Food Research Institute Studies in Agricultural Economics, Trade, and Development

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Marketing Orders and Public Policy for the Fruit and Vegetable Industries
by John A. Jamison

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MARKETING ORDERS AND PUBLIC POLICY FOR THE FRUIT AND VEGETABLE INDUSTRIES†

I. INTRODUCTION

Fruits, tree nuts, and vegetables subject to marketing order control programs under federal or state legislation account for almost one-half of the total farm value of these commodities grown in the United States. Producers, handlers at all levels, and the consuming public have a large stake in the operation and results of these programs. Unlike most public policies affecting agriculture, marketing order activities have remained in relative obscurity during their almost 40 years of existence. Despite continuing calls for the appraisal and evaluation of marketing orders,[1] few such studies have been published. Those empirical evaluations that have appeared tend to focus on technical aspects of order operation (79; 93; 9). There seems to persist within the United States Department of Agriculture and the land-grant colleges of agriculture a distinct reluctance to engage in comprehensive evaluation and appraisal of this aspect of farm policy. These programs generally involve relatively little public expenditure and this tends to shield them from the budgetary scrutiny that usually provides the impetus for investigation of other government activities. The commodities covered by marketing orders are individually of small relative importance to the national economy and this provides another impediment to notoriety. Numerous processors, packers, shippers, brokers, wholesalers, and retailers provide a buffer between the growers of these commodities and the ultimate consumer, and the fragmented organization of these industries adds to the complexity of evaluating policy performance.

In the broad and heterogeneous landscape of the United States' fruit and vegetable industry, it is impossible to deal in generalizations. Specialty crops are aptly

[1] See, for example, 6, pp. 407–14; and 86, p. 356.

named. Each one has unique characteristics separating it from all the others. In
this day of huge aggregates in data collection and economic analysis, it is frus-
trating to be confronted by the necessity to focus attention on the details of in-
dustry characteristics that provide the basis for marketing policies for fruits, vege-
tables, and tree nuts. Nevertheless, these commodity-industries *are* highly diverse
in key variables such as production location and characteristics, harvest timing,
perishability, utilization, the nature of demand, industry structure and organiza-
tion, and historical marketing patterns. There is no methodology available for
the economic analysis of these variables in quantitative terms except with results
that rest heavily on a series of heroic assumptions. The paucity of realistic market-
ing policy analyses stems directly from this situation.[2] It seems difficult for the
economist to deal with the perturbing evidence relating to marketing problems
without carving out a small, but convenient, segment which lends itself to some
narrow methodical approach. Unfortunately, such an approach requires the broad
caveat "other things remaining equal," which largely negates the relevance of
the analysis. Such analyses may be of value in the *operation* of a marketing order
program. They seldom aid the appraisal of program performance and the policy
upon which the program is based. Since just such appraisal is the major objective
of this report every attempt has been made to avoid concentration on the narrow,
operational aspects of marketing orders.

It should be noted that the theoretical possibilities of marketing control
schemes have not gone unnoticed by planning-oriented agricultural economists.
The potential for industry supply manipulation inherent in the antitrust exemp-
tion provided through marketing orders plus the fascination of demand analysis
in "real world" situations have provided a fertile field for agricultural economists
since the 1930s, especially in California. The resulting plethora of dissertations
and research papers has added abundantly to the store of theoretically achievable
prospects for marketing control activities. Many of these are referred to in sub-
sequent sections. But, like program implementation, the theoretical possibilities
are not the focus of this study. The objective here is an evaluation which looks
beyond season-to-season goals and problems to the ultimate impact of these pro-
grams on the major participants in the market.

Marketing Orders: Basis, Importance, and Major Provisions

The major American agricultural policy legislation affecting the fruit and
vegetable industry is the Agricultural Marketing Act of 1937, as amended. In
addition, 10 of the 50 states have similar legislation covering the marketing of
specified agricultural products grown within their boundaries (*85*, p. 31). In
1968 there were 49 marketing orders in effect under the federal legislation (*112*).
There were 34 such programs under California legislation in 1968, and the latest
count (1966) showed 15 marketing orders operating under the legislation of
other states. Thus, about 98 such programs exert some level of control over the
marketing of fruits and vegetables in American agriculture.

The types of control authorized under marketing orders vary somewhat be-

    [2] The author of a recent doctoral dissertation in the University of California Department of
Agricultural Economics concluded that only a nonquantitative, organizational approach to marketing
order evaluation is feasible (*125*).

tween federal and state legislation and among the different states. In general,
quantity and quality controls plus provisions for research, advertising, and pro-
motion are included. But the application of these regulatory devices differs widely
in many respects. The 91 federal and state orders tabulated in the National Com-
mission on Food Marketing report included the following authorized provisions
(*86*, pp. 288–93).

	Per cent of orders con- taining listed provisions
Control of total quantity or surplus	25
Grade, size, maturity, or other quality control	76
Regulate flow to market	12
Pack and/or container regulation	43
Control of defined unfair trade practices	15
Required inspection and certification	68
Assessment for research	77
Assessment for advertising and promotion	41

It is evident from this list that price is not directly controlled under marketing
order authorization. Instead, control is exerted on the major determinants of
price. The manipulation of these determinants is the function of the elected ad-
visory or control committee, the management it selects, and the United States
Secretary of Agriculture or the State Director of Agriculture, depending upon
the legislative basis of the specific order.

A more comprehensive description and discussion of the legislative bases and
the authorized provisions for federal and California marketing orders was pre-
sented in a previous publication by this author and Karl Brandt in 1965 (*70*,
pp. 29–52). Reference to this work and chapter 12 of Technical Study Num-
ber 4 of the National Commission on Food Marketing, prepared by Kenneth
Farrell in 1966, should provide a general knowledge of the history and utilization
of the legislation and the various authorizations (*86*, chapter 12). The Jamison-
Brandt report also discusses the method of initiating a marketing order—the
approval procedure (*70*, pp. 53–71). The detailed accounting of numbers of
orders, kinds of provisions, historical development, areas covered, and dates of
initiation, amendment, and/or termination are well documented in a number of
compilations (*57; 59; 85*).

II. FRAMEWORK FOR ANALYSIS

Among the possible approaches to the evaluation of marketing order perform-
ance a framework which includes the three major roles of these institutions seems
most appropriate (*68*). Performance can then be appraised in the context of these
roles: (1) a marketing institution providing specific services not available else-
where; (2) an extension of existing governmental regulatory and information
agencies; and (3) a decision-making center for marketing control.

The activities carried on within each of these three roles vary widely in their
importance and their impact on the performance of different marketing orders.
Clearly, the role as a centralized, industry decision-making agency for the author-
ized marketing controls is of major importance in most orders. However, the
operation of industry-wide advertising and promotion programs is by far the

most costly function among the major California orders. In 1968/69, 70 per cent of the total assessments collected under marketing order regulations in California was spent on advertising and promotion. The organization and operation of these programs is subject to the same management standards as those of any other advertising activity, whether it be that of a marketing cooperative or commercial firm. The added problems of evaluating industry as compared to firm advertising are probably not as great as those of devising more acceptable methods for appraising the effectiveness of any type of advertising. There have been a few attempts to evaluate commodity-industry advertising, but none provide conclusive evidence of its effectiveness (see, for example, 87).

Providing production and marketing information is a major activity of some marketing order organizations. Statistics assembled by these groups are usually of a more detailed and specialized nature than those available from government sources. Research studies concerned with data needs are carried on with assessment funds. Orders also may set up their own grades, standards, and techniques of inspection and grading. Some advisory or control boards carry out such inspection with their own employees. The result of these and similar activities is to add to or overlap with existing services provided by tax-supported public agencies.

One obvious advantage of such activities from the standpoint of the general public is the possibility of the various commodity-industries paying for their own supporting services, thus freeing public funds for other uses. From the industry viewpoint, more useful data, grading, and other services might be forthcoming if these were subject to direct industry financing and scrutiny. In any event, these functions of a marketing order can be subjected to evaluation in the context of their total performance and utility.

By far the greatest interest in orders concerns the market control aspects. Clearly, these cannot be completely segregated from the activities discussed above, however, the specific application of quantity and quality controls in their various forms is the key economic function of most orders. In general, it is the long-run implications of controls rather than their predictable short-run effects that require economic appraisal. The theoretical basis for most control activities is oriented to the short run. As a result, little emphasis is given to long-run problems even though historically these problems have been consistent sources of the greatest concern.

Objectives and Implications of Marketing Controls

Marketing controls are designed to overcome some of the rigors faced by producers in freely competitive markets. The unique characteristics of fruits, vegetables, and tree nuts exaggerate the impact of the inherent instability of competitive markets that affects producers of all types of goods. In particular, the short-run supply inelasticity of tree crops makes it difficult to match available supplies to current demand. Even for annual crops, seasonal harvest conditions pose similar marketing problems. The continuing evidence of unstable prices and incomes stemming from these problems has led to a proliferation of marketing control schemes. Although the specific regulatory devices vary widely according to the marketing circumstances, the general principles are identical:

1. Mechanisms should be developed which can effectively correlate available supply with available demand at acceptable price levels.

2. A large enough share of the available supply must be regulated so as to avoid disruption of the scheme by "outside" suppliers.

3. Controls should cover sufficient variables—e.g., quantity and quality—so as clearly to affect prices and incomes of covered producers.

4. The institutional procedures for carrying out the regulations should be as simple as possible and relatively easy to administer and enforce.

5. Control of the institutions should rest with the specific group affected—e.g., producers.

Given the appropriate economic data and utilizing the rudiments of price theory, it is not difficult to develop schemes which could be expected to achieve the results desired by the control group. With known price elasticities of demand, for example, supplies can be regulated so as to maximize total revenue to the suppliers in the short run. In addition, with known demand functions for various qualities, appropriate grade and size regulations can be applied. Similarly, with known demand characteristics in various independent markets supplies can be stored or routed correctly. The list of theoretically possible objectives for marketing control is extensive, and it is growing as new computational equipment and techniques become available.

The list of realistically possible objectives for these schemes is somewhat shorter. In fact, the more one studies the history of marketing controls the more limited the possibilities seem. In theory, for example, the *firm* facing a less than perfectly elastic demand curve can increase total revenue by restricting marketings within an inelastic portion of such a curve. Theoretically, an *industry* acting in concert can accomplish the same thing. However, an agricultural commodity-industry is made up of many individual firms, each pursuing its own economic goals. Control authority exerted on one or a few of the variables each firm faces does not result in an identical reaction by each firm. Thus, the limits of control activity are sharply reduced by the necessity of achieving concurrence by a large share of the total firms in the defined industry. To gain such a concurrence the theoretically possible objectives must be compromised in consideration of the differing objectives of each firm.

The implications of these limitations on marketing order control activity provide one element in a framework for analysis of performance. The regulatory actions that are feasible, that is those that have actually been carried on under long-existing orders, must be appraised in respect to those actions deemed possible at the initiation of the order. Objectives that are suggested by economic theory thus may prove unattainable in practice. Such an analysis should be useful as a guide to the future utilization of theoretically possible goals in marketing order application.

A major objective of marketing order control is enhancement of the so-called market power of producers. Market power has long been a goal of the collective activity of farmers. The earliest California marketing cooperatives had as dual objectives marketing efficiency and market power. The power was first exerted against servicing agencies, such as railroads and commission dealers (74). In

more recent years market power has been aimed principally at the direct buyer, that is the large-scale retailer or the processor.

Examination of the major sources of market power should throw some light on this objective of marketing order control. A broad enumeration of these sources has been presented by Claude Gifford. He lists increasing product acceptability; enhancing knowledge of the marketing process; getting to the right buyers at the right time; promoting the product; supporting research; controlling the rate of flow of product into the market; diverting the product to various uses; marketing in a group to offset the power of buyers; making available large enough quantities of specific products; providing services to purchasers; developing a reputation for honesty and fair play; establishing a favorable legislative climate; and controlling quantity supplied (60).

Almost all of these sources of market power are sought by orders currently in existence. An analysis of the performance of orders in achieving the market power objective must consider the specific sources of that power for the commodity in question. For example, some of these, such as controlling the rate of flow to market and "getting to the right buyer at the right time" are inappropriate for orders covering crops that require processing prior to entering the marketing channel. But other market power sources—increasing product acceptability, enhancing marketing knowledge, promotion and research, diversion to various uses, and quantity control—are specific objectives of many orders.

The appropriateness of farm-level marketing order controls for achieving these various sources of market power can be subjected to analysis. Questions include the following: (1) Can decisions designed to exploit the available sources of power be made by producers independently of processors or other marketing firms closer to the consumer? (2) Do the data available to marketing order groups provide a sufficient basis for the decisions required? (3) Is short-run market power achieved through marketing controls at the farm level likely to be offset by counter-adjustments by marketing firms and consumers?

A great deal of attention has been given to the price stabilization goal of marketing controls. International as well as domestic schemes frequently make this their chief aim. But it is income stability and growth that is the real goal of producers, and producers in this case means existing producers. Thus, this objective must be interpreted to mean stability at price levels sufficient to maintain in business those seeking the controls. In fact, one objective of California marketing order legislation is precisely that, stated as follows (39, p. 685):

> ... that such marketing order or amendments to it will tend to reestablish or maintain such level of prices for such commodity as will provide a purchasing power for such commodity which is adequate to maintain in the business of producing such commodity such number of producers as is required to provide such supply of the quantities and qualities of such commodity as is necessary to fulfill the normal requirements of consumers of the commodity.

This static approach is fundamental to monopolistic or cartelized industries. The internal inconsistency of the argument for a "dynamic agriculture" within a framework of governmental controls has long been evident to students of

American agriculture, as well as to students in most other developed nations. The question is whether the stated goals of marketing orders for fruits and vegetables are internally consistent. Furthermore, are these goals consistent with the stated objectives of other coexisting public programs?

Recent structural changes in agriculture have resulted in rapid combination of farm units into larger single holdings. Nonfarm corporate expansion is proceeding at an accelerating pace. These developments seem to herald a new division within agriculture to go along with the now accepted division between commercial farmers and the noncommercial rural poverty segments. The new split is between the large, highly mechanized multi-unit firm and the traditional commercial farm. Agricultural policy has just about caught up with the first division but has not yet recognized the second. Marketing orders are a part of existing policy for commercial agriculture. Due to the specialized nature and location of the crops covered, few of the problems of noncommercial farming concern this element of policy. However, these specialized, intensive, high-value crops are proving highly attractive to the new capital coming into farming. In this dynamic situation, performance analysis using the static assumptions appropriate to the 1930s does not apply. Current questions include: (1) Do marketing controls hasten or inhibit structural changes in agriculture? (2) What are the likely effects of shifts in control of marketing order regulatory bodies as industry structures change? (3) What is the effect on industry-wide controls of a widening gap in key production characteristics between small and large or new and established firms? Farm policy exists within a social, political, and economic environment that is in a constant state of change. These changes, within and outside agriculture, have been rapid and accelerating in the 1960s. The adaptability of policy tools, such as marketing orders, to such change is in need of continuous evaluation, particularly in view of the even faster changes forecast for the decade of the 1970s.

In the near future American agriculture is likely to face a social-political-economic environment in which it holds no special place. Commercial farming will be publicly regarded strictly as a business enterprise serving the needs of the domestic and world economy. Consumers will no doubt reflect this attitude in resistance to higher prices relative to other consumption goods, and legislators will react negatively to any policy which seems to give government sanction to monopolistic controls affecting food prices. This is a dramatic shift from the atmosphere in which existing marketing order enabling legislation was enacted. At that time it was the specific goal to increase farm prices and incomes relative to the current price levels of other goods—the parity concept. Also, it is likely to be farm labor rather than farm operators who will wield an increased amount of political power in the current system of social priorities. The small family farm, long the focus of sympathetic attention by legislators, will be categorized with the noncommercial segment of agriculture, hence outside the scope of commercial farm policy.

The role of marketing order activities within this environment contrasts sharply with the role originally intended and played for over 30 years. How adaptable has this policy implement proved to be? What programs seem to be most suited to the predicted environment? Does their past performance suggest

an increased or diminished role for marketing orders in the agriculture of the 1970s? Policy makers need answers to these questions and these are the questions that are ultimately addressed by the analyses developed in this study.

Marketing Orders and Marketing Organization

Of major significance in the analyses of marketing order controls is their impact on the existing market organization and structure. The marketing system for fruits and vegetables, as with other types of commodities, has developed in accordance with the unique characteristics of the products and the changing requirements of the buyers and sellers. Imposition of a marketing order on such a system implies a readjustment by existing institutions and repercussions at all levels of the market. In view of the dynamic nature of such marketing systems these implications vary over time and must be evaluated accordingly.

The marketing organization for produce destined for fresh use is considerably different from the organization for processing utilization. The buyer-seller relationship is also much different in the two markets. In recognition of these differences separate marketing orders are used for commodities moving to fresh and to processing outlets.[3] This is even the case when the identical raw product is sold for both utilizations.

In general, the fresh market is much more loosely organized than the processing market. There are many more firms at all levels, including packers, brokers, agents, and wholesalers. Fresh products are often handled on a consignment basis at least until sold to the wholesale-retail level. Thus, the grower is likely to hold title to the product much longer than is the case with produce sold to processors. In addition, fresh packing and shipping firms are generally much smaller than processors. Many such firms are grower owned—either as individual grower-shippers or as cooperatives. As a result there is considerably less focus for marketing control in most fresh produce marketing systems than in processing systems. Exceptions to this are the cases where a dominant cooperative handles a large share of the fresh sales.[4]

Fresh fruit, particularly from the Pacific Coast states, is sold nationwide. Prices are highly dependent upon demand and supply in all of the nation's major markets. Although the trend toward more direct buying in the production area by large retailers is increasing, the day-to-day nature of produce market activity is little different from a decade ago. Prices in production areas quickly adjust to the national market.[5] There is little of the once-a-year, localized buying that typifies the market for processing fruits and vegetables. Hence, the impact of various forms of marketing control varies widely between the two utilizations. For example, in 1960 fresh California Bartlett pears were handled by packers and shippers as follows: 14.6 per cent was produced by the packers (grower-shippers), 3.1 per cent was purchased, 29.2 per cent was handled on consignment, and 53.1 per cent was handled by cooperatives for members (67). However, in

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[3] Although federal legislation limits orders for processing crops to apples, asparagus, cherries, cranberries, and grapefruit, California legislation permits orders for both types of outlet.

[4] Typical of this situation is the California citrus industry which is discussed in subsequent sections.

[5] See discussion by Jamison (67).

that year, about 77 per cent of the California Bartlett pears for processing was purchased by commercial canners, some using long-term contracts, while the remaining 23 per cent was processed by cooperative canners.[6] Although these shares of the total tonnage vary among types of fruit and there has doubtless been some change since 1960, it is clear that sales arrangements are quite different between the fresh and processing markets. In the case of tree nuts and dried fruits still other arrangements prevail due to the nature of the products and the handling and selling procedures followed.

From the fresh handler or the processor these products move to the wholesale-retail level, which can now be considered a single market level due to the existing high degree of integration. At this level fruits, tree nuts, and vegetables become parts of the total product-mix offered to the consumer, largely through mass-merchandising supermarkets. These products are in direct competition with every other conceivable substitute on the supermarket shelves. Merchandising at this level involves a constantly changing balance of prices, qualities, and promotional techniques as the retailer attempts to maximize his profits. Thus, the profit determinants of each level of the marketing system are highly relevant to those on the other levels. Here again, these relationships vary according to such differences as product form, marketing channels, and market location.

Marketing controls exerted at the producer level of the system have a variety of implications for subsequent market levels. For example, quantity limitation under conditions of inelastic demand at the farm gate will increase total revenue at that level; however, as the product moves to the consumer, the addition of marketing costs and margins may result in the same quantity of product facing an elastic demand at another level. Thus, a reduction in total product moving through the system may increase revenues to growers but decrease revenues for other members of the marketing channel. Similarly, controls placed on specific grades or sizes of fruit or vegetables at the producer level may have differing effects on the profit determinants of firms later in the marketing chain.

There is a different, and usually unknown, demand schedule for each market characteristic affecting these commodities. Such differences arise not only from product characteristics, such as variety, quantity, size, shape, maturity, and color, but also time of shipment, market location, and degree of market acceptance. Also, different types of firms, using various procurement and sales arrangements, exist at all levels.

Questions suggested by these characteristics of products, markets, and channels, include: (1) To what extent are the relevant demand characteristics for controlled products known or capable of determination? (2) What are the likely effects of the uncertainty surrounding these characteristics? (3) How accurately can the effects of grower-level marketing controls on subsequent market levels be determined? (4) What evidence of such effects is available from past performance? (5) How do the varying profit determinants of different types of firms on the various market levels affect the success or failure of grower-level control schemes in attaining their objectives?

[6] Data from industry sources.

Marketing Orders and Market Structure

The implications of marketing controls as they relate to market structures suggest another set of analytical questions. The imposition of a marketing order upon an existing commodity-industry changes the structure of that industry, at least in respect to the authorized activities. The centralized decision-making body provides a focus for the collective action which is enforced upon all members of the group by the governmental police power. The resulting arrangement is very similar to an industrial cartel in that competition among the members is eliminated and the industry response is similar to that of a monopolist. The major limitations are imposed by substitutes for the product and the entry of new production. But, under a marketing order the intra-group competition is eliminated only to the extent of the regulated activities. For example, the share of raw product used in the fresh form may be controlled while the share going to processing outlets may not. Thus, the possibility of allocation among product forms may be an additional limitation on market control.

The structural situation developed under a marketing order has been described by Townshend-Zellner as a parallel "regulated" structure added to the existing "unregulated" one (*102*, p. 1359). The consequences of this, according to him, include a differential impact on the operations of the various independent firms in the industry, changes in the market conduct of affected firms, and a difference in the industry's performance in relation to consumers since a changed quantity-quality mix is likely to be offered (*102*, pp. 1361–62). In addition to their differential effect on firms in the industry, marketing order structures have quite different implications in various product markets. For example, the number and size of buyers usually varies considerably between fresh and processing markets. Hence, the effect of a centralized control agency is likely to be more or less dependent on the existing structure.

The presence of producer cooperatives—either bargaining or marketing associations—provides another focal point for collective action by growers. Although separate from the marketing order organization, the activities of these cooperatives, particularly the bargaining groups, are often closely related to the order. In recent years several orders specifically include bargaining association representatives on the control board. In some cases the price negotiated by the bargaining cooperative becomes the established price upon which certain marketing order operations are based. Thus, the structure of the sellers' side of such markets may be characterized by a grower bargaining association and one or more major marketing cooperatives. The membership of the bargaining and marketing associations usually overlaps to some degree. In some cases, a large share of the bargaining tonnage may be committed to the marketing cooperative, thus reducing the actual tonnage utilized for effective price bargaining with commercial buyers.

Entry into any industry is dependent upon a complex mixture of motives ranging from relative profit expectations to largely noneconomic preferences of potential entrants. For example, the late 1960s in agriculture have seen a dramatic rise in so-called "outside" expansion capital flowing to what is apparently believed to be potentially profitable farming enterprises based either on returns

from production, land appreciation, or tax savings, or all three. On the other hand, many private investors see certain types of farming as a form of avocational activity with possible economic gain as a secondary consideration. In any event, entry is stimulated by a generally high level of economic activity in the total economy plus the relative attractiveness of specific agricultural industries.

The impact of new entry in commodity-industries with marketing order controls is two-fold. The expansion of production created by an excess of entry over exit is likely to increase the problems of attaining price and income objectives for previously existing industry members. In addition, the influx of larger firms tends to shift the structural relationship within the industry group. The influence of larger firms with interests much different from existing small firms may increase. Representation on marketing order control committees is likely to reflect such structural changes and result in policy shifts. The vision of agricultural monopolies being encouraged by federal and state marketing order legislation is likely to grow in the minds of the consuming public and its representatives. These structural considerations thus have both potential economic and political implications which require examination.

Marketing Orders and Public Policy for Agriculture

Some of the problems facing agricultural policy makers have been suggested earlier in this section. As indicated, the small family farm is no longer a significant part of the commercial farm problem. Even though the statistics show that the great majority of American agriculture is still characterized by the family farm, it has become apparent that the commercial farm business bears little resemblance to the nostalgic rural life that so long provided a major political background for farm legislation. In fact, the entry of large industry at all levels of agriculture, including production, has increasingly eroded this traditional assumption.

The rise of consumer-oriented policy action at all levels of government is another dramatic change from earlier years. The impact of this consumer-orientation on marketing control schemes had not become apparent in the late 1960s, but the trends seemed evident. For example, the suggestion that a federal marketing order for Pacific Coast Bartlett pears for processing might raise consumer prices was a major factor in the failure of enabling legislation to be enacted in 1968. The problems of farm workers, rather than farm operators, have gained a great deal more attention in recent years. This attention has focused particularly on the areas dominated by the large-scale, specialty crop producers who are precisely the intended beneficiaries of marketing order legislation.

In a more general vein, the specter of overpopulation has raised the threat of a long-run food shortage in many quarters. Increasing emphasis on hunger and nutritional deficiencies in all parts of the world, including the United States, has stirred the general public. In the face of these broad issues it is difficult to imagine a continuing favorable public—i.e., legislative—response to restrictive marketing control programs for fruits, vegetables, and nuts. These commodities are likely to be especially important in plans to upgrade nutritional standards in America.

The antitrust exemption and government enforcement of marketing order

controls are clearly a preferential treatment for farmers with the stated aim of raising prices. This specialized legislation and the laws providing special advantage to agricultural cooperatives have been the major governmental privileges extended to specialty crop producers in quest of market power. For most of its history, this type of aid to farmers was of little concern to consumers or legislators; in fact it was probably understood by only the few policy makers directly involved in its development. Since very little public cost was involved there were few political overtones in the enactment of enabling legislation.

The passing of the "family farm" has eliminated a major rationale for special legislation protecting agriculture. Under current conditions there may be increasing sentiment in the opposite direction. As the public view of agriculture becomes dominated by corporations or other types of large integrated organizations the public interest may seem to lie more in protection *from* agriculture than protection *for* agriculture.

Similarly, consumer and labor representatives have been suggesting that many issues related to agriculture should be considered at the policy level. Rural poverty, migrant workers, and labor organization are among these problems. In the discussion surrounding these issues, it has been pointed out that many of the "safeguards" protecting the general public from exploitation due to special farm legislation are administered by agencies directly beholden to agriculture. Some abrupt changes in this situation are likely, such as the removal of food stamp programs from the jurisdiction of the Department of Agriculture. But a more important long-run result may be the attachment of specific obligations to preferential farm legislation. For example, labor standards or solutions to rural sociological problems are likely to become intertwined with traditional farm programs.

Evaluation of marketing orders in the current context of commercial agriculture must consider the public policy conflicts that may arise in the future as compared to the past. The reliance by much of agriculture on government programs stems from the farm depression of the 1920s and 1930s. The changes that have occurred since then have led to the enigmatic situation in government policy which finds the public clamoring for reduction in food prices while legal exemptions allow programs which are overtly designed to raise prices. The traditional argument that the "middlemen" are extracting excess profits from food marketing has largely been laid to rest by numerous studies and investigations. Most recently, the National Commission on Food Marketing study of the fruit and vegetable industries generally confirmed the view that marketing firms operate on margins leaving little excess to be squeezed out in the form of lower consumer prices or higher procurement prices (86).

A broad framework within which to appraise the policy underlying marketing orders must include the wide variety of issues discussed above. But, the substantial differences in the impact of various authorized activities in each order require specific analysis. That advertising and promotion programs differ in their economic effect from quantity restriction is obvious. That quality controls differ from quantity controls is not so obvious. That the same type of control program in two different industry environments has the same results in each is highly unlikely.

In this study the cases selected for analysis illustrate some of these problems. Each commodity discussed has at least some major characteristics which differ in important respects from the others. But, the entire group is similar in that marketing order controls have been utilized in an effort to overcome troublesome marketing problems. Their experience in these efforts is the subject of this evaluation.

III. MARKETING ORDER CASE STUDIES

Five commodity-industries with long experience under marketing order regulation have been selected for intensive investigation as a part of this study. These are California cling peaches, California Bartlett pears, California-Arizona lemons, Pacific Coast walnuts, and California almonds. In each case, the marketing order group represents some specific set of circumstances and industry characteristics which illustrate various ramifications of this type of marketing control mechanism. California-produced commodities provide the major focus for study because of their long history of marketing order control. Also, with the exception of Bartlett pears, each order studied includes the entire United States commercial production of the commodity. The California pear order covers about two-thirds of the total production of Bartlett pears for processing.

In addition to these five case studies, there are a number of other marketing order groups that have been studied by others. The depth and objectives of these studies vary widely, but many of them provide additional information which can be evaluated within the analytical framework set forth for the present study. These include Florida celery, California raisins, California dates, Washington apricots, and California asparagus. Other discussions of marketing order performance appear in the reports of the National Commission on Food Marketing and in a number of publications of the state universities, the United States Department of Agriculture, and the American Agricultural Economics Association. Although all of these studies relate to marketing orders, very few of them report empirical evidence of performance. However, they are all useful for the present analysis, almost as much for what they omit as for what they include.

Case Studies: Introduction

Analysis of the performance of marketing orders in the five industry studies developed in this project is presented in later sections. But, because of the diverse nature of these commodity-industries and the marketing orders to which they are subject, they are introduced here to provide a basis for the later discussion.

1. California Cling Peaches

The state marketing order covering California cling peaches for processing is probably the best known and most complex example of the extended use of this policy instrument. This commodity-industry has been subject to such marketing control since the early 1930s, and even prior to that various voluntary control schemes were used. Since 1933, the crop has been free of mandatory controls for only five years, 1935, 1938, and the World War II years, 1943–45. Almost all of the available authorized marketing order provisions have been used at one time or another by the cling peach industry. These include grade and size controls,

TABLE 1.—VALUE TO GROWERS, MAJOR FRUITS FOR CANNING, CALIFORNIA, 1969*

Fruit	Tonnage canned (tons)a	Grower price per ton (dollars)	Value to Growers Dollars	Value to Growers Per cent of total
Apricots	163,000	121.00	19,723,000	18.4
Bartlett pears	267,000	90.00	24,030,000	22.4
Cling peaches	784,700	73.40	57,596,980	53.8
Freestone peaches	100,600	57.30	5,764,380	5.4
Total	—	—	107,114,360	100.0

* Data are from California Crop and Livestock Reporting Service, *California Fruit and Nut Statistics, 1968–69* (Sacramento, 1970), p. 9.

a Short tons of 2,000 pounds. Throughout this report tons without further specification are short tons.

total seasonal quantity regulation, general surplus elimination (tree-pulling), inspection and certification, advertising and promotion assessments, research programs, and regulation of unfair trade practices.

The extent of the controls exerted, the size of the annual budget—$3 million in 1968/69—and the importance of the crop in the canned fruit industry—about 54 per cent of total grower revenue from the principal crops (Table 1)—have all contributed to the continuing high level of interest in the marketing order. In view of the amount of attention it has received it would seem that the cling peach order would have been subjected to a great deal of research effort and evaluation. As a matter of fact, there had been almost no published appraisals of the order until 1965 (70).[7] This is not to say that there has not been a large amount of publicity relative to the order. Probably no public policy implement in agriculture has been given greater credit for its successful performance with less empirical evidence of that performance than the California cling peach marketing order.

The cling peach industry closely approximates what have come to be considered the optimum set of characteristics for marketing order control. Production is concentrated in a relatively small and well-defined area in the Central Valley of California. The raw product goes entirely to canneries which provide a focal point for grading, inspection, and collection of assessments, thus easing administrative problems considerably. A growers' association dating from antecedents in the 1920s has long provided an organizational basis for group activity and a forum for industry discussion.[8] With considerable aid from the University of California College of Agriculture, the industry has generated a great deal of production and marketing data and carried on statistical analyses as a basis for marketing regulation. During most of the years of its existence the marketing order has had the support of major grower and canner interests.

Acreage, production, and grower returns.[9]—Rapidly expanding acreage and production have characterized California's cling peach industry since the mid-

[7] The only previous formal analysis was an unpublished Ph.D. dissertation which avoided the major performance implications (7).

[8] The California Canning Peach Growers was active in the early voluntary proration schemes in the 1920s. The current organization, California Canning Peach Association, a bargaining cooperative, dates from 1935.

[9] Appendix F lists sources of statistical data.

1950s. Prior to this period acreage had been quite stable although production had increased gradually due to steadily rising per acre yields (Chart 1). In 1954, bearing acreage began an increase which continued throughout the 1960s. Non-bearing acreage, reflecting the excess of new plantings over trees removed, rose dramatically from 1953 to 1959, declined for the next five years, and then began to rise again in 1964. Total acreage reached an all-time high in 1969.

Cling peach production climbed to a record level of 937,000 tons in 1964. Unfavorable weather conditions reduced production somewhat during the succeeding four years, but by 1969 production again approached the 1964 level.

Grower prices, total revenues, and returns per acre increased rapidly between 1930-34 and the mid-1940s (Chart 10). Since that time, the rate of price increase has dropped sharply although total revenue has continued to increase at a rapid rate. Returns per acre have tended to level off since the mid-1950s, when the rapid increase in total production began. Year-to-year variations in prices, revenues, and returns per acre have declined dramatically and about equally since the mid-1950s (Chart 15). Since 1950, when major marketing order controls were applied, the positive changes in year-to-year prices have averaged 20.2 per cent, whereas negative changes have averaged 9.0 per cent. Year-to-year changes in total revenues and returns per acre have followed the same pattern, with positive changes in both averaging about 22 to 24 per cent and negative changes about 12 per cent.

The total supply of canned cling peaches and fruit cocktail more than doubled from 1950 to 1969. During this period the exported share rose from 3 to 4 per cent of the supply to as high as 19 to 21 per cent in the early 1960s, but declined to less than 10 per cent after 1967. Carryover percentages of total supply have remained relatively stable since the mid-1950s (Chart 26).

Marketing organization and structure.—Cling peach tonnage is sold largely to commercial canners on the basis of contracts of varying term or delivered under contract to cooperative canners. There are currently about 15 commercial and two cooperative canning firms handling cling peaches compared to about 50 canners immediately after World War II. On the growers' side of the market in 1968, producers of about 39 per cent of the tonnage were members of a bargaining association and another 7 per cent were represented by that association on an agency basis in price negotiations. Thus, about 46 per cent of the tonnage to be sold is under contract to one seller, the California Canning Peach Association.

On the buyers' side of the market, about 23 per cent of the tonnage is handled by the two cooperative canners, California Canners and Growers and Tri-Valley Growers. The remaining tonnage is largely under term contracts with commercial canners, with the largest four firms canning about 42 per cent of the total in 1968.[10] All of the major canners—cooperative and commercial—process a full line of canned products. Some of them also pack frozen foods and many of the commercial firms are diversified into other food and nonfood industries. There are a number of national brand advertisers among the major canners, but the majority of the canned pack is sold under buyers' private labels. In either case, it is important to sell a "full line" of products in order to maintain market shares

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[10] Share-of-tonnage data are estimates of informed industry members.

CHART 1.—CALIFORNIA CLING PEACHES: ACREAGE, PRODUCTION, AND YIELD PER
BEARING ACRE, 1925–1969*
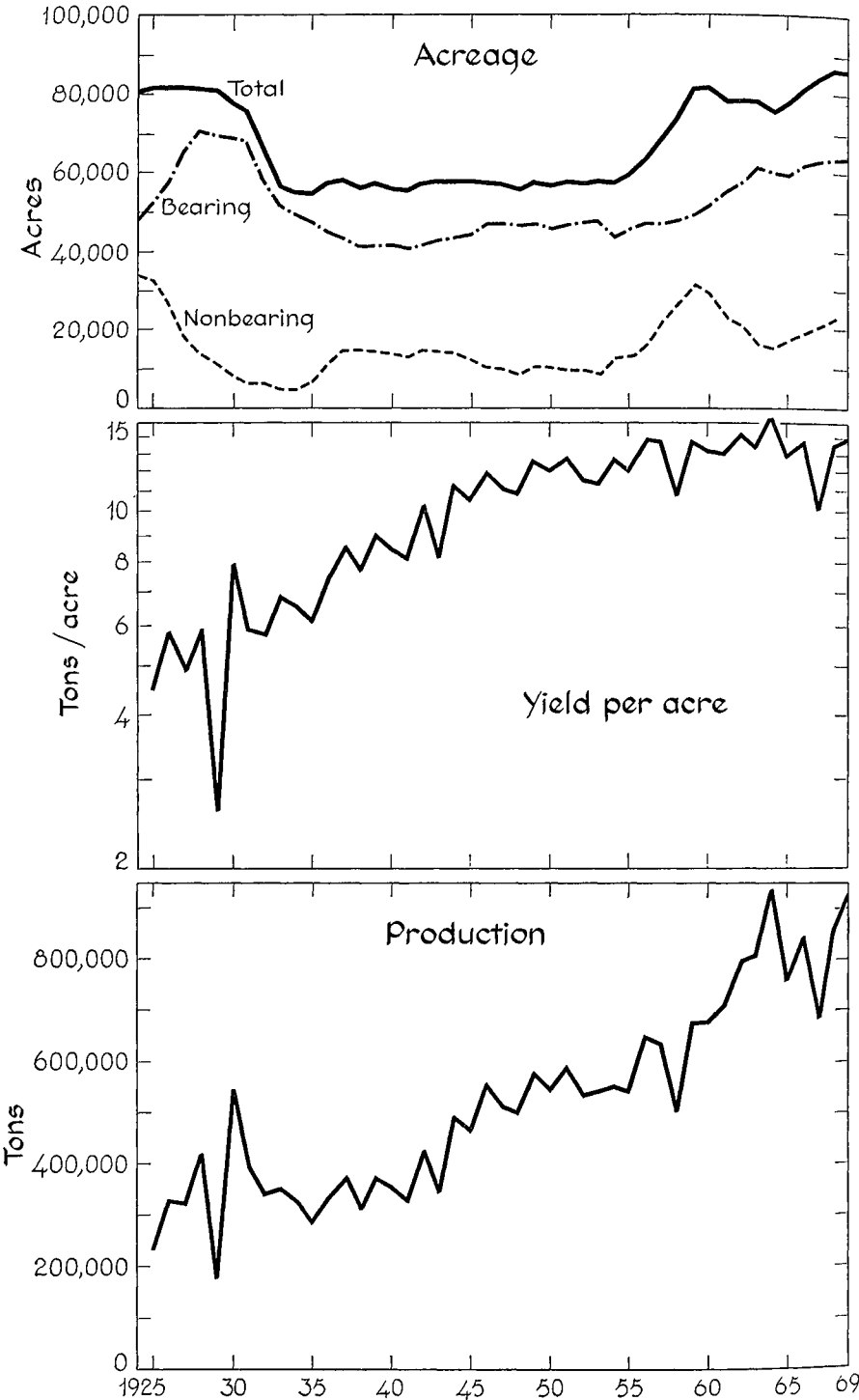
* Data are from sources listed in Appendix F.

and sales connections, as well as brand acceptance in the case of the national advertisers.

