketing order success and it has utilized marketing controls for more than 30 years.

Marketing Order Use in the California Cling Peach Industry

California cling peaches are by far the major fruit utilized for canning in the United States, accounting for about 30 per cent of the national volume,⁸ and for almost 58 per cent of the total tonnage of California's principal canned fruits. This dominant position means that cling peaches exert a significant impact on the entire fruit canning industry. Almost the entire commercial production of this fruit in the United States is grown in one well-defined area of California, and the crop is used almost exclusively for canning.

The cling peach industry has been subject to marketing order controls for 29 of the 33 years from 1933 through 1965. These orders have generally included provisions for quality regulations, quantity control, advertising and research assessments, and prevention of defined unfair trade practices. Quality regulations and advertising are important parts of cling peach marketing orders, but the surplus quantity control provisions provide the major economic impact, although the use of restrictive quality standards is also an effective method of limiting tonnage sold.

Surplus volume is eliminated in several ways. Two types of surplus are defined: a *general surplus* refers to excess production capacity, and a *seasonal surplus* to an excess supply of fruit available in any one year.⁹

When a *general surplus* is believed to exist, the marketing order administrative body may recommend that growers be given incentive to remove a specific acreage of bearing trees. Growers removing trees in the prescribed manner may be reimbursed through "credits" against seasonal surplus removal requirements if these are applied during the succeeding season. Funds obtained by assessing all growers may also be used to pay for tree removal, but this procedure has not been utilized. The method involving credits against seasonal surplus elimination has been used in most years since 1954.

Seasonal surplus removal has been achieved by two principal methods—"green drop" and diversion at the processing plant. Green drop is the name applied to a procedure under which peaches are removed from the trees prior to reaching maturity. All peaches must be removed from a percentage of trees within each orchard sufficient to bring about the desired reduction of the total estimated crop.¹⁰

If processors are participating in the marketing order (joint grower-processor order), surplus diversion at the processing plant may be utilized. When this is authorized, a specified percentage of otherwise acceptable peaches is taken out of normal channels. Processors are reimbursed for the cost of fruit diverted with funds withheld from growers for this purpose.¹¹

⁸ Including the tonnage of cling peaches utilized in fruit cocktail.

⁹ California State Department of Agriculture, Bureau of Markets, "Marketing Order for Canning and Freezing Cling Peaches, As Amended, 1960-63," effective May 6, 1960 (mimeo).

¹⁰ Each block of trees in every cling peach orchard is charted. These charts are filed with the administrative body. Thus, compliance can be checked and compliance certificates are required in order to sell the remaining peaches.

¹¹ Although several other methods of seasonal surplus elimination are available, the two described are those that have been utilized.

TABLE 1.—CALIFORNIA CLING PEACHES, ESTIMATED TONNAGE REDUCTIONS
DUE TO MARKETING ORDER REGULATIONS, 1949-1964
(Thousand tons except as indicated)

Year	Estimated total crop ^a (1)	Eliminated under marketing order regulations			Total (5)	Other uses and losses ^{a,b} (6)	Total fruit sold for canning ^a (7)	Percentage of crop eliminated (8)
		Green drop ^a (2)	Cannery diversion ^b (3)	Culls ^c (4)				
1949	578	0	0	23	23	86 ^e	469	4.0
1950	548	76	0	19	95	41 ^e	412	17.3
1951	589	0	0	25	25	13 ^e	551	4.2
1952	538	79	0	22	101	7	430	18.8
1953	543	0	0	26	26	6	511	4.8
1954	553	91	0	20	111	8	434	20.1
1955	542	0	0	24	24	7	511	4.4
1956	650	0	46	30	76	5	569	11.7
1957	637	100	5	32	137	5	495	21.5
1958	505	0	0	31	31	5	469	6.1
1959	675	66	3	30	99	23 ^e	553	14.7
1960	678	66	17	31	114	4	560	16.8
1961	708	42	31	39	112	3	593	15.8
1962	794	59	39	41	139	5	650	17.5
1963	807	73	0	46	119	3	685	14.7
1964	937	67	0	76	143	5	789	15.3

^a Estimates of the California Crop and Livestock Reporting Service.

^b Data of the Cling Peach Advisory Board.

^c Cullage based on Advisory Board Number One Grade, the minimum grade allowed.

^d Includes regular and pickling sizes.

^e Includes substantial tonnage left in orchards, due in part to marketing order quality regulations.

The principal effect of cling peach marketing controls has been to reduce the marketed share of the annual production. The effects of the restrictive actions are readily apparent (Table 1). From 1949 through 1964, the percentage of the annual estimated total cling peach crop eliminated under marketing order regulations has ranged from 4.0 to 21.5 per cent, averaging 13.2 per cent.¹² From 1959 through 1964 this percentage averaged 16.3.

The data presented in Table 1 summarize only the quantitative effects of the quality and quantity control programs instituted under the cling peach marketing order. Net effects of the higher quality of the canned product resulting from more restrictive grade regulations must be judged largely, if not solely, on the basis of qualitative evaluation of the cost and price impact of such controls. Similarly, the net results of advertising and promotion programs intended to stimulate demand for cling peach products can only be tentatively estimated by members of the trade who are in intimate contact with the market. However, the observed price and income experience of this industry should reflect the overall results of various activities undertaken through the marketing order.

The structure and organization of this industry also have a bearing on price

¹² This includes culls, a portion of which would be destroyed in the normal course of grading for processing; however, the level of cullage reflected here is a direct result of grades established under the marketing order.

and income determination. The marketing order provides one focal point for collective action, the California Canning Peach Association another. This association, a growers bargaining cooperative, is the major spokesman for producers in the yearly price negotiations with canners. Association members produce from 35 to 40 per cent of the total cling peach tonnage. An additional 8 to 10 per cent of the total tonnage is not represented in the bargaining association but is processed by canning cooperatives. Thus, from 43 to 50 per cent of the total tonnage is either represented by the bargaining cooperative or processed by canning cooperatives. Another 8 to 9 per cent of the total tonnage is produced by commercial canners and an estimated 35 per cent is under long-term marketing contracts with commercial canners. Only about 10 per cent, therefore, is not committed in some manner prior to the start of a given harvest season.

It is apparent that this industry is not made up of a large number of unorganized producers selling to a small group of large buyers. Although, as shown in Table 2, there were 2,431 listed producers in 1964 and only 30 processors, under the existing organizational arrangements, price negotiation on the growers' side of the market is largely in the hands of the bargaining cooperative. This association negotiates with individual canners, as the anti-trust laws forbid group bargaining on the buyers' side of the market.

In summary, the cling peach industry's structure and organization is characterized by a long-established, complex marketing order and a fairly high degree of grower concentration through the bargaining cooperative and the canning

TABLE 2.—CALIFORNIA CLING PEACHES, NUMBER AND AVERAGE ACREAGE OF PRODUCERS, AND NUMBER OF PROCESSORS, 1938-1964*

Year	Total number of producers ^a (1)	Total acres (2)	Average acres per producer (3)	Total number of processors ^a (4)
1938	2,425	55,964	23.1	51
1939	2,398	56,267	23.5	43
1940	2,319	55,359	23.9	44
1941	2,452	55,060	22.5	47
1942	2,324	56,495	24.3	44
1944	2,112	57,408	27.2	51
1948	2,663	55,372	20.8	45
1949	2,630	56,775	21.6	50
1950	2,487	56,238	22.6	49
1951	2,691	56,730	21.1	49
1952	2,606	56,646	21.7	47
1953	2,646	57,047	21.6	45
1956	2,663	62,949	23.6	41
1959	2,861	80,622	28.2	38
1962	2,674	77,822	29.1	36
1964	2,431	74,987	30.8	30 ^b

* Data for column (1) and (4) from California Department of Agriculture, Public Records, Sacramento; for column (2) from California Crop and Livestock Reporting Service, relevant issues of *California Fruit and Nut Acreage*.