Cling peaches are sold in a market that is typical for highly seasonal, one-use specialty crops produced in a limited area. Organized sellers, rather than many small farmers, face a relatively few large buyers. Although a raw product price is determined at the exchange level between producers and processors, the importance of this price is diminished by the fact that close to 25 per cent of the crop moves on consignment-like terms to cooperative canners. Probably more than 60 per cent of the annual tonnage is under term contracts of up to 10 years, which effectively reduces its importance in price negotiations. The small percentage of uncontracted tonnage is the only fruit remaining for what might be considered the traditional pricing process. Clearly, the raw product price is a negotiated settlement among large, mutually dependent market factors. Such a price does not fit the classical competitive model, nor does anyone pretend that it does.

The marketing order.—The long-existing cling peach marketing order is operated as a part of this institutional organization. The basic provisions of the order as it had evolved between 1950 and 1960 were still the major elements of its operation in 1968. A major change—the so-called "open market" provision—was added in 1965. These principal provisions of the "Joint Marketing Order for Canning and Freezing Cling Peaches, as Amended, 1968–1971" are outlined in Appendix A.

Prior to 1963 all of the cling peach marketing orders had been jointly operated by growers and processors. After the 1962 season, attempts to formulate another joint order were unsuccessful. In particular, processor opposition to the use of the surplus control provisions of the order reached a point that precluded processor approval of any order that was deemed necessary by the grower groups.[11] In anticipation of this situation, the growers developed and approved in 1962 an order covering producers only, and this order was available for use in 1963 as a substitute for the joint order. In 1964, a "processors only" order was initiated to impose quality controls that could not be effectively carried out under the producer order. Thus, surplus control was effectuated under the producer order and quality control under the processor order.[12] In 1965 a joint grower-processor order was again instituted which brought surplus control under joint administration, but kept quality regulation in processor hands and advertising and promotion in producer hands. The new "open market" provision was included in an effort to overcome some of the problems raised by the traditional surplus control procedure.[13]

The most recent joint grower and processor marketing order for cling peaches was made effective in 1968. In addition, cling peaches for processing are covered by a grower order and a processor order. These two latter orders together contain about the same authorizations as the joint order with the exception of the open market provisions. The Joint Cling Peach Advisory Board has 23 members—

[11] For a review of the evolution of this situation see 70, pp. 98–114.

[12] Unless otherwise noted, the sources of information presented in this section are various cling peach marketing orders to which reference is made in the text. These are in processed form as issued by the Bureau of Marketing, California Department of Agriculture.

[13] See Appendix A for an explanation of these various provisions and procedures.

12 growers and 11 processors. The growers are chosen by district except for one member-at-large. The processor members represent cooperatives (2 members), the four largest firms (4 members), and all other processors (5 members). The Producers Canning Cling Advisory Board has 15 grower-members. Eleven of these represent various production districts in the same pattern as those on the joint board and the other four are members-at-large. The Processors Clingstone Peach Advisory Board has 11 members who represent the same constituencies as those on the joint board.

The major provisions of the grower order include elimination of a general and a seasonal surplus, quality controls, and advertising and inspection. The processor order includes only quality regulation as its principal authorization. The joint order includes all of these provisions plus the open market plan. All of these orders provide for research and regulation of certain defined unfair trade practices.

In summary, the joint grower-processor order:

1. Establishes grade standards, defines the defects specified, and provides for mandatory inspection of all peaches delivered.

2. Authorizes quality controls through use of minimum grades and sizes, certification of fruit meeting those minimums, and diversion of off-grades by processors.

3. Authorizes *general* surplus elimination through incentive tree removal programs. This provision is intended to grant "tree removal credits" to growers who pull bearing peach trees and thus reduce bearing acreage under conditions determined by the board. The amount of such surplus acreage is based on crop surveys and other investigations of economic conditions by the board. Growers who pull trees, as long as the specified surplus acreage limit has not been reached, receive credits which can be used to offset any green drop requirement for the succeeding two seasons, until such credits are used up. Growers may transfer their unneeded tree credits to another grower. The order limits such transfers to one, but to this extent tree credits are a marketable commodity.

4. Sets forth three methods of eliminating a *seasonal* surplus.

(a) Effectuation of the open market provisions. These provisions may be put into operation if the board finds that a season's price has been established that would fulfill the goals of the legislative authorization. When activated, processors purchase their desired tonnage at the prevailing price during two specified purchase periods. Estimated tonnage remaining unsold after the second period is declared surplus and an equivalent percentage of the crop is eliminated by green drop and surplus diversion as described below. Payment for unsold tonnage is obtained equally from growers and processors on the basis of the unsold tonnage percentage as applied to the tonnage each grower has sold or processor has purchased.

(b) If the above procedure is not effectuated by May 15 of each season covered by the order, an alternative plan is available. If on the basis of its economic information the board determines that a seasonal surplus exists, it may recommend a green drop, removal of bearing trees, or processor diversion. The green drop involves removal of all of the peaches from a specified number of trees in each orchard to meet the percentage reduction required. Tree removal is carried

out in the same manner as described for a general surplus but on the basis of a seasonal tonnage estimate rather than long-term outlook. Processor diversion involves removal of peaches of acceptable grade from the processing plant at some stage in the process to eliminate a percentage of the harvested crop up to a limit of 7 per cent.

(c) The order authorizes the board to recommend to the Director of Agriculture any other procedure to reduce a seasonal surplus if such a recommendation is accompanied by a detailed plan of the procedure suggested. However, a referendum must be held and a majority of producers and processors found to approve any such plan prior to its effectuation.

5. Authorizes advertising and promotion programs. These programs are to be financed by growers only and the deduction, including one-half of total administration costs, cannot exceed $2.50 per ton of authorized grades delivered. Processors pay for one-half of administration costs and all of the quality control costs.

6. Authorizes research and acreage surveys and specifies unfair trade practices. Included in the latter category are contracting for the sale or purchase of off-grade peaches and violating any of the regulations established by the order in connection with the sale or purchase of peaches.

CHART 2.—TRENDS IN MARKETING CONTROLS, CALIFORNIA CLING PEACHES, 1927–69*

Year	No controls in effect	Quality stds. Inspection grading	Number 1's only (diversion of off-grades)	Green drop, or Cannery diversion, or leave part unharvested, or Pack limitation	Green drop plus Cannery diversion
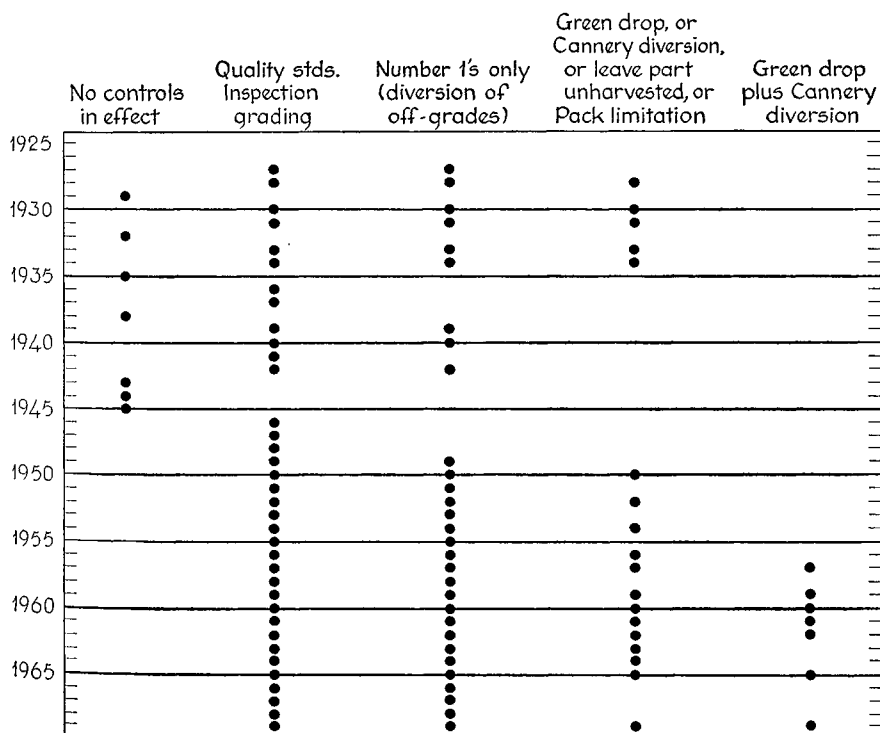
* Data are from the California Department of Agriculture and Cling Peach Advisory Board records and publications.

Use of marketing order provisions.—The use history of the various marketing controls in the cling peach industry since 1927 is illustrated in Chart 2. Since the late 1940s the dramatic progression from no controls to increasingly stringent regulations under the current order is apparent. The pattern established by 1957 has featured the use of both the green drop and cannery diversion procedures for the elimination of a seasonal surplus. The years 1958 and 1966 through 1968 saw no use of the surplus provisions due to unfavorable weather conditions which effectively reduced total supplies available in those years. The open market provisions, although available in 1965, were not used until 1969. Both a green drop and cannery diversion were used in that year to deal with the "surplus" remaining after the purchase period.

The results of cling peach surplus elimination programs from 1949 through 1969 are shown in Table 2 and Chart 3. The familiar pattern that began to emerge again in 1969 was the widening gap between the total production and the tonnage sold for canning. Primarily because of adverse weather in 1965 and 1967 potential total production had not been realized in a contiguous set of years

TABLE 2.—CALIFORNIA CLING PEACHES, ESTIMATED TONNAGE REDUCTIONS
DUE TO MARKETING ORDER REGULATIONS, 1949–69

(Thousand tons, except as otherwise indicated)

| Year | Esti-mated total crop[a] | Eliminated under marketing order regulations | | | | Other uses and losses[a,b] | Total fruit sold for canning[d] | Percentage of crop eliminated (per cent) |
		Green drop[a]	Cannery diversion[b]	Culls[c]	Total			
1949	578	0	0	23	23	11	544	4.0
1950	548	76	0	19	95	9	444	17.3
1951	589	0	0	25	25	8	556	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	5	571	14.7
1960	678	86	17	31	134	4	540	19.8
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
1965	760	31	9	80	120	4	636	15.8
1966	839	0	0	85	85	3	751	10.1
1967	688	0	0	79	79	1	608	11.5
1968	854	0	0	86	86	1	765	10.1
1969	921	26	18	93	137	1	783	14.9

[a] California Crop and Livestock Reporting Service estimate.
[b] Cling Peach Advisory Board data.
[c] Cullage based on Advisory Board Number One Grade, the minimum grade allowed.
[d] These totals do not correspond exactly with Cling Peach Advisory Board data in some years largely because of differences in the original crop estimate. The Crop and Livestock Reporting Service estimate as published has been used here. The discrepancies do not affect the analysis.

CHART 3.—CALIFORNIA CLING PEACHES, ESTIMATED TOTAL PRODUCTION AND
TONNAGE SOLD FOR CANNING AFTER ELIMINATION UNDER MARKETING
ORDER REGULATIONS, 1949–69*
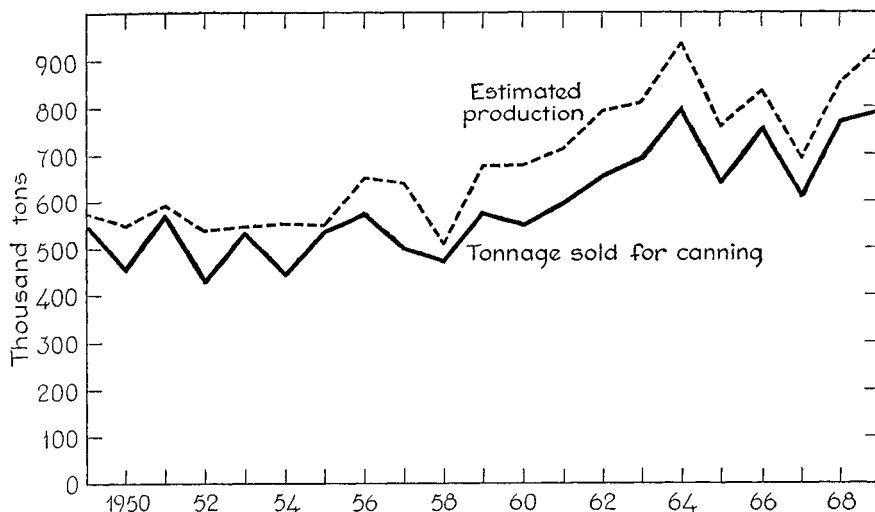
* Data are from Table 2.

since 1963 and 1964. In 1968 and 1969 the production trend established in the late
1950s was resumed, and the traditional surplus control measures were reinsti-
tuted.

The open market plan, used for the first time, overcame one of the major
problems created by the previous surplus control methods, namely, the total de-
pendence of the program on estimated supply and demand. The substitution of
actual processor purchases at an established price for estimated processor re-
quirements based on a predicted final product price removed one objectionable
feature of the prior control program. However, more years' experience than one
is required to evaluate the effect of the new procedure. The real effect of its use
in 1969 was little different than the effect of previous programs. A large share
of the total crop was eliminated by green drop and cannery diversion.

One other feature of the recent marketing order is of interest at this point.
The use of the open market provision requires that a "prevailing price" be estab-
lished which will fulfill the objectives of the marketing order legislation (see Ap-
pendix A). The inclusion of this provision required for the first time in the his-
tory of cling peach marketing orders that the Advisory Board and the Director
of Agriculture formally accept some seasonal price. Since the California Canning
Peach Association is clearly the price leader on the sellers' side of the market, it
is the price established by this bargaining cooperative that becomes the "prevail-
ing price." The contract between the association and the various canners spells
out the terms for establishing the price to be paid to the cooperative's members.
Specifically, this contract calls for the acceptance of the association's announced
price or price schedule by one-third of the canners who purchase from the asso-
ciation and whose aggregate purchases are one-third of the total tonnage offered
by the association. Also, among the canners accepting shall be one that is among

the three largest purchasers from the association in that season (*19*, pars. 16[b], 16[c]). This relationship between the marketing order and the bargaining association pricing process has resulted in a somewhat altered industry structure but its implications can only be the subject of speculation, since 1969 was the first year of meaningful operation.

2. *California Bartlett Pears*

The state marketing order covering Bartlett pears for processing utilization has been in effect continuously since 1938.[14] Control provisions include quantity limitation through minimum size regulation and the use of other quality standards. The necessary inspection and certification is carried on under the marketing order program. This order is the major focus of this study, but the interrelationships among the orders covering fresh and processing pears are, of course, of major importance.

The marketing agreement for California fresh deciduous tree fruits was one of the first agreements approved under the Agricultural Adjustment Act of 1933, and the California Bartlett pear industry began utilizing its provisions immediately. In fact, in 1933, before the agreement was in effect the pear growers operated a "car concentration" plan on a voluntary basis (*6*, p. 389). This plan limited fresh shipments out of state by holding loaded railcars at concentration points and the use of "shipping holidays" during which no pears were loaded. In 1935, under a new agreement, grade and size regulations were included. Controls similar to those of 1934 and 1935 were used in the 1936 and 1937 agreements, but in April 1938 growers voted in a referendum to discontinue the agreement. A steep decline in prices during 1938 resulted in reestablishment of the agreement in 1939, and it has been in effect for fresh California Bartlett pears ever since, with the exception of the war years 1943 and 1944, when prices exceeded parity (*6*, pp. 390–91).

The current federal marketing order for California deciduous tree fruits covers interstate and export shipment of fresh Bartlett pears, plums, and Elberta peaches. The authorized controls include grade, size, and maturity standards and regulation of daily shipments (*118*, pp. 191–211). In addition to the federal order, there are two California state marketing orders covering fresh Bartlett pears. One, effective since 1937 (with the exception of 1943–46), roughly parallels the federal order in that it regulates minimum grades and sizes in intrastate shipments while the federal order applies to out-of-state shipments. The other state order is confined to sales promotion, market development, and research (*40*, pp. 4–8).

The importance of the processing pear order to this study lies principally in the marked contrast between this order and the cling peach order discussed earlier. These two commodities are the major canning fruits produced in California and accounted for about 76 per cent of the total value to growers of such fruit in 1969 (Table 1). While cling peaches are confined to one utilization—processing—Bartlett pears can either be shipped to the fresh market or processed. Cling peaches

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[14] The current state marketing order for Bartlett pears to be canned or dried is technically called a "program" rather than an "order" since it is authorized under the Agricultural Producers Marketing Law rather than the California Marketing Act of 1937. The effects of the pear program are equivalent to a marketing order and it will be called an order throughout this report.

are produced commercially only in California.[15] Bartlett pears are grown com-
mercially in California, Oregon, and Washington. The differences in utilization
and production areas between these two major canning crops provide the basis for
their inclusion in this study. In addition, there is a striking difference in the use
made of marketing orders in these two commodity-industries.

Acreage, production, and grower returns.[16]— California's Bartlett pear in-
dustry has been characterized since World War II by generally stable acreage and
slightly increasing yields (Chart 4). Until about 1960 these trends resulted in a
gradual increase in production; however, poor weather conditions in 1963, 1965,
and 1967 led to highly irregular production patterns in the 1960s as evidenced in
Chart 4. Even if these three low crop years are not considered it is apparent that
production has declined slightly from the late 1950s. Production in Oregon and
Washington has been generally stable, with some increase since 1965. Within
California there has been a considerable shift in the location of Bartlett pear
acreage since 1950 (*34*, p. 8; *35*, p. 13). The major acreage increases in Lake and
Mendocino Counties have been accompanied by drastic reductions in Placer,
Contra Costa, and El Dorado Counties. One result of this has been a concentra-
tion of production in two areas, Lake-Mendocino, and Sacramento Counties,
which in 1968 accounted for about 44 per cent of the state's acreage compared to
about 28 per cent in 1950. In 1968 these three counties accounted for about 58 per
cent of the total California Bartlett pear tonnage and about 56 per cent of the
tonnage canned (*40*, p. 11).

As shown in Chart 11, total revenue from canning utilization and returns
per acre to California pear growers increased together until 1960 and declined
together in the 1965–67 period. Canning price per ton has shown a considerably
different pattern since 1945–49. The rapid rise in average price per ton from
1955–59 to 1966/67 did not offset the drastic tonnage reductions in 1963, 1965, and
1967 with the result that total revenue levelled off and then declined in the latter
period. Year-to-year variability in canning prices and total revenue and in returns
per acre for California Bartlett pears had decreased somewhat since the 1925–40
period, excepting the drastic variation around the Korean War years (Chart 16).
The variation since 1963 reflects the very short crop years indicated earlier.

The supply, carryover, and export data presented in Chart 27 show the wide
variation in year-to-year supplies since 1962 as well as the declining importance
of the export market for canned pears. Carryover percentages of total supply have
shown little marked trend over this period.

Marketing organization and structure.—Although Bartlett pears are sold for
drying in addition to the fresh and canning markets, less than 3 per cent of the
total California crop has been dried since 1950–54 and only between 1 and 2 per
cent of the total Pacific Coast production has gone to dryers since that time. Can-
ning is by far the major utilization for California Bartlett pears and the average
share of the crop canned has increased from 68 per cent in 1950–54 to 81 per cent
in 1965–67 (Table 3). The tonnage sold for the fresh market and for processing
has varied more in California than in Oregon and Washington. It is evident in

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[15] There is some minor production in other states, but up to this time it has not been of com-
mercial significance.
[16] Appendix F lists sources of statistical data.

CHART 4.—BARTLETT PEARS: ACREAGE AND YIELD PER BEARING ACRE FOR CALIFORNIA AND PRODUCTION FOR PACIFIC COAST STATES, 1925–69*
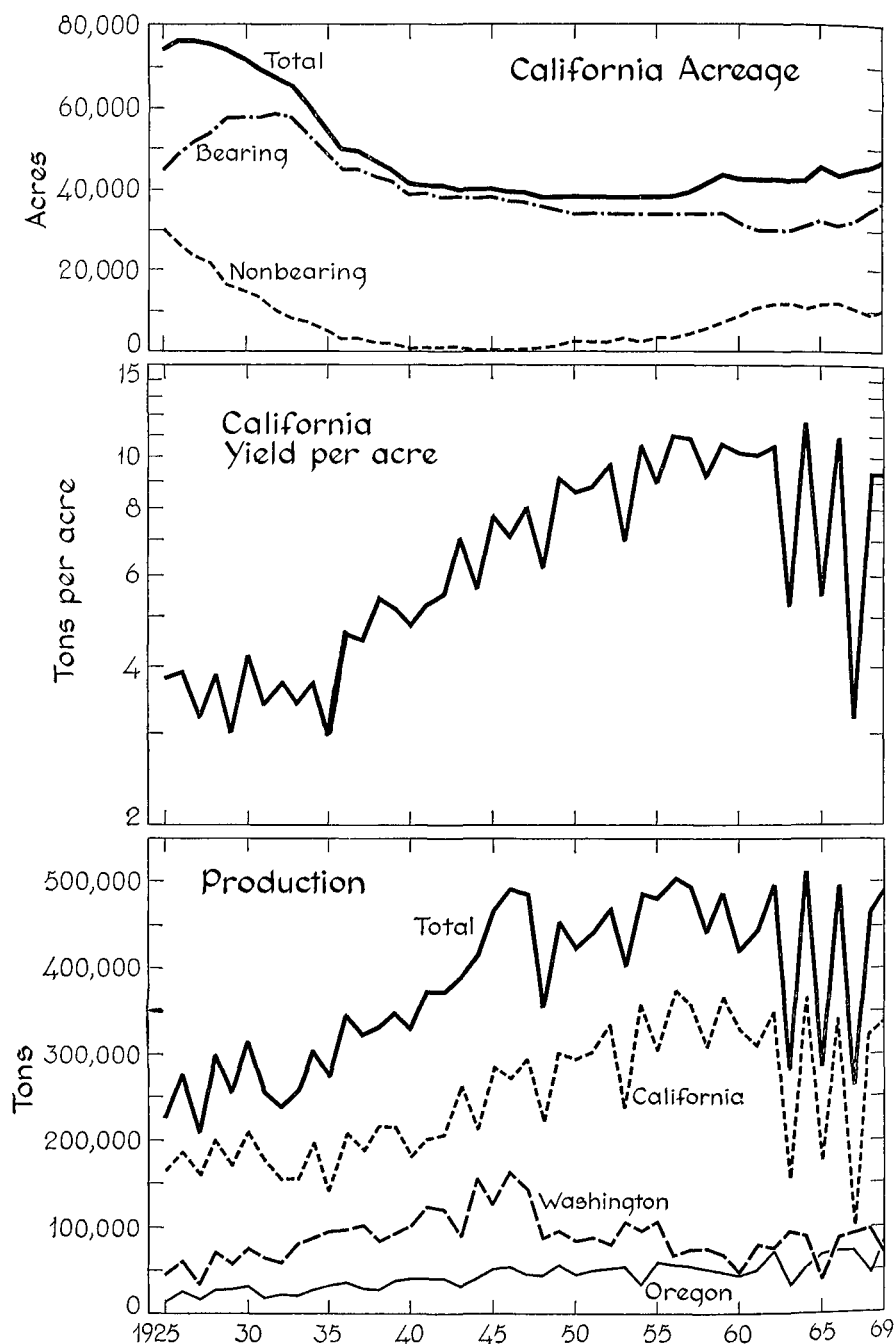
* Data are from sources listed in Appendix F. Production plotted excludes home use and waste, but California yields per acre are computed from total production.

TABLE 3.—PACIFIC COAST BARTLETT PEARS: ALTERNATE UTILIZATION
BY STATE, FIVE-YEAR AVERAGES, 1950–67*

Utilization	Total		California		Washington		Oregon	
	Thousand tons	Per cent	Thousand tons	Per cent	Thousand tons	Per cent	Thousand tons	Per cent
1950–54								
Canned	309.3	69.5	207.5	68.0	72.2	78.6	29.6	62.3
Fresh	126.1	28.4	88.6	29.0	19.6	21.4	17.9	37.7
Dried	9.3	2.1	9.3	3.0				
Total	444.7	100.0	305.4	100.0	91.8	100.0	47.5	100.0
1955–59								
Canned	346.4	72.0	250.0	72.7	62.5	77.6	33.9	60.6
Fresh	124.3	26.0	84.2	24.5	18.1	22.4	22.0	39.4
Dried	9.7	2.0	9.7	2.8				
Total	480.4	100.0	343.9	100.0	80.6	100.0	55.9	100.0
1960–64								
Canned	321.4	74.8	234.0	77.4	52.9	69.1	34.5	68.6
Fresh	100.7	23.5	61.2	20.2	23.7	30.9	15.8	31.4
Dried	7.3	1.7	7.3	2.4				
Total	429.4	100.0	302.5	100.0	76.6	100.0	50.3	100.0
1965–67[a]								
Canned	295.1	77.9	168.3	81.1	62.7	71.7	56.5	80.6
Fresh	79.1	20.9	35.6	17.2	24.7	28.3	13.6	19.4
Dried	4.8	1.2	3.5	1.7				
Total	379.0	100.0	207.4	100.0	87.4	100.0	70.1	100.0

* Data are from U.S. Department of Agriculture, *Fruits—Noncitrus, by States 1949–1955* (Statistical Bulletin No. 192, September 1956), pp. 42–44, and later issues as listed in Appendix F.

[a] Figures for Washington, Oregon, and the total are averages of 1966 and 1967 only.

Table 3 that the Oregon and Washington tonnage sold in these two different outlets has remained relatively constant since 1950–54 in comparison with California.

There are 15 to 20 canners of California Bartlett pears and most of these are multiple-product processors who also pack cling peaches, apricots, freestone peaches, and tomatoes as major product lines. The eight largest canning firms process about 80 per cent of the state's Bartlett pears. Of these canners, two are large cooperative organizations whose members produce about 30 per cent of the total. Cooperatives are also major handlers of pears destined for the fresh market. In 1960, they handled about 64 per cent of the total, while grower-shippers and commercial firms each had about 18 per cent (67, p. 31). There is no indication that these percentages have changed substantially since that time.

The marketing organization for California Bartlett pears moving to canners and fresh handlers is highly interrelated in most production districts. From 1950–54 to 1965–67 an average of about 23 per cent of the Bartlett pears went to the fresh market and 77 per cent to processors (Table 3). In more recent years the fresh market share has declined to about 17 per cent. But in 1968, for example, the pears sold for fresh use varied from zero to 75 per cent among all the different districts, and even among the major producing areas this share varied from zero in the Santa Clara district to about 38 per cent in Lake County (40, p. 11). In

those districts where some share of the fruit is packed for the fresh market, part of the fruit for canning may go through packinghouse sorting or it may be pooled and sold by a cooperative packer. Hence, the seller may be an individual grower or a cooperative group. In addition, about 50 per cent of the tonnage going to canners is sold through the California Canning Pear Association, a growers' bargaining cooperative (*21*, p. 4). Although the fruit is actually delivered directly to the canner and payment is received by the individual seller, the bargaining association has contractual arrangements with the grower and the canner which give it authority to commit and sell its members' pears.

In terms of market structure theory, sales control of about half of the canning tonnage is concentrated in the bargaining cooperative. The remainder is sold by individual growers or local cooperatives to individual canners, but most of these sales are based on term contracts running from three to five years. On the buying side, there are several major canners who apparently act as price leaders in the bargaining for each year's price. The bargaining association contract specifies that at least one of the three largest canner purchasers must accept its price if that price is to be established. The price established by the association is considered the season's price and thus becomes effective for the total tonnage sold for canning. Prices paid for pears utilized fresh are dependent upon day-to-day sales in the national market. For these pears, the location of price determination has shifted generally from the auction or terminal wholesale market to a decentralized, shipping-point-oriented market. Although there are a few large fresh fruit buyers such as national chains and buying organizations, there is little evidence of a concentrated market structure on either side of the market (*67*, pp. 75–104; *86*, pp. 37–101).

The similarity of the market organization and structure for processing utilization in the cling peach and Bartlett pear industries is apparent. Both crops are sold to about the same group of processors and about half of both sets of producers are organized into bargaining cooperatives. The fresh market alternative for pears and the organizational structure of that market are of importance in evaluating differences in market control procedures between cling peaches and Bartlett pears, as is the wide production area for pears.

Use of the processing Bartlett pear order.—The marketing order for California Bartlett pears for processing applies to producers only, although processors sit on the grading committees.[17] The major provisions of the order allow seasonal supply control through application of a limited number of grades, variation in grade standards, and minimum size requirements. Quality controls are applied through grade standards. Other sections provide for third party inspection and grading, advertising and promotion assessments, research, and crop surveys.

Although these various controls are authorized, those regulating supply had only been utilized once prior to 1970. In 1957 a minimum size requirement was employed for this purpose when the industry faced a second successive large crop and an excessive carryover of canned pears.[18] With this exception, the pear order has typically established three grades for processing fruit which form the

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[17] See Appendix B for a description of the authorized provisions.

[18] California Crop and Livestock Reporting Service estimates indicate that about 12,000 tons of the projected total production were eliminated due to this restriction (*38*, p. 36).

basis for sales and deliveries to canners. First grade and hail or frost grade pears are unrestricted as to use. Second canning grade can be used only in special products, such as strained food, juice, or nectar. An additional category, second grade for drying, is currently used to establish standards for dried utilization. Bartlett pears brought into California for processing are required to meet these grade standards as well as to pay the currently applicable administration assessment under the order.

The assessments collected from producers under the order in 1968 and 1969 were as follows: administrative fee, $.75 per ton for all Bartlett pears certified and delivered for processing; trade stimulation and research fee, $1.25 per ton for unrestricted grades (first and hail grades); and $.50 per ton for restricted grades (second canning grade). Although the advertising and research fee has not changed in recent years, the administrative fee is adjusted in accordance with need. For example, in the small crop year of 1967 this fee was increased to $1.80 per ton from the previous year's $1.00. The administrative cost of this order had been rising from $.85 per ton in 1963 to $1.00 in 1965 and 1966; however, the management of the order was consolidated with that of the fresh pear marketing order in 1968 and the fee has been $.75 per ton since that time. The total budget of this marketing order in 1968/69 was about $603,000, of which $281,000 was for administration and inspection and $322,000 for advertising and research (*33*).

Advertising and promotion programs for California canned pears are coordinated with the programs financed by Oregon and Washington pear growers through the Pacific Coast Canned Pear Service. Assessments collected under the California marketing order are utilized in this effort while other funds come from the Oregon Bartlett Pear Commission and the Washington State Fruit Commission.

The effect of the Bartlett pear regulations on tonnage moving to processors cannot be quantified. No industry-wide data of the type available for cling peaches are collected, largely because of the much lower level of industry control exerted under the Bartlett pear order. Also, the existence of the fresh market alternative and the production in other states reduce the relevance of such data for California pears for processing. The principal changes in year-to-year regulations have been some variation in tolerances allowed for hail damage or frost damage and allowing second grade fruit to be used for canning in some very short crop years, such as 1967. Quality standards imposed under the fresh pear orders no doubt shift some fruit to processing, but the tonnage shifted is impossible to estimate, particularly in view of the general trend toward greater processing utilization. Regulations imposed under the fresh market orders seem to have tightened somewhat over the years. For example, in 1959 the minimum grade allowed for interstate shipment was U.S. Combination Grade with not less than 80 per cent of the pears being U.S. Number 1 Grade. In 1968 this latter percentage was 85 per cent, and tolerances for misshapen and hail-damaged pears have also been reduced (*41*). But, in 1967, when weather caused a very short crop of pears, the standards for fresh shipment were relaxed to a 75 per cent Combination Grade with special tolerances for misshapen or russeted pears.

The regulations imposed in the Bartlett pear industry have been quite flexible and have taken into consideration year-to-year differences in quality and quantity

of fruit available. This evidence suggests that there has been little administrative interference with market adjustment to the available production. Adherence to rigid price and income policies has not been characteristic of the use of the Bartlett pear marketing order.

3. *California-Arizona Lemons*

Marketing controls were applied to lemons as early as 1923/24 as a result of extremely low prices caused by a bumper crop. The California Fruit Growers Exchange (now Sunkist Growers) established a "distribution committee" consisting of the sales managers of its various districts and the lemon sales manager of the central organization. The committee met weekly to determine the quantity of fresh lemons that could be shipped domestically in the next week "at a price that would leave some profit to the grower" (*51*, pp. 30-31). The weekly quantity was prorated among the various exchange packing houses and any remaining lemons were diverted to by-products, principally citric acid, pectin, and lemon oil.

This forerunner of the current marketing control procedure was carried on by the exchange (Sunkist) until a California program was instituted under the Agricultural Prorate Act in 1935 (*88*, p. 159). This program was never operated as intended due to continuing litigation prompted by handlers other than Sunkist, and some of the provisions of the Prorate Act were eventually declared unconstitutional. However, Sunkist continued its own proration program until the current federal order became effective in 1941. Sunkist sought an industry-wide control program even though its membership produced about 90 per cent of the lemons and the reasons advanced illustrate the usual problems of this situation. The independent handlers and the other cooperatives who controlled the remaining tonnage were able to ship all of their lemons to the fresh market while Sunkist members were diverting an average of 20 per cent of theirs to low value by-products in the early 1930s (*88*, p. 159). Thus, dissatisfaction grew within the organization but, according to Erdman in his 1933 evaluation, there was little actual loss of membership by Sunkist due to this because of the strong marketing position it held (*51*, p. 32).

In the late 1930s the lemon industry turned to the federal marketing order legislation with Sunkist management taking the lead in urging the adoption of an order. The major objective of the Sunkist leadership was to continue the proration program that they had long operated but to spread the burden of the surplus to all members of the industry (*125*, p. 34). The present federal order was adopted in April 1941.[19]

One other order, a California marketing program for lemon products, was in effect from 1951 to 1958. This order authorized volume control, grade and size regulations, sales promotion, and product research. The major purpose of this order was to " . . . stabilize the processing outlet which was being burdened with whatever supply of lemons was not shipped in fresh form under the federal marketing order" (*28*, p. 24). To increase consumption of lemon products and correlate the supply of lemons for processing with the demand for products, a stabilization pool and advertising and promotion programs were operated during the existence of the order.

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[19] Provisions of this order are summarized in Appendix C.

Acreage, production, and grower returns.[20]—Until the mid-1950s, California was the only commercially important lemon producing state and the only one for which crop statistics were reported. In 1955, Arizona acreage and production were reported for the first time. In that year Arizona's bearing acreage amounted to about 3 per cent and its production to about 1.5 per cent of the two-state totals.

Bearing acreage of lemons was fairly stable from the beginning of reported data in 1919 until 1935 (66). As shown in Chart 5, nonbearing acreage had been rising since 1927 and in 1935 bearing acreage reflecting these plantings began to increase rapidly. A peak was reached in 1945/46 and the trend was gradually down for both total and bearing acreage until 1955 when new plantings turned sharply upward and total acreage began to rise. Bearing acreage in Arizona has been increasing steadily since 1955, and a sharp upturn in nonbearing acreage in 1965 reflects new plantings in that area.

There was no reported production in Arizona prior to 1955. California production began its post-World War II expansion in 1948 and generally increased until 1959 (Chart 13). Since that time, Arizona production has risen steadily while California has trended downward. Total production dipped until 1962 and has exhibited a rising trend since that time. Yield per acre has increased gradually in California, although average yields reflect the impact of old and less productive acreage in some of the production areas that are declining in importance (Chart 13). Arizona yields have risen rapidly as new plantings have reached full bearing age, and there is little old acreage to bring down the average as in California.

Grower returns per box for California have risen gradually from the low point in the 1930s, averaging $2.01 in 1930–34, to an average of $3.84 in 1965–68 (Chart 12). Total revenue and returns per acre have increased at about the same rate since 1930–34. This suggests that increased prices and yields have offset the decline in bearing acreage since the 1945–49 period. Prices per ton for fresh and processing lemons are shown in Chart 23.

The generally declining price levels during the 1950s were accompanied by increased stability in total revenues and returns per acre (Chart 17). Rising price periods, such as from 1940 to 1950 seem to be associated with wider variation in grower returns per acre and total revenue. For example, from 1940 to 1949 positive changes in returns per acre averaged 24.3 per cent compared to 9.0 per cent from 1950 to 1959 (Table 12). Negative changes in these returns averaged 11.3 per cent in the earlier decade compared to 8.2 per cent in the latter.

Marketing organization and structure.— In recent years, Sunkist Growers has handled about 85 per cent of California-Arizona fresh lemon shipments and about the same percentage of the lemons moving into processed products. Another cooperative, Pure Gold, and several independent firms handle the balance of the crop. The Sunkist organization has been a typical federated marketing cooperative throughout its history, with local association or grower-packer members formed into districts which in turn are represented at the central association level.[21] Hence, in the production area the marketing organization is similar to that

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[20] Appendix F lists sources of statistical data.

[21] A recent move toward a centralized form has taken place in the wake of an adverse antitrust decision and currently all Sunkist members belong directly to the central as well as a local association district exchange (99, p. 5).

CHART 5.—CALIFORNIA-ARIZONA LEMONS: ACREAGE 1925–68, PRODUCTION AND
YIELD PER BEARING ACRE 1940–68*
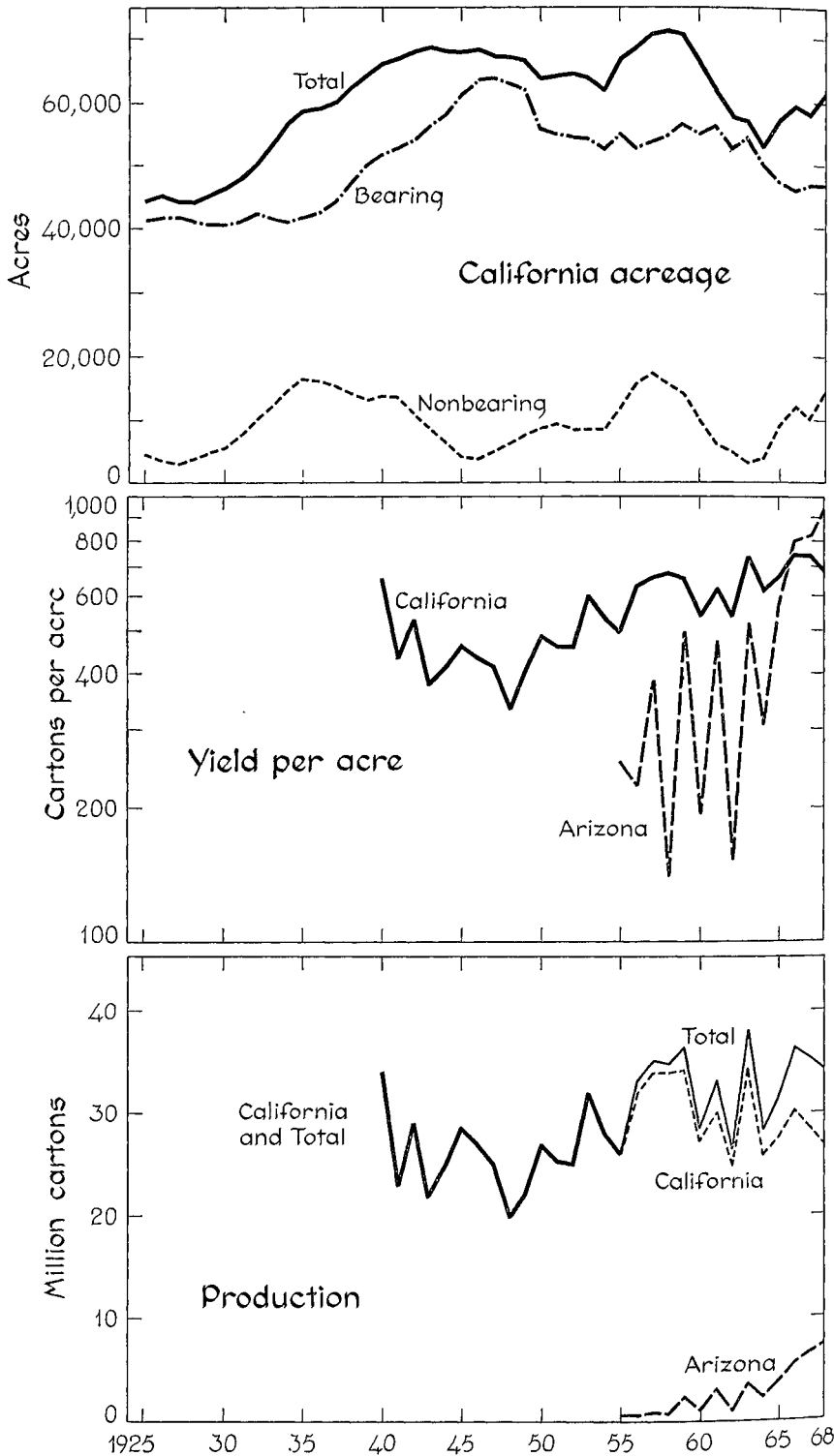
* Data are from sources listed in Appendix F. A carton of lemons weighs approximately 38 pounds.

for most other fresh fruits, except for the high degree of membership in the dominant cooperative.