^a Data compiled as basis for vote on marketing order.

^b Due to a definitional change only 24 processors were actually listed in 1964, but 30 is the number comparable to data for preceding years.

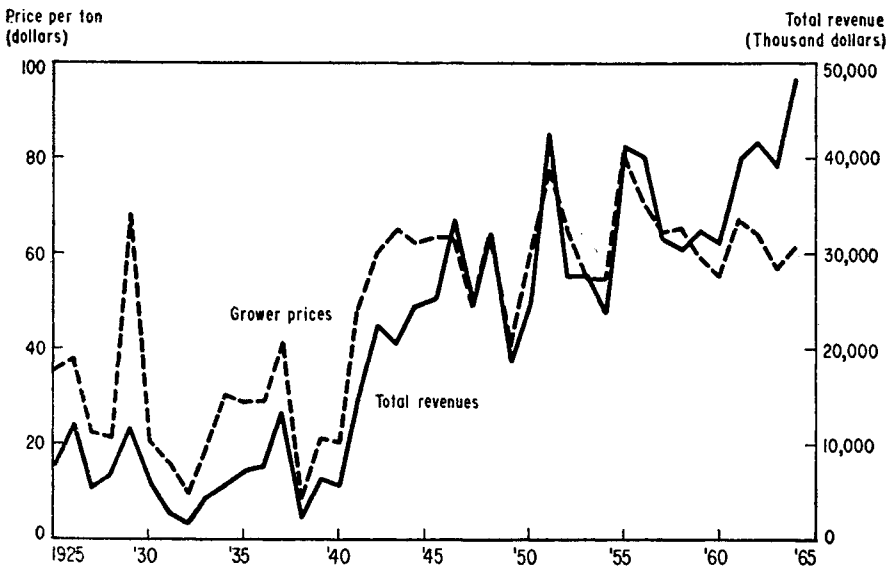
cooperatives. The leadership of these organizations is not independent as many of the same individuals are members of the marketing order Advisory Board and the cooperatives' boards of directors.

The Economic Experience of the Cling Peach Industry

Chart 1 presents price and revenue data for cling peaches utilized in canning since 1925. Both series show the decline to the low of 1932, the rise between 1933 and 1937, and the dramatic reduction in 1938. The restrictive activities carried on under the 1933 and 1934 marketing orders apparently aided the mid-1930 price recovery under the depressed demand conditions existing at that time. The marketing orders utilized in the latter half of the 1930's stressed quality controls, advertising, and promotion. Whether these improved the existing industry situation is debatable. Internal differences in the industry led to abandonment of the marketing order in 1938 and a combination of increased production, high carry-over, and continuing depressed demand led to the sharp decline in returns. The effects of World War II began to be felt by 1940 and the years until 1949 were dominated by that influence. The current history of the industry under marketing orders really began in 1950 with the establishment of the order that has served as the basic model for all subsequent orders.

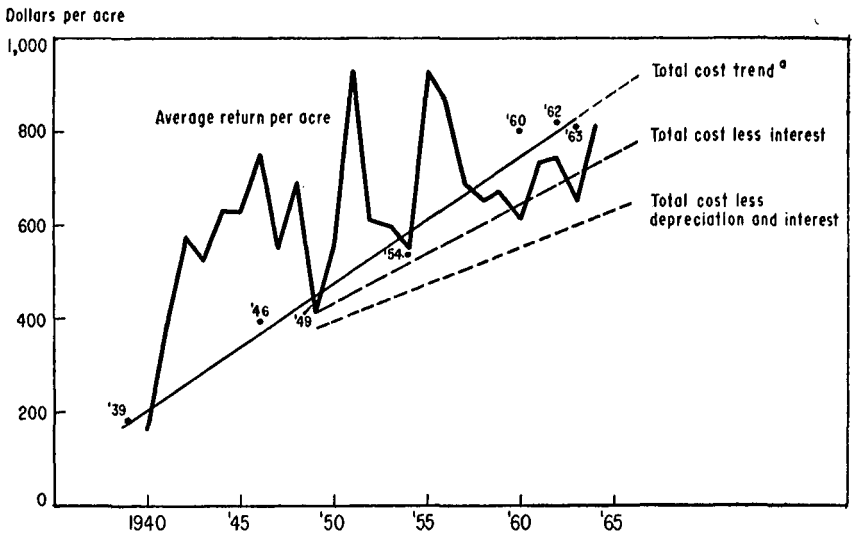
Net profits, not prices and gross revenues, are the major variable with which producers are concerned. Net profits are the residual of gross returns less total costs. Detailed estimation of costs and returns requires exact studies of actual production situations, and even with such data it is difficult to generalize for an entire industry. However, available studies do provide a basis for estimates which are adequate for the purpose at hand, although their limitations must be recognized.

CHART 1.—GROWER PRICES AND TOTAL REVENUES FROM CANNING UTILIZATION, CALIFORNIA CLING PEACHES, 1925-1964*



* Data are from sources cited in Table 3.

CHART 2.—ESTIMATED COSTS AND RETURNS PER ACRE,
CALIFORNIA CLING PEACHES, 1939-1964*



* Cost data for 1939, 1946, and 1949 from Marketing Order Hearings (U.C. Extension Service data) Public Files, Department of Agriculture, Sacramento; 1960 data from U.C. Extension Service, average of costs in Butte and Stanislaus Counties; 1962 is an estimate using Cling Peach Advisory Board data in Dean and Carter equations. Returns data are from the sources cited in Table 3.

^a Least squares regression line: $Y = 67 + 13.7X$.

Chart 2 presents estimates of average grower returns per acre and the trend in costs per acre for cling peach production from 1939 to 1964. The cost trend shown is based on studies for the years indicated on the chart. Recent production cost estimates cited by industry representatives suggest that the costs indicated by the trend lines, at least during the period since 1960, are fairly accurate. (See, for example, 3, pp. 122-28.) These estimates of costs and returns indicate that average returns per bearing acre of cling peaches were below average total costs from 1958 through 1964, although cash costs (total costs less depreciation and interest charges) were covered in every year shown, and all costs except interest were covered in every year except 1960 and 1963.