Lemons move to three major outlets. In recent years about 37.5 per cent of the total crop has been sold fresh in the domestic market and about 17.5 per cent has been sold fresh in export markets. The remaining 45 per cent has moved to processing outlets for use in various lemon products (Table 4). The share going fresh to domestic markets has clearly been declining while that moving to the export and products markets has been increasing since the late 1940s.

Lemons are harvested throughout the year, but a marked peak in picking occurs between February and June in the major production district, the southern California coastal area. Harvest in the central California area and the desert areas of California and Arizona peaks earlier, generally in November and December. Typically, most lemons are stored for shipment a few months after harvest. This serves to aid in regulating flow to market during the peak demand periods, which are largely the summer months, and also accomplishes the "curing" process, resulting in greater juice availability than from the fresh picked fruit.

Harvested lemons are delivered to the local packing facility and are usually stored there until ready for packing. Lemons destined for processed products, principally canned or frozen juice, lemon oil, and pectin, are generally delivered to a centrally located processing plant from the local facilities. Sales are largely handled by a central sales office in the Los Angeles area, since Sunkist and Pure Gold are by far the major sales agencies.

Until the mid-1950s California was the only commercially important lemon producing state. But by 1955, when the statistics were first reported, Arizona bearing acreage had increased to about 3 per cent of the two-state total, and in 1967, Arizona had 7,700 bearing acres, or 16.3 per cent of the total. Another major shift in the location of production has occurred within California since 1950. In 1950 only about 2.5 per cent of the bearing acreage of lemons was located in the central California area, by 1960 this share had grown to about 3 per cent, and by 1968

TABLE 4.—CALIFORNIA-ARIZONA LEMONS: UTILIZATION OF TOTAL CROP,
FIVE-YEAR AVERAGES, 1925–68*
(Per cent of total crop)

| Years | Fresh | | Processed | Total |
	Domestic	Export		
1925–29	75.7	3.9	20.4	100.0
1930–34	71.0	3.6	25.4	100.0
1935–39	73.2	6.1	20.7	100.0
1940–44	64.0	3.8	32.2	100.0
1945–49	65.6	2.6	31.8	100.0
1950–54	55.7	6.3	38.0	100.0
1955–59	43.6	13.9	42.5	100.0
1960–64	43.0	17.0	40.0	100.0
1965–68[a]	37.5	17.5	45.0	100.0

* Data for 1925–28 are from U.S. Department of Agriculture, *Agricultural Statistics, 1957*, p. 204; for 1929–58 from *ibid., 1967*, p. 26; for 1959–67 from *ibid., 1969*, p. 221; and for 1968 from Lemon Administrative Committee, *Annual Report, 1968–69*, p. 9.

[a] Four-year average.

it was 4.8 per cent of the total. The share of nonbearing acreage in this area rose from 1.3 per cent to 25.4 per cent of the state's nonbearing total between 1950 and 1968. During this same period the total acreage in Los Angeles County, the second most important producing county in 1950, declined from about 11,000 acres to less than 2,000 (*34; 35*).

As these data suggest, this industry has seen dramatic shifts in its production areas, and such shifts will continue as nonbearing acreage matures. The marketing institutions have adjusted to these shifts and continue to adjust. As one of these institutions, the lemon marketing order has also been faced with adjustment problems. Similarly, the increasing importance of processed products, from about 32 per cent of the total crop when the order was initiated to about 46 per cent in recent years (Table 4), has tested the flexibility of the marketing order and its capacity for adjustment.

Use of the lemon marketing order.—The major purpose of the lemon marketing order is the weekly proration of domestic fresh shipments during the year. The Lemon Administrative Committee allocates the desired total weekly shipment quota in carload lots (930 cartons) among the three production districts and among the individual shippers within each district.[22] The weekly quota for the industry is made by the committee in consideration of the following factors (*118*, p. 120):

> 1. Quantity of lemons in storage; 2. lemons on hand, and enroute to, the principal markets; 3. trend in consumer income; 4. present and predicted weather conditions; 5. present and prospective prices of lemons; and 6. other relevant factors.

The share allocated to each district is established at the start of the season and is subject to adjustment during the shipping period if necessary (see Appendix C).

The allocation of each district's quota among the individual handlers is made in accordance with a "prorate base." This base is contingent upon the quantity of lemons available for current shipment that the handler controls, either through ownership or contractual agreement. The handler's weekly shipment proration is calculated by applying the base to the weekly quota allocated to his entire district. Allotments are transferable among handlers within the same district and provisions for over- and underallotment shipments and certain other variations are permitted within the regulations.

Size regulations are permitted under the lemon order but these have little impact because processing provides a ready outlet for sizes that are not desirable for the fresh market. In addition, the order allows exemptions to producers whose share of the district's prorate quota would be adversely affected by size regulations imposed. In recent years the committee limited the size of lemons shipped in domestic fresh channels to 235s and larger for the entire season.[23] The last size regulation differing from this was in the 1963/64 season when shipments were limited to 195s and larger, plus a 10 per cent tolerance for 235s from January to March, 1964 (*77*, p. 4).

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[22] Appendix C sets forth the details of the order's provisions and methods.
[23] The size "235" refers to lemons large enough so that no more than 235 can be packed in a 38-pound carton.

TABLE 5.—LEMONS: SHARE OF TOTAL CROP DIVERTED FROM DOMESTIC
FRESH MARKET UNDER MARKETING ORDER REGULATIONS, 1941–68*

Year	Per cent of total crop	Average	Year	Per cent of total crop	Average
1941	46		1955	44	
1942	32	32.2	1956	42	
1943	36		1957	51	51.6
1944	15		1958	61	
			1959	60	
1945	24				
1946	38		1960	50	
1947	32	30.0	1961	58	
1948	34		1962	49	55.2
1949	22		1963	64	
			1964	55	
1950	32				
1951	39		1965	60	
1952	36	39.0	1966	66	
1953	37		1967	63	62.5
1954	51		1968	61	

* Data for 1941–57 are from R. J. Smith, "The Lemon Prorate in the Long Run," *Journal of Political Economy*, December 1961; for 1958–67 data are from *Annual Reports* of the Lemon Administrative Committee, various years.

The weekly prorate of fresh domestic shipments has resulted in the diversion of lemons away from that market in the amounts shown in Table 5. This diverted share is allocated to export (fresh) and processing markets. The shares moving to those markets from each district and the industry totals since 1958/59 are shown in Table 6. The most striking characteristic of these data is the rise in the percentage diverted away from the American and Canadian fresh markets—as the domestic fresh market is defined. This diverted share has increased from an average of 30 per cent in the late 1940s to over 60 per cent since 1965, the increase going to processed products and export markets. Exports of fresh lemons were negligible prior to 1950 but had risen to an average of about 17.5 per cent of the total shipments by 1965–68 (Table 4).

The Lemon Administrative Committee, in common with other federal marketing order groups, estimates an annual budget and an assessment per unit to be levied upon handlers. Adjustments in the cost per unit of operating the program are made each year after an audit. Any difference between actual cost and the rate of assessment paid during the season is corrected through the individual handler's accounts. In 1968/69 the rate of assessment was $.017 per carton of lemons handled. The actual audited cost was $.0165 per carton and the excess was credited to each handler's account (78, p. 3). Between 1962 and 1968 the assessment rate averaged about $.0174 per carton and the actual cost about $.0159. During this period research and development expenses averaged about 17 per cent of the total cost of the order's operation, with the balance spent on administration. The major thrust of research supported by the order is in relation to decay prevention, pesticides, and crop forecasting.

TABLE 6.—LEMONS: ALLOCATION OF TOTAL CROP AMONG UTILIZATIONS, BY DISTRICT, 1956–68*

(*Per cent of each district's total carloads*)

Year	Central California			Southern California			Arizona and desert			Industry		
	Domestic	Export	Processed	Domestic	Export	Processed	Domestic	Export	Processed	Domestic	Export	Processed
1958	54	3	43	40	10	50	41	2	57	40	10	50
1959	49	6	45	39	13	48	31	4	65	39	12	49
1960	64	8	28	49	18	33	56	16	28	50	17	33
1961	52	10	38	44	12	44	22	11	67	42	12	46
1962	69	6	25	50	20	30	51	16	33	51	19	30
1963	60	8	32	38	14	48	20	6	74	36	14	50
1964	61	9	30	45	18	37	40	13	47	45	17	38
1965	49	9	42	42	19	39	25	9	66	40	17	43
1966	37	15	48	35	19	46	27	7	66	34	17	49
1967	31	2	67	38	22	40	32	9	59	37	19	44
1968	38	29	33	41	20	39	30	9	61	39	17	44

* Data are from Lemon Administrative Committee, *Annual Report*, various years. Production for the crop year is from the bloom of the year shown.

4. Pacific Coast Walnuts

In common with many other California commodity-industries currently subject to marketing order controls, the walnut industry had a long history of cooperative organization prior to the initiation of the first order. The California Walnut Growers Association was formed in 1912 and by 1933 its members produced about 90 per cent of the state's tonnage (*125*, p. 35). The Oregon and Washington producers were similarly organized into the North Pacific Walnut Growers Association which controlled a high percentage of the walnuts produced in those states (*88*, p. 190).

The first marketing order for Pacific Coast walnuts was developed largely under the guidance of the California association and was specifically designed to spread the burden of surplus production throughout the entire industry rather than have it carried solely by the cooperatives. The large carryover in 1933 made such surplus control by the cooperatives virtually impossible and they indicated that they would release their huge stocks on the market unless some industry control scheme was enacted. Under these conditions the independent growers and handlers supported controls and the first walnut marketing agreement was made effective on October 11, 1933 (*88*).

This original order included most of the provisions that still exist in the current order. The "salable" percentage of the available crop was designated for sale in the domestic market and the remaining "surplus" percentage was to be exported, diverted to the shelled market, or carried over into the next marketing year. The order applied only to in-shell walnuts as at that time shelled nuts brought much lower prices. This initial order provided for the establishment of minimum and maximum trade prices by the control board under certain conditions. These provisions were dropped in 1935 after a number of amendments to the Agricultural Adjustment Act authorized the issuance of marketing orders rather than marketing agreements and licenses (*88*, pp. 192–93). The revised walnut order was the first issued under this new legislation and operated until 1948 with the exception of the war years, 1943 through 1946, when a War Food Order was in effect (*59*, p. 110). The current order became operative on August 1, 1948, and covers the three Pacific Coast states.

Acreage, production, and grower returns.[24]—Walnuts are produced commercially in California, Oregon, and Washington, but in recent years about 95 per cent of the total crop has been grown in California. Oregon production has declined steadily since the 1940s, and Washington tonnage, not reported separately, is negligible in relation to the total. Hence, for purposes of this analysis, it is the California walnut industry that provides the basic unit of inquiry.

As shown in Chart 6, total California walnut acreage remained generally between 140 and 160 thousand acres from the late 1920s until the 1950s, declining to 1925 levels in 1954/55. Since 1955 total acreage has risen steadily to the current high of almost 178 thousand acres. This rise reflects increased plantings during the period 1954 to 1961, as since that time nonbearing acreage has generally declined. Bearing acreage has continued to rise from its recent low of 114 thousand acres in 1956 to about 139 thousand acres in 1968.

[24] Appendix F lists sources of statistical data.
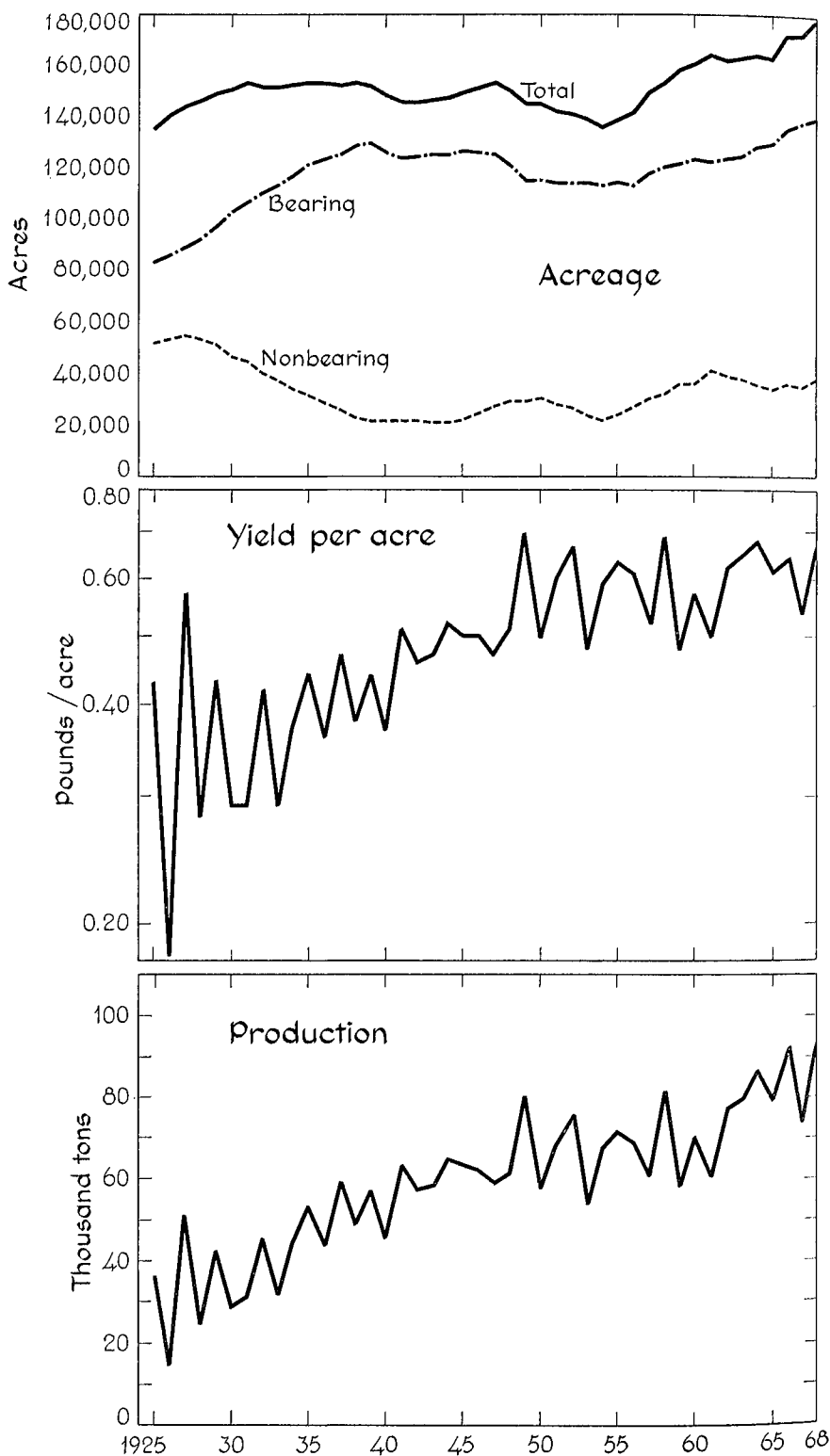
* Data are from sources listed in Appendix F.

The increase in yields per acre from walnuts has been much less dramatic than for most other tree fruits and nuts since World War II. As shown in Chart 6, walnut yields have risen quite gradually and have levelled off since 1955. As a result of these rather stable yields per acre, walnut production has increased primarily due to the rise in bearing acreage in California. Since 1950, California production varied generally between 60 and 80 thousand tons until 1964 when it began to range above the 80 thousand ton level, reaching 92 thousand tons in 1966 and again in 1968 (Chart 6).

Average grower prices per ton and returns per bearing acre for California walnuts have followed about the same trends since 1925–29 (Chart 13). Both rose rapidly to the post-World War II years from the depression lows of the 1930s, but since 1950–54 the increases have been quite gradual. During the 1960s, grower returns were generally level until 1967 and 1968 when price per ton exceeded $500 for two consecutive years for the first time since 1945/46. Total revenue from walnuts has increased at a somewhat faster rate than either prices or returns per acre as a result of the increased acreage and production.

Chart 18 shows year-to-year variation in prices, returns per acre, and total revenue from walnuts. It is evident changes in these variables have become somewhat less extreme since the mid-1950s. Positive and negative changes have been about equal in number and magnitude.

In 1940–44 an average of only 39 per cent of the walnuts produced were sold in the shelled form. By 1965–68 the shelled portion had increased to 67 per cent (Table 7). Exports averaged 2,373 in-shell tons in 1950–54, but increased to an average of 4,724 tons in 1965–67. Imports declined from an average of 8,424 tons to 3,295 tons between these periods (Chart 7).

Marketing organization and structure.—There are five or six major walnut marketing firms in California with a cooperative, Diamond Walnut Growers, formerly the California Walnut Growers Association, handling the largest single share, about 50 per cent of the state's tonnage. The remainder is divided fairly evenly among the independent handlers.

Prior to the 1950s walnuts were largely sold in-shell. Diamond Walnut Growers had long emphasized the in-shell product and until the mid-1950s did little to promote the shift to shelled walnuts (*125*, p. 117). However, by the late 1950s more than one-half of the total production was sold in the shelled form and by 1965–67 this share had increased to more than two-thirds (Table 7). Most shelled walnuts move to retail outlets for sale in packaged form, and the remainder is

TABLE 7.—WALNUTS: PERCENTAGE OF PRODUCTION SOLD SHELLED, FIVE-YEAR AVERAGES, 1940–68*

Year	Per cent shelled	Year	Per cent shelled
1940–44	38.7	1955–59	52.4
1945–49	34.2	1960–64	62.1
1950–54	41.1	1965–68[a]	67.2

* Based on data for 1940–65 from USDA, Statistical Reporting Service, *Tree Nuts, by States, 1909–65: Revised Estimates* (Statistical Bulletin No. 473, 1971), p. 52; and for 1966–68 from *ibid., 1966 and 1967*, p. 7, and *ibid., 1967 and 1968*, p. 7. Production excluding home use.

[a] Four-year average.

CHART 7.—WALNUTS: UNITED STATES IMPORTS AND EXPORTS, 1950-67*
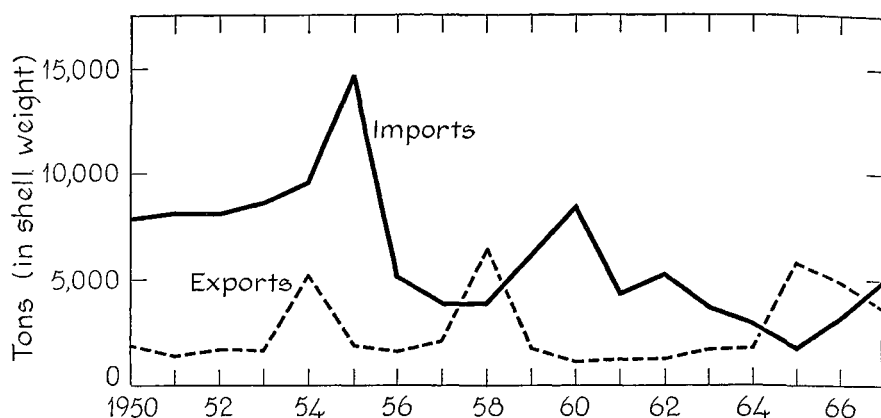
* Data are from U.S. Department of Agriculture, *Agricultural Statistics, 1962*, p. 314, and later issues.

sold largely to bakeries, confectioners, and ice cream manufacturers. In-shell walnuts are sold almost entirely in retail food stores, either in bulk or in cellophane packages (*91*, pp. 24-26).

Pecans provide the major domestic competition for walnuts, although a higher share of pecans is shelled and more of these go to bakeries and confectioners than do walnuts. The pecan industry is concentrated in the southeastern and south central parts of the United States. Until the 1950s there was little organized marketing of the crop. At that time, a major cooperative in the pecan areas, the Cotton Producers Association, formed Gold Kist Pecan Growers Association. Gold Kist rapidly became a major pecan marketing organization and, in addition, a number of large multi-product food firms have entered the industry in recent years. As a result, pecan production and marketing have moved much closer to the pattern of California tree nut industries (*91*, pp. 17-18). In fact, Diamond Walnut Growers has joint sales projects with Gold Kist in which pecans are sold under the Diamond label in some markets.

As is evident in Chart 7, few walnuts are exported and imports have generally declined since the mid-1950s. In the 1960s, exports or imports have seldom been greater than 5,000 tons (in-shell weight). Thus, they have generally been less than 5 per cent of recent production.

The competitive structure of the walnut handling industry is characterized by a relatively few firms with price leadership being exerted by the dominant cooperative. In the procurement of walnuts from producers about one-half of the tonnage moves to Diamond Walnut Growers on the basis of cooperative contracts. The balance is largely purchased on a contractual basis by independent firms.

Walnuts handled by Diamond Walnut Growers are typically assembled, graded, and cleaned at local facilities throughout the California producing areas. They are then shipped in bulk to the central plant at Stockton for final grading, blending, shelling, and packaging. Walnuts, in various stages of processing, are stored at this central plant for distribution during the marketing year. Indepen-

TABLE 8.—QUANTITY CONTROLS APPLIED UNDER WALNUT MARKETING ORDER, 1960–69*

(Per cent of total crop)

Year	District 1: California		District 2: Oregon and Washington	
	Marketable	Surplus	Marketable	Surplus
1960	100	0	100	0
1961	100	0	100	0
1962	96	4	98	2
1963	100	0	100	0
1964	100	0	100	0
1965	87	13	93.5	6.5
1966	90	10	95	5
1967	93	7	96.5	3.5
1968	100	0	100	0
1969	82	18	91	9

* Data are from the U.S. Department of Agriculture, Consumer and Marketing Service, "Narrative Work Project Annual Reports," various years.

dent handlers generally operate similarly although on a smaller scale. Their plants are located in one or more production areas and some firms centralize packing and storage operations much as Diamond does. Sufficient storage space is available in the industry to allow distribution over time. The timing of distribution of the total walnut crop during the year is largely a decision of the individual handlers, but the allocation between shelled and in-shell form and the establishment of grade and size standards is affected by industry decisions arrived at through the marketing order.[25]

Use of the walnut marketing order.[26]—Although the Walnut Control Board specifies marketable and surplus percentages that apply to in-shell and shelled nuts, only the shelled product is effectively controlled since in-shell walnuts are no longer of major importance in the market. The order specifies that the surplus percentage applied to District 2—Oregon and Washington—shall be one-half of that applied to District 1—California—in view of the minor share of production in District 2. The marketable and surplus percentages imposed since 1960 are shown in Table 8.

Quality controls specified in the order fix minimum grades and sizes for both in-shell and shelled walnuts and have remained substantially unchanged from year to year. The board also carries on marketing research and development projects which are financed from the assessments collected from handlers. For example, in a joint venture with the Foreign Agricultural Service, United States Department of Agriculture, the board has made market surveys in a number of overseas areas, including Japan, Australia, New Zealand, and northern Europe.

Assessment rates are established annually. Between 1960 and 1969 the rate per 100 pounds for in-shell walnuts varied from 10 to 12.5 cents, averaging 10.7 cents, and for shelled walnuts from 18 to 25 cents, averaging 20.8 cents. The total 1969 budget for administration and other activities of the board was $130,000.

[25] Walnut marketing practices are discussed in 56, pp. 44–49.
[26] See Appendix D for a summary of the provisions of the walnut order.

The import restrictions available under Section 22 of the Agricultural Adjustment Act have not been used for walnuts. The tariff of 5 cents per pound in-shell and 15 cents per pound shelled has been a sufficient barrier to imports.[27]

5. *California Almonds*

The California Almond Growers Exchange has been the dominant organization in the almond industry since its formation in 1910 when the state's production averaged about 2,300 tons annually (*125*, p. 24; *37*, p. 10). Today, with production averaging about 90,000 tons, the exchange is still the major factor, controlling about 70 per cent of the tonnage, although during the 1930s its share declined to about 23 per cent (*125*, p. 24).

The almond marketing order was developed in 1948/49 and put into operation in 1950, largely through the efforts of the exchange. The stated motivation behind exchange leadership for adoption of the order was the desire to gain access to import controls under Section 22 of the Agricultural Adjustment Act that were available to commodities under federal marketing orders (*125*, pp. 25-26). Another motive was the usual desire of the dominant cooperative to share the burden of any crop "surplus" with independent handlers.

Over the years of the order's existence, the exchange has consistently supported it and been the major factor in its operation. Prior to the inauguration of the order in 1950, almonds not marketed through the exchange were considered a speculative commodity. That is, handlers were in a position to speculate through inventory and buying practices in the expectation of realizing gains in short crop years. In fact, Wood attributes much of the antagonism that developed within the industry over the initiation of the order to the resistance of a major commercial handler to this loss of possible speculative profits (*125*, pp. 108-9). In the nearly 20 years of its operation the order has been generally accepted as an integral part of the almond industry. Much of the internal antagonism ended as industry leaders who were active in the early years of order operation retired or otherwise left the industry.

Acreage, production, and grower returns.[28]—There were about 32,000 bearing acres of almonds in California in 1919. Total production in 1919/20 averaged about 7,000 tons (*37*, p. 10). In 1950, when the marketing order became effective, bearing acreage was 90,496 acres and production was 37,700 tons. Average yield per bearing acre had about doubled during the 30-year interval (Chart 8). As shown in the chart, nonbearing acreage, reflecting new plantings, declined until 1930, then increased during the ensuing decade to remain fairly stable until about 1950, when another decline reduced nonbearing acreage almost to 1930 levels in 1954. Since 1955, nonbearing acreage has exhibited a sharply increasing trend. The dramatic rise in production from 1955 to 1968 is evident in Chart 8. The increase from 1968 to 1969 shows the impact of the new acreage coming into bearing.

Grower prices for almonds followed the typical pattern for California spe-

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[27] A tariff quota which limited shelled imports to 5 million pounds was in effect from 1948 through 1950. A tariff rate of 7.5 cents per pound for tonnage within this quota was in effect during that period (*117*, p. 94).

[28] Appendix F lists sources of statistical data.
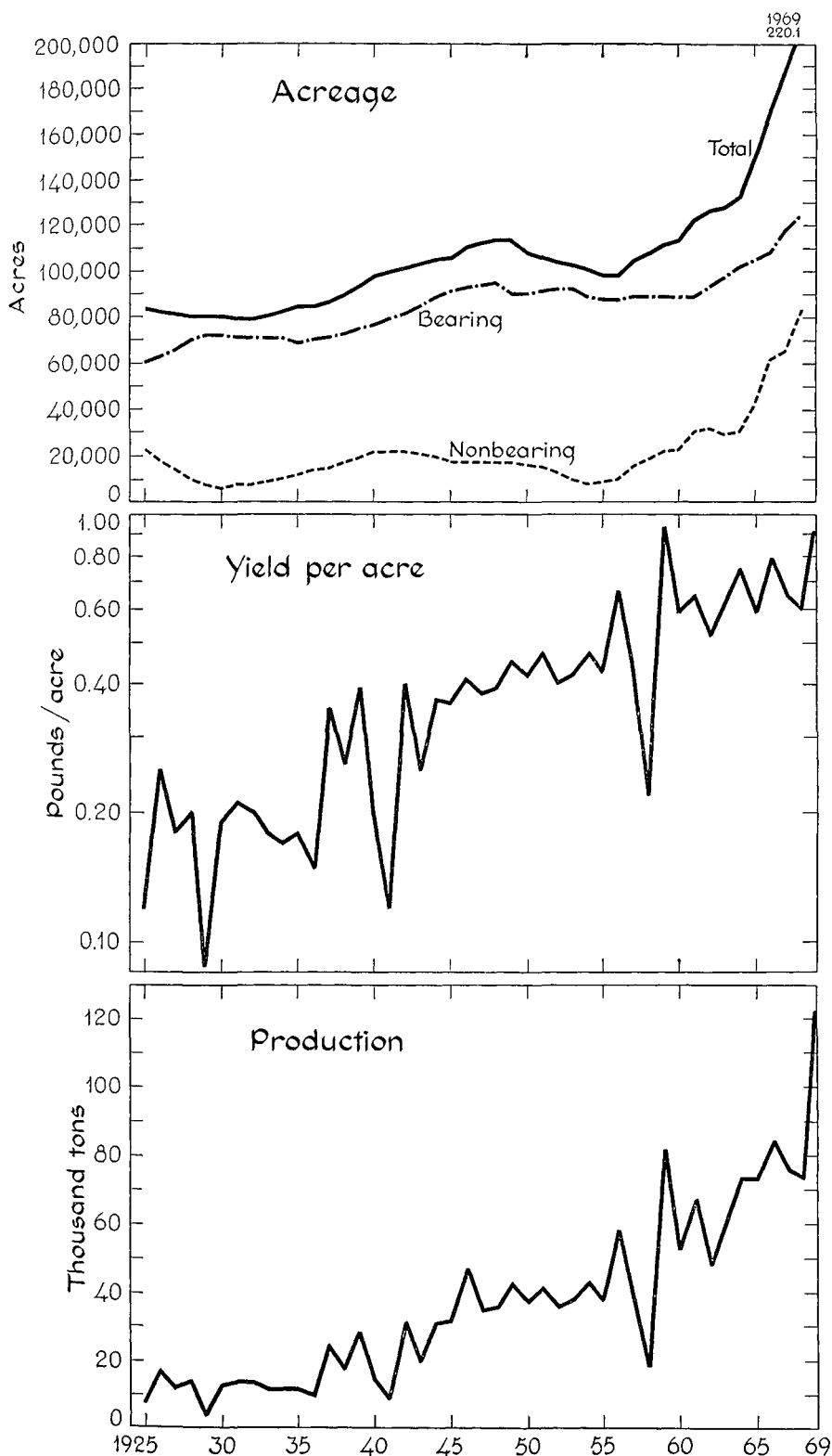
cialty crops, rising from lows in the 1930s to highs during World War II and then declining during the immediate postwar years. The sharp decline from 1945 to 1949 was followed by the general rise to the 1955/56 highs. Since 1930–34, returns per acre and total revenue from almond production have risen at a steady rate, although average prices have generally levelled off since the mid-1950s (Chart 14).

As indicated in Chart 19, year-to-year variability in prices, revenues, and returns per acre to California almond growers has declined since 1959 as compared with prior years. However, until the 1960–68 period, positive year-to-year changes in returns per acre averaged about 33 per cent compared to 20 per cent for negative changes. In 1960–68, negative and positive changes each averaged 18 per cent. It seems evident that a measure of stability has been achieved in this recent period and at the same time the pattern of higher and lower annual returns has become more evenly distributed.

Imports and exports of almonds since 1950 are shown in Chart 9. The increasing volume of exports since 1960 is evident, as is the decline of imports to their current unimportance. The dramatic jump in exports from 1968 to 1969 reflects the disposition of most of the "surplus" resulting from California's increased production.

Marketing organization and structure.—There are currently about seven major almond handlers and a few smaller firms that occasionally handle almonds. Since 1950 the number of handlers has been reduced at least by two-thirds as consolidation and exit have taken place. The California Almond Exchange handles about 70 per cent of the crop. The recent merger of three formerly independent handlers and development of facilities in the newer production areas have put a larger share of the remaining production in fewer hands, with the top three independent handlers controlling about 25 per cent of the total. Thus, the four largest firms handle 95 per cent of the supply.

Less than 10 per cent of the almond production is marketed in-shell to consumers through retail stores. The major share is shelled and goes principally to confectioners, salters, bakeries, and ice cream manufacturers. During the period 1963–68, exports averaged about 28 per cent of the total annual crop handled.

CHART 9.—ALMONDS, SHELLED, UNITED STATES IMPORTS AND EXPORTS, 1950–69*
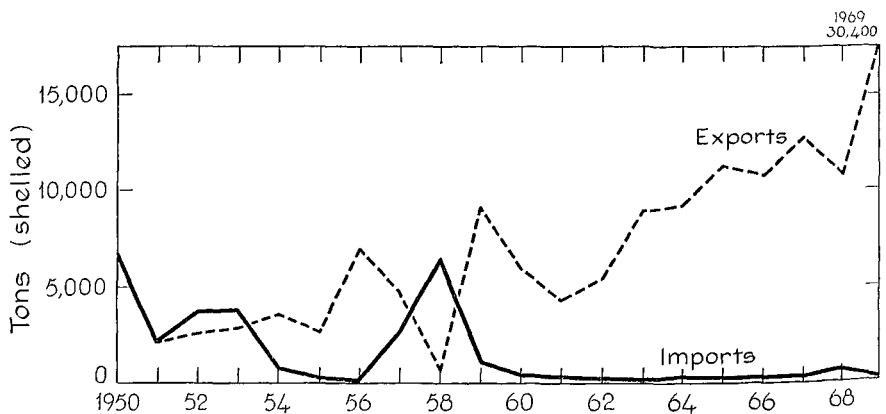
* Data are from the Almond Control Board.

Imports during this period were negligible—less than 1 per cent of total domestic consumption (1).

The buying side of the market has long been dominated by a few large confectionery manufacturers; however, recently the exchange annual report noted that the industry had experienced significant declines in purchases by this segment of the buying trade. Increased sales to food processors and other new customers were cited as offsetting the decline in sales to confectioners. Also the exchange reported that although 90 per cent of its 1962 crop went to 50 customers, 70 per cent of its 1967 crop went to 100 customers, and the smallest of this 100 purchased almost twice as much as the smallest of the 50 buyers in 1962 (12, p. 19). Hence, the structure of the buying side of this market may be less concentrated due to expansion to new uses; however, the largest single buyer is still Hershey Foods Corporation, a confectioner (83, p. 18).

Competition from other domestic tree nuts comes principally from pecans produced largely in the southeastern states and sold shelled to approximately the same types of buyers as almonds. The major alternative to all tree nuts is peanuts which are so much lower priced that it is difficult to place them in the same competitive framework. For example, the grower price per pound for peanut meats was about 15 cents in 1962/63 compared to about 53 cents for almonds and 66 cents for pecans (91, p. 34).

Competition from imported almonds has been effectively reduced by tariff restrictions. Tariff rates per pound have long been 5.5 cents for in-shell and 16.5 cents for shelled almonds as they were in 1968. Tariffs of 5 cents per pound prevail for in-shell imports of the other major domestic tree nuts—pecans, walnuts, and filberts. However, the tariff for shelled pecans in 1968 was only 10 cents per pound, for walnuts 15 cents, and filberts 10 cents (117, pp. 90–94). Brazil nuts and cashews, which are not produced commercially in the United States, have faced very low tariff barriers, generally less than 2 cents per pound. In 1968 the tariff for GATT countries was eliminated. In 1967/68, 77 million pounds of shelled cashews and about 10 million pounds of shelled Brazils were imported. In addition, about 14 million pounds of unshelled Brazil nuts were imported (2).

Use of the almond marketing order.[20]—The almond order accomplished its original purpose when made effective in 1950 by leading to the imposition of a tariff on imports high enough—5 cents per pound—to substantially reduce them in 1951 and most subsequent years (Chart 9). Many importers withdrew from the trade by the mid-1950s and imports have remained at a very low level since that time with the exception of 1958 when a crop failure occurred in California.

Section 22 of the Agricultural Adjustment Act was used in addition to the tariff to reduce almond imports from 1951 through 1955 and again in the 1957/58 marketing year (117, p. 94). In general, this restriction amounted to an added 10 cents per pound fee on shelled almonds imported in excess of 4.5 or 5 million pounds.

In the face of gradually increasing acreage and wide yearly variation in production between 1955 and 1960, the Almond Control Board shifted its policy somewhat in 1959/60 to a more specific goal of "level prices" for almonds at both the grower and handler levels. The export market was to be expanded to help

[20] See Appendix E for a summary of the order's provisions.

TABLE 9.—CALIFORNIA ALMONDS, SALABLE AND SURPLUS PERCENTAGES
ESTABLISHED UNDER MARKETING ORDER, 1950–69*

Year beginning	Total crop (thousand-shelled tons)	Per cent of total crop		Surplus tonnage (thousand-shelled tons)
		Salable	Surplus	
1950	19.7	100	0	0
1951	20.8	85	15	3.1
1952	17.6	85	15	2.6
1953	19.7	85	15	3.0
1954	22.2	85	15	3.3
1955	19.2	100	0	0
1956	30.1	100	0	0
1957	18.1	85	15	2.7
1958	9.6	100	0	0
1959	42.1	85	15	6.3
1960	26.8	84	16	4.3
1961	35.7	86	14	5.0
1962	26.5	85	15	4.0
1963	33.7	85	15	5.1
1964	41.4	85	15	6.2
1965	39.4	80	20	7.9
1966	47.4	80	20	9.5
1967	41.1	75	25	10.3
1968	40.2	80	20	8.0
1969	64.3	65	35	22.5

* Data are from Almond Control Board, "Almonds: Supply and Disappearance," Sacramento, July 1970, and from U.S. Department of Agriculture, Consumer and Marketing Service, "Narrative Work Project Annual Reports, Statistical Appendix," various years.

achieve this, and the export tonnage has increased since 1961 as shown in Chart 9. The board establishes minimum export prices for handler sales, and the general policy is to compete at the world price.

The major function of the almond order is the allocation of the annual crop between "salable" and "surplus" categories. The salable percentage is released for sales in the domestic market and the surplus share is controlled by the board and available only for export or other outlets not competitive with the domestic market. The allocation percentages established since the initiation of the order are shown in Table 9. The gradual rise in the surplus percentage and the resulting surplus tonnage is readily apparent. The surplus portion of the crop averaged 15 per cent in the period 1960–64 and 24 per cent for the years 1965–69.

IV. PRICES AND INCOMES: LEVEL AND STABILITY

The major stated goals of marketing order programs are to increase and stabilize prices and incomes received by farmers. Although these objectives are embellished in a variety of ways—e.g., related to orderly marketing, reduction of economic waste, and protection of consumers—the principal purposes are clearly understood by the legislators who pass the enabling laws, the administrators who carry them out, and the farmers who are the intended beneficiaries.

That the appropriate target levels for farm prices and incomes are difficult to

establish has been made amply evident by the controversy surrounding the use of "parity prices." The concept of parity involves the maintenance of some continuing relationship between prices paid to farmers and those paid to other producers of goods and services. Full parity is achieved when the farmer's price enables him to maintain his purchasing power at the same relative level as in some base period.[30]

Federal marketing order legislation specifically sets the attainment of parity prices for farmers as the major objective of its provisions (*111*, p. 357). The California legislation states that "adequate purchasing power for the producers of this state" is a central purpose of marketing orders (*39*, p. 677). In the state law this goal is further defined in the government standards for its administration as follows (*39*, p. 685):

> ... that such marketing order or amendments to it will tend to reestablish or maintain such level of prices for such commodity as will provide a purchasing power for such commodity which is adequate to maintain in the business of producing such commodity such number of producers as is required to provide such supply of the quantities and qualities of such commodity as is necessary to fulfill the normal requirements of consumers of the commodity.

In using the federal parity concept, the difficulty of establishing the specific prices to be attained is clear, and under the California standard precise determination of the desired prices is impossible. In practice, no legislative objective is a usable guide for marketing order programs. Although the federal law originally called for discontinuance of any application of control when prices reached or passed parity, subsequent rules now make it possible to continue such controls in effect for the entire marketing year once they have been instituted.

The effect of the legislation's standards is largely to give administrators considerable leeway for the application of authorized control provisions. It is the combination of administrator judgment and interpretation of the legislative limits that provides the basis for specific actions taken. As long as prices of controlled commodities do not rise above some generally accepted trend, except occasionally when high prices can be attributed to year-to-year variation, there is little evidence of administrative intervention to place limits on the use of available controls.[31] In general, marketing order regulations have continued in effect with little interference from government officials overseeing them. Advisory or control committees are kept advised of the probable limits of their authority and they usually avoid actions beyond these limits.

Farm Level Prices and Incomes

The trends and rates of change in prices, total revenues, and returns per acre for the five commodities under study are shown in Charts 10 through 14. In gen-

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[30] For an extensive review of the early history of parity and related issues see *8*.

[31] One such intervention occurred when California cling peach canners began to offer bonuses to growers that evidenced a demand greater than the controlled supply anticipated. The then Chief Deputy Director of the California Department of Agriculture suggested in a statement to canners that this situation raised doubts as to whether the order was "being administered in accordance with the economic and legal standards prescribed by the law" (*75*, p. 4).

CHART 10.—CALIFORNIA CLING PEACHES: GROWER PRICE PER TON, TOTAL
REVENUE FROM CANNING, AND RETURN PER BEARING ACRE
COMPARED WITH U.S. CASH RECEIPTS FROM ALL FRUITS
AND NUTS, FIVE-YEAR AVERAGES, 1925–69*
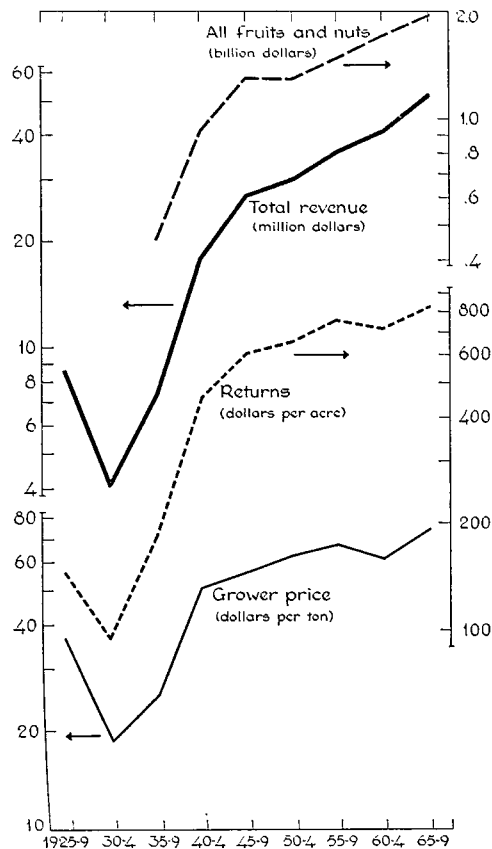
CHART 11.—CALIFORNIA BARTLETT PEARS: GROWER PRICE PER TON,
TOTAL REVENUE FROM CANNING, AND RETURN PER BEARING
ACRE COMPARED WITH U.S. CASH RECEIPTS FROM ALL
FRUITS AND NUTS, FIVE-YEAR AVERAGES, 1925–69*

* Data are from sources listed in Appendix F.
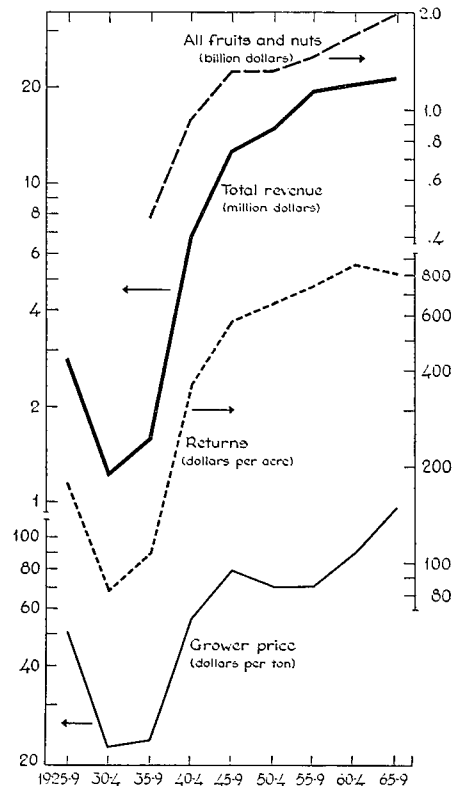
* Data are from sources listed in Appendix F.

CHART 12.—CALIFORNIA LEMONS: GROWER PRICE PER TON, TOTAL
REVENUE, AND RETURN PER BEARING ACRE COMPARED WITH
U.S. CASH RECEIPTS FROM ALL FRUITS AND NUTS,
FIVE-YEAR AVERAGES, 1925–69*
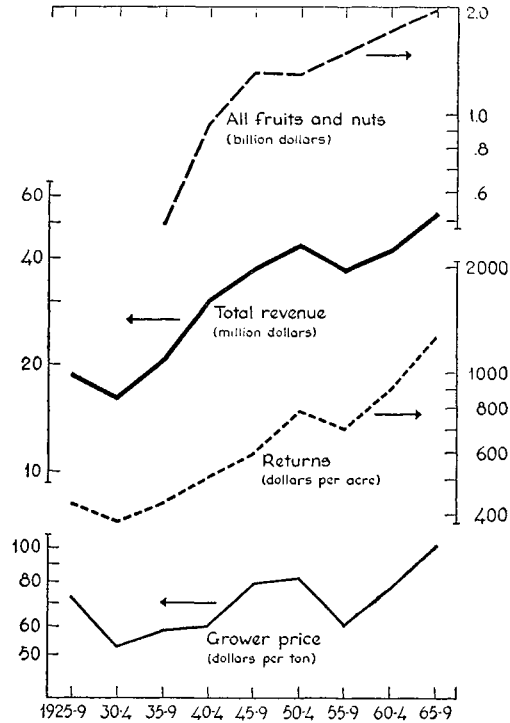
* Data are from sources listed in Appendix F.

CHART 13.—CALIFORNIA WALNUTS: GROWER PRICE PER TON, TOTAL
REVENUE, AND RETURN PER BEARING ACRE COMPARED WITH
U.S. CASH RECEIPTS FROM ALL FRUITS AND NUTS,
FIVE-YEAR AVERAGES, 1925–69*
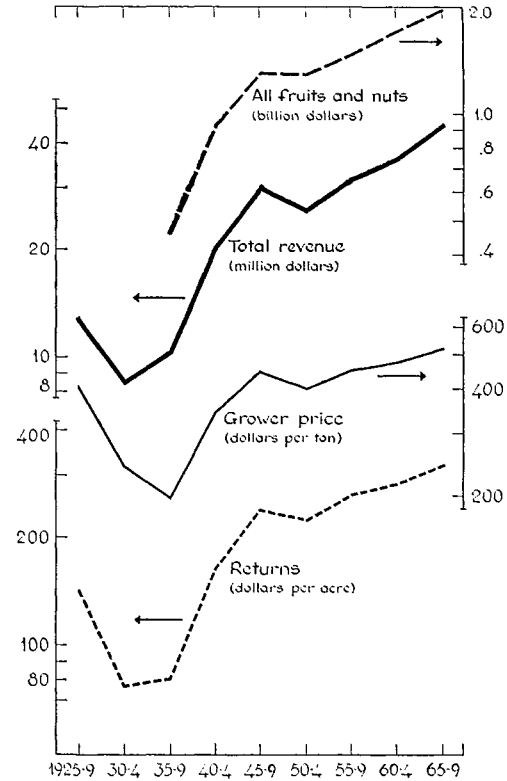
* Data are from sources listed in Appendix F.

CHART 14.—CALIFORNIA ALMONDS: GROWER PRICE PER TON, TOTAL REVENUE, AND
RETURN PER BEARING ACRE COMPARED WITH CASH RECEIPTS FROM
ALL FRUITS AND NUTS, FIVE-YEAR AVERAGES, 1925-69*
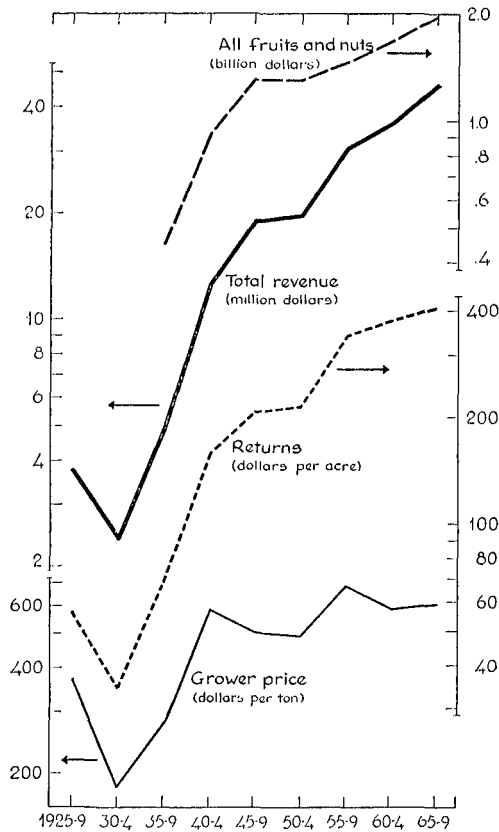
* Data are from sources listed in Appendix F.

eral, total revenues and returns per acre reflect more rapid rates of increase than prices since World War II. Industry growth and technological changes leading to rising yields provided the major bases for these increases. However, except for almonds, prices since 1960 have increased at a rate at least equivalent to that of the other variables.

Charts 10 through 14 include a line showing the rate of change in cash receipts from farm marketing of all fruits and tree nuts in the United States from 1935 to 1969. Comparison of returns per acre and total revenue from each of the five commodities under study with the total for all such crops indicates very similar growth rates, especially since 1950. The major exception is almonds, for which both returns per acre and total revenue have experienced a much more rapid rate of growth since 1950 than the all-commodity total.

Among the commodities under study, peaches and almonds are most similar in their increases in returns per acre and total revenue. Lemons also show a steep rise with the exception of 1955-59. Bartlett pears and walnuts, particularly in respect to total revenue, show a somewhat lower rate of growth. Walnuts evi-

dence a less rapid rise in all these variables since 1945–49 than any of the others. Each of these commodities, as is true of all specialty crops, faces year-to-year differences in growing conditions, disease problems, and in some instances, utilization patterns. But the evidence suggests a correlation between rigorous application of volume restriction and the rate of increase in returns per acre and industry growth as evidenced by total revenue.

Of these commodities, cling peaches have been subjected to the most restrictive controls. Almonds and lemons are next, and walnuts and Bartlett pears lag far behind in this respect. Since 1960, an average of 6.3 per cent of Number 1 grade cling peaches has been destroyed by green drop or cannery diversion. No Bartlett pears have been destroyed or diverted from the primary market. During this period an average of 58.1 per cent of the lemons produced has been diverted away from the fresh domestic market under the marketing order. This compares with about 40 per cent in the early 1950s. An average of 19.5 per cent of the almond crop has been declared surplus since 1960 while only 5.2 per cent of California walnuts have been so classified.

Representative net income and "purchasing power" are probably impossible to measure with any acceptable degree of accuracy even within a single, well-defined commodity industry. In the cling peach industry, for example, recent data from the Advisory Board indicate that average gross yields per acre from orchards with trees six years and older ranged from 5.53 tons in the lowest quartile to 17 tons in the highest quartile. If the price per ton were $70, the gross return per acre would vary between growers in these groups from about $387 to $1,190 just on the basis of yield variation (45, p. 28). Table 10 presents some recent estimates of average costs per acre for the five crops under study and the California average return per acre for approximately the same period. Although these averages cannot be related to any specific producer's costs or returns, they do

TABLE 10.—AVERAGE COSTS AND RETURNS PER ACRE FOR PRODUCTION OF
CALIFORNIA CLING PEACHES, BARTLETT PEARS, LEMONS, WALNUTS,
AND ALMONDS IN LEADING PRODUCTION AREAS, 1965–68*

(*Dollars per acre*)

Item	Cling peaches	Bartlett pears	Lemons	Walnuts	Almonds
Costs					
Interest on investment	70	170	177	145	121
Depreciation expense	84	132	140	86	96
All other costs	739	819	841	271	336
Total	893	1,121	1,158	502	553
Gross Return	822	819	1,305	326	412
Net Return					
After total costs	−71	−302	147	−176	−141
Excluding					
Interest on investment	−1	−132	324	−31	−20
Interest and depreciation	83	0	464	55	76

* Returns are from California Crop and Livestock Reporting Service, *California Fruit and Nut Statistics, 1954–67* (Sacramento, Calif.), p. 44 and *ibid.* later issues. Costs are averages of available cost studies made during this period.

give a very rough indication of recent levels. They suggest that none of these commodities except lemons covered all costs, and per acre losses ranged from $71 for cling peaches to $302 for Bartlett pears. However, a different picture emerges if interest and depreciation are excluded. On this basis no losses are indicated and net returns per acre run from zero for Bartlett pears to $464 for lemons. In addition, most of the cost studies used include about 5 per cent of gross income as management cost and all of the studies specify labor costs for activities that are probably performed personally by many growers. Thus, in all of the crops there are some cash returns upon which certain year-to-year planning decisions are probably based. A tenuous relationship between net returns and marketing control activities can be summarized as follows: (1) with the exception of lemons, none of the crops shows evidence of substantial net income, and (2) the three most closely regulated commodities—lemons, cling peaches, and almonds—have the highest net cash returns (interest and depreciation excluded).

Net income is the chief economic guide to producer decision making. The emphasis on prices and gross revenues in government farm policy is largely necessitated by the virtual impossibility of determining a meaningful estimate of grower costs of production. Wide differences in real costs exist for so many reasons that a complete list of them is not feasible. Suffice it to say that the major sources of cost differences among individual growers of individual crops include farm location, diversification patterns, scale of operation, tax relationships, non-farm investment, utilization of family and hired labor, and the current effects of future plans.

Average cost data, such as those summarized in Table 10, are available from the Agricultural Extension Service in many production areas. In California these studies provide the basis for most published statements about costs of production for individual crops. The cling peach industry has been noteworthy in that it has obtained several additional "outside" studies of production costs. These studies were paid for by growers with assessments collected through the marketing order. The citrus industry provides harvesting and handling cost data on a continuing basis through the California-Arizona Citrus League. Sunkist Growers publishes estimates of average "cultural" costs along with other data annually in its *Statistical Information on the Citrus Industry*. Individual firms, such as cooperative marketing associations, compile production cost estimates for their own use but these are rarely published.

Notwithstanding the dearth of reliable cost data and the admittedly wide variation among producers of all of the crops studied, production cost data have usually been specifically introduced or referred to in marketing order hearings. The cling peach growers, for example, have introduced cost data to show that price levels being achieved in their industry do not result in excessive profits and, thus, marketing order controls continue to be necessary.

In an earlier study of the cling peach industry it was found on the basis of data published by the Advisory Board that the total cost to high-yielding orchards in 1962 was $950 per acre compared to a cost of $734 per acre for low-yielding orchards (70, pp. 152–54). At 1962 price levels, the high-yield producers covered all costs and obtained some return to management. Low-yield orchards failed to cover even cash costs, making no contribution to depreciation and no return on investment. Slightly over one-half of the 1962 tonnage was produced by high-

TABLE 11.—AVERAGE PARITY PRICE RATIOS, CLING PEACHES, PEARS, AND
APPLES FOR PROCESSING, LEMONS, WALNUTS, ALMONDS, AND ALL
COMMODITIES, FIVE-YEAR AVERAGES, 1950–68*

Year	Cling peaches for processing	Pears for processing	Lemons all uses	Walnuts	Almonds	Apples for processing	All U.S. farm commodities
1950–54	88.8	82.2	76.6	62.0	75.4	134.0^a	97.8
1955–59	99.0	86.8	59.0	91.4	116.6	84.0	83.0
1960–64	77.2	100.6	85.8	87.8	77.6	83.6	78.6
1965–68	82.2	109.2	91.0	77.2	71.0	95.5	76.0
19-yr. avg.	87.0	93.9	77.4	79.7	85.9	93.0	84.2

* Data from U.S. Department of Agriculture, *Agricultural Statistics*, various years. Parity ratios for individual commodities are actual prices as per cents of their parity prices.
  ^{a} For 1953 and 1954 only.

yield orchards (at least 15 tons per acre in that year). More recent data suggest the same relationship, although the absolute tonnage varies according to general crop conditions—e.g., in 1967 the high-yield category included yields down to 12 tons per acre (45, p. 30). Thus, on the basis of one criterion alone—yield per acre— intra-industry differences ranging from profit to substantial loss at existing prices were observed. Most other cost-affecting differences cannot be measured, but they are quite likely to have similar implications for net income.

Relative purchasing power for farmers is supposed to be measured by the use of the parity concept. Although the fallacies of this measure render it almost meaningless, it may be useful for purposes of comparison among these commodities. Table 11 presents five-year averages of parity ratios since 1950 for the five crops under study as well as apples for processing and the ratio for all farm products. Although each commodity exhibits considerable variation, it is interesting to note that the 19-year averages cluster around the average for all farm products. In fact, the average parity prices ratio for the five crops under study during this period is 84.7 compared to the all-commodity average of 84.2. Interestingly, the average parity ratio for apples, a commodity almost entirely free of government-sponsored marketing controls of any type, is markedly higher than for the five controlled commodities studied, with the exception of Bartlett pears.[32]

The general inappropriateness of the parity concept for evaluating farm purchasing power is heightened by the characteristics of fruit and vegetable crops. The lack of homogeneity of production and marketing conditions of these types of commodities is well known. The impact of changing technology, both on the farm and in processing plants, has been extreme since World War II. Relatively small, specialized production areas tend to be similarly affected by weather and pest conditions with the result that supply changes in one area are not likely to be offset by those in another. Year-to-year prices have little to do with grower well-being since they are likely to bear little relationship to gross and net incomes. But comparison of average parity price ratios (Table 11) and industry growth patterns suggested by nonbearing acreage expansion indicates a close relation between the high parity price ratio years of 1955–59 and industry expansion during

[32] The parity ratio shown is for apples for processing, however, it is assumed that allocation among alternative utilizations tends to equalize long-run net returns from each utilization.

TABLE 12.—YEAR-TO-YEAR VARIATION IN GROWER PRICES, TOTAL REVENUES, AND RETURNS PER ACRE, CLING PEACHES, BARLETT PEARS, LEMONS, WALNUTS, ALMONDS, AND APPLES, TEN-YEAR AVERAGES, 1930–68*

Commodity	1930–39 Positive		1930–39 Negative		1940–49 Positive		1940–49 Negative		1950–59 Positive		1950–59 Negative		1960–68[a] Positive		1960–68[a] Negative		Total[b] Positive		Total[b] Negative	
	No.	Aver. %	No.	Aver. %	No.	Aver. %	No.	Aver. %	No.	Aver. %	No.	Aver. %	No.	Aver. %	No.	Aver. %	No.	Aver. %	No.	Aver. %
Cling peaches																				
Price	4	+57.6	5	−63.5	5	+27.2	4	−18.9	4	+26.4	6	−11.4	4	+14.1	5	−6.1	17	+31.1	20	−24.6
Total revenue	6	+52.9	4	−89.1	6	+33.1	4	−23.8	4	+35.4	5	−17.6	5	+15.7	4	−5.1	21	+35.1	17	−32.9
Returns per acre	6	+52.5	4	−76.2	5	+35.8	5	−19.7	4	+32.9	6	−14.6	5	+13.2	4	−8.6	20	+34.6	19	−27.6
Bartlett pears																				
Price	3	+50.7	7	−35.3	7	+27.0	3	−53.3	6	+32.0	4	−31.7	5	+40.2	4	−36.1	21	+35.0	18	−37.7
Total revenue	4	+69.5	6	−55.2	7	+32.3	3	−43.1	6	+44.2	4	−39.5	4	+37.2	5	−18.6	21	+43.7	18	−39.5
Returns per acre	4	+51.8	6	−41.7	5	+35.7	5	−27.7	6	+31.2	4	−24.0	5	+32.5	4	−31.1	20	+36.8	19	−32.1
Lemons																				
Price	4	+28.0	6	−32.6	5	+36.2	5	−20.2	4	+11.6	6	−18.0	4	+29.4	4	−13.6	17	+26.9	21	−21.9
Total revenue	4	+21.2	6	−16.9	4	+30.5	6	−8.1	5	+7.4	5	−10.4	6	+11.0	2	−4.8	19	+16.3	19	−11.1
Returns per acre	4	+20.2	6	−20.2	5	+24.3	5	−11.3	4	+9.0	6	−8.2	7	+11.4	1	−8.0	20	+15.9	18	−13.0
Walnuts																				
Price	5	+15.9	5	−28.5	7	+19.2	3	−20.5	5	+18.5	5	−12.4	4	+13.4	4	−6.1	21	+17.1	17	−17.1
Total revenue	5	+15.4	5	−20.9	9	−17.1	1	−47.3	5	+20.0	5	−20.0	6	+19.2	3	−14.7	25	+17.9	14	−21.3
Returns per acre	4	+13.9	6	−19.3	9	+18.4	1	−44.6	5	+22.9	5	−22.2	6	+17.9	3	−14.6	24	+18.4	15	−21.0
Almonds																				
Price	3	+30.6	7	−24.3	4	+34.7	6	−30.6	5	+30.3	5	−23.6	5	+8.3	4	−4.2	17	+24.9	22	−22.2
Total revenue	6	+26.2	4	−15.3	4	+38.4	6	−11.8	6	+37.4	4	−31.7	4	+21.4	5	−14.3	20	+31.0	19	−17.4
Returns per acre	6	+26.0	4	−15.2	4	+35.5	6	−14.1	6	+38.7	4	−31.9	4	+18.2	5	−18.3	20	+30.1	19	−19.2
Apples, U.S.																				
Price					6	+32.8	4	−27.7	6	+19.6	4	−17.0	6	+12.2	3	−7.6	18	+21.5	11	−18.3
Total revenue					6	+26.8	4	−19.0	6	+13.5	4	−15.7	6	+8.9	3	−2.3	18	+16.4	11	−13.2
Apples, Washington																				
Price					6	+41.6	4	−32.6	7	+30.0	2	−61.4	6	+21.2	3	−20.0	19	+30.9	9	−34.8
Total revenue					8	+29.4	2	−48.8	7	+18.9	3	−24.0	8	+9.9	1	−13.8	23	+19.4	6	−30.6

* Data are based on sources listed in Appendix F, and are averages of the annual data shown in Charts 15–20. Year-to-year change is measured as a percentage of the average of each pair of adjacent years for each variable.

[a] Nine-year average.

[b] Years of zero price variation not included in totals.

CHART 15.—YEAR-TO-YEAR VARIABILITY IN PRICE, TOTAL REVENUE, AND
RETURNS PER BEARING ACRE TO GROWERS FROM CALIFORNIA
CLING PEACHES SOLD FOR CANNING, 1925–68*
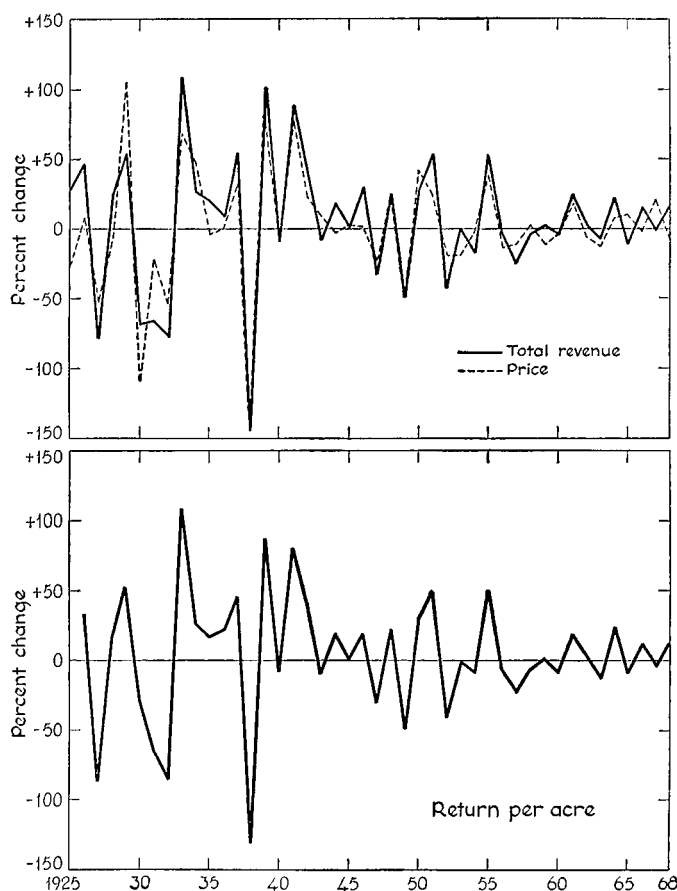
* Data are based on sources listed in Appendix F. Year-to-year change is measured
as a percentage of the average price (or total revenue, or revenue per acre) for each pair
of adjacent years.

those years. Only lemons, the commodity showing a dramatic decline in parity
price ratio during that period, underwent a reduction in nonbearing acreage at
that time.

The pursuit of price and income stability generally involves attempts to reduce
year-to-year variation in these variables. Stability in both price and incomes is not
necessarily compatible since a change in price is usually the result of production
variability and tends to reduce variations in income that would otherwise come
about. Although market controls and most other government-sponsored programs
focus on price, it is income that is of major concern to producers. Income can be
approximated by total revenue and returns per acre data. Year-to-year variations
in price, total revenue, and returns per acre for the crops under study as well as
for apples are summarized in Table 12 and in Charts 15 through 20.[33]

[33] Sources of detailed statistics for each of the five commodities studied are listed in Appendix F.

CHART 16.—YEAR-TO-YEAR VARIABILITY IN PRICE, TOTAL REVENUE, AND RETURNS PER BEARING ACRE TO GROWERS FROM CALIFORNIA BARTLETT PEARS SOLD FOR CANNING, 1925–67*
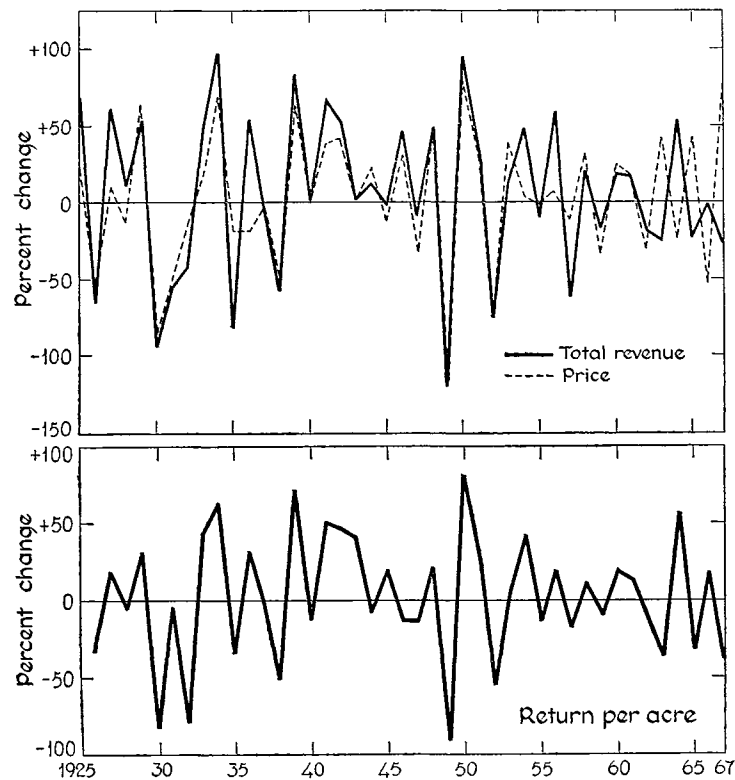
* Data are based on sources listed in Appendix F. Year-to-year change is measured as a percentage of the average price (or total revenue, or returns per acre) for each pair of adjacent years.

CHART 17.—YEAR-TO-YEAR VARIABILITY IN PRICE, TOTAL REVENUE, AND RETURNS PER BEARING ACRE TO GROWERS FROM CALIFORNIA LEMONS, 1926–65*

* Data are based on sources listed in Appendix F. Year-to-year change is measured as a percentage of the average price (or total revenue, or returns per acre) for each pair of adjacent years.

* Data are based on sources listed in Appendix F. Year-to-year change is measured
as a percentage of the average price (or total revenue, or returns per acre) for each pair
of adjacent years.

* Data are based on sources listed in Appendix F. Year-to-year change is measured
as a percentage of the average price (or total revenue, or returns per acre) for each pair
of adjacent years.

CHART 20.—YEAR-TO-YEAR VARIABILITY IN PRICE AND TOTAL
REVENUE TO GROWERS FROM U.S. AND WASHINGTON
STATE APPLES, 1935–68*
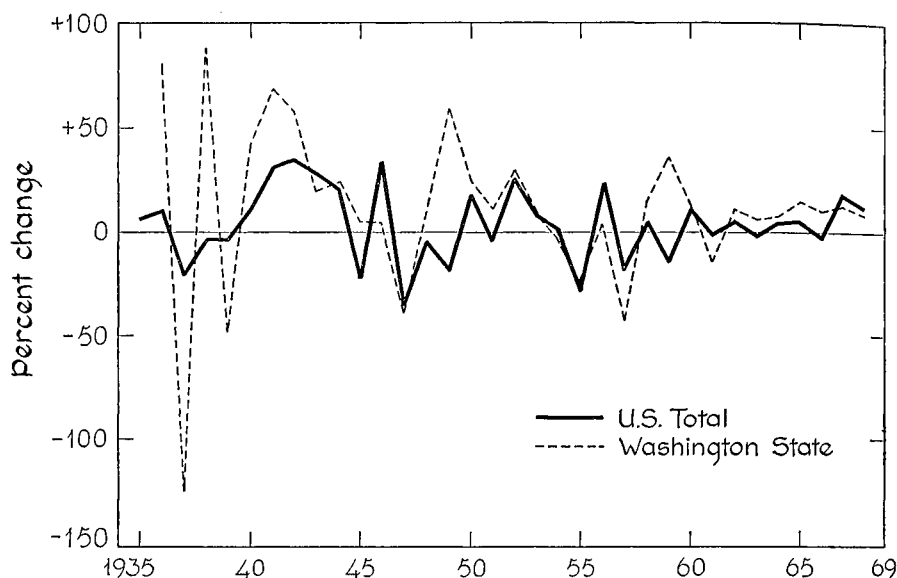
* Data are based on sources listed in Appendix F. Year-to-year change is measured as a percentage of the average price (in total revenue) for each pair of adjacent years.

The most striking characteristics of these variation patterns are their declining magnitudes for some commodities and the differences in positive and negative variation among the commodities. The contrast between cling peaches and Bart-lett pears is dramatic. The former commodity has been under rigorous controls since 1950 while the latter has not. The declining magnitudes of variation for prices, total revenue, and returns per acre in peaches are clearly apparent while these magnitudes for pears are considerably greater and, especially in prices and returns per acre, show opposite trends from peaches. The effects of marketing controls on lemons is clear in the relatively low magnitude of year-to-year varia-tion in all three measured variables. The trend in variation for lemons is down for revenues and returns per acre but about level for prices until the most recent years, when all variability has been quite low. Walnuts show little trend in varia-bility levels, although magnitudes have been reduced somewhat since 1950.

Variation in prices, total revenues, and returns per acre for almonds have been reduced since World War II, with the exception of the 1955–59 period which in-cluded several very short crop years. The policy of "level prices" adopted by the Almond Control Board in 1960 is clearly reflected in the reduced price variation since that time. But total revenues and returns per acre show somewhat increased variation as a result of this policy as compared with the periods before 1955–59.

The data on year-to-year variations in apple prices and revenues are included for comparison. With minor exceptions, apples from all United States production areas are free from marketing order controls, although a few states operate promo-tion or research programs under marketing order authority. As can be seen from

Chart 20, the magnitude of variation for apples from all areas is considerably less than that for apples from one area, e.g., the state of Washington, in comparable time periods. This comparison suggests an additional cause of the reduced variation in the income variables for the five commodities under study. As production of these specialized crops has expanded, new and broader production areas have been developed. The weather conditions within one large state, such as California, vary enough from one production district to another to provide a risk-spreading effect. The resulting stability in average total revenues and average returns per acre tends to add to the stabilizing effect of the marketing controls. This seems to indicate in the case of commodities with such expanding acreage as almonds and, to a lesser extent, cling peaches and lemons, a pattern of expansion as follows: increased stability in average price and income variables provides incentive for increased plantings, at least part of which is in new production areas, and such expansion of acreage reduces the variation in average total revenues by broadening the production area. Thus, stability is increased merely by expansion of the industry. This may reduce the need for controls intended to stabilize the prices and revenues, and the continuation of such controls may, in fact, further weaken the allocative function of prices and revenues. This is likely to be particularly true in specialty crop areas, such as California, where the areas subject to weather-related fluctuation in yields are not clearly defined but tend to be unpredictable from year to year.

Further evidence of the reduced variation in prices and incomes is presented in Table 13. These data show the differences in the average year-to-year variation during the period 1960–68 as compared to the entire 39-year period 1930–68. The dramatic reduction in price variation for cling peaches and almonds as compared

TABLE 13.—CHANGE IN AVERAGE PERCENTAGE VARIATION IN PRICES,
TOTAL REVENUES, AND RETURNS PER ACRE, 1960–68
COMPARED TO 1930–68*

Commodity		Price	Total revenue	Return per acre
Cling peaches	Positive	−17.0	−19.4	−21.4
	Negative	−18.5	−27.8	−19.0
Bartlett pears	Positive	+5.2	−6.5	−4.3
	Negative	−1.6	−20.9	−1.0
Lemons	Positive	+2.5	−5.3	−4.5
	Negative	−8.3	−6.3	−5.0
Walnuts	Positive	−3.7	+1.3	−.5
	Negative	−11.0	−6.6	−6.4
Almonds	Positive	−16.6	−9.6	−11.9
	Negative	−18.0	−3.1	−.9
Apples (U.S.)	Positive	−9.3	−7.5	
	Negative	−10.7	−10.9	
Apples (Washington)	Positive	−9.7	−9.5	
	Negative	−14.8	−16.8	

* Computed as for Table 12. Minus signs above indicate that the magnitude of the percentage change disregarding sign was smaller in 1960–68 than in the full period 1930–68.

to the other commodities is clearly evident. But cling peaches stand almost alone in the sharp decline in total revenue and per acre return variation.

Although these commodities have also been subject to many other changes such as shifts in industry organization and structure, the data summarized in Table 13 point up the success of the cling peach and almond programs in stabilizing prices, and of the peach program in stabilizing the income variables. The extent of supply control for cling peaches has been the most severe and the most effective, especially as it has been coordinated with the efforts of the grower bargaining cooperative. Almond price stability has not been accompanied by the dramatic income stability evident for cling peaches.

Prices at Processor, Handler, and Retail Levels

The impact of marketing order controls on prices and incomes of marketing firms and on consumer prices is less apparent than at the farm level. As these products move through the marketing channel in various forms—e.g., fresh or processed—an increasing number of factors other than those affected by marketing order controls are brought to bear on prices and margins. The demand for and supply of marketing services becomes increasingly interrelated with product demand and supply. Particularly beyond the first handler, the product mix offered as well as the bundle of services added becomes so complex that isolation of the impact of farm-level activities is almost impossible. Nevertheless, certain implications of marketing order activities can be clearly identified at levels beyond the farm. Quantity controls probably have the most direct impact on marketing firms in that they impinge on the total supply available at all levels of the marketing system. But quality controls also affect total supply and, possibly more importantly, affect the supply of specific quality groups.

When supply is limited under marketing order regulations, there is some impact on total revenues of firms at all levels. The price elasticity of demand at each level is the major determining factor.[34] Although it has proven almost impossible to calculate a precise estimate of demand elasticity at any level of the marketing system, a great many attempts have been made. Selected estimates which most closely relate to the commodities under study are shown in Table 14. Although the wide variation evident in these estimates makes their accuracy suspect, one feature is clear—elasticities at the retail level are considerably greater than those at the farm.

In order to estimate the effect of marketing margins on price elasticities at various levels, consideration must be given to the nature and size of these margins. If margins were constant percentages of prices there would be no difference between the price elasticity at the farm level and other levels. If margins were absolute amounts their effect would be to reduce the price elasticity at the farm level relative to other levels. For example, the larger an absolute margin between the farm and processor price the lower the price elasticity at the farm level. As noted by Waugh, most studies of agricultural marketing margins have indicated that these margins are neither constant percentages nor constant absolute amounts, but lie somewhere in between the two (*122*, p. 20).

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[34] For an explanation of the relationship between price elasticity of demand and total revenue, see, for example, *96*, pp. 374–77; or *97*, pp. 251–53.

TABLE 14.—SELECTED ESTIMATES OF PRICE ELASTICITIES OF
DEMAND FOR FRUITS, NUTS, AND VEGETABLES

Commodity	Farm level	Processor level	Retail level
Fruits			
Apples (fresh)	−.70[a]		−1.24[a]
Lemons (fresh, summer)	−.44[b]	−.49[b]	−.78[b]
Peaches (canned)	−.50 to −.82[c]	−2.0 to −3.3[d]	−2.7 to −4.5[e]
Pears (canned)	−.50 to −.82[c]	−2.0 to −3.3[d]	−2.7 to −4.5[e]
Tree nuts			
Almonds	−.44[f]		−1.5[e]
Walnuts	−.87[f]		−2.9[e]
Fruits and tree nuts	−.36[g]		−.60[g]
Vegetables (fresh)			
Celery	−.62[f]		
Tomatoes	−.97[a]		−1.17[a]
All vegetables	−.10[g]		−.30[g]

[a] Calculated from Frederick V. Waugh, *Demand and Price Analysis* (U.S. Dept. Agr., Econ. and Stat. Analysis Div., Tech. Bull. 1316).

[b] Data from Sidney Hoos and R. E. Seltzer, *Lemons and Lemon Products: Changing Economic Relationships, 1951–52* (Univ. of Calif., Agr. Expt. Sta. Bull. 729).

[c] Calculated on the basis of 75 per cent canner margin.