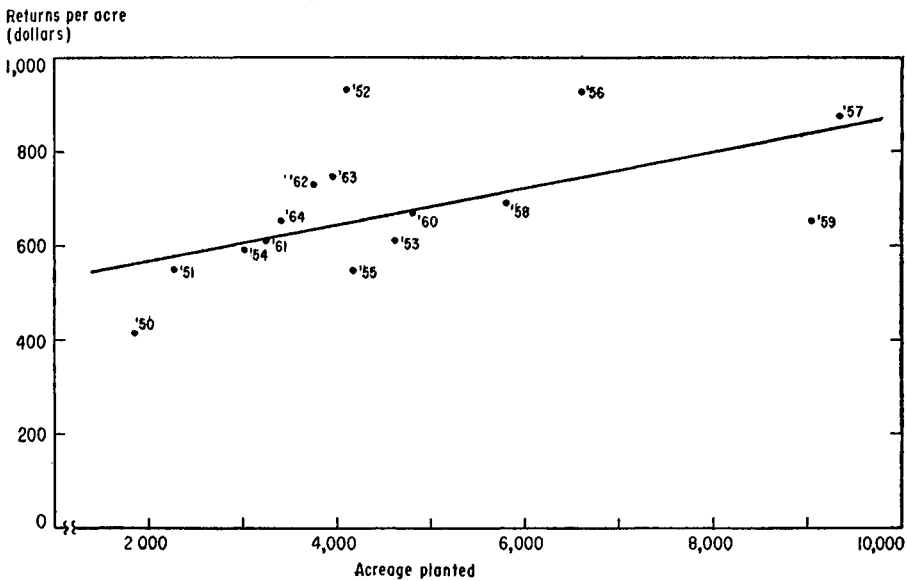
These figures are averages, and in the production of cling peaches there is wide variation among orchards in costs per acre, largely due to differences in yield. On the basis of a recent cost study and using data available from the Cling Peach Advisory Board for 1962, estimated total costs per acre varied from about \$911 for high-yield orchards (averaging 17.4 tons per acre) to \$675 for low-yield orchards (averaging 8.8 tons per acre).¹³ Gross returns per acre to these orchards, on the basis of paid-for tonnage, were \$931 for high yield and \$471 for low yield (7; 18).¹⁴ Due to the inaccuracy of the cost data, as discussed earlier, the net

¹³ These estimates are based on orchards of the average size shown in Table 2. In 1962, the average producer farmed 29.1 total acres of cling peaches. The average high-yield and low-yield tonnages per acre were applied to 80 per cent of that figure (23.3 acres) on the assumption that non-bearing acreage averaged 20 per cent of the total.

¹⁴ These estimates were calculated using the following cost function developed by Dean and Carter: $C/T = 307.2357 T^{-0.0542} Y^{-0.5054}$. Where C = total cost; T = tons marketed; Y = yield per acre (7, p. 32).

Cling peach tonnage data are for orchards with blocks of trees 4 years old and older, and were

CHART 3.—ACREAGE PLANTED RELATED TO RETURNS PER ACRE IN PREVIOUS YEAR, CALIFORNIA CLING PEACHES, 1950-1964*



* Least squares regression line: $Y = 501 + .037X$. Acreage data from California Crop and Livestock Reporting Service, *California Fruit and Nut Acreage*, various annual issues; Cling Peach Advisory Board, *Orchard and Production Survey*, various annual issues. Returns data from sources cited in Table 3.

returns reflected by these figures cannot be viewed as the actual profits of cling peach producers. Many other factors, such as capital appreciation, equity increases, the relationship of cling peaches to the total farm operation, and internal accounting procedures affect the producer's net profit calculations. In addition, "economic rent" resulting from differing soil, climatic, and locational factors is not accurately reflected in these estimates. However, these considerations do not affect the interfirm comparison utilized here, and a difference of \$224 per acre in the net returns of high- and low-yielding orchards is illustrative of a significant lack of homogeneity within the industry.

These data indicate that high-yield orchards produce peaches for \$24 per ton less than low-yield orchards. Dean and Carter, on the basis of the data used in their study, concluded that there was an average cost difference of about \$21 per ton between low- and high-yielding orchards (7, p. 3). Testimony at the 1962 Marketing Order Hearings pointed out that among the members of the California Canning Peach Association, gross production per acre varies from an average of 4.19 tons for the lowest 10 per cent of the members to an average of 21 tons per acre for the highest 10 per cent (3, p. 72). The difference in growers' net profits from this crop must be similarly great.

It is apparent that average total returns per acre of cling peaches have increased greatly since the 1930's, but from 1958 through 1964 this increase was not enough to offset the rapid rise in estimated average total costs (Chart 2). The average profit levels enjoyed until 1958 would be expected to encourage plantings. As shown in Chart 3, plantings since 1950 have been generally responsive to the

obtained from 18. Paid-for tonnage is total tonnage less fruit eliminated by "green drop," off-grade cullage, and diversion.

previous year's returns per acre. But the negative net profits of the average producer, suggested in Chart 2, would not be expected to encourage the industry growth noted since 1958. The explanation for this growth probably lies in differences that exist among industry members. Data for 1962 indicate that 85 per cent of that year's cling peach crop was produced by orchards with high or medium yields per acre (18). Recall that in that year high-yield orchards had gross returns per acre \$460 greater and costs per ton \$24 below those of low-yield orchards.

Long-run average cost curves developed by Dean and Carter indicate that, in general, scale economies are available in cling peach production until total acreage reaches 60 (7, pp. 18-19). However, the synthesized cost functions upon which this figure is based assumed that the machinery investment on small farms was fitted more closely to requirements than it actually is. A supplementary regression analysis of farm observations found that general overinvestment in machinery on smaller farms provides an even greater incentive for expansion than was indicated by the synthesized analysis. A 1958 survey indicated that 70 per cent of the cling peach growers in one of the two major California production areas operated 40 acres or less, considerably below optimum size (7, pp. 6, 33).

These data clearly point up one of the chief problems of applying restrictive marketing controls to this type of industry. Wide differences in costs exist, and significant economies of scale are available to a large majority of the producers (I, p. A-3).¹⁵ The incentive for production expansion is apparent. Low-cost producers are encouraged by attractive prices to increase production to optimize profits. Small producers find that costs can be reduced by expanding their acreage.¹⁶ High-cost producers demand prices that will allow profits, or at least minimize current losses. Potential new entrants, particularly farmers already operating in an area where cling peach production is feasible, view the controlled industry as a partial escape from the rigors of unregulated marketing of other crops and are likely to add to the production expansion.

Total cling peach acreage expanded from about 56,000 acres in 1950 to 75,000 in 1964, an increase of almost 34 per cent. Rising yields led to a total production increase of 71 per cent during this period. In 1950 there were 2,487 cling peach producers with an average of 22.6 total acres (Table 2). The number of growers rose to 2,861 in 1959, but by 1964 this number had declined to 2,431 averaging 30.8 total acres each.

It is significant that the number of cling peach growers in 1964 was at approximately the same level as in 1950 while, in general, the number of producers of the major alternative crops declined about 25 per cent during that period.¹⁷ The number of producers of Bartlett pears, the second most important California fruit for canning, declined 35 to 40 per cent between the late 1940's and 1964.¹⁸ Among all of these crops, only in the cling peach industry have surplus destruc-

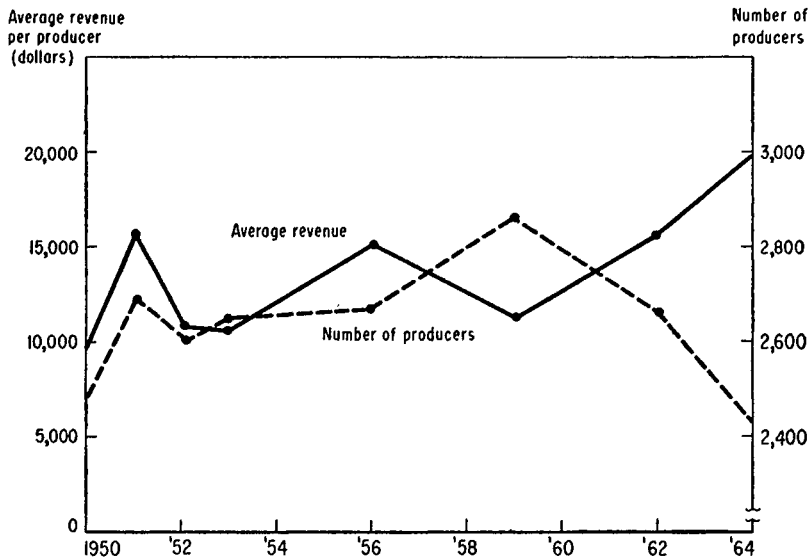
¹⁵ A 1952 survey indicated that only 7 per cent of California cling peach growers operated farms of over 40 acres (I).