[d] Data from Sidney Hoos and George M. Kuznets, *Pacific Coast Canned Fruits f.o.b. Price Relationships 1967–68* and *ibid. 1968–69*.

[e] Estimated, using grower share of retail price; 18 per cent for peaches and pears, 30 per cent for almonds and walnuts.

[f] Data from O. P. Blaich, *Strength-of-Demand for 120 Market Categories of Food, 1957–61* (Univ. of Calif. Agr. Ext. Serv., April 1963).

[g] Data from G. E. Brandow, *Interrelations among Demands for Farm Products and Implications for Control of Market Supply* (Agr. Expt. Sta., University Park, Pa., Bull. 680, August 1961).

To simplify illustration of the effects of different elasticities of demand at different market levels, it is assumed here that margins are constant amounts, as shown by the straight-line demand curves in Chart 21. These margins have been estimated by using averages developed in empirical studies over a number of years. The percentages indicated by these averages have been applied to recent estimates of elasticities at the processor level. As shown in Table 14, the price elasticity for canned cling peaches at that level has been estimated between −2.0 and −3.3 (*64*, pp. 3–4; *65*, pp. 3–4). Using the lower estimate and assuming an absolute processor margin that is 75 per cent of processor price, as calculated by Jamison and Brandt, the grower level elasticity is estimated to range between −.50 and −.82 (*70*, p. 214). The Department of Agriculture estimates that the peach grower receives 18 per cent of the retail price (*58*, p. 27). Assuming that this is based on an absolute margin, the price elasticity of demand at the retail level can be estimated at about −2.7.

While supply restriction is called for at the farm level in order to raise incomes, the elastic conditions at the processor and retail levels suggest that increased quantities processed for sale would result in higher total revenues.[35] Manderscheid con-

[35] This situation in the apple industry has been analyzed by Dana Dalrymple in his unpublished Ph.D. dissertation, "Economic Aspects of Apple Marketing in the United States," Michigan State University, 1962, pp. 316–19, and in several other miscellaneous papers written by the same author in 1964–66 while at the Federal Agricultural Extension Service, U.S. Department of Agriculture.

cludes correctly that ". . . one may be led to a serious error if he uses elasticities calculated at the retail level to determine the effects at farm level" (*80*, p. 134). Conversely, it also may be a serious error to base control activities only on farm level demand elasticities without considering the consequences at subsequent levels of the marketing system.

It is probably not possible to marshal empirical evidence showing the impact of farm level supply restrictions beyond the first handler level because of the complexities of product mix, trends in total quantities marketed, and other variations in the characteristics of marketing firms. But a simple illustration using the cling peach estimates points up the probable effects of farm level controls on other marketing levels.

Chart 21 shows price-quantity relationships at three levels of the marketing system for canned cling peaches. The "demand curves" shown are based on aver-

CHART 21.—VARIATION IN TOTAL REVENUE TO GROWERS, PROCESSORS, AND RETAILERS FROM CANNED CLING PEACHES AT VARIOUS LEVELS OF OUTPUT*
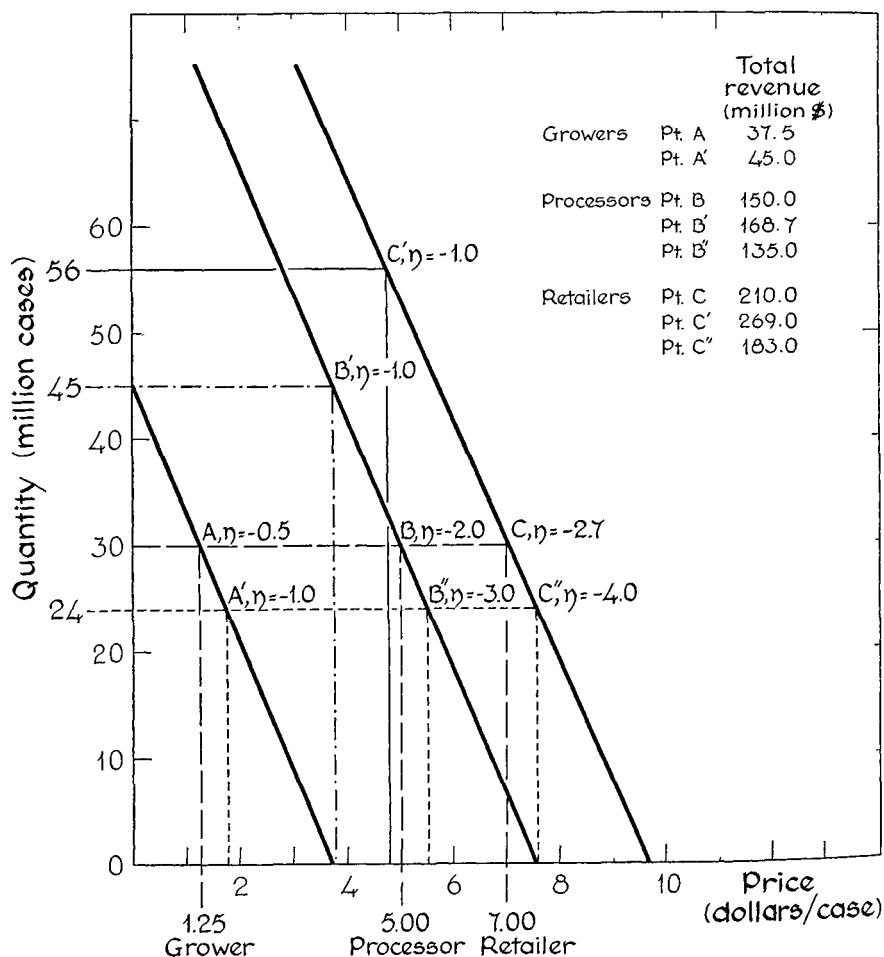
* For description of data see text and Table 14.

age prices and quantities during the period 1965–68, and they reflect price elasticity estimates made in 1968/69 by Hoos and Kuznets at the processor (f.o.b.) level (65, p. 3). The usual price-quantity axes are reversed for purposes of better illustrating elasticity relationships.[36] As drawn, the price elasticity of demand at the processor level is –2.0 for a quantity of 30 million cases (No. 2½ can size, choice grade) at a price of $5.00 per case f.o.b. The farm level curve reflects an elasticity of –.5 at this quantity range and is derived using the approximate margin between grower and canner level, $3.75 per case (70). Using the Department of Agriculture estimate, if the peach grower receives 18 per cent of the retail price, the grower-retail spread would be $5.75 and the processor-retail spread $2.00 (115, p. 27). Thus, the estimated retail price would be $7.00 per case reflecting a price elasticity of –2.7 at a quantity of 30 million cases.

These estimates illustrate the conflict that occurs when the supply restriction is desirable from the grower viewpoint but undesirable from the viewpoint of the other two marketing levels shown. Total revenue to the peach growers can be increased to $45.0 million from $37.5 million by reducing output to 24 million cases, the point where price elasticity is –1.0 at the grower level. However, at the processor level, such a restriction would reduce revenues from this product to $135 million compared to $150 million at the current output. Retailer revenue would drop to $183 million from $210 million. Both the processor and retailer would increase their total revenues from canned cling peaches by expanding sales toward the point where elasticity at their levels is –1.0. In the case of processors, this would suggest an output of about 45 million cases, all other things equal. But, since in the illustration this quantity would eliminate grower returns, it is clear that all other things do not stay the same. These elasticity estimates would change as output expanded and as the myriad other influences on demand changed over time, but the basic motivations would be unlikely to change. The greater demand elasticities at the market levels beyond the farm provide the impetus for increased sales volume.

Several important implications for marketing control policies stem from the circumstances illustrated. Under the conditions of decreasing average costs which can be assumed for most processing firms, there is likely to be continued pressure for larger packs of products that face an elastic demand. The experience of the cling peach industry confirms this. During the period of severest supply control in the late 1950s and early 1960s, canners persistently offered bonuses and special inducements to growers to assure themselves of adequate supplies. In an effort to resolve the administrative, as well as the economic, pressures for a change in this situation, a new approach was taken by the growers in the mid-1960s. In the initial stage the price leader, California Canning Peach Association, gained acceptance of "sliding scale" pricing for the cling peach crop. A schedule of prices in the relevant quantity range rather than a single price per ton was presented to canners. The schedule was developed so as to return to the grower segment of the industry a specified total revenue, regardless of the tonnage sold—i.e., the schedule represented a demand curve with unit elasticity.[37] Thus, the demand curve facing growers was not derived from the demand conditions at the canner level in the

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[36] This graphic method is explained by Richard J. Foote in 58, pp. 79–81.
[37] For a discussion of this development see 69.

relevant output range. Rather on the basis of the estimates shown in Chart 21, the grower's demand schedule reflected the price elasticity which would have obtained if industry output had been limited to 24 million cases instead of the 30 million actually packed. Since canner demand is derived from the retail level, in this illustration, the f.o.b. price remains at $5.00 per case with the result that total revenue to the canning industry remains at $150 million while cost of the raw material increases to $45 million, or 30 per cent of the total revenue rather than 25 per cent.

In an effort to overcome the distortions brought about by grower pricing that is unrelated to the derived demand for the final product, the cling peach industry added another control variation in 1965. This so-called open market provision, described in an earlier section, attempts to insert into the marketing order mechanism a direct relationship between the price established by the grower bargaining association and the quantity of peaches desired by canners. The price schedule is established prior to opening the purchasing period to canners. On the basis of this schedule, reflecting unit elasticity, canners are to purchase their projected tonnage requirements. Tonnage not purchased by a specified date becomes surplus and is disposed of through a green drop or cannery diversion, or both. The resulting problem is evident from the example depicted in Chart 21. Canners find either their gross returns considerably reduced by the necessity of reducing their pack to the level suggested by derived demand relationships or their net returns reduced by purchasing a greater tonnage at prices considerably above those justified by retailer demand for that quantity. A principal manifestation of this distortion in production and pricing was evidenced by the drastic destruction of bearing trees plus the green drop of immature peaches and cannery diversion imposed in 1970. The industry found it necessary to eliminate 25 per cent of the 1970 tonnage potential or face the price consequences of the huge surplus packs which inevitably resulted from the recent marketing policies. Interestingly, the suggested reduction of 25 per cent, if applied to the quantities shown in Chart 21, would result in a pack which closely approaches the point where price elasticity is –1.0 at the farm level.

One additional repercussion of the crop restriction pursued by the cling peach industry relates to its effects on the total income generated by the product as it moves to the consumer. For example, on the basis of the illustration in Chart 21, the increase in total revenue to producers resulting from a reduction in the pack from 30 million to 24 million cases is $7.5 million. This pack reduction decreases revenue at the processor level by $15 million and at the retail level by $27 million. In other words, maintenance of the original level of production at the grower level would result in a total revenue generation of $210.0 million compared to $183.0 million at the quantity suggested by unit elasticity at the grower level. This could be interpreted as a loss of jobs in the marketing as well as the supplying industries. At the same time the retail cost of the product to consumers is raised from $7.00 per case (29¢ per 2½ size can) to $7.60 per case (32¢ per can). The costs of restrictionism of this type are clear. Even the cling peach growers, the only possible beneficiaries of the scheme, have eventually lost due to the apparent necessity of eliminating 25 per cent of their production in 1970 and an even greater share in 1971.

CHART 22.—CLING PEACHES AND BARTLETT PEARS, GROWER
PRICE PER TON FROM CANNING, CANNER F.O.B. PRICE
AND RETAIL PRICE PER CAN, CANNED PEACHES AND
FRUIT COCKTAIL, FIVE-YEAR AVERAGES, 1925–68*
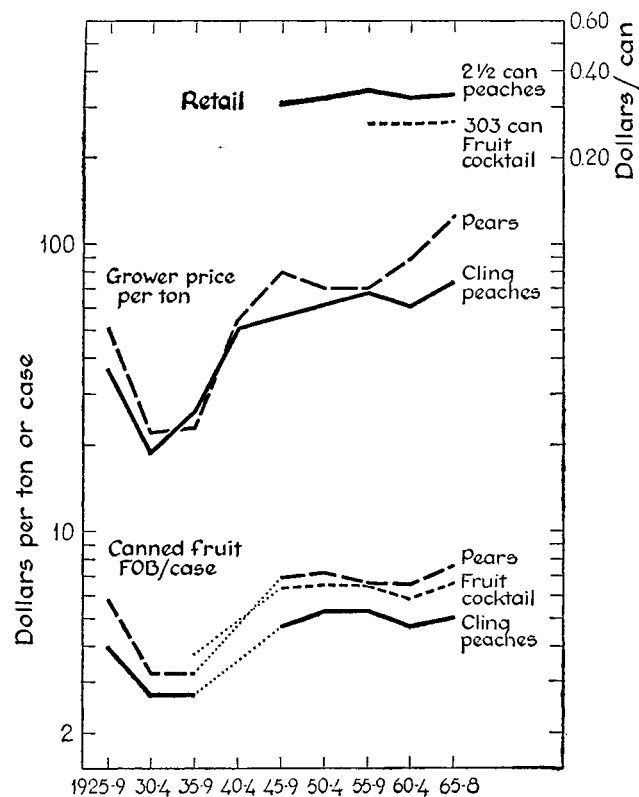
CHART 23.—LEMONS: GROWER PRICES PER TON AND PRICE
PER BOX FROM FRESH MARKET, AND RETAIL
PRICE PER POUND, FRESH*

* Data are from Table 15 and sources listed in Appendix F.
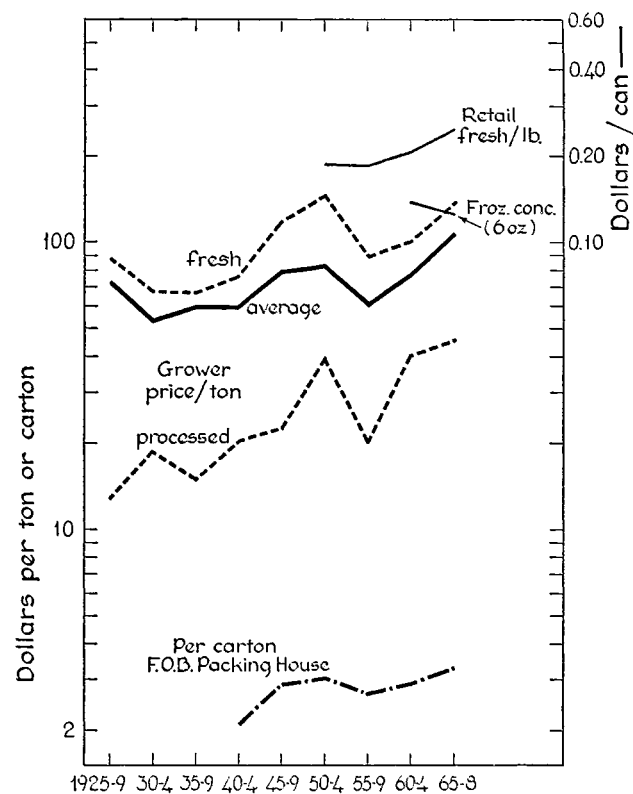
* Data are from Table 15 and sources listed in Appendix F.

TABLE 15.—RETAIL PRICES: CANNED PEACHES, CANNED FRUIT COCKTAIL, FROZEN LEMON CONCENTRATE, FRESH LEMONS, FRESH APPLES, 1947–68*

(*Cents per indicated unit*)

| | Canned peaches (#2½ can) | | Canned fruit cocktail (#303 can) | | Lemons | | | | Apples, Fresh (lb.) | |
| | | | | | Frozen concentrate (6 oz. can) | | Fresh (lb.) | | | |
	Annual	Average	Annual	Average	Annual	Average	Annual	Average	Annual	Average
1947	31.5								12.7	
1948	31.0								11.8	
1949	30.5	31.0							12.5	12.3
1950	28.3								12.0	
1951	33.2								11.1	
1952	33.3								15.2	
1953	33.3						19.4		16.3	
1954	32.3	32.1					17.8	18.6	15.9	14.1
1955	33.6		26.6				17.6		15.6	
1956	34.3		26.2				18.5		15.6	
1957	34.1		26.0				18.6		17.5	
1958	33.7		26.4				18.1		16.0	
1959	35.0	34.1	27.6	26.6			18.5	18.3	14.8	15.9
1960	33.1		27.0		13.4		19.0		17.1	
1961	32.7		26.6		13.7		19.3		18.1	
1962	32.1		25.8		13.6		20.0		17.1	
1963	32.3		25.7		14.3		22.9		17.8	
1964	33.2	32.7	27.3	26.5	13.9	13.8	21.1	20.5	17.8	17.6
1965	31.9		26.1		12.8		23.6		17.8	
1966	34.1		26.9		12.5		23.9		19.5	
1967	32.1		26.3		12.3		24.7		20.5	
1968	35.2	33.3	28.1	26.8	12.4	12.5	26.7	24.7	23.8	20.4

* Data for canned peaches, lemons, and apples through 1964 are from U.S. Department of Agriculture, Economic Research Service, *Farm-Retail Spreads for Food Products, 1947–64*; for 1965–68 data are from *ibid.*, *Fruit Situation*, June 1969. Data for canned fruit cocktail are from U.S. Bureau of Labor Statistics, *Retail Prices of Foods*, issues of 1951–52 through 1964–68.

Charts 22 and 23 and Table 15 present available data on prices for several of the products under study at the grower, packer/processor, and retail levels. The most obvious characteristic of these related prices over time is decreasing variability in price as the product moves toward the consumer. For the canning crops—peaches and pears—grower prices reflect the widest variation, but also the steepest upward trend since 1945–49. Prices at the cannery level (f.o.b.) as well as retail prices show almost no trend between 1945–49 and 1965–68. Retail prices show almost no variation during this period. The reduced price variation at the levels toward the consumer results from the addition of fairly stable marketing margins at each level which accumulate as the product moves through the marketing system. As discussed above, the deduction of these margins from the retail price tends to reduce the price elasticity of demand at the grower level.

Of particular interest in the relationships illustrated in Charts 22 and 23 is the difference between the canned fruits and fresh lemons. While trends in retail prices for canned peaches and fruit cocktail have been largely unrelated to the changes in grower prices, the retail price of fresh lemons has clearly paralleled the grower and packer price. The few retail price data for lemon concentrate show a trend opposite to both the fresh retail price and the grower price for lemons. It is the fresh lemon price which is directly affected by the marketing order, and the effectiveness with which that price has been controlled is readily apparent. But the increasing quantity moving into processed products (see Table 4, p. 259) has depressed the price of lemon concentrate.

The lack of an upward trend in canned peach and fruit cocktail prices at both

CHART 24.—WALNUTS: GROWER PRICES AND F.O.B. PRICES FOR SHELLED AND IN-SHELL, FIVE-YEAR AVERAGES, 1925–68*
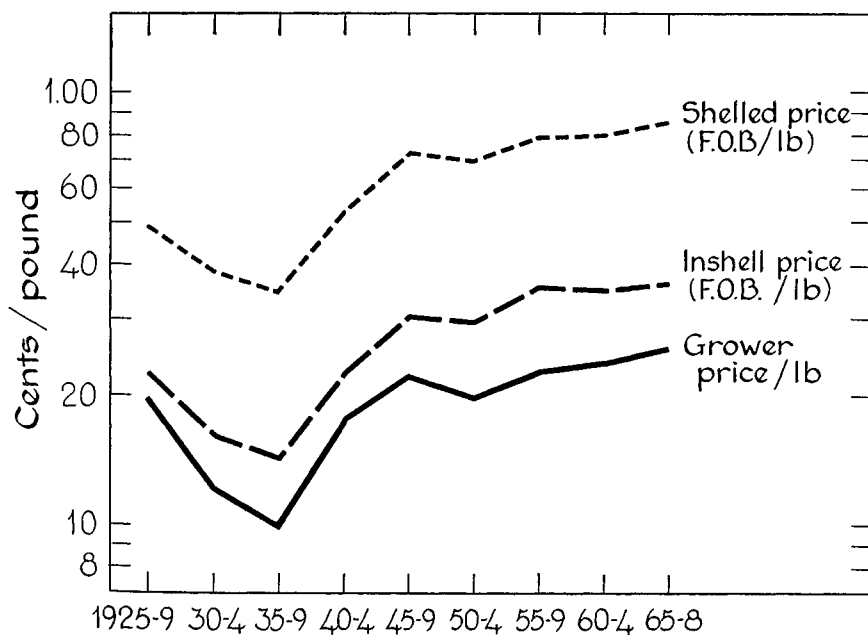
* Data are from sources listed in Appendix F.

CHART 25.—ALMONDS: GROWER PRICES AND F.O.B. PRICES PER POUND*
(*Cents per pound*)
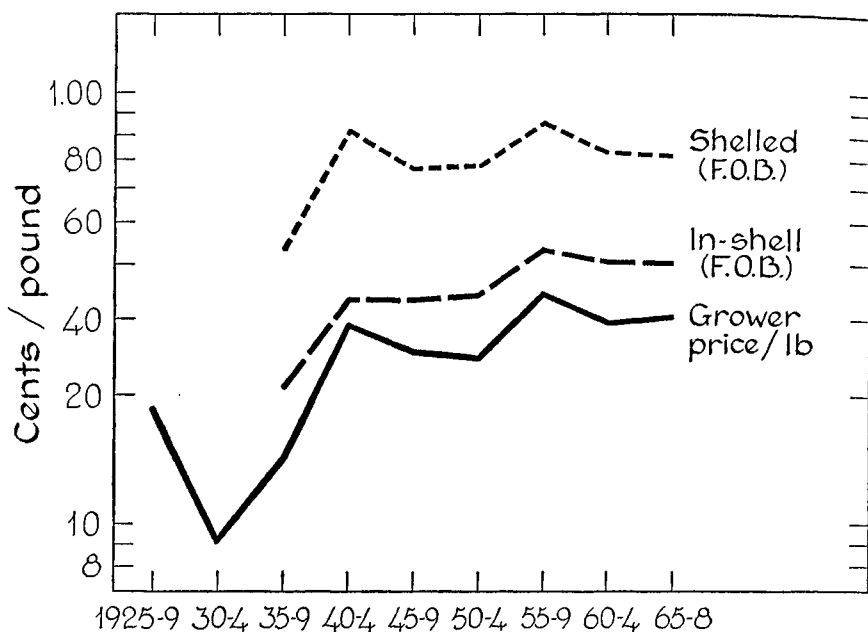
* Data are from sources listed in Appendix F.

the cannery and retail levels resulted from increased canning yields per ton of raw product and decreased profit margins.[38] Estimated canner margins on regular pack cling peaches averaged 73 per cent of canner returns in 1965–68, compared to 75 per cent for the period 1950–60.

Grower prices and f.o.b. prices for shelled and in-shell walnuts are shown in Chart 24. The close correspondence between these three series over the entire 48-year period may suggest the effect of the marketing order, but is more related to the influence of Diamond Walnut Growers, the major marketing agency that has long dominated the industry. The levelling off of the in-shell price since 1960–64 probably reflects the declining demand for this form of the product, but it also illustrates the ability of the industry to maintain in-shell prices between 1955–59 and 1965–68 when utilization changed from about one-half to about two-thirds shelled (Table 7, p. 265).

Almond prices per pound at the grower and f.o.b. levels are shown in Chart 25. Although showing more period-to-period variation than walnut prices, the trend is about the same. The relatively constant margin between prices at the grower and f.o.b. (wholesale) levels is evident for both almonds and walnuts. This relationship is insured by the marketing cooperative domination of these two commodity-industries, and the cooperatives' policy of returning the grower f.o.b. returns less costs.

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[38] Cling peach cannery case yields per ton (water content basis) increased from 46.11 cases in 1949 to 54.68 in 1960 but have been below the 1960 yield level every year since that time (*44*).

Evidence from Other Studies

Among the other appraisals of the price and income effects of marketing order controls are those for California dates and raisins. In his study of dates, Dennis indicated that price stability was the major goal of that order (*50*, p. 4). He concluded that during the period from the initiation of the order in 1955 to 1962 prices were indeed stabilized by restricting the quantity of "free" dates—those that can be marketed as whole or pitted dates without control under the order. This share of the crop accounts for about 70 per cent of the sales and the prices received for "free" dates are considerably higher than for "restricted" uses; hence, stabilization of this price tends to stabilize the average price (*50*, p. 13). But, Dennis also noted that stabilizing the price in this manner resulted in variable total revenues for the crop since total date production varies from year to year (*50*, p. 14).

Since the Dennis study there is little evidence of increased prices or stability in this industry. The average restricted percentage of the major variety—Deglet Noor—was 23.0 per cent from 1955 through 1962 and 29.8 per cent for 1963 through 1968 (*50*, p. 7; *113*). In 1968, after 14 years of marketing order control, the Consumer and Marketing Service reported that sales of dates were down and the carryover at the end of the marketing year would be at a record level. In the period 1960–64, date producers received an average of $144 per ton and total revenue averaged $3.23 million. The average price in 1965–68 was $140 and average total revenue was $3.02 million.

The California raisin marketing order was the subject of an intensive study by Norman Townshend-Zellner in the late 1950s. This research led to the publication of three reports and one article, and one manuscript distributed semi-privately by the United States Department of Agriculture (*94*; *104*; *101*; *102*; *103*). The latter manuscript reported his major findings but was never given broad distribution.[39] The published conclusions of these various studies have shed surprisingly little light on the performance of the raisin marketing order. Townshend-Zellner concluded that enhanced returns to producers were associated with a declining number of producers and packers (*101*, p. i). In other words, much of the income benefit accruing to those who remained in the industry resulted from the exit of the others. Pritchard, in a lengthy footnote, seems to contradict this conclusion by suggesting that the exiting producers would have left anyway (*94*, p. 2). But, he fails to overcome the suspicion that the remaining producers may have gained from the exit of others rather than from the order.

Townshend-Zellner points directly to one observed price effect of the marketing order. Large crops were accompanied by volume controls which placed a virtual floor under prices and resulted in a high degree of within-season price stability. But, short crops have been characterized by price instability and no ceiling

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[39] Copies of this report were distributed in mimeographed form upon request under the notations "For office use" and "Before any reproduction is made of this material, please contact Kenneth E. Ogren" [Marketing Economics Division Director at that time]. Parts of the report provided the basis for the Pritchard publication cited here (*94*). It is significant that the portions of the Townshend-Zellner manuscript which might have provoked controversy were not included in the later report and that nothing was released until 1964, at least three years after its completion and seven years after the preliminary report of the study was released. This period of delay coincided with a period when the marketing order's supporters were fighting for expanded order controls in the face of some severe intra-industry opposition.

on price rises. This is a consequence common to almost all marketing control schemes. It is the troughs that are cut off while the peaks are allowed to reach their own levels. Townshend-Zellner correctly concludes that this policy is fundamentally inconsistent with efforts to stabilize prices and supplies in order to increase demand for the product (*101*, p. ii).

The raisin marketing order covers only one segment of the total California grape industry, which also includes the wine and table grape industries. Thompson seedless grapes are of major importance in all three segments. The ramifications of this interrelationship have frustrated every attempt to deal with the problems of each segment independently. The availability of the winery outlet as an alternative is vital to whatever controls might be imposed in the raisin industry. A marketing order regulating grapes for crushing was terminated in 1963 after three years of operation. In part this termination was due to the policy of excluding some qualities of raisins and grapes formerly utilized by wineries. As noted by most students of marketing orders, there must be at least one relatively free alternative outlet available for the excess supply generated by a control scheme. For grapes, this outlet was largely the wineries. The attempt to limit access to that market quickly failed and has not been tried again.

Conclusions: Price and Income Experience

The five commodities analyzed in this report have moved into the "long-run" phase of their marketing control histories. The evidence presented in this section is meant to emphasize the long-run aspects of price and income performance. No argument is offered in relation to the short-run farm level price and income effects that can be anticipated from the types of controls authorized for these commodities. There is ample evidence that they all exhibit short-run price inelasticity of demand at the grower level, and although cross-elasticities are high among the processed fruits and the various tree nuts, substitution by processors, handlers, or consumers is not likely to be a practical alternative in a single season. As a result, prices and total revenue to producers can be increased by any control technique which limits quantity available to the primary market in the short run.

Surprisingly, a great deal of the economic analysis surrounding marketing order operations and performance continues to emphasize these obvious short-run possibilities and their achievement. The initial development of a mechanism to provide farmers with a monopolistic structure they previously lacked allowed them to exploit short-run market characteristics—chiefly price inelastic demand at the farm level. At that time—the 1930s—this development deserved attention principally because of its innovative appearance in these commodity-industries. Now, almost 40 years later, it is the long-run performance which deserves attention.

The evidence presented in this section suggests a number of tentative conclusions. They are tentative at this point in the argument because they are subjected in later sections to analysis of considerations other than price and income performance.

Over the 20-year period since 1950, when the current history of these marketing order programs began, the average parity price ratio for these five commodities coincided almost exactly with the parity price ratio for all farm commodities produced in the United States. During this period the prices of pears for pro-

cessing, the least controlled of the five commodities studied, have consistently most closely approached parity. Interestingly, apples for processing, never subject to marketing order controls during this period, also show a closer relationship to parity than the other commodities, except pears.

The increases in prices, total revenues, and returns per acre for the five commodities studied have been quite similar in rate and magnitude since 1950. In addition, these gains correspond quite closely to the rate and size of increase in cash returns for all fruits and nuts marketed during this period. Thus, the long-run gains to controlled commodities apparently do not differ greatly from those accruing to those which are not controlled.

Among the five commodities, however, there are some differences in the rate of increase in these price and income variables. Those to which the most restrictive controls have been applied—cling peaches, lemons, and almonds—have experienced the most rapid rises, particularly in total revenue. This suggests that the incentive to expand in those crops for a variety of reasons, has been greater than the incentive for expansion of Bartlett pears and walnuts. Suffice it to say at this point that the price and income inducements have played an important part in that expansion, although other factors are considered in later sections.

Net income should provide the major guide to production decisions, but cost data are rarely accurate enough on an industry-wide basis to draw meaningful conclusions as to relative net returns. Two general observations stemming from the evidence in this section are as follows: (1) In recent years the net cash returns (exclusive of depreciation and interest) among the five commodities studied are highest for those that have been subject to the most rigid control; and (2) the variation in net returns within each commodity-industry is probably greater than the variation between industries. These two observations need some further qualification. The net cash returns data presented in this section do not take into consideration the "indirect costs" resulting from crop destruction or excessive culling necessitated under marketing order controls. Some estimates of these costs are discussed in a later section. Conclusions on intra-industry cost variation are based largely on data showing differences in yields per acre among cling peach growers; however, information obtained from every industry studied suggests that wide differences in costs of production exist due to a great many factors. Chief among these are technical issues—e.g., varieties, location, degree of mechanization, and cultural techniques applied—and entrepreneurial issues—e.g., tax relationships, cost of inputs, and other market-related factors.

Stability of both price and gross income is usually impossible since the fluctuation in prices brought about by supply variation tends to stabilize income, while stable prices under such variation tend to increase income variability. Nevertheless, stabilization of prices and incomes is a major goal of marketing orders and, particularly in cling peaches, such stabilization has apparently been aided through the controls applied. In general, the evidence indicates a greater degree of stability in all three variables measured—price, total revenue, and returns per acre— for those commodities subjected to the most rigid controls, particularly cling peaches and lemons. Price stability has been a specific policy goal of the almond order since 1960 and the data suggest that this goal has been achieved, but as would be expected, a similar degree of income stability has not resulted.

Probably the most important general accomplishment of the marketing orders studied, and others noted in this section, has been the reduction of price troughs as compared to price peaks. Among the commodities studied, the average positive and negative annual price changes were almost exactly of equivalent magnitudes, 33 per cent, during the period from 1930 through 1949. From 1950 through 1968 the positive price changes averaged 22 per cent while negative changes averaged 16 per cent. Since 1960, positive changes have averaged 21 per cent while negative changes have averaged 13 per cent. Excluding Bartlett pears, the only commodity for which quantity controls have not been used, the positive changes are 16.3 per cent while the negative changes average only 7.5 per cent.

The evidence from studies of the raisin industry also suggested that the price floors resulting from volume controls applied in large-crop years were not offset by the adoption of price ceilings in short-crop years. Other students of California marketing orders have come to the same conclusion (52, pp. 81, 87).

The major implications for processors and handlers of marketing controls at the farm level relate to the effect of such regulations on the quantity and quality of supplies available. Although the quality issue is important in itself it is the impact that quality controls have on quantity that is of most importance. Due to the addition of relatively fixed margins these marketing firms face a different demand curve than do the growers. As shown in this section, the grower demand curve is generally price inelastic in the relevant output range while the demand facing the marketing firm is generally elastic. Total revenue maximization therefore calls for opposite control policies at these two levels—e.g., growers, as a group, gain from decreased quantities sold and marketing firms, as a group, gain from increased supplies.

If the grower segment of the industry is able to use marketing order controls, as in cling peaches, to limit supplies in order to increase total revenue at that level several results can be anticipated at other levels. Processors and other handlers will find their revenues from the particular commodity reduced. In the short run such firms are likely to attempt to increase their own volume purchased at the expense of other marketing firms. This should enhance grower prices—e.g., as was the case in cling peaches in the 1950s. But, since exploitation of the demand reflected at the grower level leads to prices which cannot be sustained at the subsequent levels of the market, marketing firms will eventually react so as to increase their own revenues. One such reaction is illustrated by the increasing attempts of commercial canning firms to diversify their operations by shifting available capital to more profitable products. These moves, within the California industry, have turned over an increasing share of the risk capital in processing to growers through cooperative organizations. A related development is likely to be increased "participation plans" whereby growers and commercial processing firms become more closely integrated so that conflicting marketing policies can be overcome. Through such schemes marketing policies may be geared to exploit demand characteristics at levels closer to the consumer—e.g., the f.o.b. cannery level—rather than treating the grower level as a unique market to be exploited independently of final product demand. This latter course has been the historical basis for the marketing order controls authorized and imposed. Although consumer demand

receives a great deal of attention by marketing order groups, most of this is centered on methods of "forcing" the consumer to pay higher prices.

There is little evidence that studies of existing retailer or consumer demand have played a major role in the policies followed under the marketing order studied. Inevitably, it is grower considerations—costs and total revenue—that guide control decisions under marketing orders.

The records of price and income performance discussed in this section indicate somewhat varied patterns among these commodities. Those commodities that utilized the most stringent year-to-year controls encouraged the greatest entry and faced the most serious overproduction problems by 1970. In particular, cling peach producers found it necessary to approve drastic measures in order to curtail their production potential prior to the 1970 season. Even more stringent reductions were enforced in 1971.[40] Among the commodities studied it seems only logical that extreme measures to reduce production should have been first required in the cling peach industry where the relatively high degree of continuing supply control practically assured such a result.

Overall, the performance patterns of the commodities studied do not vary greatly from those of similar commodities and national farm returns in total. It is impossible to draw conclusions as to what the price and income experience of these commodities would have been without the controls imposed; but it seems evident that the restrictive policies followed under marketing order authority have been major factors in price and income performance. The long-run view suggests a close relationship among short-run market control policies, excessive production, and the eventual necessity of a drastic readjustment to the rigors of markets beyond the farm gate. These considerations are discussed in subsequent sections of this report. As suggested in the analytical framework presented earlier, it is necessary to evaluate other aspects of this policy tool in addition to price and income performance.

V. MARKETING ORDER COST AND EFFICIENCY

The concept, definition, and measurement of efficiency are central to the study of microeconomics, but they also provide some of the severest problems in empirical research. There are two broad categories of "efficiency"—(1) the *technological efficiency* of the firm or industry which is the achievement of the greatest possible output with given means or the achievement of a given output with the smallest means, or (2) the *economic efficiency* of the firm or industry which is its conformity to the preferences of the society it serves, that is combining available factors of production correctly to achieve products of the right type, in the right proportions, at the correct rate of output (97, pp. 148–77).

Markets provide the mechanism through which economic activities are guided toward allocation of resources in accordance with the preferences of society—i.e., economic efficiency. Economists have developed a great many classifications of markets, principally based on the degree of competition exhibited. The typical

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[40] The restrictive procedures used prior to and during the 1970 and 1971 seasons are discussed in section VI, pp. 333 and in the concluding section.

range includes perfect competition at one end and complete monopoly on the
other (96, p. 476). In between are various categories of imperfect markets, such
as moderately concentrated oligopolies, with or without product differentiation
or highly concentrated oligopolistic markets, with varying degrees of differentia-
tion and entry conditions (4, p. 34).

The level of economic efficiency is often appraised in general by attempting
to measure the nature of competition in relevant markets and from this to infer
some related degree of efficiency. Unfortunately, the complexity of most markets
precludes accurate estimation of the existing level of competition, and as a result
only highly tentative statements as to economic efficiency, or even technological
efficiency, are possible. It has been found more rewarding to look for specific evi-
dence of efficiency in the more narrow confines of industry studies, although a
satisfying method for measuring economic efficiency even in this narrow scope
has yet to be developed.

An approach to the evaluation of marketing efficiency in commodity-indus-
tries covered by marketing orders was outlined in section II of this report. The
framework for analysis suggested that the various functions of these institutions
be appraised separately to the extent possible. Many marketing order organiza-
tions perform services that are not available elsewhere and many extend the regu-
latory or informational services that are carried on by public agencies. The major
function of these orders is centralized control of certain marketing decisions with
a view toward more "orderly marketing" as specified in the enabling legislation.
This function, too, can be appraised in the light of observed experience.

The analysis in this section presents evidence available from the five case stud-
ies, and others, on the costs and efficiency of marketing orders in performing these
various functions. Three major areas are discussed: (1) marketing order costs
and services; (2) market integration and coordination; and (3) market power
and price determination.

Marketing Order Costs and Services

In addition to their control activities, the principal services performed by the
marketing order organizations studied include the following: collection and dis-
semination of information; operation of grading and inspection programs; ad-
ministration of commodity advertising and promotion activities; support and dis-
tribution of research; provision of a central "headquarters" for industry-wide
communication. Advertising and promotion is not generally authorized by fed-
eral enabling legislation, although amendments have authorized specific commod-
ities to undertake such programs. All the other services have been performed to
some degree under federal marketing order authority, and the California legisla-
tion authorizes all of the activities listed.

Among the five case study commodities, cling peaches have by far the largest
annual budget, principally due to the extensive advertising program and the com-
plex supply controls that have long been carried on (Table 16). Bartlett pears
have the second largest budget as a result of the advertising and promotion pro-
gram. Of the federal orders studied, lemons have the largest budget, with walnuts
and almonds next in that order. As shown in Table 16, the cling peach order also
takes a much greater share of grower total revenues than the others, although

TABLE 16.—MARKETING ORDER EXPENDITURES AND THEIR PERCENTAGE OF TOTAL REVENUES FOR
CLING PEACHES, BARTLETT PEARS, LEMONS, WALNUTS, ALMONDS, 1960–68*

Marketing year beginning	Cling peaches		Bartlett pears		Lemons		Walnuts		Almonds	
	Thousand dollars	Per cent[a]	Thousand dollars	Per cent[a]	Thousand dollars	Per cent[a]	Thousand dollars	Per cent[a]	Thousand dollars	Per cent[a]
1960	2,721	8.7	461	2.4	178	.5	87	.2	40	.1
1961	2,866	7.2	464	2.0	160	.5	91	.3	53	.1
1962	3,029	7.3	478	2.5	164	.3	83	.2	51	.2
1963	1,494	3.8	332	2.3	193	.4	83	.2	43	.1
1964	2,642	5.4	596	2.3	223	.5	103	.3	46	.1
1965	2,399	5.5	426	2.1	224	.5	104	.3	49	.1
1966	2,775	5.5	716	3.5	224	.4	103	.2	58	.1
1967	2,512	5.0	249	1.6	203	.4	96	.2	57	.1
1968	3,032	5.2	603	2.0	194	.3	115	.2	62	.1

* Data are from California Department of Agriculture, "Summary of Marketing Programs," various years, and from U.S. Department of Agriculture, Consumer and Marketing Service, "Narrative Work Project Annual Reports," various years.
[a] Per cent of total revenue. Total revenue data are presented in Charts 10–14 and the sources of data listed in Appendix F.

part of this is assessed against processors.[41] These processor assessments must also ultimately be a charge against returns for the raw product, especially in the case of the members of processing cooperatives.

The direct grower expenditures under the cling peach order have averaged 3.2 per cent of total revenues since 1964.[42] Under the Bartlett pear order expenditures averaged 2.3 per cent of total revenues during this period. As shown in Table 16, expenditures under the federal orders are quite low compared to the California state orders. Lemons average about .4 per cent of total revenue, walnuts .2 per cent, and almonds only .1 per cent.

The following assessments were levied against the producers and handlers of these crops during the 1968 season:

Cling peaches for processing	$3.75 per ton ($2.25 on producers and $1.50 on processors)
Bartlett pears for processing	$2.00 per ton (on producers)
Lemons (fresh only)	$0.017 per carton (on handlers)
Walnuts	$0.001 per pound, in-shell (on handlers) $0.002 per pound, shelled (on handlers)
Almonds	$0.001 per pound, shelled (on handlers)

The marketing order costs per ton of raw product handled on the basis of these assessments were as follows:

Cling peaches	$3.75
Bartlett pears	$2.00
Lemons	$0.90 assessed, $0.82 spent[43]
Walnuts	$1.63 assessed, $1.29 spent (in-shell weight)
Almonds	$1.10 assessed, $0.83 spent (in-shell weight)

The costs of the California programs are generally divided into administrative, inspection, research, and advertising and promotion. These expenditures for cling peaches and Bartlett pears for processing since 1960 are shown in Table 17. In 1968/69 advertising and promotion accounted for about 54 per cent of the expenditures under the cling peach order and 53 per cent under the Bartlett pear order.[44] Under the federal orders for lemons, walnuts, and almonds all costs are for administration. The higher cost per ton of the walnut order as compared to lemons and almonds is largely due to the operation of the quality control program for walnuts which is not required under the other two orders.

The costs of administration, including inspection and certification where applicable, of these orders averages about $1.12 per ton. The advertising and promotion costs of the two California orders, including research, averages about $1.65 per ton.[45]

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[41] Prior to 1963 processors paid one-half of the cost. In 1963 the processor share dropped to about 2.5 per cent, but since that time it has been about 40 per cent of total cost.

[42] Actual expenditures averaged 5.3 per cent of total revenues, but 2.1 per cent of the total is from processor assessments.

[43] Under federal orders, funds not spent in the marketing year are returned to the handlers on a pro-rata basis.

[44] Bartlett pear growers who shipped part of their crop to the fresh market spent an additional $183,000 on promotion of fresh pears in 1968/69, which was about 85 per cent of the expenditures made under the fresh Bartlett pear orders.

[45] This average includes the expenditure under the California marketing order for fresh Bartlett pears.

TABLE 17.—MARKETING ORDER EXPENDITURES BY CATEGORY: CLING
PEACHES AND BARTLETT PEARS FOR PROCESSING, 1960–68*
(Dollars)

Marketing year beginning	Adminis- tration	Inspection	Research	Total	Advertising and promotion	Grand total
Cling Peaches						
1960	580,076	487,281	22,500	1,089,857	1,631,129	2,720,986
1961	596,215	477,555	6,741	1,080,511	1,785,651	2,866,162
1962[a]	571,110	643,000	39,602	1,253,712	1,775,513	3,029,225
1963	562,417	324,728	20,588	907,733	586,416	1,494,149
1964	580,856	635,895	30,673	1,247,424	1,394,198	2,641,622
1965	572,080	682,024	38,869	1,292,973	1,106,244	2,399,217
1966	595,348	779,042	31,629	1,406,019	1,369,234	2,775,253
1967	321,954	878,332	69,091	1,269,377	1,242,276	2,511,653
1968	367,621	1,016,872	18,011	1,402,504	1,629,080	3,031,584
Bartlett Pears						
1960	56,112	126,190	46,313	228,615	232,481	461,096
1961	49,793	125,611	27,742	203,146	261,119	464,265
1962	54,890	92,335	24,742	171,967	306,345	478,312
1963	51,622	80,774	15,000	147,396	184,254	331,650
1964	92,416	151,122	52,297	295,835	299,855	595,690
1965	62,507	101,859	119,243	283,609	142,741	426,350
1966	162,591	161,889	118,818	443,298	272,986	716,284
1967	68,658	71,838	2,000	142,496	106,320	248,816
1968	94,758	186,461	840	282,059	321,363	603,422

* For the years 1960–62 data are from California Department of Agriculture, Public Records;
for 1963 and following data are from its "Summary of Marketing Programs," various years.
  ^a Estimated from Cling Peach Advisory Board data and Public Records.

Some additional costs of administering marketing orders are included in the budget of the federal and state departments of agriculture. The use of public funds for these programs has been reviewed in recent Congressional hearings (*106*). In these hearings the total cost of federal marketing order administration, including milk orders, in 1969/70 was estimated by Department of Agriculture spokesmen at about $21.9 million (*106*, p. 12). Of this, about $19 million was paid from assessments levied on regulated handlers, the other $2.9 million was paid out of Department of Agriculture funds budgeted for this purpose. About $1.1 million of this $2.9 million is allocated to fruit, vegetable, and tree nut programs (*106*, p. 18). These USDA funds cover costs of staff members who "provide technical assistance to industry groups in the development and amendment of marketing orders, and who assist the Secretary of Agriculture in discharging his program surveillance responsibilities" (*106*, p. 12).

The State of California provides administrative and technical supervision of marketing orders through the Bureau of Marketing of the Department of Agriculture. Although no data for individual commodity expenditures are available, the cost of marketing order administration in 1969/70 was about $368 thousand. From 1966 through 1969, these costs averaged $284 thousand (*26*, pp. 135–36; *27*, pp. 141–42). These costs must be considered public expense in support of industry programs and an added cost of such policies.

The assessments levied under marketing order programs are a part of total commodity marketing margins and may increase margins or merely shift some part of them to the grower. Efficiency would be enhanced if the total marketing costs for these commodities were reduced through marketing order programs or if more effective communication and services were achieved by them. The major services provided by these expenditures are discussed below. The cost/benefit relationships involved are too tenuous for precise evaluation, but some observations are presented at the end of this section.

Information collection and dissemination.—All of the marketing orders studied provide some production and marketing statistics to growers and handlers. The quantity of data collected and disseminated seems to be closely correlated with the complexity of the market controls utilized. The Cling Peach Advisory Board has by far the most extensive organization and its information service is the most inclusive. Its annual *Orchard and Production Survey* provides extremely detailed data on cling peach acreage, production, tree count, tree removals, yields, and tonnage by orchard, for each district and the state as a whole. Other reports show canned pack and yield from tonnage delivered as well as utilization in the various types of canned fruit packs. Periodic reports on harvest progress are issued during the season. Members of the Advisory Board receive a great deal of information relating to control activities. This includes reports from University of California personnel on prospective supply and demand conditions as well as market research information from commercial market survey firms. Other survey data relating to projected fruit sizes, by district, are developed by the University of California and partly financed with Advisory Board funds.

The California Canning Peach Association publishes the *Cling Peach Quarterly* and other periodic newsletters to keep its members informed. A great deal of the content of these association publications are reports on Advisory Board activities and industry-wide issues.

The Bartlett pear order also provides industry data but on a much less expansive scale than cling peaches. Growers receive little information directly from the Program Committee, but rather through related industry organizations. The California Tree Fruit Agreement which administers the various pear orders issues an annual report containing most of the available data related to order operations. The California Canning Pear Association and the Pear Growers League distribute other information. In addition, a great deal of information similar to that rovided to the cling peach board is distributed to the members of the pear committee.

The California-Arizona lemon industry receives production and marketing data from a great many sources, among which is the Lemon Administrative Committee, which operates the marketing order. Most of the information distributed by the committee relates directly to the proration program and concerns lemon availability and allocation among markets. As committee meetings are held weekly to decide prorate amounts for fresh shipment, continued reports and data relating to this function are circulated to committee members. An annual summary report is issued by the Administrative Committee. Other major sources of lemon information are the marketing cooperatives—principally Sunkist Growers—and the California-Arizona Citrus League, which develops cost data.

The walnut and almond control boards largely confine their information ser-
vices to data quite directly related to marketing order operations. Periodic reports
include production and utilization, carryover, data on competing nuts and areas,
exports and imports, and other market-related information. Like the citrus indus-
try, a great deal of information for these two tree nut industries is distributed by
the major marketing cooperatives—Diamond Walnut and the California Almond
Growers Exchange.

The comparative costs of providing identical information through existing
federal and state agencies and through commodity marketing order organizations
are impossible to quantify. Cost allocation in both types of agency is subject to
accounting procedures which cannot specifically relate cost to information ser-
vices. But the experience of the industries studied suggests that over a long period
of parallel existence, government and industry information agencies have allo-
cated the tasks among themselves in a fairly efficient manner. In general, a close
working relationship has evolved among the Crop and Livestock Reporting Ser-
vice, the Federal-State Market News Service, the Colleges of Agriculture in the
state universities, the marketing order administrative groups, major cooperatives,
and various trade groups such as the Canners League of California. This is not
to say that there is always complete agreement among these groups as to such vital
issues as crop estimates and price reporting, but there has seldom been a major
difference that has led to the close of information sources.

The major contribution of the marketing order organization as an informa-
tion source is its specialization in the data needs of the particular industry and
its access to industry-wide information from a noncompetitive position within the
industry. On the other hand, a large share of the data gathered by the marketing
order administration is generated by the records required for centralized market
control activities. Should these activities cease, the information function would
have to be carried on for itself and might be considered too costly. But, as a by-
product of the control programs this function of marketing orders seems to be a
desirable adjunct to existing services. To the extent that it shifts from govern-
ment agencies to individual industries some costs of data gathering and distribu-
tion, this aspect of these orders has a positive public benefit.

Inspection and grading programs.—The services provided by the federal and
state inspection agencies are both utilized and supplemented by marketing order
organizations. The cling peach and Bartlett pear orders operate their own inspec-
tion and grading stations during the harvest season. Since 1960 the cost of these
activities in each industry has averaged about 25 per cent of the total expenditure
under the orders (Table 17).

The marketing orders for these processing fruits include specific grades and
standards which provide the basis for the grading performed.[46] In addition, per-
centage tolerances for size or off-grades that are a part of cannery contracts are
measured and noted by the inspectors certified by the marketing order organiza-
tion. The resulting reports become the basis for payment to growers, and tend to
overcome many of the problems that may result from processor grading. This
so-called "third party grading" has become a widely accepted activity of these

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[46] The Bartlett pear order was amended in 1970 to give its grading committee power to set
grade specifications annually.

orders. Since the grades are generally established by joint agreement of growers and processors there has been little recent conflict and the grades tend to reflect the important commercial characteristics of the fruit.

Grades are not included in the lemon order although minimum sizes for fresh shipment are established. Inspection and grading are carried on by individual handlers rather than by an industry group, but since almost the entire tonnage is under cooperative control, the established cooperative grades, especially those used by Sunkist, provide industry standards.

The walnut order includes quality standards for all nuts sold. The order states that shelled walnuts must be equal to or better than the Commercial grade as defined in the United States Standards then effective. In-shell walnuts must be equal to or better than U.S. Number 3 grade. Minimum sizes are also established in the order, but both grade and size regulations may be made more restrictive by the Control Board. In practice, the board has established U.S. Number 2 as the minimum grade for both shelled and unshelled walnuts, with minor exceptions for small grower-handlers. Export standards also have been fixed at a minimum of U.S. Number 2 and inspection must be carried out within 30 days of shipment. Walnuts are inspected and certified by an agency approved by the Control Board, but inspection costs are paid directly by the handlers using the service. Inspection certificates are often used as a basis for sales, especially in export.

The almond order establishes quality standards for almonds declared "surplus," but not for the "salable" portion of the crop. All "surplus" almonds must be inspected by an agency appointed by the Control Board. It must be certified that these almonds meet minimum quality standards set forth in the marketing order. Salable almonds for the domestic market are sold on the basis of handler's grades. Export sales are generally based on U.S. grades.

The inspection and grading programs carried on under the cling peach, Bartlett pear, and walnut marketing orders are generally viewed with favor by most industry members. In practice these programs have proven to be worthwhile additions to the marketing system for these industries. In jointly developing grades and standards the cling peach and Bartlett pear growers and processors have largely overcome an area of conflict between these two segments of the industry. The introduction of so-called "third party grading" to enforce the quality regulations further divorced this function from the self interest of either buyer or seller. The cost of this inspection and certification generally replaces rather than duplicates a function previously performed by processors. In fact, since 1964 the cling peach processors have been paying the assessed costs of the quality control program while growers' assessments cover other marketing order activities.

As with information service, quality standards in those commodity-industries dominated by a large marketing cooperative are typically established by the cooperative rather than the marketing order organization. Most federal orders in California cover such commodities, hence quality control has not been a major feature. The large cooperatives often promote their own brand names in conjunction with their own quality standards and as a result have not always been enthusiastic supporters of industry-wide advertising or quality programs.

The practice of setting minimum quality requirements for exports, as in almonds and walnuts, tends to offset one of the accusations often leveled at export "dumping." Through the marketing order export quality is maintained at levels

close to that in domestic markets, which should aid rather than hinder the development of export markets.

In general, it can be concluded from these cases that marketing efficiency is probably enhanced by the inspection and grading activities of marketing orders as compared to alternative procedures. These alternatives typically are either processor-handler grading or grading performed by governmental agencies, such as the Shipping Point Inspection Service. This latter agency is available in most production areas and its services are not compulsory unless so designated by some marketing order. Shipping point inspection costs are easily determined, and in most cases the lowest cost method for the purpose can be used. Thus, the marketing order may not develop its own service if an adequate alternative is available.

The use of grades and standards established by marketing orders rather than grades established by the Department of Agriculture may raise problems. For example, the marketing order grades may not be as well known in the trade or may be more subject to change than USDA grades. As indicated above, this does not reduce marketing efficiency in the commodity-industries studied since the processing crops are not sold beyond the grower level on grades established by the orders. Lemons and almonds have long-established cooperative grading programs, although these may be open to question if new entrants desire broader quality standards. Walnuts use USDA grades under the order and the major cooperative has a traditional brand name grade. On balance, therefore, it appears that many services of marketing orders aid the marketing system for these commodities at little additional cost.

Commodity advertising and promotion.—Since 1960, expenditures for advertising and promotion of cling peaches and Bartlett pears for processing have averaged about 53 per cent of the total funds collected from these two commodity-industries (Table 17). Among all California marketing orders advertising and promotion costs averaged about 69 per cent of total expenditures during this period. Some orders are used solely for such programs. Clearly, advertising has proven popular with the industry members who pay for it, and judging by recent assessment increases these groups are willing to pay even more.[47]

Growers have generally been very optimistic about advertising and promotion throughout the post–World War II history of marketing orders. Demand expansion programs have seldom been met by the vocal opposition that has accompanied quantity control programs. The very fact that the results of these promotional efforts can seldom be measured seems to encourage rather than discourage their use. As noted in a recent review of commodity advertising and promotion, the great faith of producers in such programs seems to be based principally on two premises: (1) that these efforts must be beneficial because advertising is so widely practiced and supported in the general economy; (2) that it is necessary to advertise merely to defend your commodity against all the competing commodities that are doing it (*86*, p. 376).[48]

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[47] New marketing orders adopted in 1970 increased grower assessments dramatically. The maximum for advertising and promotion in the pear order was doubled—from $1.25 to $2.50 per ton. The cling peach grower order shifted from a flat limitation of $3.00 per ton in the previous order to a maximum assessment of 6.5 per cent of the gross dollar sales of all cling peach producers. At recent prices this means an increase from about 4 per cent.

[48] Chapter 13 of this NCFM report provides a comprehensive picture of the importance of commodity advertising programs for fruits and vegetables.

Among the major problems faced by marketing order groups attempting to influence the demand for their product through advertising is the difficulty of co-ordinating quantity and quality availability with the promotional program. The marketing order administration does not actually sell the commodity—this is done by the marketing firms, commercial and cooperative. As the commodity moves from the farm through the marketing channels many factors other than raw product considerations influence the effectiveness of grower advertising and pro-motional activities. Not only may first-handler, wholesaler, or retailer merchan-dising policies conflict with the commodity promotional efforts, but conscious efforts to differentiate each brand of processed or packaged products by these firms may be diminished through industry-wide programs which suggest that the entire production is of equally "high" quality.

A major problem of marketing order advertising programs is the relatively small amount of money that can feasibly be collected from raw product produc-ers. Since growers' returns do not include marketing margins recoverable at levels of the market closer to the consumer, the amount of advertising funds deducted under marketing order programs is small in absolute terms. For example, the deduction of $2.50 per ton of cling peaches or Bartlett pears from a grower price of $75 per ton is 3.3 per cent. In percentage terms this is about equivalent to the average share of advertising cost in the total marketing bill for farm foods pur-chased by civilian consumers from 1960 through 1968 (*116*, p. 16). But 3.3 per cent of the retailer selling price of canned cling peaches is about $14 per ton.[49] At recent production levels such an advertising expenditure at the retail level would amount to $14 times 774,903 Number One tons processed, or $10.8 million. The grower contribution of $2.50 per ton amounts to about $1.9 million. Similar rela-tionships exist at any level beyond the farm. Thus, even a very substantial per-centage contribution to advertising at the grower level produces a relatively small amount of funds for carrying on advertising and promotional programs.

The grower enthusiasm for producer sponsored commodity advertising pro-grams has never been shared by the economists called upon to evaluate these pro-grams. Since no quantitative methods exist for making such appraisals the field has been largely left to professional advertising personnel. As these sources of appraisal have a direct interest in furthering the programs appraised their evalu-ations of results might be considered suspect. But grower support of these pro-grams has seldom been seriously threatened and, as suggested above, it seems to be increasing. Processors and handlers desiring to carry on their own brand pro-motion activities have often been less than enthusiastic about these industry-wide programs. But, due to the necessity of maintaining relationships with growers—especially cooperative members—these firms have seldom openly opposed grower promotional efforts.[50]

The cling peach and Bartlett pear advertising programs have an advantage over some other commodity efforts in that they include almost the entire commer-cial production of these fruits. Cling peach production is practically confined to

[49] At a retail price of $.33 per can, or about $8 per case and a yield of 53 cases per ton of raw product the retail price would be $424 per ton.

[50] Currently there is federal legislation pending which would allow processors or handlers a rebate of advertising funds deducted under industry programs equivalent to the firm's expenditure on advertising its own brands of the product.

California and the Bartlett pear program is coordinated with Oregon and Washington programs so as to encompass the entire Pacific Coast crop. However, lacking entry controls and effective total supply control, even these commodities face a situation in which any increased returns or even the prospect of increased returns from advertising is likely to encourage expansion of potential supplies. In the short run, promotional effectiveness is likely to be accompanied by pressure from growers to increase shipments, especially if control programs in effect place limits on the shipment or sale of the total available supply.

As a result of these various considerations and on the basis of observation of the commodities studied, it appears that marketing order advertising programs are largely defensive in nature. Surrounded by advertising and promotional campaigns for every other product, growers feel obliged to protect their own interests. There also seems to be some satisfaction in seeing your commodity advertised and thereby in participating directly in this perennially optimistic segment of the American marketing system. There is considerable implication stemming from industry interviews and publications that the cost of these advertising programs may be considered worthwhile by the growers largely because material evidence of the expenditures can be seen in magazines, newspapers, television, brochures, and in-store posters. Although such evidence does not ensure high profits, it is an obvious manifestation of the grower's efforts to help his cause. Also, advertising and promotional materials provide something tangible that can be pointed to by marketing order managers and other industry-group employees as proof of active programs.[51]

Research programs.—Since 1960 research support by the cling peach marketing order has amounted to an average of about 1.2 per cent of its total annual budget. During this same period the Bartlett pear order has spent an average of 9.4 per cent of its funds on research. Total expenditures for pear research during the nine year period 1960–68 were about $407 thousand, while the peach order spent $278 thousand.

The relatively costly pear research programs suggest the usefulness of marketing orders as mechanisms for assessing a specific industry for specialized research needs. Research funds from pear growers were used to help finance research efforts to find causes and cures for a disease—pear decline—and other studies of problems of specific interest to the industry. The cling peach industry helps finance crop estimation studies, cost of production studies, and disease research. The Lemon Administrative Committee aids research in crop forecasting carried on by University of California personnel.

The total budget of some other California marketing order programs is used for commodity research and administration of the program—e.g., asparagus, lima beans, and citrus. The state dried prune order had an annual research budget of about $88 thousand in 1968/69, and the wine industry order spent $125 thousand for research in that year (33). A new rice research marketing order, with a budget of about $160 thousand per year, became effective in 1969 as well as orders for milk products and turkeys which emphasized research.

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[51] In this respect commodity advertising programs may be somewhat analogous to the conspicuous building and other monumental projects carried on in developing countries by public officials to show the populace in obvious terms the great things their taxes have bought.

This trend toward using the marketing order assessment mechanism to finance industry research will no doubt continue to grow. Recent statements from public research agencies and government officials strongly suggest that publicly supported research for agriculture may either decline or shift to less industry-oriented studies. For example, the Assistant Dean of Agricultural Research, University of California, Davis, recently pointed out that "production research using state funds will decrease in favor of 'people-oriented' research" (25, p. 15). To compensate for this each industry will have to "significantly increase direct support for production research" (25). As to the advantages of this the Dean felt that industries could have a greater voice than ever before in the type of research done and could get the best return on their research investment. But, he warns, if agriculture does not directly assume more and more of the costs of research, the Experiment Stations and the Extension Service will quickly turn into service agencies for the urban population in order to survive (25).

The University of California has long been the major research agency for the state's agriculture. As suggested by the above statements, a change in this public support for farming is imminent. Thus, the possibility of an expanded role for industry controlled programs that assess industry members for production and marketing research is clearly evident. Marketing orders in California have been used for this purpose for many years, but the major emphasis has long been on market control and promotional activities. The research function may prove to be the most rewarding one in the long run.

Industry "headquarters."—In his study of nine federal marketing orders operated in California for many years, Wood concluded that the greatest benefit derived from these orders was probably the sense of organization and cohesiveness that they engendered in industry members (125, pp. 168–72). Among the major benefits he cites are the means provided for discussing mutual problems between producers and handlers and for discussions of any other topics of broad concern to the industry. The findings of the present study tend to bear out Wood's conclusions, with some reservations.

Certainly the availability of an office and office staff—particularly a responsible and informed manager—create a centralized headquarters for the entire industry. Although the cooperatives and other voluntary industry groups fill a somewhat similar role, they are seldom all inclusive in membership since some growers do not choose to belong. But a marketing order administrative office and staff is supported by the entire industry and thus is responsible and available to all industry members. In varying degrees the offices of the order become clearinghouses for information, rumors, and complaints. The extent to which this role is played depends upon the personalities and traditions in each commodity-industry. Leadership may fall to the manager of a marketing or bargaining cooperative, to the marketing order manager, to the grower chairman of a control committee or board, or to some combination of these. In any case, the "activists" in an industry, as Wood terms them, require some organized group in which to "be active." In many industries the marketing order provides that organization.

Offsetting some of the advantages Wood cites may be weaknesses of cartel-like organizations such as control-oriented marketing orders. Internal problems commonly arise in cartels when the members are not sufficiently homogeneous

in key characteristics such as costs, capacities, and output policies (*69*, pp. 118-19). As long as common interests prevail, e.g., in the face of severely depressed market conditions, the central authority of the cartel is usually not challenged. Similarly, as long as wide differences in viewpoint do not exist, marketing order groups provide a forum for industry discussion. But, as occurred in the cling peach industry in the early 1960s, control activities or other policies of the order may develop a split within the industry; there is little evidence that the order provides a cohesive force under these conditions. Divisions within the raisin industry have periodically stemmed from marketing order policies or programs. Controls imposed under the California asparagus orders and the federal order for grapes for crushing also divided the respective industries and led to the eventual termination of marketing orders.

It can be concluded that marketing order organizations have the potential for aiding mutual discussion and understanding within these kinds of industries. Having a focal point for industry activities can be of major benefit. But, the evidence suggests that this role can only be played successfully if the order does not undertake restrictive control schemes that impinge differently on the income determinants of individual industry members. This constraint stems from the compulsory nature of marketing order group membership. Compulsion provides strength through unified action, but it must be balanced against the compromises that are required to keep such compulsion palatable to all of those affected.

Market Integration and Coordination

The role of marketing orders as devices for coordinating production and consumption of fruits, tree nuts, and vegetables has been discussed from a great many viewpoints through the history of these orders. Proponents of new or expanded marketing order controls typically argue that such controls are necessary to bring about "orderly marketing," a goal set forth in almost all enabling legislation. Opponents of marketing orders usually cite the inflexibility of centralized marketing controls and the disruption of buyer-seller relationships that results from their imposition. Underlying the arguments of both sides of such controversies are differing assumptions about the nature of competition in farm markets and the physical and pricing efficiency that exist in such markets. The case studies developed in the course of this project provide some data on the role of marketing orders in market integration and coordination. They also provide illustrations of the problems encountered in measuring the contribution of orders.

Allocation among markets.—To obtain maximum net returns from the produced supply of a commodity that supply should be distributed among its various markets so as to equalize marginal revenue in all markets. Agricultural markets are differentiated by location, time, and product form. These markets may be independent, i.e., the product cannot readily move from one to another, and the elasticities of demand may differ in each. If these characteristics are present, such as is often true of domestic and export markets, price discrimination may be carried on so as to exploit the demand in each market.[52]

[52] The theory and practice of distribution among agricultural markets is well explained by Waugh (*122*, pp. 63-77).

The primary outlet for all of the commodities under study is the United States domestic market. Major secondary outlets are generally separate markets either in space—e.g., export—or in form—e.g., processing. Separate markets in time—either primary or secondary—are also utilized by holding inventories for sale throughout the marketing year or into the succeeding year. In the absence of some centralized control authority, such as a marketing order, decisions as to allocation among markets are performed by the individual marketing firms handling each commodity. These firms have different marketing policies, dependent upon market conditions and their own internal considerations. The accumulated results of decisions made on the basis of individual firms' policies provide the observed industry marketing pattern. The imposition of some centralized authority removes some of the decision-making independence from each firm and transfers certain decisions to the central body.

In practice, the allocation of these commodities to other than the primary domestic market is principally for the purpose of maintaining prices in the primary market. There is little evidence that detailed studies of demand elasticities and expansion possibilities in other markets have been carried on.[53] As indicated in Chart 26, the annual available supply of canned cling peaches and fruit cocktail is divided between sales in the United States domestic market, exports, and inventories. The need to maintain export volume seems to be almost entirely due to the availability of supplies that are considered in excess of domestic market needs.[54] Exports of these two canned products peaked in the early 1960s, but declined dramatically in 1967/68 as foreign competition made itself felt. Carryover has generally been a static percentage of the total supply since the mid-1950s. Similar carryover conditions prevail for canned Bartlett pears, but export movement since World War II has generally absorbed only 2 to 3 per cent of the available supply, and declined to about 1 per cent in the late 1960s (Chart 27).

The marketing orders for fruit do not control the allocation of the canned product. There is some influence on allocation between fresh and processing outlets for Bartlett pears as a result of quality regulations under either the fresh or processing pear order. The degree to which such regulations accurately reflect trade preferences have implications for allocation efficiency, but these implications are probably impossible to measure. Certainly a drastic reduction in volume going to either outlet would decrease the likelihood of achieving scale economies in the handling of the reduced volume. Advertising and promotion programs suffer from fluctuating supplies due to shifts in allocation among fresh and processing markets, especially when crop shortages tend to reduce total supply for both utilizations.[55]

[53] In the late 1960s, as burdensome surpluses appeared or were feared, there was increased interest in determining the preferences of export markets. This was evidenced by industry trade missions and the appointment of industry representatives in major export markets.

[54] For example, Robert Gibson, president of California Canners and Growers, puts the issue squarely. He feels that growers must institute an export program that will get annual cling peach exports to the 5 million case level, about double the 1968 level. This, he says, would remove an additional 50,000 tons that would then not need to be surplused (*24*, p. 17).

[55] The manager of the canned pear promotional organization summed up the general problem this way (*90*, p. 43):

The alternating pattern of large crop–small crop that has seemingly become the pattern in the industry has magnified the sharply reduced trade enthusiasm for buying pears, merchandising pears and pricing pears consistent with consumer needs.

CHART 26.—CANNED CLING PEACHES (REGULAR PACK) AND FRUIT COCKTAIL, TOTAL SUPPLY, DOMESTIC SALES, CARRYOVER (JUNE 1), EXPORTS 1950/51–1968/69*
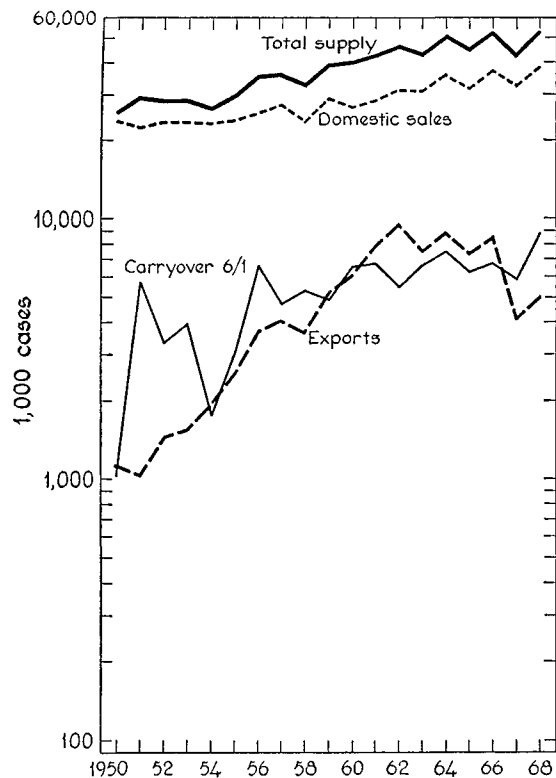
* Data are from Sidney Hoos and G. M. Kuznets, *Pacific Coast Canned Fruits, F.O.B. Price Relationships, 1968–69*, Giannini Foundation Research Report No. 302, July 1969, pp. 10, 43. Carryover figures are for the end of the marketing year.

CHART 27.—CANNED BARTLETT PEARS, TOTAL SUPPLY, DOMESTIC SALES, CARRYOVER (JUNE 1), AND EXPORTS, 1950/51–1968/69*
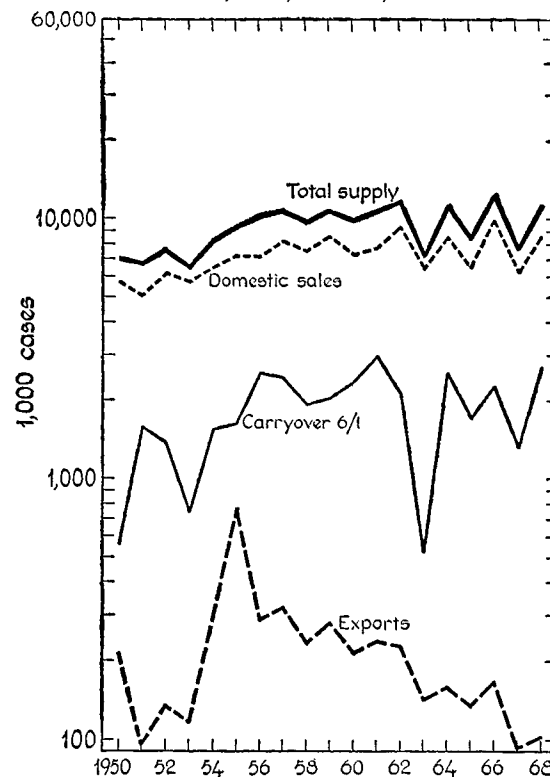
* Data are from or based on Sidney Hoos and George M. Kuznets, *Pacific Coast Canned Fruits, F.O.B. Price Relationships, 1968–69*, Giannini Foundation Research Report No. 302, July 1969, p. 18.

The marketing order for fresh lemons has probably had one of the more dras-
tic impacts on market allocations. By specifically exploiting the short-run inelas-
tic demand of the fresh domestic market, the supplies moving to the export and
products markets have been considerably increased. As shown in Table 4 (p. 259),
the average share of the total crop moving to the domestic fresh market dropped
from an average of about 56 per cent in 1950–54 to 37.5 per cent in 1965–68. During
this interval, the export share rose from 6 per cent to 17.5 per cent and the pro-
cessed share rose from 38 per cent to 45 per cent. Although marketing firms have
been forced to expand sales in the export and products markets, there is little evi-
dence that this has been an effort to exploit the effective demand in these mar-
kets. While optimum allocation among independent markets is highly desirable
in the achievement of economic efficiency, there is little evidence that such alloca-
tion is being attempted except over time by prorating shipments in the domestic
fresh market. In common with most market control schemes, the secondary mar-
kets are used almost entirely as outlets for surplus production. Development and
expansion of these markets has been largely an incidental objective.

The difficulty of allocating among these markets, especially between the do-
mestic fresh and products markets, is complicated by the interrelationship of the
demands in each. Lemon juice in its major uses is competitive with fresh lemons
(66, pp. 6–7). But the proration program as it has been used exploits only the fresh
demand, and the fresh market prices received subsidize the price of processed
products (98, p. 584). The grower receives a blend price which reflects both fresh
and processing returns. Processed products prices are lower than would be the
case if their supply adjusted solely to the demand for such products, but as a by-
product of the fresh market control program, the supply of fruit for products is
largely unrelated to the product demand. As long as the fresh market return can
be kept high enough to support total producers' return at "satisfactory" levels,
production will decline or expand, depending on cost-returns relationships in the
various production areas.

As shown in Table 18, the price for processed products has averaged about
one-third of the fresh market price since 1950. Maintenance of such a price rela-
tionship between these two markets under known demand conditions might

TABLE 18.—California Lemons, Grower Prices and Share of Crop
Sold, Fresh and Processed, 1950–68, Five-Year Averages*

| | Fresh | | Processed | | Processed price |
Year	Share of total crop	Price[a]	Share of total crop	Price[a]	as per cent of fresh price
1950–54	62.0	4.16	38.0	1.48	35.6
1955–59	57.5	3.39	42.5	.76	22.4
1960–64	60.0	3.77	40.0	1.52	40.3
1965–68[b]	55.0	5.29	45.0	1.73	32.7

* Data for 1950–59 are from California Dept. Agr., Crop and Livestock Reporting Service, *Cali-
fornia Fruit and Nut Crops: Acreage, Production, Utilization and Value, 1949–1961*, p. 23; and
later issues as listed in Appendix F. Crop shares are from Table 4 (p. 259).
   [a] Dollars per box at packing house door. A standard box is equal to two cartons, and weighs
approximately 76 pounds.
   [b] Four-year average.

maximize gross revenues for a single firm under the assumption that marginal revenues in each market were equalized. But, for an industry composed of many firms with widely differing costs and when the appropriate demand characteristics are unknown, especially in the products market, such a marketing policy is not likely to achieve desirable long-run results. It is more likely to result in a gradual shift of consumer preferences away from fresh lemons in the high price market and increased production by growers able to survive with increasing allocation to products.[50] Entry by low cost, processing-oriented growers and the growing of new production areas, especially in Arizona, is precisely what has happened in that industry. The California coastal area, with probably the best set of overall growing conditions, is declining in relative importance. This is partly a result of high labor costs and partly in the expectation of land value appreciation and eventual sale of groves for urban use. But the fact remains that the policies followed in lemon marketing have been based on exploitation of the demand in the domestic fresh market which amounts to only about 35 per cent of the total market.

The walnut and almond orders also use export markets as a principal outlet for excess supplies, but some differences stem from the nature of the products and their primary markets. Walnuts, and to a greater extent almonds, have manufacturing as a major sales outlet. Such markets are inherently more price elastic than direct consumer outlets, and thus provide a greater degree of flexibility—absorbing increased supplies without the reduction of total revenue such supplies exact from less elastic market demand. Almonds use the export market to a much greater degree than walnuts (about 25 per cent of sales compared to 6 or 7 per cent). While 80 to 90 per cent of the almonds go to manufacturing markets only about 35 per cent of the walnuts move to such markets. Thus, the characteristics of almond markets may allow greater absorption of excess supplies than the more restricted walnut markets. The relatively stable prices received by almond growers since 1960 in the face of rapidly increasing production attests to this market flexibility.

The walnut marketing order sets a "surplus" percentage which allocates that share of the available crop to export and by-products markets. Some share of the crop would move to these outlets whether or not the order were in effect, but through the order this share is divided evenly among all handlers. If lower prices prevail in these secondary markets all handlers reflect these in their returns to growers. Flexibility is maintained since a handler with more than his share of export sales can transfer unneeded "credits" to other handlers. Board control of shipments from the "surplus" share is, in practice, coordinated with individual handler operations so as to avoid most of the inflexibilities of centralized control. The almond order operates in a similar manner to walnuts in the sale of the "surplus" share. Although the board technically controls this share, the procedure for disposing of it is closely coordinated with usual industry practices.

In both walnuts and almonds the orders call for disposal of "surplus" within specified time limits. For walnuts the limit is August 31 of the succeeding market-

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[50] The decline in per capita consumption of fresh lemons has apparently been characterized by households switching entirely to the processed product rather than purchasing fewer fresh lemons when the price increases. See *46*.

ing year and for almonds the "surplus" is to be disposed of as soon as practicable after September 1, following the end of the current marketing year. Also, the almond order states that not more than 50 per cent of the surplus almonds may be disposed of prior to May 15 of the current marketing year, with certain exceptions.

Although the language of these orders suggests a rather tight rein on a few aspects of market allocation, the practical application of these regulations and the coordination between the Control Boards and the handlers has overcome most of the possible friction. Industry interviews and other studies fail to show evidence that marketing agencies are adversely restricted by allocation procedures in effect. The pressure to develop export markets by individual handlers may be intensified because to remain competitive in grower returns each firm must achieve the highest returns possible for its share of the surplus. The alternative, as stated in the orders, is to turn the unsold surplus over to the board for disposal, and this would result in lower returns than if the handler sold his own, especially in export.