¹⁶ Dean and Carter (7, p. 31), found that, "Farmers in every size group less than 100 acres expressed a need for substantial increase in size in order to operate efficiently in the next ten years."

¹⁷ Dean and Carter list these as plums, prunes, almonds, walnuts, apricots, freestone peaches, raisin and wine grapes (7, p. 30). Available data indicate that the number of producers of these crops declined an average of 25 to 30 per cent between 1955 and 1964.

¹⁸ California Department of Agriculture, public records and published data.

CHART 4.—CALIFORNIA CLING PEACHES, NUMBER OF PRODUCERS, AND AVERAGE REVENUE PER PRODUCER, 1950-1964*



* Data not available except for years with points plotted. Sources are as cited in Tables 2 and 3.

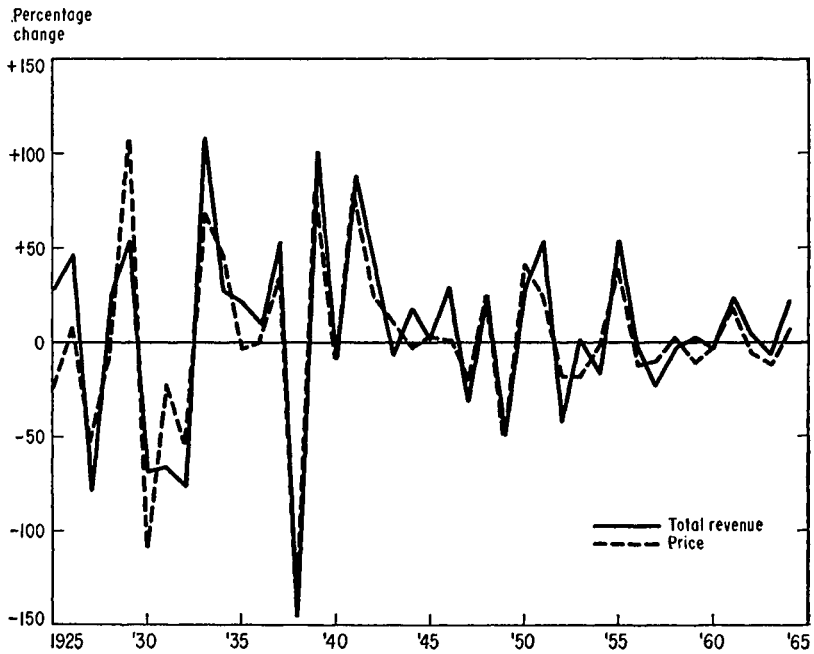
tion programs been used under the marketing order, although quality controls and surplus set-aside programs have been used in several. In contrast to the increase of 71 per cent in cling peach production and 34 per cent in total acreage between 1950 and 1964, production of the other major California fruits utilized in canning—Bartlett pears, apricots, and freestone peaches—increased 22 per cent while total acreage declined about 2 per cent.

Available data do not provide an adequate basis for estimating the distribution of total gross revenues from cling peaches among growers. However, it is possible to estimate the change in such revenues received by the *average* grower since 1950. These estimates, shown in Chart 4, are derived by dividing total revenue from cling peaches used for canning by the number of growers listed for marketing order voting by the California Department of Agriculture (Table 2). The sharp decline in number of cling peach growers from 1959 to 1964 and the accompanying rise in average grower revenues is apparent.

Reduction of price and income instability is another major goal of "orderly marketing," as the term is used in connection with marketing orders. Instability in this context is generally interpreted as wide fluctuation in year-to-year producer prices and incomes. A convenient indicator of this stability (or instability) is the change in prices (revenues) between years measured as a percentage of the average price (revenue) for each pair of adjacent years.¹⁰ Charts 5 and 6 present these data for prices and total revenues to growers of cling peaches and Bartlett pears used in canning for the 40-year period from 1925 to 1964. Bartlett pears have not been subject to marketing order surplus controls. For both fruits, the

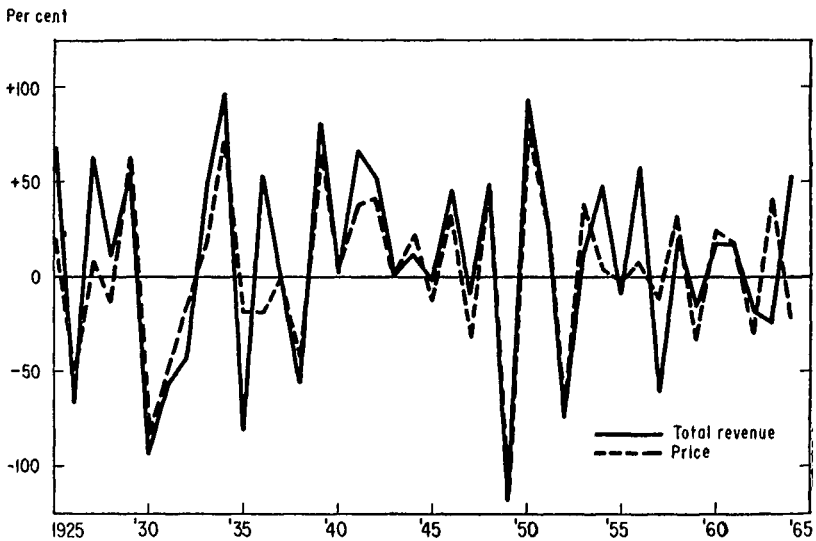
¹⁰ This procedure places positive and negative changes on the same basis. If change from one year to the next was simply measured as a percentage of the previous year, negative changes could never exceed 100 per cent, although positive changes would be unrestricted in this respect.

CHART 5.—YEAR-TO-YEAR VARIABILITY IN PRICE AND TOTAL REVENUE TO GROWERS FROM CALIFORNIA CLING PEACHES SOLD FOR CANNING, 1925-1964*



* Year-to-year change measured as a percentage of the average for each pair of adjacent years. Data from sources cited in Table 3.

CHART 6.—YEAR-TO-YEAR VARIABILITY IN PRICE AND TOTAL REVENUE TO GROWERS FROM CALIFORNIA BARTLETT PEARS SOLD FOR CANNING, 1925-1964*

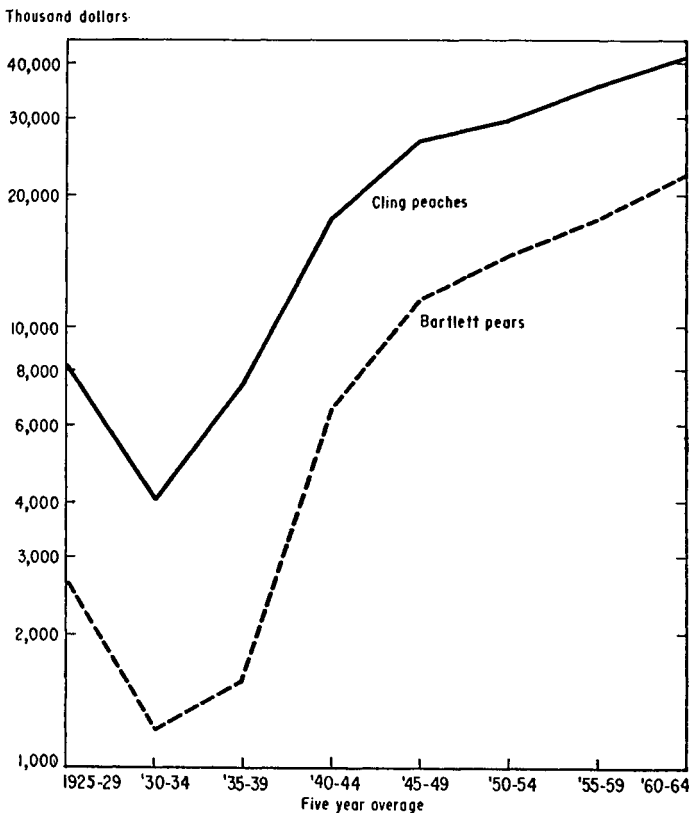


* Year-to-year change measured as a percentage of the average for each pair of adjacent years. Data from sources cited in Table 3.

range of fluctuation has been considerably less in the post-World War II years than before. Since 1956, particularly for cling peaches, prices and revenues have been quite stable relative to earlier years. The rate of change in grower total revenues has also been similar for both of these canning fruits, although revenues from Bartlett pears appear to have increased at a somewhat greater rate since World War II (Chart 7).