The California marketing orders for cling peaches and Bartlett pears do not use secondary markets as directly as do those for lemons, walnuts, and almonds. Since cling peaches have only one major outlet—canning— there is little opportunity to use the order for other than regulation of total quantity and for quality control. Bartlett pears, on the other hand, are sold in both fresh and processing markets. As noted earlier, the controls exerted in either market obviously affect the other. Quantity regulations are not applied under the pear orders, so the relevant quality controls are of major importance. Minimum size regulations in either order probably are the clearest example of those that would shift tonnage from one market to the other. Through the 1969 season the processing pear order could not specify size minimums unless the existence of a surplus supply was established.[57] Thus, the size regulations imposed under the fresh pear order were controlling. Other quality factors include maturity, shape, and extent of skin blemishes. Tolerances for these are specified in the United States grades for fresh Bartlett pears and under the California marketing order for canning pears. The specific application and effect of each particular quality requirement is impossible to measure, but suffice to note that they bear directly on the allocation of pears between fresh and processing markets, especially since pears for canning from many production districts pass through the sorting and grading facilities of fresh packing houses.

One additional point of relevance to the interrelationship of marketing orders covering two or more utilizations is the usual "interlocking directorship" apparent in the various advisory boards and control committees.[58] In the case of Bartlett pears in 1968/69, at least two producer members were members of all four administrative bodies of marketing orders which regulated this fruit in California (40, pp. 4–6). Often producer members belong to the same cooperative or use the same commercial shipping organization. Thus, not only is coordination achieved through the formal regulations but it may be enhanced by the inter-

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[57] This has been changed in amendments to the order early in 1970.

[58] This interlock is also apparent among the directors of marketing and bargaining cooperatives and the membership of marketing order boards, but this point will be discussed in a later section.

change among members of the separate control groups.[59] However, the disparity in interests among the various segments of these industries is wide enough to preclude any high degree of coordination from this source. For example, pear growers from different production areas have different alternative utilizations open to their fruit, they have different diversification of pear varieties or other crops, or they have different alternative land utilization possibilities. Similar diversity of interests and objectives are found among lemon producers, particularly in the different production districts, for such reasons as variation in product quality or major utilization, or the relative importance of lemons in the producer's citrus operation.

Allocation of products over time—e.g., the handling of inventories—is of major importance in the pursuit of marketing efficiency. Inventories in excess of those needed for efficient movement of the product during the marketing year add carrying costs which must be added to the cost of the product. This cost burden provides added incentive for processors, handlers, or other owners of products to move them into consumption at a rate more rapid than might be justified by market conditions. The consequent price and revenue effects are likely to affect adversely both producer and handler returns.

The marketing orders for cling peaches and Bartlett pears do not influence the flow of the canned product out of inventory, since the orders control only the raw product supply. Indirectly the cling peach order, through its various types of surplus controls, has had the effect of creating excess production capacity at the farm level rather than excessive inventories at the processor level. The long-run problems of the industry would no doubt be better illuminated by the obvious presence of burdensome inventories rather than the less obvious burden of excess capacity. The use of seasonal surplus controls can be viewed as contributing to "orderly marketing" through better coordination of supplies with demand; but the mere transfer of the burden of continuing surpluses to the production level through the type of marketing order controls used for cling peaches does not so contribute.

As shown in Chart 28, the production potential and the annual pack moved in roughly parallel trends until the early 1960s when the full impact of the continuous marketing controls was felt. The total pack of cling peaches and fruit cocktail varied widely due to short crop conditions in 1965 and 1967, but the trend is clear from the "normal" years, 1964, 1966, and 1968—a levelling off if not a slightly downward movement. The average total pack for 1967 and 1968 was only 97.6 per cent of the average for 1963 and 1964, but the bearing acreage in the latter period was 4.5 per cent greater than the earlier two-year average while the total acreage was up 11.4 per cent.

The exported share of the total supply of canned cling peaches (regular pack) and fruit cocktail increased each year from 1950 to 1962, while the percentage of the total supply carried over in canner inventories showed little trend (Chart 26). In 1962 almost 21 per cent of the total supply was exported. The decline in ex-

[59] Wood suggests a similar type of benefit from marketing orders when he concludes that the orders he studied in California have provided a forum for airing and thereby diminishing some conflicts between producers and handlers. He feels that common objectives were discovered and joint efforts for their attainment were enhanced through these orders, particularly in the early stages of their history (*125*, p. 170).

CHART 28.—PRODUCTION POTENTIAL OF CLING PEACHES AND TOTAL ANNUAL
PACK OF CANNED CLING PEACHES AND FRUIT COCKTAIL, 1950–68*
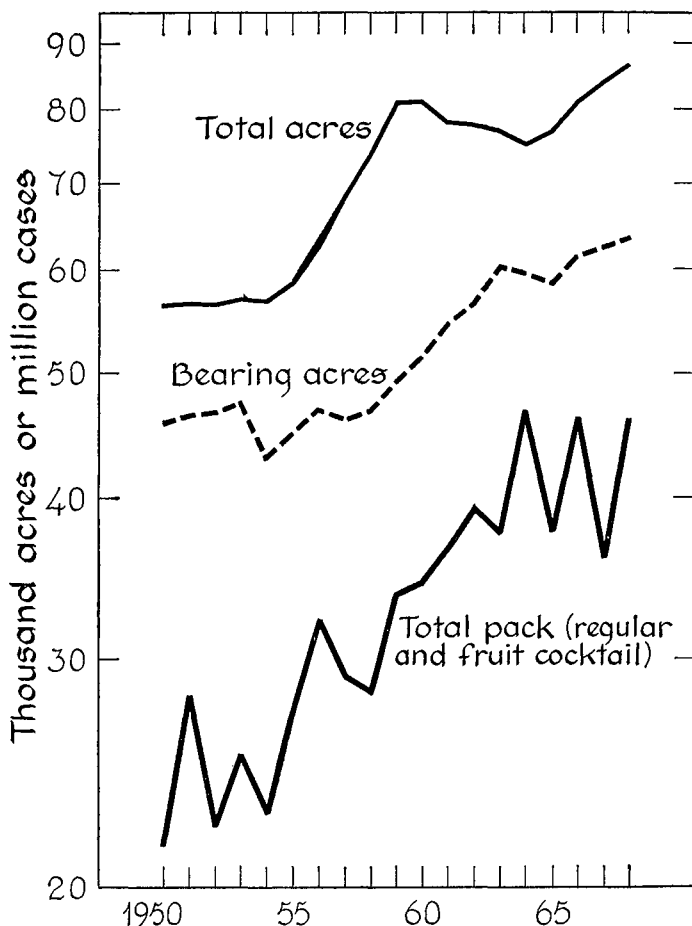
* Data are from sources listed in Appendix F.

ports since that year is quite apparent and resulted largely from increased competition from South Africa and Australia. Since 1963, year-to-year change in total supply, exports, and carryover were almost parallel until the drastic decline in exports in 1967 (Chart 26). The high carryover in 1968/69 resulted from continuing high level supplies in the face of this drop in exports.

It seems obvious from these data that the export market was a major factor in sustaining prices during the rapid production increases in the cling peach industry from 1954 to 1962.[60] As shown in Chart 26, domestic sales did not keep pace with the increasing supply from about 1954 to 1962. With the decline in ex-

[60] It is of interest to note that of the 1960–64 average exports of canned peaches, about 84 per cent were sold in Europe, with over 50 per cent going to countries within the EEC and another 17 per cent to the United Kingdom. By 1967 Europe took only 60 per cent of the total exported while the shares taken by EEC countries and the United Kingdom had declined to 36 per cent and 1 per cent, respectively (*110*, p. 241).

ports since 1962 the domestic market has had to absorb a greater share of supplies, with a consequent depressing effect on f.o.b. prices. The level, or slightly declining, price trend for 1950–68 shown in Chart 22 (p. 291) occurred in the face of a rise in the wholesale price index for all commodities during this period of almost 22 points—from 86.8 to 108.7 on the basis 1957–59 = 100 (*109*, p. 558; *110*, p. 467).

The fall in export sales since 1962 has been "explained" by some industry spokesmen as resulting from lower freight rates to Europe paid by South African and Australian packers and subsidized sales by those two countries. Within the industry there have been suggestions that some type of "two-price system" be developed whereby California producers and canners might tax themselves to make up the difference between their landed prices and those of the competing countries (*23*, p. 14A; *24*, p. 17). Proposed use of two-price systems enjoys a long and undistinguished history in American agriculture.[61] Such systems are operated to some degree through the marketing orders for dried fruits and tree nuts in that export prices are partially controlled. These efforts inevitably involve increased centralization of control over marketing by the administrative body, and the flexibility and incentive of competitive selling efforts by individual firms is lost in the process. But more importantly, multiple-price schemes have historically been sought as ways to overcome problems arising from the excess production that has resulted from other policies. Thus, these schemes merely extend the errors of the past into a new dimension.

The cling peach marketing order has affected inventory control principally through transferring the surplus to acreage rather than warehouses. It has not had a direct impact on canned product supplies since these are in the hands of individual canners and not subject to centralized control. Carryover has not increased greatly in proportion to total canned product supply largely due to low f.o.b. pricing which has increased sales. The export market absorbed a large share of canned peaches in excess of domestic market needs until 1962 and a substantial but declining share until 1967. This source of surplus-relief has declined dramatically since 1967 and the industry again faced mounting supplies in 1969. The 25 per cent surplus disposal program adopted in 1970, and discussed in an earlier section, was a direct response to this problem.

Quality controls at the farm level have the effect of limiting total quantity and allocating the remainder among various markets defined by specified grades. Under the cling peach order, three grades are defined, but only Number One grade peaches have been authorized for processing in recent history. Size minimums are set but Number One peaches smaller than the minimum canning size may be used for pickling. Prior to 1970, the Bartlett pear order defined four canning grades and four drying grades.[62] Only those grades authorized each season by the grading committee of the marketing order could be used for canning. Among the federal orders studied, the grade regulations used for walnuts could

[61] For illuminating discussions of this type of plan see *55*, pp. 556–84; *124*, pp. 585–98; and *63*, pp. 599–611.

[62] The new order adopted in 1970 does not include grade definitions. Seasonal grade regulations are established by the marketing order grading committee. In 1970, three grades for "unrestricted" use and three for "restricted" use were established. Unrestricted use includes canning primarily, while restricted use includes drying, pickling, and miscellaneous uses (*30*).

affect market allocation, but minimum grades used for both domestic and export markets have recently been identical.

To the extent that quality regulations reduce the total quantity marketed their effect is the same as any other method of volume control.[63] But, the principal stated goal of quality controls is to increase demand for the product by elimination of low quality products and thereby obtain higher prices at all levels of production (i.e., shift the demand curve to the right). As pointed out by Price, under elastic demand conditions this shift in the demand curve must result in prices high enough to bring about an increase in total revenue at least equal to the revenue lost by the quantity reduction (93, p. 14). The key factor in the application of quality regulations is knowledge of the specific effect of the controls applied upon price received—i.e., on product demand.[64] Unfortunately, there is no evidence that this key knowledge is available to control committees in the precise terms needed to adjust quality regulations so as to optimize industry income. Almost no useful research has been carried on that would provide this precision for the obvious reason that it is probably impossible to isolate the effects of quality characteristics from the vast set of other influences on market prices.

An interesting attempt to measure the effect of quality on prices of California table grapes sold in the New York Fruit Auction was carried on in the early 1950s (76). Although the authors of this study readily admit its shortcomings, their findings are suggestive of the problems facing any such research. Their report concluded with the following observation (76, p. 44):

> The results which have been presented are viewed as suggesting some of the factors related to price premiums. The quantitative relations presented are recognized as being of limited direct applicability. Reference has been made to some of the reasons for this. Important among them is the absence of specification and analysis of the more important separate characteristics apparently reflected by the fruit quality, for example, it is not clear just how the grower or packer proceeds to alter the characteristics of the fruit or pack to conform to the preferred quality classification. Similarly, it would appear hazardous, without further study, to view the coefficients of mode of shipment and brand as measures of "net" effects of these variables.

The practical limitations on tying product characteristics to market prices were found to be serious in themselves. But even more important were the problems of interpreting trade-desired characteristics in such a way that producers could make rational decisions as to the relative costs and returns in providing these characteristics. As noted by Price, one important factor in establishing quality controls under a marketing order may be the self-interest of the growers who are members of the control committee (93, p. 2). Producers of high quality fruit, no matter what the reason—e.g., land, location, or expertise—will favor stringent quality controls. Producers of low qualities will favor lower levels of quality. Observation by the present author suggests that few marketing order

[63] Quality controls applied under the cling peach order have reduced the total supply available for canning an average of about 12 per cent since 1965 (Table 2, p. 248). In a study of the Washington apricot marketing order, it was estimated that "excess cullage" resulting from the order's quality regulations was about 8 per cent of the apricot tonnage produced for the fresh market (93, p. 13).

[64] This is discussed further in 92, pp. 622–32.

control committees, or their advisers, know what level of quality control will provide optimum returns. The tendency is to encourage higher quality production and impose more stringent grade regulations in the hope that less quantity, particularly of lower qualities, will attain better prices for the crop sold. Little attention is generally given to the effect on total revenues or, more importantly, the net incomes that result.

The effect of quality controls on processors and fresh packers obviously varies according to the extent to which the raw product quality regulations reflect the costs and returns of those marketing firms. Thus, if grade, size, or maturity controls reduce processing or packing costs due to decreased sorting or culling this may prove beneficial to the packers; but this does not necessarily mean that the costs, direct and indirect, incurred by the grower to provide these characteristics are less than the price differential obtained for the higher quality raw product. Also, to the extent that quantity is reduced under elastic demand conditions, packer revenues are reduced and this may be reflected in reduced long-run demand for the product. A widely held view in many fruit and vegetable industries seems to be that higher net returns result from the elimination of low quality products at all levels from producer to retailer. Empirical evidence supporting this view is lacking. In fact, it is not entirely clear whether this view results more from imperfect market pricing at all levels than from consumer preference. If accurate pricing at both the grower and consumer levels of the market is precisely differentiated among product qualities it seems likely that increased quantities and increased revenues at all levels could result. Research in this area is not sufficient to test this hypothesis, but the aim of industry-wide quality regulations imposed under marketing orders is clearly to outlaw efforts by individual firms to exploit such possibilities. The minimum limits placed on quality also tend to exclude lower income consumers, thereby reducing the size of the market.

Market structure and organization.—The direct impact of marketing orders on industry structure is to concentrate some decision making in the hands of a centralized authority. Thus, a new imperfection is added to the competitive structure of the market. In the California cling peach industry 2,200 growers decide, as one, to destroy some share of their crop prior to harvest. About 1,300 Bartlett pear growers decide to eliminate fruit below a certain size or grade. An estimated 4,000 lemon growers, 6,800 almond growers, or 9,000 walnut growers simultaneously decide not to sell some share of their crops in the highest price domestic markets.[65] The avowed and publicized purpose for these decisions is to increase the prices of these commodities over what the prices would have been if each producer had acted independently.

These activities are overt collusion in the marketplace, and giving producers the ability to benefit from collusion is precisely what is intended by marketing order legislation. The change at the grower level is a transition from a semi-atomistic structure to a compulsory cartel in relation to the specified controls. The structural changes at the processor-handler level are considerably less direct. Although these firms participate in some orders and are controlled by many marketing order decisions they cannot act collectively in relation to output or

[65] Estimates of growers numbers from state public records and *110*, p. 547.

prices. Thus, the impact of marketing orders on industry structures beyond the farm level is considerably less than at the farm level.

Available data indicate a decline in the cling peach industry from about 2,800 growers in 1960 to about 2,200 in 1968, and in the California Bartlett pear industry from about 1,900 growers in 1960 to 1,300 in 1968.[66] Processor numbers declined similarly. Between 1960 and 1968, cling peach canners declined from about 38 to 17, and Bartlett pear canners from 25 to 14.[67] The decline in numbers of growers and processors since 1960 largely reflects the general trend to increased size and fewer numbers that characterized all of agriculture during this period. But, the economic pressure exerted on both growers and processors in the cling peach industry was no doubt intensified by the marketing order and its effect on volume and pricing. Many smaller independent canners either left the industry or were acquired by others, with the result that a more concentrated structure emerged on the buying as well as the selling side of the raw product market.

In the lemon industry the long standing industry structure at the handler level, dominated by Sunkist Growers with about 85 per cent of the tonnage, was little changed by the marketing order. Within the cooperative's membership, however, there have been some changes that stem in part from the order. As noted earlier, the lemon industry has long been centered in the southern California coastal area. The marketing policies followed by Sunkist are in large part influenced by affiliated growers and packers in this area. The emergence of the Arizona lemon industry, motivated in part by the attractive returns resulting from order operations in the 1950s, is a recognized threat to the older lemon district. The result is some splitting of the solidarity in marketing policy in the industry. Because of the overwhelming cooperative control of the industry the differences among producing areas are largely confined to the internal operations of Sunkist. Nevertheless, the increasing importance of newer production districts inevitably weakens traditional industry solidarity, whether within or without the cooperative framework.

Industry structure at the almond handler level has been changed to a limited degree by the marketing order. Most of the smaller independent firms, handling the 30 per cent of tonnage not in the dominant cooperative, either left the industry or merged with others in the decade following the order's inception. The share of the cooperative, California Almond Growers Association, increased from about 60 per cent to 70 per cent of the tonnage between the initiation of the order and the late 1960s (*125*, pp. 24–25). Most of the remaining share in 1969 was handled by one firm while two or three others handled the balance of the tonnage. Industry sources indicate that the order had the effect of reducing the speculative incentive for some handlers to stay in business, and the added burden of record keeping and marketing control drove others out.

The structure of the walnut handling industry is less concentrated than that for lemons and almonds. Diamond Walnut Growers, the cooperative, controlled about 55 per cent of the tonnage in 1969, two large independent handlers con-

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[66] During the 1960s the number of cling peach growers had increased from 2,400 in 1950 to 2,800 in contrast to the trend in almost all other fruit industries.

[67] Public records and industry estimates.

trolled another 23 per cent, and the remainder was split among 10 to 12 smaller handlers. The cooperative's share had dropped from as much as 90 per cent in the 1930s, but internal dissension rather than issues related to the marketing order accounted for most of this (*125*, p. 116).

Each of the major marketing cooperatives handling lemons, walnuts, and almonds was instrumental in the formulation and acceptance of the marketing orders for those commodities. A principal reason for this was their desire to spread the burden of "surplus" supplies to every handler in the industry. Prior to the order, independent handlers, few as they were, could let the large cooperatives carry the inventories and maintain prices. The independent commercial firms were able to buy and sell freely under this "umbrella." Not only did this make it difficult for the cooperatives to carry out sales policies, but the independents could in some cases achieve better grower returns and draw members away from the cooperatives. Since members of the major cooperatives usually dominate the marketing order boards in these industries it can be assumed that order policies tend to reflect cooperative policies. This has resulted in an additional element of structural concentration, since the marketing cooperatives are directly engaged in pricing and selling the products.

The processing cooperatives have not dominated the cling peach and Bartlett pear industries or the respective marketing orders. But members of the bargaining cooperatives in these industries have played a major role in control activities. As the cling peach order has been a joint grower-processor order, representatives of the processing cooperatives also represent their members in the canner group.

The relationship of these structural and organizational shifts to marketing order controls can best be summarized as follows. Marketing orders and marketing cooperatives are producer oriented, and as a result price objectives are generally thought of in relation to production costs rather than market demand. To the degree that this orientation dominates marketing policy decisions it is likely that an added imperfection is placed in the path of consumer preference transmission through to the producer level. The implications of this in cling peaches were discussed in an earlier section. As noted there, one effect of this orientation is to interrupt the process of demand derivation from the consumer back to the producer. The attempt is to control supply in such a way as to force marketing firms at all levels to adjust to the producers' optimum position. Judged solely on this score, marketing orders clearly inhibit economic efficiency.

On the other hand, if industries are fragmented into so many marketing firms that none has incentive to develop new markets or new products, or any other innovation, the centralization through a marketing order might enhance economic efficiency. This has been suggested in various studies of marketing board activities in developing countries. The circumstances in the cases studied here do not fall into this category. In every case, there was either an existing strong cooperative or a highly organized commercial industry prior to development of the marketing order. As Wood points out, such a condition was apparently needed for the order to become established. Innovation and progress in marketing these commodities has been achieved largely by cooperatives and commercial firms acting in response to the competitive forces that remain in marketing in

these industries. The security gained through increased concentration and centralization due to the marketing orders does not seem to have been a necessary condition for these achievements.

Market Power and Price Determination

The interrelationships among marketing order activities, price formation, and bargaining power for farm producers have been evident throughout this study. Although a major purpose of marketing orders is to aid in achieving satisfactory farm prices for the commodities covered, the fruit, vegetable, and tree nut orders do not set primary market prices directly.[68] Price determination in the primary markets and most secondary markets is achieved between buyers and sellers acting through other institutions than the marketing order organization. These institutions include on the sellers' side producer bargaining cooperatives, other cooperative groups—such as fresh fruit marketing cooperatives that pool part of their fruit for sale to processors—and individual or corporate growers. On the buyers' side of the market are various types of handlers and processors, including both commercial and cooperative organizations. In the latter group are those cooperatives which purchase a part of their needs from nonmembers. The role of marketing cooperatives in receiving from their members is technically outside the buyer-seller relationship in that the cooperative processes or otherwise handles the crop on the basis of a contract under which it returns to the member all proceeds in excess of costs.[69]

The implications for price determination of group actions at the producer level vary among commodity-industries depending largely on the market structure and organization at succeeding levels of the system. Clearly, a producer cartel can exert market power directly upon the exchange process at the first-handler level. Given the authority granted by marketing orders producers can enhance seasonal prices paid by processors. Cling peach industry activities are a major example of this.

In the cling peach industry, a specific seasonal price per ton is established at the grower level. The price negotiated between the bargaining cooperative and the individual canners, since 1965, has been directly related to the supply controls applied under the marketing order through the open-market provisions.[70] The season's price, a price schedule, is based on the estimated tonnage available after the surplus controls may have eliminated a portion of the crop prior to harvest and a share of the crop during processing through surplus and off-grade diversion. Clearly, in this situation the power to manipulate total seasonal supplies can be used directly to affect grower prices. The price to be received for the canned product is estimated, but is not known at the time the grower price is established. These estimates are based on historical time series data relating a number of variables to the price received for the canned product (see, for example, 65).

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[68] Some export price setting is carried on by the marketing order committees for dried fruits and nuts.
[69] For the five commodities investigated in this study, the marketing arrangements were generally outlined in section III (pp. 241).
[70] See discussion of the cling peach provisions in section III and Appendix A.

The use of rather sophisticated price analyses as a basis for raw product pricing would be a commendable adjunct to marketing order controls in the cling peach industry if all relevant variables were known and considered and if their values could be accurately determined. Unfortunately, this requires singling out one product or group of products for analysis when the "real world" consists of innumerable substitutes, foreign and domestic, and other variables of unpredictable significance. Even with these constraints such analyses should lead to more accurate control than if this information were not available. But the experience of the cling peach industry has shown that such pricing techniques may be counter-productive when the prices analyzed do not measure grower returns directly. Instead of raw product prices, it is canned product prices that are analyzed. About 73 per cent of the canned product price reflects value added by the canner to the raw product price. Canned peaches are sold in markets where competitive relationships bear little resemblance to raw product markets. The myriad competitive factors acting upon canned product prices are absorbed by canners and then reflected back to the producer level. Competitive forces within the canning industry impinge on raw product prices as canned product prices are transmitted to producers.

The published statements of cling peach industry leaders continually call for canning firms to obtain higher prices for cling peach products. The fact that this has not been possible either for cooperative or commercial canners since 1950, when cling peach controls were first stringently applied, does not seem to constrain these industry views (Chart 22, p. 291). In his 1968 report to members, the manager of the California Canning Peach Association forecast future industry developments. These two statements appeared in the same paragraph, "... growers are going to insist that they be compensated for the increased costs with which they are faced," and "I don't believe growers will support production control in the foreseeable future" (*10*, p. 17). The implication is clear. The cling peach growers are apparently to be assured that they can maintain their independence of action, achieve prices that cover their costs, and force canners and the consumers to pay for it, past experience to the contrary notwithstanding.

The goal of the cling peach growers has been to achieve the market power so long thought to be a major solution to farm pricing problems. In the pursuit of this goal a number of implications have been neglected or brushed aside. Market power through collective bargaining for a seasonal commodity price eliminates the value of most of the economic differences among individual producer attributes. These differences may be geographic (soil, climate, water, distance from market), or business issues (degree of diversification, tax incentives, or long-term objectives). Although each of these types of attributes is reflected in the net returns of the producer, these differences are not allowed to affect the cost of the raw product to the processor or, ultimately, the price of the consumer product.

While producers respond to prices determined by group action according to their individual net profit structures, canners do not have this option. Under most group bargaining contracts in agriculture—including those for cling peaches and Bartlett pears—canners are obliged by law to pay the same price to all producers. Attempts to pay bonuses to certain growers were attempted in the late 1950s and early 1960s, but were abandoned after stern warnings from California Depart-

ment of Agriculture officials.[71] Thus, at the grower-canner exchange level there is no incentive to purchase in accordance with "real" economic value. Canners, without a controlled market for their products, sell for various prices in a wide variety of markets. Since all canners start with identical raw product costs, it is only the internal efficiency and merchandising differences among them that are reflected in variation in net returns. Processing costs are generally inflexible and are becoming increasingly so as fixed costs rise and contract labor costs become less variable. The result is that little variation in prices to retailers is possible except at the expense of net profits. At the consumer level, the price rigidity initiated at the producer level eventually takes its toll in reduced purchases and changed preferences.

The pricing process for cling peaches is an interesting example of the application of structural market power at the grower level in agriculture. Seasonal supply control and a centralized bargaining agency allow producers to obtain an industry-wide price with relatively little year-to-year variation at a level sufficient to maintain all except the highest cost growers in business. The result is incentive for expansion by low-cost growers and disincentive for expansion by canners facing relatively competitive markets for the canned product. Lacking structural power in markets beyond the farm, the processor owning the canned product is unable to exert such power at succeeding levels of the marketing system. The resulting profit "squeeze" is ultimately reflected in the ability of the processor to pay for the raw product. Cooperative organizations are formed to fill the need for processing capacity and grower capital is substituted for capital previously flowing to the commercial processors from outside of agriculture.

The imposition of cartel-like producer structures is authorized by law in an effort to overcome the suspected structural weakness of farmers vis-à-vis the buyers of their products. Most recent studies have failed to substantiate the suspicion that vigorous competition was lacking in fruit and vegetable marketing (85; 86). Nevertheless, efforts to offset the alleged structural imbalance observed between producers and first-buyers continue as if competition did not exist. As a result, competition is reduced at the raw product level, adjustment to market price is restricted, and the short-run, structural market power developed by producers is gradually dissipated by the counter-adjustments at levels beyond the farm and all the way to the consumer. Such adjustments include reduced merchandising efforts, substitution of other products with more attractive margins, and the eventual shift of consumer preferences.

The prolonged implementation of supply controls coupled with cooperative bargaining by cling peach growers finally resulted by 1970 in the necessity to eliminate a much larger share of the potential crop than had previously been contemplated. The entire processing fruit industry had suffered from the continuing pressure of ever enlarging cling peach supplies. The rise of cooperative processors during the 1960s was first a necessity in order to maintain adequate processing capacity and second as a competitive weapon in the struggle to keep raw product prices from declining as production rose and export markets declined. The increasing volume of product moving to cooperative processors de-

[71] See footnote 31, page 273.

creased the tonnage around which price negotiations centered. A further reduction in this tonnage resulted from curtailment of cling peach packs by a number of commercial canners, while some canners ceased handling cling peaches entirely. Thus, by 1970 cling peach producers were feeling the impact of prolonged controls on raw product marketing by a strong cartel-like combination of a marketing order and group bargaining in cling peaches. Mobile capital needed for processing and production credit was finding a more attractive home. At the same time, 31 cling peach growers with 2,200 acres had gone bankrupt in 1969/70 (15, p. 5).

In the zeal to exploit the monopoly-like characteristics of the California cling peach industry the warnings of early students of marketing orders have been forgotten. These warnings were summarized by George Mehren in 1947, "The greatest danger in market control is to the long-run interests of producers. . . . the group which is relatively helpless [as compared to processors and consumers] is the producer group which abuses the privilege of market control. . . . If they [marketing order programs] are used to exact monopoly profits, producers will ultimately pay for their sins" (81, pp. 47–48). But, the industry leadership that has guided the destiny of all growers through two decades of market control apparently ignores such warnings and finds in reports of bankrupt growers and exiting canners further reason to extend such controls. Following the typical pattern of control advocates in agriculture since the 1920s, the cling peach industry leaders of the 1970s seek to develop new combinations with other industry bargaining groups and new legislation to allow additional cartel activity among the specialty crops.

The same set of institutional arrangements exist in the California Bartlett pear industry as in the cling peach industry. These include a marketing order and a cooperative bargaining association which establishes the seasonal price for pears going to processors. Availability of the fresh market outlet for Bartlett pears is a major difference between the two industries. But in California, as shown in Table 3 (p. 253), fresh utilization has recently accounted for only about 16 per cent of the tonnage and this share has been continually declining. Many of the state's production districts ship no Bartlett pears to the fresh market. It is the way the marketing order has been used and the presence of pear production in other states that differentiates the Bartlett pear and cling peach industries.

The pear marketing order has never been used to destroy canning grade fruit and only once prior to the 1970 season had size minimums been imposed in an effort to reduce the tonnage. Grade regulations have been used, but due to relatively standardized cultural practices these have not materially reduced tonnage. The obvious availability of alternative sources of supply in Washington and Oregon, plus the potential for expanded production in those states, has been an effective deterrent to California growers' supply control ambitions. The possibility of shipping to the fresh market may have been an alternate course of action in earlier decades, but the decline in fresh use has left that market a very narrow outlet for supplies in excess of processor needs.

Market power for Bartlett pears has not been a primary goal of the marketing order nor has the bargaining cooperative aggressively sought to apply supply controls as a way of enhancing grower prices. As evidenced by the data presented in

the section on prices and incomes, Bartlett pear prices have consistently exhibited much greater flexibility from year to year than cling peach prices. This has been partly due to a wider variation in crop size from season to season but also to the lack of any effective restriction on supply in large crop years. As a result of the freedom from attempts to control supply, the Bartlett pear industry has responded to market forces. Despite continued dire predictions of potential oversupplies and forecasts of problems similar to those of the cling peach industry, pear growers have largely resisted the temptation to interfere with the market. The pear bargaining association has attempted to price the yearly crop in line with existing supply and demand conditions rather than artificial conditions brought about in the manner of the cling peach industry. Pear growers, while voicing the usual problems of business uncertainty, risk, and periodic losses, have generally responded to market conditions and survived low income years by preparing for them in high income years.[72]

The impact of the respective marketing orders on price determination in lemons, walnuts, and almonds is considerably different than is the case for cling peaches. Prices established for the packed or otherwise processed product are reflected through to the producer in the form of cooperative payments or payment by commercial handlers. The supply to the primary markets in each case is controlled by the order and any bargaining power available is exerted in those markets. Commercial handlers find their pricing latitude confined to the narrow area between the trade price established by the leading cooperative and the grower returns expected from those organizations.

The power exerted in the lemon industry to maintain fresh market prices has been extremely effective. The combination of a strong and aggressive cooperative—Sunkist Growers—and the weekly shipment limitation plan under the marketing order has resulted in the maintenance of high and stable fresh lemon prices and grower returns for many years. The flexibility of the processed products and export markets has allowed these outlets to provide a home for lemons in excess of domestic fresh market requirements. However, the exertion of structural market power is more difficult in processed products markets and cannot be applied in export markets where worldwide competition is faced.

Due to the importance of marketing cooperatives in walnuts and almonds, the structural power developed at the farm level through the marketing order is passed along almost intact to the handler level. Price determination in handler markets is then largely a form of price leadership, with the dominant cooperative the leader. But the same constraints of competition in markets beyond the handler level apply to tree nuts as to canned fruit and lemon products. A significant difference, however, results from the nature of cooperative integration at the grower-handler level. Because of the direct tie between these two levels, price transmission is not interrupted by structural barriers like those erected at the grower-canner level for cling peaches. The integrated structure developed by grower cooperatives places the grower in closer contact with final markets. This should result in a higher degree of coordination with and reaction to market

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[72] These general views of the California pear industry over the years have been drawn from interviews and from the pages of many monthly issues of the California Canning Pear Association's *News Letter*.

prices and preferences. In fact, this is one of the major advantages claimed for marketing cooperatives, especially when preferential cooperative legislation is being defended in public forums. In practice, however, cooperative members tend to view their structural relationship to the market somewhat differently, i.e., from producer forward rather than from the market backward.

As evidenced by the commodity situations analyzed in this study, collective action among producers often began with cooperative efforts to improve prices and incomes through increased efficiency. But, marketing coordination and efficiency were soon found to be less intriguing than the pursuit of market control through structural power—e.g., centralized control of supplies and their allocation among markets. The emphasis shifted from reflecting market demand back to producers to projecting producer demands forward to the market. The impossibility of individual cooperatives accomplishing this was evident even in cases where as much as 75 to 90 per cent of a specific commodity was in the hands of one organization, e.g., lemons, walnuts, and almonds. Marketing orders provided the framework through which total control could be established at the grower level and they were a manifestation of the desire for structural power that has long proven so attractive to farmers.

Most cooperative spokesmen link marketing orders and cooperatives as institutional devices for achieving the just rewards deserved by farmers. For example, the executive vice-president of the National Council of Farm Cooperatives recently said, "A large share of each product must be concentrated in a few sellers' hands. The goal must be a single seller for each major product" (*84*, p. 90). This "monopoly complex" has so dominated the collective thoughts of many farm spokesmen that all the evidence of the futility of such a focus fails to have significant impact on policy directions. Monopoly pricing is, by definition, impossible in industries where entry is not highly restricted. Where this is recognized in agriculture attempts have been and are still made to block new entrants. These attempts have proven fruitless because the necessary condition of internal homogeneity within the monopoly-seeking group of farmers has never existed. Producers who achieve rewarding net returns under cartel-like conditions have not long been content to subsidize their less profitable neighbors by restricting their own production. Nor will the profitable members of the cartel be willing to erect entry barriers which may also limit their own expansion. Under these conditions, monopoly pricing is an impossible long-run goal in agriculture, and the pursuit of the structural conditions which are required to achieve it is windmill-tilting in the extreme.

The changing structure of these commodity-industries is tending to overcome some of the structural weaknesses that have long provided the basis for the pursuit of structural power. As large farm units become more evident more doubt will be cast upon the legitimacy of the agricultural exemptions from antitrust legislation. Participation by large corporate firms in marketing order control schemes, or even in tax-exempt cooperatives, is likely to focus popular attention on the price-related activities of these publicly supported institutions. In the meantime, the quest for structural market power continues to provide spokesmen for traditional agriculture with a goal sufficiently attractive to maintain the support of the broad group of small farmers who are in the process of being excluded

from agriculture. Farmers have been shielded from the recognition that prices are derived from the consumer down, not forced from the producer up. The shield has been erected by a continual focus on the apparent success of other industries in "administering" prices. For example, Kenneth Naden says, "Unless farmers are able to accept a degree of discipline comparable to that of their non-farm competitors, they will never create economic power to meet the economic challenges facing them" (*84*, p. 90). The fact that the "discipline" of other industries is imposed by the nature of their products and markets and is largely unattainable in agriculture is not transmitted to the farm audience. If it were, agriculture might become more concerned with the "market power" inherent in its products and in adjusting to the demand for them instead of being caught up in the fantasy of structural power.

Conclusions: Marketing Costs, Services, and Efficiency

Marketing orders play a larger industry role than that related strictly to control activities. The nature of this role varies among commodities, but in each case it is tailored to the specific commodity situation. The major questions are whether the services provided replace, extend, or overlap with the services of other agencies—governmental, cooperative, or private—and whether the costs of these services reflect their worth.

Although many of the information, communication, grading, and inspection services would no doubt be provided in varying degree by other public and/or private agencies the marketing order organization is an appropriate vehicle for such functions. This is particularly true as agriculture is forced to become more self-sufficient in the light of declining public interest and the changing structure of farming. Public agencies have long performed information and research services for agriculture at little direct cost to the recipients. The climate for this "subsidy" has changed drastically in the past decade. Public funds are shifting to consumer-oriented services relating to environment, pollution, pesticide control, and many more. Producer groups do not command the favorable legislative attention they once enjoyed. Large corporate farms are identified with agriculture, replacing to a great extent the small, family farmer image that has provided a strong basis for public support.

Producer groups need to develop methods for paying for required services without reducing the quality of such services while adjusting them to evolving needs. Marketing orders are producer-oriented service organizations, and the cost of order operation is largely borne by the industry members. Moreover, an increasing share of the governmental administrative costs are likely to be shifted to these industries in the future.[73] Past performance suggests that conflicting and overlapping services can be avoided, particularly as the marketing order groups develop coordinated efforts with governmental agencies. Appraisal of specific service functions and reassignment of all possible functions to these industry groups from governmental agencies could be of great value in reducing public expenditure and in raising the independent stature of these commodity-industries.

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[73] For example, the hearings on *Marketing Order Costs* suggested that the opposition to public expenditures for these programs is rising (*106*). In California, a larger share of state costs of marketing orders was shifted to the covered industries in 1970 (*27*).

The cost of services provided by marketing order groups is probably a net addition to total marketing margins. But, precise measurement of the added increment is impossible because many of the services provided merely represent shifts among the members of the marketing chain rather than new additions. The administrative costs of all Calfornia marketing order programs averaged 16 per cent of the total expenditures of these programs in the period 1960–68, but these costs of administration averaged only .1 per cent of total grower revenue for all of the commodities covered by these programs. In the cling peach industry administration costs averaged about 1.2 per cent of total grower revenue and in Bartlett pears about .4 per cent. Especially in cling peaches, these costs are not insignificant, and the services received for them require continuing evaluation.

Among the industries studied there is little or no evident opposition to most of the information, grading, inspection, and research functions of the existing marketing orders. But, with the major emphasis placed on control activities and advertising programs, it may be that these "auxiliary" functions do not get the attention they deserve, either as to quality or cost. There is some market value for services added to raw products at all levels of the marketing system. It is not evident in the industries studied whether the demand for the services rendered by marketing order groups has been adequately determined.

Advertising and promotion activities through marketing orders are costly and their results are probably impossible to evaluate. Industry-wide promotion loses a great deal of the impact of specific brand promotion. The quality and distribution control required for successful brand advertising programs is not available to marketing order groups due to compromises required to maintain the support of all segments of the industry. The dollar amount of contributions by producers to advertising and promotion is extremely limited because of the narrow margins for such activities that exist at this lowest level of the marketing chain. Commodity-oriented promotion is likely to be much more successful if combined with brand advertising by marketing firms closer to the consumer. Recent legislation introduced at the federal level would provide to brand advertisers rebates of funds assessed for marketing order advertising equivalent to spending on commodity advertising under their own brand. This approach may ultimately provide a method of more efficiently operating commodity advertising and promotion programs.

The most troublesome feature of marketing order advertising programs is the ease with which proponents can justify existing programs and encourage even greater expenditures. Reduced grower prices or revenues are blamed on market factors while increases are related to promotional success. The "cumulative effect" argument of advertising proponents seems to provide the stimulus for increased budgets while practically foreclosing termination of existing programs, especially large-scale efforts such as in cling peaches and pears.

The evidence and analyses developed in this section suggest that market organization, coordination, and integration are most efficient when marketing order controls are not a major focus of industry activity. In the Bartlett pear industry the control function of the orders has largely been secondary to the roles of the bargaining association, the cooperative processors, and the long-standing relationship between growers and commercial processors. In the walnut industry, the

marketing cooperative and the large independent handlers rather than the marketing order have been the primary center of attention. In both of these industries the role of the market in determining prices and allocating the product has been little hindered by the marketing order.