The ten-year averages of positive and negative changes in prices and total revenues, measured as indicated above, show that the amplitudes of year-to-year changes in cling peach prices and revenues have declined continuously from 1925-34 to the most recent period and are now far below the average for the 40 years covered (Table 3). For Bartlett pears the magnitude of year-to-year changes in 1955-64 was only slightly less than in the 1935-44 period. The most dramatic change shown in Table 3 is the reduction in the absolute magnitude of negative changes in cling peach prices and total revenue in 1955-64. Until that period, average negative changes in total revenue had exceeded positive changes during each decade, but in 1955-64 the negative changes averaged only about one-half the magnitude of the positive changes.

CHART 7.—RATES OF CHANGE IN TOTAL REVENUES TO GROWERS OF CALIFORNIA CLING PEACHES AND BARTLETT PEARS SOLD FOR CANNING, 1925-29 TO 1960-64*



* Data from sources cited in Table 3.

TABLE 3.—YEAR-TO-YEAR CHANGES IN PRICES AND TOTAL REVENUES RECEIVED BY GROWERS OF CALIFORNIA CLING PEACHES AND BARTLETT PEARS UTILIZED FOR CANNING, BY TEN-YEAR PERIODS, 1925 TO 1964*

Period	Prices				Total revenue			
	Positive change		Negative change		Positive change		Negative change	
	Number	Average	Number	Average	Number	Average	Number	Average
	percentage		percentage	percentage		percentage	percentage	
CLING PEACHES								
1925-1934	4	56.8	6	44.6	6	48.0	4	72.2
1935-1944	5	45.4	4	34.9	7	45.2	3	53.3
1945-1954	4	22.8	5	20.8	5	27.0	4	34.5
1955-1964	4	16.6	6	9.1	5	21.8	5	8.0
Total ^a	17		21		23		16	
Average		35.4		27.3		35.5		42.0
BARTLETT PEARS								
1925-1934	5	37.3	5	44.6	6	56.0	4	64.5
1935-1944	6	28.5	4	22.7	7	38.3	3	46.2
1945-1954	6	39.0	4	58.3	6	46.4	4	50.9
1955-1964	5	24.6	5	20.3	5	32.9	5	25.4
Total	22		18		24		16	
Average		32.3		36.4		43.4		46.7

* Data for calculations obtained from the following Reports of the California Crop and Livestock Reporting Service: *California Fruit and Nut Crops, 1909-1955*, Special Publication 261, July 1956; *California Fruit and Nut Crops, 1949-1961*, Supplement (Sacramento, July 1962); *California Fruit and Nut Crop Statistics, 1961-1962* (Sacramento, June 1963), and *California Fruit and Nut Crops, 1963-1964* (Sacramento, June 1965).

^a Between several years there were no changes.

The decline in the absolute magnitude of negative changes in prices and revenues suggests that one effect of the various controls utilized in this industry is to reduce the depth of the troughs more than the height of the peaks. It may be that under the type of organization found in this industry, characterized by surplus controls and price bargaining through a strong grower association, it has been possible to avoid excessively low prices and revenues, even if the level of returns achieved has not increased as rapidly as costs (Chart 2). Such an increase in price and income stability relative to other alternative crops, especially the reduction of "low returns" years as compared to "high returns" years, is in itself likely to provide incentive for expansion of production by existing producers and potential entrants who find the price and cost levels attractive.

Many industrial cartels, in order to survive, have found it necessary to make concessions to various types of producers within the group who feel disadvantaged by the regulations imposed or grow restive under the burden of increasingly restrictive controls (16, p. 200). Thus, the successful marketing order, like the successful industrial cartel, is likely to follow a policy of continuous compromise.

The history of cling peach marketing orders illustrates at least one principal compromise that has been made in order to satisfy the large, low-cost producer. This is the provision for "tree credits" against the succeeding year's "green drop," allowing growers to deduct the number of trees pulled out during the prior winter from the current season's "green drop" requirement, if one is in effect.

On large farms tree pulling and planting is almost an annual operation. Thus, as stated by Dean and Carter, "Larger operators who pull a small percentage of their total acreage each year can apply the entire acreage toward their 'green drop' requirement. A smaller producer who pulls a large percentage at infrequent intervals loses this advantage" (7, pp. 20-21). Between 1959 and 1964, "green drop" requirements ranged from 10 to 15 per cent of the estimated crop, averaging 12.5 per cent; however, tree-pull credits were used to satisfy an average of 4.06 per cent or about one-third of this requirement.²⁰

It is apparent that careful use of the "tree credit" procedure might allow larger growers to avoid the "green drop" entirely year after year and, thus, substantially reduce the real cost of the control program to them.²¹ Although this procedure is supposed to provide incentive for removal of excess production capacity, an obvious disadvantageous side effect is that it tends to accelerate replacement of older, less productive trees. This eventually raises the share of trees in the prime producing years, thus adding to existing overproduction problems.

The payment by canners of bonuses or premiums above the industry-wide price has created another problem of equity among cling peach growers. This practice also tends to make difficult the enforcement of the enabling law which calls for the supervising government agency to determine accurately the yearly price level as a basis for deciding whether surplus controls are justified (12, p. 4). Despite apparent surplus production, from 1959 to 1964, bonuses ranged from \$5 to \$12 per ton, averaging \$7.61, or about 12.5 per cent of the price received.²² Since 1962, steps have been taken to minimize this practice, but individual growers of course still receive various kinds of preferential treatment by buyers. Bonuses and free services apparently result from the desire of canners to procure an adequate share of the controlled output. To the extent that these added benefits are available to all members of the marketing order group, they would seem to be a positive short-run gain resulting from the marketing order controls. However, to the extent that they accrue to only part of the producers and to the degree that they add impetus to expansion by low-cost producers or potential entrants, they frustrate the objectives of the legislation.

One additional observation on the cling peach industry's experience is suggested by a characteristic of German cartels recently discussed by Fritz Voigt (21, p. 172):

As long as the cartel was in operation its members seized the opportunity for plowing back earnings in order to finance new investments and technological improvements internally and thus prepare for the tough competitive struggle which was surely to be expected to follow the collapse of the cartel. The price collapse caused by the dissolution of the cartel meant decreasing profitability, decreasing marginal efficiency of capital, decreasing possibilities for self-financing and for obtaining loans.

The development of cling peach production under the marketing order suggests highly similar activity among producers. Expansion, dictated by scale

²⁰ Data from Cling Peach Advisory Board, seasonal reports.

²¹ The "tree credit" provision also obviously favors the long-established grower who has various blocks of trees of differing ages or less desirable varieties as compared with a recent entrant who has relatively young trees or the grower with a desirable range of varieties.

²² California Canning Peach Association *Annual Reports* and *Pacific Fruit News*, various issues.

economies and other cost considerations, has been a significant characteristic of this industry. Fear of the day when volume controls might be removed due to internal dissension or external pressure has been one of the forces motivating new investment in land and equipment which is likely to reduce unit costs of production. In addition, since 1958, there has been increasing investment by growers in cooperative processing facilities in part with a view to assuring adequate outlets for produced fruit, regardless of market conditions.

In 1962, facing huge potential production in the years immediately ahead and amid increasing dissatisfaction with continuing surplus controls, various cling peach producer and processor groups raised serious opposition to utilization of seasonal surplus controls. Although controls were eventually used that year, there was considerable speculation within the industry and related segments that quantity controls might be terminated. One immediate result was that financial institutions gave increasingly careful study to the profit outlook of cling peach producers and processors.

As early as 1960, banks had expressed concern with the upward trend of the production potential and the role of canners in financing this expansion. A report by a major banking institution indicated that the marketing order had led canners to expand their own acreage and provide both investment and operating capital to growers in order to assure themselves of adequate and stable supplies. This report also focused attention on the difficulties likely to be encountered if quantity controls were abandoned (10, pp. 13, 23).

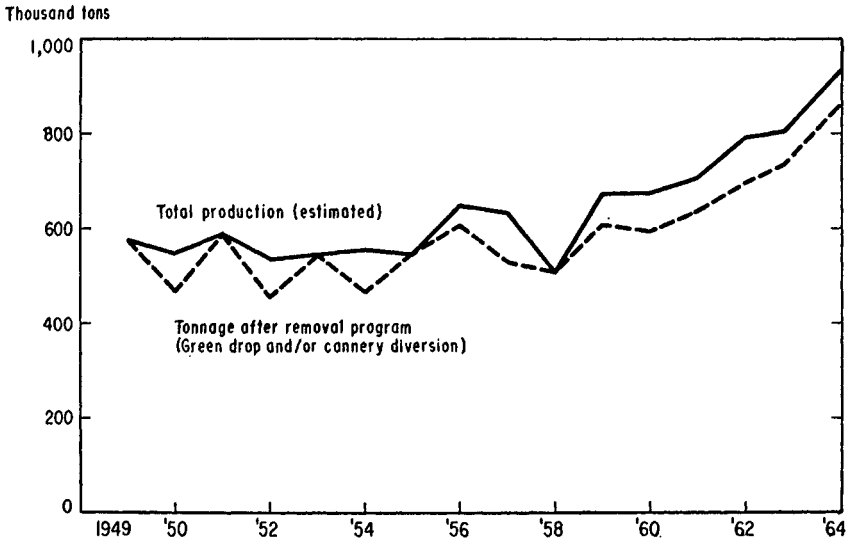
Appraisal of Performance

The experience of an industry utilizing a marketing order should be appraised in the light of the objectives set forth for the industry covered, such as the enhancement of producer prices and incomes. But, equally important, the contribution of the order in aiding progress toward the broader social goals of the economy as a whole should be appraised, especially in relation to consumer interests and those of related industries.²³

First, consider the long-run implications of the order for the cling peach industry. The annual controls imposed under the order have had a significant impact on the share of each year's supplies made available for processing in most years since 1950. During the period from 1950 through 1956, surplus controls reduced the tonnage of fruit sold for canning in alternate years in accordance with supply and demand data available (Chart 8). Acreage remained fairly stable during these years. In the period 1956 to 1959, there is evidence of rapid industry growth, characterized by increasing total acreage and an abrupt rise in number of producers. This entry and expansion closely followed two years—1955 and 1956—of very high returns per acre relative to all post-World War II years except the Korean War year of 1951. Since 1958, surplus controls have been used each year to reduce the marketed share of an ever-increasing production (Chart 8).

²³ Harold Breimyer suggests another criterion for use in evaluating marketing orders as follows: "Does their power to compel compliance by an opposing minority (of producers) constitute unacceptable coercion?" Although this is an important question it has socio-political implications beyond the scope of this article and will not be specifically considered here (see 2, p. 227).

CHART 8.—TOTAL PRODUCTION AND SEASONAL SURPLUS REMOVAL,
CALIFORNIA CLING PEACHES, 1949-1964*



* Data from sources cited in Table 1.

As shown in Table 2, the economic structure of the cling peach industry was very stable from the late 1930's until the mid-1950's. Total acreage, number and average size of producer, and number of processors changed little over this 20-year period. Although from 1950 to 1958 there was continuing evidence of surplus capacity, the controls applied under the marketing order seemed to keep available supplies at levels that brought satisfactory net returns to the average grower and high returns to the low-cost grower (Chart 2).

Cartel history points out two relevant aspects of the situation apparently existing in the cling peach industry in the middle 1950's. First, the wide disparity in costs among growers provided a strong incentive for some to expand production (or enter in the belief that their costs would approximate those of existing low-cost producers). High-cost growers, on the other hand, could take advantage of an industry structure characterized by a marketing order and a strong cooperative bargaining association to obtain prices permitting them to survive; hence, perpetuating the incentive for expansion by low-cost growers. Secondly, there were few of the capital limitations which would tend to restrict entry and expansion during periods of depression. Fear of a postwar depression had largely subsided and demand expansion was evident in consumer markets. Under these conditions, existing growers and potential entrants have been attracted by net returns that are relatively higher and more stable than for alternative crops. The relative rate of entry and expansion seems to be positive evidence of this. It also seems that the production encouraged has been excessive as evidenced by the continuing need for surplus controls year after year.

The cling peach industry has utilized annual estimates of available supplies and expected demand to determine its marketing control policies. The yearly adjustments have aided in avoiding burdensome inventories of the canned prod-

uct, but in the process they have shifted the inventory build-up to the production potential. This form of inventory exerts much the same depressing effect on prices and incomes as do inventories of the finished product. Excess capacity, however, tends to develop a long-run as compared to a short-run problem.

In the long-run, demand shifts occur for a variety of reasons, and while long-run demand is of interest as a theoretical concept, empirical estimates cannot be developed with sufficient accuracy to determine market control policies. Instead, short-run decisions are made each year which reflect the situation as it exists at that time. Thus, the adjustment to the so-called long-run trend in demand is actually the composite result of industry reaction to a series of short-run situations.

The cling peach industry, by 1959, was faced with the long-run effects of short-run marketing policies. The situation existing at that time is evident in Charts 1 and 8. Price levels have remained about the same since 1959, but grower total revenue has trended sharply upward as a result of increased tonnage sold for processing. As a result of producer exits since 1959, average gross revenue per grower has also increased rapidly (Chart 4). These data suggest that the cling peach industry is now following the pattern noted in other similar industries some years earlier. Scale of operation is increasing, high cost producers are leaving, and the resultant industry is likely to be comprised of more homogeneous and efficient growers sharing an expanded market. In 1964, as compared to 1950, the average grower had 8.2 more acres of cling peaches, he produced 165 more tons of fruit, and his average gross revenue had almost doubled. However, his total costs also have apparently about doubled during the same period.

Appraisal of the performance of the marketing order involves not only the current situation that has evolved, but more importantly, the path traveled in reaching the observed state of affairs. The members of an industry organize a cartel or initiate a marketing order in an attempt to improve their incomes. This is of course a short-run objective under conditions of free entry as within a few years the group's membership will have changed. In fact, such a change will be brought about by the order itself if incomes are improved or stabilized relative to alternatives. Only through rigidly enforced restriction of entry and production can the benefits of the controls be reserved for the group initiating the order or can the positions of the industry members relative to each other be maintained.

The decline in producer numbers and the increase in size of orchards and in average total revenue per grower suggests that high-cost producers are leaving the cling peach industry. Evidence of negative net profits for the average grower since 1958 certainly points to this eventuality. The question remains, what would have happened without the market controls utilized since 1950? Obviously, no one knows. What does seem apparent from the data presented here is that the major gains in average producer incomes have largely resulted from the exit of other growers. In addition the surviving firms share an expanded market which, if the proponents of industry advertising are correct, is in large part a result of the cumulative effect of many years of costly advertising and promotion programs carried on with funds obtained from producer and processor assessments. Those leaving the industry fail to share in the fruits of their contributions, and those remaining share more than in proportion to their past contributions.

Another factor as yet not discussed is the cost of the control programs them-

selves. These include not only the direct assessments levied against producers, but the indirect costs—the production costs of fruit destroyed under surplus elimination programs. Although direct costs are easily measured by the grower and are reflected in his net profits, indirect costs reflecting the resources lost through crop destruction programs are less obvious. Nevertheless, these costs represent a loss suffered by the economy as a whole. While such costs may be justified in an occasional bumper crop year, there is little justification for their continual utilization as has been the case in the cling peach industry since 1959 (Chart 8).

An approximation of this cost for one year may be computed. In 1962, for example, 7.6 per cent of the estimated total crop, or 59,081 tons, was eliminated by the “green drop” of immature fruit. At the rate of that season’s average yield prior to “green drop,” 14.1 tons per acre, this tonnage represented the production of almost 4,200 acres. In addition, 39,415 tons of Number 1 grade cling peaches were diverted from commercial use at the cannery. This tonnage represented production from about 2,800 acres. Thus, the excess production capacity in 1962 was approximately 7,000 bearing acres, or 12 per cent of the total bearing acreage of cling peaches. Estimated 1962 average preharvest production costs per acre approximated \$635, or \$4,445,000 for 7,000 acres (7, p. 14).²⁴ In addition, the cost of harvesting and hauling the diverted fruit amounted to about \$421,000.²⁵ Thus, growers spent an estimated \$4,866,000 in costs for unsold fruit in 1962.²⁶ These costs can be compared with similarly derived estimates for 1950, the first year that surplus elimination programs, other than quality regulation, were in effect in the cling peach industry since 1934. In 1950, preharvest production costs of the approximately 76,000 tons of peaches destroyed by “green drop” were about \$2,520,000.²⁷

The direct cost of the marketing order regulatory programs to growers in 1962, excluding costs of advertising and promotion, amounted to about one-third of the \$2.40 assessment per ton, or 80 cents.²⁸ This amounted to a cost of about \$520,000 on the 650,000 tons utilized for canning.²⁹ In 1950, administration costs for the marketing order were 50 cents per ton, or a total of \$206,000 on the 412,000 tons utilized for canning.

As estimated here, total direct and indirect costs of cling peach marketing order controls amounted to approximately \$6.62 per ton actually utilized in canning in 1950 and \$8.29 per utilized ton in 1962. The yield of utilized tonnage per bearing acre was 9.0 tons in 1950 and 11.5 tons in 1962.³⁰ Thus, per acre costs of restriction programs approximated \$60 in 1950 and \$95 in 1962 on the basis of

²⁴ Machinery size group III, costs of picking and hauling and marketing order assessments estimated at \$13.07 per ton, or about \$185 per acre at yields of 14.1 tons. Deducting this from the 1962 estimate of average total costs, \$820 per acre, results in preharvest total costs of \$635.

²⁵ At \$10.67 per ton which is \$13.07 less marketing order assessments, see preceding footnote.

²⁶ These estimates do not include any costs for losses due to more stringent grading, although for many canned peach items, lower than Number 1 grade fruit could undoubtedly be utilized if allowed.

²⁷ At an average yield of 12 tons per acre, this was equivalent to about 6,300 acres, preharvest costs, based on data in Chart 2 and harvest costs of about \$85 per acre, were about \$400 per acre.

²⁸ Processors also paid a \$2.40 per ton assessment, but this is not a direct deduction from grower returns.

²⁹ In 1962, growers were also assessed \$3.78 per utilized ton to cover the cost of Number 1 grade fruit diverted at the cannery. This amount was deducted from the grower’s gross price per ton and is a direct cost of the diversion program; however, most of this cost has been considered earlier as an “indirect cost” of the surplus elimination program.

³⁰ Excludes culls and surplus diversion.

paid-for tons canned. In 1950, this cost amounted to about 10.8 per cent of the average grower's \$555 gross returns per bearing acre and in 1962 it was 12.8 per cent of the \$742 per acre received (Chart 2). While the costs of restriction increased 58 per cent, gross returns increased 34 per cent.

Marketing control costs of this magnitude can only be justified from the standpoint of the consuming public if they assist in the development of a more efficient industry than could otherwise have been achieved at lower cost. This might be manifested in an improved product available at competitive prices or a reduction in total marketing costs relative to what they might be without such control.

Between 1950-54 and 1960-64 average f.o.b. cannery prices of canned cling peaches declined 11 per cent (9, p. 8), and average raw product prices per ton declined 2 per cent. This suggests that rising factor costs on the farm and in the cannery during these years have been overcome by increased technical efficiency, or reduced profits, or both. That productivity rose during this same period is confirmed by the increase of 16 per cent in average yield per acre on the farm and per ton in the cannery.

Producer cartel activities focus on the raw product price paid by the processor, but prices for the canned product are determined in national and international markets where there are many close substitutes. There is no reliable evidence that these wholesale markets for the product are not highly competitive. The ability of the processor to pass along increased raw product prices to wholesalers or retailers is therefore severely restricted. This was apparently recognized by a grower leader in 1963 when he said, "We don't think it makes much sense to brag about the fact that we haven't raised the price of canned peaches for the last 12 or 15 years" (14, p. 61).³¹

Operation within the limitations imposed by the market for the canned product gives little leeway for price enhancement by producers acting alone, except at the expense of canner profits. Available evidence suggests that profits in the fruit and vegetable processing industry are already among the lowest of all manufacturing industries and that they are competitively determined (8, pp. 157-69). Thus, in the long-run it is necessary for the producer and processor segments to achieve a reasonably compatible relationship if both are to prosper. Some recent trends discussed in the succeeding section indicate increasing awareness of this in the cling peach industry.

Price Elasticity, Vertical Coordination and Market Control

The price elasticity of demand is of key importance to policies involving supply restriction. It must be assumed that demand is price inelastic within the relevant quantity range at the level of restriction if total revenue is to be increased through reducing available supply. If price elasticity is one at that level, total revenues will be constant regardless of the volume supplied; if elasticity is greater than one total revenue will increase with greater tonnage despite reduced prices.

The price studies utilized in connection with the cling peach order indicate that demand for the canned product is price elastic at the wholesale (canner to wholesaler or retailer) level (9, p. 3). There are no reliable published studies of price elasticity at the farm level and this can only be estimated from wholesale

³¹ R. B. Bunje, statement in panel discussion (14).

demand within rather wide limits. Apparently the bargaining association would be satisfied with a demand schedule of unit elasticity. Each year since 1963 it has offered the entire cling peach crop on a "total crop value" basis. In 1965, a price schedule incorporating this type of basis was accepted by the canners for the first time. The 1965 schedule listed the prices per ton to be paid for the entire tonnage of Number 1 grade cling peaches processed by canners. Different prices were listed for each 10,000 ton increment, ranging from \$60 per ton if 790,000 tons or more were processed, up to \$69 per ton if 680,000 tons or less were processed. This schedule reflected price elasticity of -1.0 within the stated range and perfect elasticity at the limit prices for tonnages more or less than listed.

If the demand for the canned product at the wholesale level is indeed price elastic, as indicated above, processors could increase total revenues by selling more. Under these conditions it is in the interest of the processors to provide producers with incentive to supply quantities of cling peaches that will maximize total revenues for the canned product. The growers, as a group, profit from providing the adequate quantities if the level of prices is satisfactory.

The price schedule adopted by the cling peach industry in 1965 assures the grower segment of the same total revenue regardless of tonnage processed, as long as it is within the specified limits of the schedule.³² Of key importance, of course, are the minimum and maximum prices in the schedule and the tonnage included in the unit elasticity range. These issues relate directly to the cohesiveness and homogeneity of the grower group. Cartel-like organization under the marketing order enforces cohesiveness in the group in relation to the variables made subject to centralized decisions. However, it does not result in homogeneity and it does not control other aspects of producer operations. As a result, individual growers, facing a perfectly elastic demand curve, are guided by their own cost and returns situation in the same manner under a schedule of prices as under a one-price agreement. It is likely to be the minimum level of price in the schedule that determines the production response. Nevertheless, the apparent willingness of the producer group to provide supplies on the basis of a "demand schedule" rather than a fixed price is indicative of increased awareness of the economic relationships involved. The marketing order adopted for 1965-68 specifically provides a method for processors to contract for the tonnages they desire prior to any surplus elimination program. This new system will get its first test during the 1966 season.

A closely related issue in the cling peach industry is the nature of the vertical coordination that exists and is developing. As mentioned earlier, an increasing tonnage is being processed by grower-owned canning cooperatives. In addition, commercial canners produce part of their requirements and obtain much of the remainder through long-term contracts with growers. It is thus becoming increasingly difficult to identify clearly the line of demarcation between producer and processor interests. The market influences bearing on the canner are quickly and directly transmitted to the grower. Flow of the product into consumption is regulated by the canner, but with the increase in cooperative processing this is

³² In actual practice, the 1965 crop was severely reduced by adverse weather conditions and the tonnage processed fell below the minimum listed in the price schedule. Thus, being in the perfectly elastic range, the reduced tonnage resulted in a total revenue to growers lower than the level anticipated by the schedule.

becoming more directly a grower problem. Inventory carry-over from year-to-year has had an important bearing on raw product pricing, and this is directly related to the rate of movement of the canned product into the market.

All of these factors raise important questions about the utilization of marketing controls at the grower level. Determination of the most appropriate exchange level at which to measure the demand conditions upon which controls are based is a major issue. For cling peaches, and other crops used principally for processing, this is likely to be the wholesale level, especially in view of increasing grower-processor integration. Similar relationships exist for other commodities where the relevant exchange level may not be that between the grower and the first handler, but rather some level closer to the ultimate consumer. The usefulness of marketing order controls as an instrument to enhance the efficiency of the marketing system is clearly dependent upon understanding and careful utilization of these relationships.

III. CONCLUSION

A number of similarities between agricultural producer marketing order groups and industrial cartels have been discussed in this article. Under conditions of free entry, both types of organization are likely to accentuate rather than mitigate long-run problems of excess production capacity and overinvestment. Differences in producers' costs of production, optimum output policies, and other major characteristics that tend to be overlooked under severely depressed demand conditions emerge as major sources of internal heterogeneity when market conditions improve. Increasingly complex regulations, incorporating various types of compromise, are usually required in order to compensate for differences among group members in order to maintain sufficient support to make enforcement feasible.

Many of these factors cast doubt on the potential effectiveness of marketing order controls used year after year in industries such as the cling peach industry. That prices and revenues can be raised in the short-run seemed evident in the first years of the cling peach order. Evidence presented in this article suggests that until about 1959 technical developments on the farm and in the cannery allowed the industry to maintain higher than competitive raw product prices in the face of declining prices for the canned product. Little structural adjustment of the industry took place until that time. However, since about 1959, many changes have occurred which seem to indicate that some fundamental shifts are taking place in the industry. In general, these changes have been in the direction of increased integration between fewer and larger growers and processors. In relation to other comparable fruit industries, changes at the producer level have been slow in coming. For example, evidence presented in this article indicates that the Bartlett pear industry has achieved a somewhat better revenue growth rate while also undergoing the structural adjustments that seem to have been delayed in the cling peach industry. This suggests that cling peach marketing order and bargaining association activities during the 1950's impeded these changes. Less efficient growers were maintained in production as long as cling peach returns were attractive relative to available alternatives.

Under currently evolving industry conditions, the marketing order may play

a changed role from that envisaged by the framers of the enabling legislation in the 1930's. The small, high-cost producers who seem to be the perennial intended beneficiaries of legislative favor have largely left the cling peach industry as they have most other similar agricultural industries. The industry now operates in an economy characterized by general prosperity, highly competitive consumer markets, and increasing integration among all segments of food marketing. Under these conditions, producer cartels that attempt to exert monopoly control over their product are likely to find their markets eroded by competitive substitutes.

The long-run experience of the cling peach industry under marketing order controls cannot be evaluated in noncontroversial "good or bad" terms. In this article, the supply control features of this experience have been analyzed with a view to shedding some light upon this complex set of economic relationships. The marketing order for cling peaches, however, has been used for many purposes other than supply control. It is a marketing institution which performs services not elsewhere available, such as industry advertising, promotion, and research. It assists and extends the inspection and information services provided by government. It provides a focal point for the development of "economic literacy" among members of the industry. But, these activities should be evaluated separately from the market control activities which provided the original impetus for the enabling legislation and provide the major economic impact of the order (11, pp. 113-15).

The evidence presented here suggests that governmentally enforced authority to control supply is a potent weapon in the hands of a commodity-industry. The inviting possibilities for short-run gains and the difficulties of considering their long-run implications, either for the industry or for the individual members, are likely to present industry leaders with situations calling for a degree of restraint and farsightedness that is rarely found among participants in economic activity. In the cling peach industry exertion of available market power seems to have provided an incentive for some producers to expand capacity beyond that justified by competitive conditions. As production increased many higher-cost producers were eventually forced to leave the industry. This should result in an economically more efficient industry. However, such a sequence of events would also have been expected under competitive conditions, without legalized cartel activity, and without the burdensome costs of control. This raises serious questions as to the contribution of the marketing order to these long-run developments. The short-run gains achieved by restriction of market supply quickly result in either excessive product inventories or excessive production capacity. The almost inevitable consequence of this eventuality are proposals to control production and entry in order to preserve the gains achieved for the existing members of the industry. It is not surprising that such a proposal has been discussed in the cling peach industry (4, p. 22).

It is a defensible assertion that in American agricultural policy "controls beget controls." Marketing order supply restrictions are generally intended to overcome problems arising from excessive annual fluctuations in yields of perishable crops. In the cling peach industry they have more recently been used to dampen the effects of a chronic oversupply which the controls themselves have

apparently encouraged. Production controls seem to be the next step in the sequence. Discussion of the ramifications of such controls is beyond the scope of this article, but some of the implications of production and entry controls are readily apparent in the experience of the major "basic" crops in American agriculture. Policy makers are likely to find little comfort in reviewing that history.

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