In lemons, the weekly prorate of shipments has been a major focus of attention and center of controversy. Since the prorate affects each shipping district directly and differently, it has led to interdistrict antagonism in relation to access to the high price domestic markets. Since much of this conflict has been among Sunkist members it has no doubt reduced the coordination and efficiency of marketing policies in the cooperative and the industry. The preoccupation of industry members with quota allocations has apparently diverted attention from the increasingly important processing utilization and market development needs. By encompassing three distinct production areas, centralized planning under the lemon order is made extremely difficult. The differing objectives of each district must be met with compromises which tend to reduce the economic efficiency of each. The focus on a single market which absorbs only 35 per cent of the annual supply is bound to distort allocation to the total market.

The almond order has been more stringent in its use of volume controls to stabilize prices than the walnut order. In combination with the dominant cooperative the order has effectively controlled allocation of market supplies to secondary markets. But, in common with the walnut order, most marketing decisions are made by the handlers, not by the marketing order board.

The cling peach order is a major marketing institution in that industry. In combination with the bargaining association the order provides a focus for rigid control of volume and quality at the grower level. Unfortunately, because of the necessity to cater to the interests of a wide group of heterogeneous producers, this centralized organization structure cannot effectively enhance marketing efficiency. Decisions must consider the needs of the "least common denominator"— e.g., high cost, low quality, inefficient growers. The implications of this centralized control have been discussed in some detail in this section. The conclusion cannot be avoided that the continuing "crises of chronic surplus" and sporadic industry dissension are largely related to the efforts of the cling peach leaders to force uneconomic solutions to industry problems. Given the framework of a marketing order and a bargaining cooperative, the monopoly-minded leaders can avoid competitive solutions until such solutions are forced by declining demand and lack of investment capital. None of the major control activities of the cling peach order tend to increase marketing efficiency, since they are imposed on an industry that is clearly capable of adjusting in an efficient manner in line with market forces. A great deal of the disruption in market coordination and integration found in the cling peach case seems to stem from the reluctance of industry leaders to repudiate a long-standing control policy to which they have been wedded since the 1930s.

The ability of marketing order control schemes to adjust to the changing nature of the fruit, vegetable, and tree nut industries and their markets is being called into serious question. These changes demand highly coordinated and flexible marketing systems. Historically, and currently, marketing orders have exploited the market between producers and their first-buyers—processors or

handlers. Market power developed by growers is exerted against these first-buyers in the expectation that at least in the long run the first-buyer can in turn exert market power in his markets. That this expectation has not been fulfilled is evident from these case studies. On the contrary, the results have generally forced processors and handlers to absorb grower price demands without the ability to pass on the increased raw product costs. Where marketing cooperatives are dominant the impact of this may be absorbed by producer members for an extended period, but among commercial firms, exit or diversification has been a rapid consequence.

Under the evolving structure of American agriculture and its markets, it is probably impossible to achieve increased marketing efficiency in the broadest sense as long as producer control schemes focus on the first-buyer market. The strongest potential allies of the grower in today's context are firms at the processor/handler level—cooperatives and commercial firms. The structural power sought by growers may be achieved at levels closer to the market where the required homogeneity and fewness of firms is possible. Continued attempts through grower level controls to exploit the first-buyer market can only result in continued marketing disorganization and declining efficiency throughout the system.

VI. MARKETING ORDER CONTROLS AND RESOURCE ALLOCATION

To this point, the major focus of analysis in this study has been the direct implications of marketing order controls for the producers and marketing firms. Perhaps the most important issues are the less direct implications of such controls for industry members as well as the general economy. The price system is the principal allocative mechanism in a free economy, but interference with prices is practiced in every segment of such economies. The impact of such interference varies to large extent according to the specific characteristics of the individual industries controlled and the nature of the controls imposed. Thus, the two general levels of analysis are (1) the implications of marketing orders for resource allocation in relation to the industries controlled, and (2) the impact of such controls on the general public—especially consumers.

Resource Allocation and Controlled Industries

The most apparent result of market control schemes that raise short-run returns in one commodity-industry relative to other alternative commodities is the shift of available resources into the controlled industry. Decisions as to such shifts are, of course, based on a complex combination of factors peculiar to each firm, but an indication of the attractiveness of a commodity-industry can be found in the net income differences that exist within the industry. If there is evidence of wide differences in costs among established producers, potential entrants or expansionists are clearly attracted by the possibilities of reaping the benefits of efficient operation under the umbrella of the control scheme.

Among the commodities studied, the data for cling peaches are the most illustrative of the cost differences among producers. For example, data on net income variation in recent years published in 1970 by the California Canning Peach Association suggest that at 1969 prices a grower with an average yield of 20 tons per acre of Number 1 grade fruit had a profit of $271 per acre while

a grower averaging 12 tons of this quality lost about $170 per acre (*16*, p. 13). The state average yield per acre of Number 1 grade fruit processed in 1969 was 11.9 tons.[74] On the basis of these costs and these yields which suggest losses of about $170 per acre for all those orchards below the average yield, it would seem difficult to explain the continuing expansion of the cling peach industry. This is particularly surprising since the estimates were actually based on average costs for the period 1965–69. During the entire period 1965–69 the grower price for cling peaches averaged $73.74 per ton, or almost exactly the 1969 price. Thus, it can be concluded that the average or below average grower was annually losing at least $170 per acre during this period. Cash costs (total cost less interest, depreciation, and management return) may be a more important short-run guide to producer decisions. On the basis of the data used here, the average grower would have a cash profit of $117 per acre to apply toward his investment and management costs, but growers with above average yields would have the total price of each additional ton, less harvesting, hauling, and marketing order assessments, to contribute to these non-cash costs.

Although any average cost and returns estimates are suspect, the data for cling peaches are probably better than that available in most fruit, vegetable, and tree nut industries. These cling peach data have been used consistently to point up the need for marketing order programs in this industry. Regardless of the fact that expansion has been almost continuous since the early 1950s and the threat of "chronic surplus" has never been overcome by market expansion, the plight of the cling peach grower has been portrayed by the type of cost and returns data presented here.

The cling peach case may be extreme in its distortion of resource allocation through the combination of supply control and group bargaining at the grower level, but it provides a benchmark for observations of the other commodities studied. Little comparable cost and returns data are available for these commodities, but information from various industry members leads to a number of observations.

The grower cost of producing walnuts varies from 10 to 20 cents per pound in-shell according to leading industry spokesmen. Cost studies made between 1964 and 1967 by the California Agricultural Extension Service show total costs ranging from 19 to 27 cents per pound among the various producing counties of the state (*43*, p. 4). These differences of 8 to 10 cents per pound are closely related to yields per acre for the varieties produced and to the degree of mechanization utilized.

The total on-tree cost for lemons, including depreciation but excluding interest on investment, was estimated in 1967/68 to vary from $375 per acre in Yuma County, Arizona, to $677 in Ventura County, and $836 per acre in San Diego County, California (*13*, Table 4). Industry members indicate that Arizona citrus land sells for less than half the price of comparable California land, so the investment cost variation between the two areas makes these differences even greater.

The grower costs of producing Bartlett pears also vary widely. Cost studies in leading production areas show differences of up to $200 per acre among dis-

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[74] Calculated from 774,903 No. 1 tons processed and 65,050 bearing acres, as reported in *15*, p. 4.

tricts and, when yield differences are considered, variation in cost per ton of up to $15.[75] The processing pear price is the same for all districts. The historical variation in prices paid for canning pears from each district was abandoned in the 1950s when the California Canning Pear Association took the lead in price negotiations. To overcome producer discontent and thus assure adequate bargaining tonnage, the Association gradually eliminated the inter-district differentials. These canning price differences had been a reflection of the market position of each district. For example, higher prices were paid in a district that had early maturing pears and could therefore gain fresh market advantage than in a district that did not have this advantage. Similarly, the latest maturing districts received a higher price due to their off-peak harvest advantage. Other variations considered were physical characteristics of the fruit, such as differences in shape and canning yield. Pooling a large share of the state's crop for sale by the Association made such price differences impractical. It also eliminated the usefulness of price as an economic indicator of market value for the Bartlett pears from each district.

Costs of producing almonds vary among major counties only about 2 or 3 cents a pound according to recent studies (42, p. 4). The major differences in these costs relate to the level of mechanization used by individual producers. In particular, this is true of the newer plantings of almonds that have been specifically designed to take advantage of mechanization. Hence, production costs tend to vary more among individual growers than among districts.

Industries with wide variations among individual firms' costs of production find low cost producers expanding while high cost producers go out of business. Production areas in which lower cost conditions prevail will expand while areas characterized by higher costs decline or switch to other types of production. Marketing control schemes must accommodate these types of differences. Failure to do so will result in internal pressure by high cost producers for higher returns accompanied by external pressure from glutted markets for lower prices. Evidence from these case studies suggests that all of these crops are facing this situation to varying degree, and the degree is closely related to the severity and nature of the supply control that has been exerted. The least control has been applied to Bartlett pears and the most control to cling peaches. The other crops fall in between, and all five are marketed under different sets of institutional and market controls. The combination of these controls as they affect market prices and producer returns plus the inherent nature of the commodity's production characteristics provide one element of the economic incentive to enter or exit these industries. The other major incentive to reallocate mobile resources arises from the set of feasible alternatives facing the holder of those resources. In the process of economic change these alternatives vary and a number of these changes have implications for the long-run performance of marketing order controls and related institutions.

The two crops for processing studied, cling peaches and Bartlett pears, vary

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[75] Cost differences for Bartlett pears are less comparable than the other commodities because of the variation in emphasis on the fresh market among production districts. But, in general, the raw product is interchangeable between fresh and processed utilization so the prices for each utilization are highly correlated.

widely in the degree of supply control utilized since 1950 but grower bargaining cooperatives are the effective negotiating bodies for raw product prices in both. Bartlett pears have a fresh market outlet that cling peaches do not, but, as shown earlier, recent trends in fresh utilization have limited this alternative market to such an extent that returns from processing are the major guide to Bartlett pear production. It has been estimated that cling peach orchards reach sufficient production to make positive net revenues possible when the trees are from 4 to 6 years old. Net revenues probably peak when trees are in the full-bearing age range from 10 to 16 years and decline after that, reaching negative returns again at about 30 to 35 years of age (*53*, pp. 97–98). Bartlett pear trees do not face this type of production cycle. They come into the age of profitable yields later—7 to 9 years—and maintain profitable yields much longer than peaches.[76] For example, of the total 1969 bearing acreage of these two fruits in California, 50.8 per cent of the Bartlett pears were planted before 1950 while only 6.7 per cent of the cling peaches still in bearing were planted before that year (*36*, pp. 21–22).

Cling peaches are apparently much more adaptable to mechanization than pears. While there is no evidence of mechanized pear harvesting, in 1970 more than 10 per cent of the cling peach crop was harvested mechanically (*17*, p. 15). Other mechanization, such as bulk hauling in gondola-type trucks, is also used for cling peaches.

As shown in Chart 1, the growth in cling peach bearing acreage has been continuous since the early 1950s, when the marketing order supply controls were effectively applied. Production increases have been comparable, except for some poor crop years in the mid-1960s. In contrast, Bartlett pear bearing acreage in California declined until the early 1960s, when it began a gradual rise and was about at its 1950 level in 1968 (Chart 4). Production rose until 1956/57 and has since been subject to wide variation due to a series of alternate short-crop years. But production in Oregon and Washington tends to reduce the variation in total crop somewhat. Price and income variation in these two industries is also much different. As shown in section IV, the reduction in year-to-year variation in price, total revenue, and returns per acre for cling peaches has been dramatic since 1950. Bartlett pears, on the other hand, show no such stable pattern in comparison with earlier years.

These contrasts between the cling peach and Bartlett pear industries have an important bearing on the evaluation of marketing controls. Cling peach production has a shorter planning horizon. Trees come into bearing, attain full production and then decline within a 20-year period. The comparable cycle for Bartlett pears is at least twice as long and probably three times as long. Thus, pear growers plan to exist in the "long run" while peach growers may be more short-run oriented. Pear growers must consider the possible impact, or at least potential impact, of production in other states, while cling peach growers have long seemed to believe they were in a monopoly position. The importance of the cling peach volume to canners is much greater than that of Bartlett pears due to the sheer size of the pack. Thus, the exertion of bargaining power at the grower-canner exchange level is likely to be much more potent. The resulting combination of all

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[76] Estimates from industry members.

TABLE 19.—CLING PEACH GROWERS AND PROCESSORS, NUMBER OF FIRMS, 1939–68*

Year	Number of growers	Number of processors	Year	Number of growers	Number of processors
1939	2,398	43	1952	2,606	47
1940	2,319	44	1953	2,646	45
1941	2,452	47	1956	2,663	41
1942	2,324	44	1959	2,861	38
1944	2,112	51	1962	2,674	36
1948	2,663	45	1964	2,431	30
1949	2,630	50	1967	2,242	21
1950	2,487	49	1968	2,200	17
1951	2,691	49			

* Data for 1939–67 are from California Department of Agriculture, Public Records, Sacramento; for 1968, industry estimates. Data are compiled as basis for vote on marketing order in succeeding year.

of these economic forces points to a cling peach industry which has long sought to control its own destiny and believes itself in a unique position to be successful. By reinstituting supply controls in 1950, as it had in the 1930s, the grower leadership again attempted to remove the grower from the rigors of the marketplace. But in the decades following 1950, sufficient mobile resources were available to take advantage of any comparative gain—real or imagined—achieved in cling peach production. No such freedom from the competitive market appeared to exist in Bartlett pear production, or in most other fruit crop production.

Given the institutional relationship between the marketing order and the bargaining cooperative and the ability and incentive to expand production among relatively low cost producers, it was probably inevitable that additional capacity in the processing cooperatives would be required for cling peaches. First, there was the necessity of having a "home" for the increasing production and second it was necessary to keep from losing existing capacity as smaller, independent canning firms left the industry. As shown in Table 19, the number of canning firms declined from 50 in 1949 to 38 in 1959, and to 17 by 1969. The number of producers, conversely, increased from 2,630 in 1949 to 2,861 in 1959, but declined to about 2,200 by 1969 (Table 19). Thus, during the 1950s while producers were being attracted to the cling peach industry, canners were leaving. During the 1960s canner numbers continued to decline through exit or acquisition by other firms, principally the newly formed grower cooperative—California Canners and Growers. Grower numbers also declined as high cost producers were forced out, while low cost producers expanded.

The misallocation of resources generated by the combination of monopolistic activities carried on by the cling peach industry was sharply dramatized in 1970 when the Director of Agriculture acting on the recommendation of the advisory board authorized a tree removal program under which each grower was obliged to pull out 12.5 per cent of his acreage—a total of 9,140 acres—or submit to a 25 per cent green drop. In addition, a seasonal green drop of 10 per cent and a cannery diversion of 6 per cent was authorized and carried out.[77] Of course, part

[77] The 6 per cent diversion was subject to variation during the season as conditions changed.

of this 9,140 acre tree destruction would be a normal part of orchard culling and replacement thereby reducing its effectiveness as a long-run surplus control. The "tree credit" transfer procedure would also result in higher yielding orchards facing no pulling while older and less productive ones were pulled.[78] The grower association warned prior to the 1970 season that there were likely to be 17,000 excess acres of cling peaches and supplies exceeding demand by as much as 200,000 tons unless this compulsory tree and crop destruction was carried on (*15*, p. 5).

The walnut and almond industries are quite similar in some respects and quite different in others. The similarity is largely in the market organization—both industries are dominated by large marketing cooperatives—and the semi-perishable nature of the product—both can be stored effectively for the entire marketing year and probably longer. Both have been under their current marketing orders for about 20 years, although walnuts had been under earlier orders since 1933. But, the differences between the industries are probably more significant than the similarities.

The walnut industry sought its original marketing order principally as a device to spread the burden of the annual surpluses over the entire industry rather than have the burden rest solely on the dominant cooperative, which at that time (1933) marketed about 90 per cent of the crop (*125*, p. 35). The almond order was sought by the dominant cooperative in the industry because it would spread the burden of surpluses and also provide a method for barring imports which interfered with California control of domestic market supplies.[79] The almond marketing cooperative has increased its share of volume sold from 60 to about 70 per cent since the order was established. In contrast, the share of walnut production marketed by the major walnut cooperative has declined from close to 90 per cent in the early 1950s to about 50 per cent (*125*, p. 116). Thus, the influence of independent handlers and growers is much greater in the walnut industry than in the almond industry.

The differing physical requirements of production are of major importance for these two commodities. Walnuts require deep soil and take at least 10 years to reach commercial bearing. Almonds can be produced on much lower quality soil and reach commercial bearing after five years. In the same county, 1967 cost studies indicate that an almond orchard could be developed for the first five years at a total cost of $1,424 per acre while a walnut orchard development would take 10 years and cost $2,238 per acre. Thus, on a new planting, an investment saving of $814 per acre for almonds over walnuts is achieved. These estimates assume equal land prices for both crops, which is unlikely in view of the less desirable land needed by almonds, which would tend to increase the relative saving over walnuts (*42*, p. 17; *43*, p. 21).

Of major interest to this study is the impact which the combination of marketing and production characteristics have had on these two commodity-industries. Walnuts have used the marketing order sparingly with the California surplus

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[78] Tree credits allowing this type of action were selling on the open market in cling peach districts for from $100 to over $500 per acre in the spring of 1970 (*15*, pp. 5–6).

[79] The effectiveness of this control is apparent in Chart 9 (p. 270), which shows that imports have been generally negligible since 1950.

percentage averaging 9.6 during the period 1965–69. During this same period the almond surplus averaged 24 per cent, and the surplus share of the almond production was fixed at 35 per cent in 1969 and 45 per cent in 1970.[80] The policy followed by the almond board was consciously shifted toward so-called "level pricing" in 1960. This move coincided with a sustained move to expand export markets so they could be used to absorb sufficient almonds to accomplish the new price policy. As can be noted in Chart 9 and in Chart 18 some success was achieved in the pursuit of both objectives. Exports more than doubled between 1960 and 1968 and average year-to-year price variation, which ranged from a positive 30.3 per cent to a negative 23.6 per cent in the period 1950–59, dropped to a range of positive 8.3 per cent to negative 4.2 per cent in 1960–68 (Table 12). These price policies became effective at the same time that non-bearing acreage, reflecting new plantings, began to rise at an unprecedented rate—from 23,975 acres in 1960 to 87,220 acres in 1969 (Chart 8).

The impetus for this rapid entry of resources into almond production was a combination of circumstances which includes the influence of the marketing controls exerted in this industry. Equally important are the production characteristics of almond trees themselves which tend to put them among the best alternatives available on land not suited for other tree crops. There are proven possibilities of a high degree of mechanization, thus low labor requirements, a relatively short period from planting to the first year of commercially productive tonnage, and rapidly rising yields due to improved varieties and disease control. The availability of suitable land and willing investors provides all of the ingredients for the sharp increase in acreage that has occurred since 1965.

A closely related development to the expansion of almond acreage has been the impact of a statewide water project—the California Water Plan. In the process of transferring water from the rivers of northern California to the arid regions in the southern part of the state, this public program has made available irrigation water to the west side of the San Joaquin Valley and made possible the introduction of irrigated crop production in a vast area where sufficient water had not previously been available. The cost of the water now available through this project is so great, however, that only high value crops, such as fruits and vegetables, can yield profitable returns. Another factor is the presence in the area of large firms, including oil companies that had previously been interested only in oil drilling on this land. Not only does the water availability allow such firms an additional land use but the tax increases and other costs related to the availability of this water virtually force the landowners in the area to plant high value crops. Federal farm policy limits the amount of cotton that can be produced, and since cotton is the only high value alternative to fruits and vegetables, expansion of the latter crops is assured.

The interrelationship between public policies and resource allocation is brought into sharp focus by the situation described above. The various marketing control programs—marketing orders and cooperatives—are authorized by government as specific departures from general antitrust policies in order to help farmers overcome marketing and production problems unique to agriculture. One

[80] The 1970 percentage appeared in *Pacific Fruit News*, August 22, 1970, p. 3.

of the major problems is the continuing threat of oversupply at prices deemed "fair" to existing producers. On the other hand, reclamation and water policies like the California Water Plan encourage production expansion which practically assures the failure of the marketing control schemes for the crops affected. Almonds are likely to be such a crop, as are oranges if current forecasts for cropping patterns on the west side of the San Joaquin Valley are correct. A new report from the University of California predicts that almond prices will drop 4 to 9 per cent by 1980 due in large part to the new tonnage produced in that area.[81] The compounded misallocation of resources resulting from these policies is apparent. The attractive levels and stability of prices and returns achieved by the interaction of the almond marketing order and the large cooperative's marketing achievements had sown the seeds of long-run overexpansion even before the newly irrigated areas came into prominence. The public cost of the water transfer plan is supposed to be recovered through the sale of the water to urban areas in southern California and the agricultural areas along the route of the canal system. To achieve this cost recovery the price of the water is such that only high value crops are feasible. These high value crops are precisely the ones to which supply controls have been applied in order to maintain those values. The conflicts among public policies impinging on farmers and their markets have long frustrated those seeking rationalization in agriculture. The case cited here provides yet another chapter to the history of those frustrations.

The increasing production of lemons in Arizona since the mid-1950s has been encouraged to a large extent by the availability of suitable irrigated land, low production costs, and attractively high and stable prices and returns. This latter factor is directly related to the marketing order and the activities of the leading cooperative marketing organization which controls about 85 per cent of the production in California and Arizona. But the early growth of Arizona production was encouraged even more importantly by the California Marketing Order for Lemon Products. This order, which applied only to processors, became effective in 1951 and its objective was "to correlate the supply of lemons for processing with the demands therefor" (*28*, p. 24). The order also authorized advertising and promotion and quality control programs for lemon products. The order was terminated in 1958 when it became apparent that product prices had been maintained too high for market development. More importantly, it was recognized that some "free" market outlet was required if the fresh market prices were to be controlled through volume restriction.

The marketing order for lemon products applied only to California under state legislation. Lemons for processing were not eligible for an order under the federal enabling legislation. Since Arizona lemons were not under the control of the products order new plantings in Arizona were stimulated. As might have been expected, the major firm responsible for the Arizona plantings was an independent processor with an eye to the profit potential of uncontrolled production under the umbrella of the California controls.

The total supply of lemons has increased rapidly since the early 1960s. Ari-

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[81] This report also considers some of the other price implications of the west side development (*49*, p. 107).

zona plantings plus additional plantings in the San Joaquin Valley of California have more than replaced the acreage removed by urbanization in southern California. In the major producing areas along the southern coast of California costs are rising due largely to increased taxes, higher land values, and declining production in older groves. As anticipated urban development takes places in this area more lemon groves will be removed, but this is a slow process and existing growers in this district continue to control the marketing order and the marketing policies of the industry.

The developments taking place in the Arizona lemon industry are quite similar to those in the almond industry in the southern San Joaquin Valley of California. New plantings on a large scale by corporate firms are being encouraged by marketing policies controlled by growers in established areas facing increasing costs and, in many cases, declining yields. Most of the commodity-industries studied are dominated by large cooperative marketing organizations which have been prominent in the development of the industries and, usually, in the initiation and operation of the marketing orders covering the respective crops. These organizations face a difficult problem when new, large-scale producers enter the industry. Typically the cooperative is controlled by directors whose lands are in the older, established areas and whose fortunes are largely tied to existing policies of the cooperative and the marketing order. The protection of existing production and marketing patterns tends to dominate the policies of such groups.

New entrants in these commodity-industries may be satisfactorily accommodated by the existing cooperative and marketing control schemes as long as the production costs and marketing outlook of new firms do not vary greatly from those of established firms. In the early stages of the growth of new production areas, such as in almonds and lemons, major problems of accommodation have not arisen. This can be traced to the high costs of entry and a period during which existing marketing institutions are "tested" as to their willingness and ability to serve the new entrants and areas of production.

Producer allotments and marketing quotas.—Restriction of entry is commonly viewed by existing producers as the only feasible way to protect themselves against long-run problems resulting from the short-run success of marketing control schemes. Reference to some kind of control on expansion of tonnage is almost always a part of informal discussions of marketing orders in California. As in most other cartel groups, the stringencies of oversupply conditions and depressed prices are accompanied by increased calls for production control. Self-protection by current members of the group is the first consideration. Marketing order legislation has been found to be an available vehicle to achieve such protection.

In 1968 there were three active marketing orders in the United States that controlled entry through a quota system. These cover California Brussels sprouts for freezing, Florida fresh celery, and hops grown in Washington, Oregon, Idaho, and California. The sprouts order is under California state enabling legislation and has operated since 1958; the other two are federal orders. Florida celery was originally controlled by a state order starting in 1962, but due to invalidation of the quota sections by the Florida Supreme Court, these functions have been carried on under a federal order since 1965. The current hops order became operational in 1966, although it had been preceded in 1949–52 by an order which did

not impose quotas. The relatively minor character of these industries should be made clear. In 1968, the sprouts order covered about 55 growers and 12 processors, and the total grower value of the crop was about $8 million. The Florida celery order covered 49 producers with a crop value of $22.8 million, and the hops order covered 255 growers with crops valued at $20.6 million. In total, these commodities affected 359 producers and crops valued at about $51 million, or about 2 per cent of the total value of crops covered by marketing orders.

These orders have been surrounded by controversy concerning the entry restrictions since their inception. As noted above, the celery order was declared invalid by the Florida courts, but under federal legislation several test cases related to the entry restrictions have not resulted in their being overthrown. Thus, the authority to limit entry does exist under current enabling legislation if grower approval is received. Several attempts to establish producer allotments for California crops have failed to gain this approval. In 1967/68 referendums were held on amendments to both the federal prune and raisin orders that would have permitted the imposition of producer allotments. Neither of these gained grower approval. Since that time various allotment proposals have been made in these two commodity-industries, as well as in almonds, tomatoes, cling peaches, and pears. The only such proposal that has come to a vote is in the processing tomato industry. This was submitted to growers in a referendum in October 1970 and was not approved.

The rationale for production controls, termed producer allotments in the specialty crop industries, is simple. For annual crops, such as vegetables, acreage can be expanded in one year as a response to net revenue incentives. The Brussels sprouts and Florida celery orders are intended to stop just such a response. In perennial crops such as tree fruits and nuts and grapes the response is lagged from about 4 to 10 years, depending upon the time required for a tree or vine to come into commercial bearing. The increases in nonbearing acreage of cling peaches and almonds, for example, indicate the typical pattern of expansion in such commodities. Perennial crops like asparagus and strawberries have a shorter in- and out-of-production cycle—from 2 to 10 years—so they tend to respond to revenue incentives somewhat differently than either of the other two types mentioned. Entry occurs usually by the expansion of existing producers, although the fear expressed by the industry is normally directed against new entrants. The exact identity of those responsible for expanding the acreage in fruit and vegetable industries is difficult to establish. Only when some "outsider," commonly a large corporate entity, enters production is identity known. For example, Hershey Chocolate Corporation entered almond production on a large scale in the mid-1960s with the planting of about 5,000 acres (*89*, p. 8). United Fruit Company, Purex Corporation, and other such firms entered vegetable production on a large scale in various parts of the United States during the 1960s (*22*, p. 5).

The availability of capital to existing growers and the infusion of new capital, principally from large corporations, has given rise to the recent discussions aimed at restricting entry in the specialty crops. Growers apparently do not believe that reduced returns will bring supply limitation without financial disaster to those in the industry. Typical of grower attitudes toward the rigors of the price system in controlling supply is the following quotation from the manager of the Cali-

fornia Canning Pear Association in discussing methods for coping with possible future excess production of Bartlett pears (*20*, p. 3):

> First, would be to continue our present marketing program, and in the event of large supplies of pears, we would anticipate lower prices in an effort to move the increased supply. This would discourage new plantings and cause current plantings that were not efficient to be removed. This program was reviewed by the board, but it was felt this type of effort would be too severe.

The existing marketing order program in pears, as described in earlier sections of this report, is considerably less rigorous in its controls than the other marketing orders studied. But, even in this industry, prices and incomes seem to provide incentive for sufficient expansion to cause industry leaders to concern themselves about future oversupply. Nevertheless, faced with clear evidence that current industry revenues are encouraging plantings, it is felt that the existing industry programs would allow a "too severe" result if prices were to decline to a level that would discourage plantings. In other words, marketing programs are deemed unsatisfactory if they allow pricing that tends to move the industry toward long-run equilibrium.

In its efforts to control production and markets other than through the rigors of price competition, agriculture has tested a great many methods. Marketing orders are a fairly recent addition to the scene, but government policies with the same objective have a long history. Their performance is singularly unimpressive.

The production control program for cotton was instituted in 1933 in an attempt to maintain prices considerably above those that would have otherwise prevailed, particularly in the southeastern United States.[82] The program involved both production cutbacks and loans to growers to maintain prices. Although serious surpluses resulted by the late 1930s, World War II and the immediate postwar demand depleted surplus stocks held by the government to almost nothing by 1948. Rather than discontinue the program, the Congress saw fit to continue high level price supports and the industry again built up huge excess stocks, mostly in the hands of the Commodity Credit Corporation.

Acreage controls for cotton were reinstituted in 1950, and these coupled with reduced yields that year and a short-term world shortage, partially resulting from the Korean War, led to all-time high prices. Stocks again accumulated after high yields returned and market demand dropped. The surplus condition continued to build throughout the 1950s and early 1960s, with the predictable result of increased government interference in cotton marketing. Since 1956, export subsidies have been paid to offset the difference between domestic supported prices and the world price. This, of course, was discriminatory toward domestic users, so in 1964 an equalization payment was instituted to overcome that problem. All this time the increasing use of man-made fibers has been eroding cotton's markets and foreign production has been steadily rising. In the mid-1960s, imports of cotton textile products exceeded the raw product equivalent of 600,000 bales per year compared to less than 100,000 bales in the mid-1950s (*114*, pp. 112–43).

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[82] The discussion is largely taken from Benedict and Stine, *The Agricultural Commodity Program*, Introduction and Summary, and chapters 1, 2, and 3 (*6*).

The lessons from the cotton experience are clear. Attempts to maintain prices and control acreage so as to avoid excessive government accumulation of stocks, regardless of the many worthwhile objectives, resulted in loss of markets and the encouragement of production in other countries. The development of synthetic fibers and the expansion of foreign economies after World War II were large factors in the problems of the American cotton industry. Cotton provides an excellent example of the importance of substitute products in assessing the implications of production control schemes. Many farm groups and farm leaders seem to suffer from a type of fundamentalist thinking that finds farm products irreplaceable in human existence. The evidence is quite to the contrary. The development of nonfarm substitutes has accelerated dramatically in the past decade, and it promises to become even more rapid. Thus, the experience of the cotton industry cannot be dismissed as inapplicable to food.

Tobacco is another nonfood crop that has been subjected to price supports and acreage controls since the 1930s. The control program has been carried on largely for noneconomic reasons, particularly to maintain incomes of very small producers in depressed regions. The economic effects have generally been even more unfavorable than those of the cotton program. The results include high yields of less desirable quality, distortion of price relationships among varieties, support of very small, uneconomic-sized farms, capitalization of allotment quotas into land values, and rising foreign competition (6, pp. xiv–xxv). Tobacco needs have also been affected by technological advances such as in the cigar industry, where the development of a binder from reconstituted tobacco had reduced farm sales-weight needs for this use by 50 per cent (114, p. 396).

The tobacco control program has resulted in an industry structure and organization which is almost unresponsive to changing markets. There are always enough industry problems, such as the high concentration ratios in tobacco processing or rural poverty conditions, to supply a basis for continued application of an existing control program. The typical response to an obvious need for change is to add further to the complexity of the established control scheme. The effect is also typical. Uneconomic production units and locations are almost assured, and the barriers to institutional innovation reduce the impetus to find efficient alternatives to the existing situation.

Resource Allocation and the General Public

The flow of resources to controlled industries in excess of current need is readily apparent. Expansion of the commodity-industries studied has been closely related to the short-run returns achieved under marketing controls usually in combination with cooperative activities. The "overproduction" resulting from expansion by existing producers and entry by others should lead to lower prices and higher consumption, but lower prices are precisely what the control programs are designed to avoid. Consumption increases are expected to be brought about at prices that maintain existing producers in business. Advertising and market development programs have this as their goal. Market allocation schemes, if based on accurate demand estimation, should also increase total consumption. But the per capita consumption trends for these commodities show that successful achievement of these goals has been limited by failure to increase consumer

preferences for them. As shown in Table 20, since 1950 canned peaches have tended to replace fresh peaches but the trend in total per capita consumption of peaches is down. A similar situation exists for pears. Fresh lemon consumption per capita has declined since 1950 as well as total per capita lemon consumption. Per capita consumption of walnuts and almonds has remained about level since 1950-54, although the trend is slightly down for walnuts and slightly up for almonds.

Without increased per capita consumption, industry expansion must rely on an increase in the number of consumers or the development of new markets substantial enough to utilize the greater production. The growing use of secondary markets for controlled commodities attests to the shrinkage of traditional primary outlets. The recent trend and outlook in exports, however, suggest that these markets, especially for processed fruits, may contract rather than expand. The other major secondary markets are largely by-product or low value processing outlets. As indicated in Table 21, the use of these markets has risen about 7 per cent on the average since 1960–64 for the specialty crops shown, including lemons, walnuts, and almonds.

The trend is to surplus production at existing price levels for most of these commodities. The response of the industries, as noted, seems to be an inevitable quest for increases in imposed controls rather than reliance upon market forces. The rationale is also predictable—i.e., expanded controls are needed to avoid economic hardship to the existing industry. The argument for commodity controls, reaching back to the 1920s, invariably includes as a major point the need to give the industry time to "adjust." But the result is also familiar. Adjustment is at the expense of consumers and taxpayers, if possible, rather than at the expense of the "risk-taking" producers who are the root of the problem.

An argument for marketing orders (often called "self-help" programs), as against other types of publicly supported agricultural programs, centers on the principle that marketing orders do not involve subsidy and are paid for by the industry involved. Except for the cost of government administration of these programs, it is true that there is little or no *direct* public cost. But, consideration must be given to the "indirect" costs of these control schemes that are ultimately borne by the consuming public.

The "indirect" costs of marketing controls are difficult to measure, but they include the costs of producing commodities of marketable quality that are then destroyed under regulations, the costs of carrying excessive inventories either in products or in production capacity, and the costs of inefficient allocation between primary and secondary markets. The latter costs arise largely because of the lack of knowledge by control groups of the demand characteristics in these markets, especially secondary markets that are used mainly in conjunction with schemes for optimum exploitation of primary markets.

Estimated production and related costs of the cling peaches destroyed by marketing order controls during the 1962 season totalled $4.9 million. Comparable costs of peaches destroyed under the marketing order in 1950 were estimated at $2.5 million (69, p. 137). The 1970 cling peach destruction program involved the pulling of 9,140 acres of bearing trees valued at about $10 million on the basis of recent value estimates of $1,200 per acre (16, p. 13). In addition, about 81,000

TABLE 20.—PER CAPITA CONSUMPTION: PEACHES, PEARS, CANNED FRUIT SALAD AND COCKTAIL, LEMONS, WALNUTS, ALMONDS, 1925–68, FIVE-YEAR AVERAGES*

(Pounds)

Commodity	1925–29	1930–34	1935–39	1940–44	1945–49	1950–54	1955–59	1960–64	1965–68[a]
Peaches									
Fresh	14.2	12.5	13.6	14.5	14.5	9.7	8.8	8.2	6.2
Canned	3.4	2.6	3.2	3.3	4.9	5.3	5.7	6.3	6.3
Total	17.6	15.1	16.8	17.8	19.4	15.0	14.5	14.5	12.5
Pears									
Fresh	6.4	6.2	6.3	6.5	6.0	4.0	3.5	2.4	2.0
Canned	.8	.9	1.1	1.2	1.3	1.6	1.8	1.9	1.8
Total	7.2	7.1	7.4	7.7	7.3	5.6	5.3	4.3	3.8
Canned fruit salad and cocktail	.3	.4	1.0	1.5	2.3	2.2	2.6	2.7	2.9
Lemons									
Fresh	3.7	3.6	4.1	4.7	4.6	3.8	3.1	2.7	2.3
Processed	.9	1.2	1.1	2.5	2.2	2.6	3.2	2.6	3.1
Total	4.6	4.8	5.2	7.2	6.8	6.4	6.3	5.3	5.4
Walnuts	.44	.32	.34	.38	.40	.40	.34	.32	.33
Almonds	.24	.15	.17	.20	.32	.27	.23	.27	.31

* Data are from U.S. Department of Agriculture, Economic Research Service, *Fruit Situation*, Aug. 1969.
[a] Four-year average.

TABLE 21.—SHARE OF ANNUAL SUPPLY DIVERTED FROM PRIMARY MARKETS
UNDER FEDERAL MARKETING ORDERS, AVERAGES 1960–64 AND 1965–68*

(Percentage of total crop)

Crop	1960–64 average	1965–68 average
California raisins	28.2	39.6
California-Arizona lemons	55.2	62.5
California almonds	15.0	21.2
California-Oregon-Washington walnuts	0.8	7.5
California dried prunes[a]	0	8.7
Oregon-Washington filberts	21.8	27.5
California dates (Deglet Noor)	28.7	30.2
Average for all shown	21.4	28.2
Difference		+6.8

* Data are from U.S. Department of Agriculture, Consumer and Marketing Service, "Narrative Work Project Annual Report," Statistical Appendix, various years, 1964–68. Share allocated to restricted use at start of marketing year.

[a] Authority for volume control added in 1965.

tons of peaches were removed by green drop and 33,000 tons were diverted as surplus at the cannery.[83] These data suggest that there was an additional surplus of 8,000 bearing acres in 1970.[84] Valuing these trees at $1,200 per acre, as above, this indicates that another $9.6 million is invested in surplus acreage. Thus, a total of almost $20 million was invested in surplus cling peach trees prior to the 1970 season and this does not take into account the value of the land and other capital that was also allocated to this excess cling peach production. Also, the cost of producing the fruit green dropped and diverted in 1970 was about $6.7 million (*16*, p. 13).[85] These data indicate that seasonal costs of crop destruction under the marketing program increased from $2.5 million in 1950 to $4.9 million in 1962 to $6.7 million in 1970. Thus, by 1970 the costs of surplusing programs were 268 per cent of their 1950 level and 137 per cent of their 1962 level. In comparison, returns per bearing acre in 1970 were 152 per cent of the 1950 level and 113 per cent of the 1962 level.

The conclusion seems clear. Not only have resources spent in cling peach production risen to levels far in excess of those suggested by market demand, but the producers themselves are being assessed continually higher costs as the burden of carrying this excess capacity. In addition, while maintaining in production uneconomic orchards and inefficient producers the cling peach industry continues to attract new entrants who can operate profitably under the costly control programs and relatively stable price levels that have been maintained. This new capital investment increases the surplus burden, and, more importantly, it further exaggerates the misallocation of total resources within the economy. Because of this the consuming public loses two ways—by prices higher than justified by total

[83] Tonnage estimates from California Crop and Livestock Service and the California Canning Peach Association.

[84] Calculated on the basis of 114,000 surplus tons at 1969 average yield of 14.1 tons per acre.

[85] Calculated from data published by the California Canning Peach Association, total preharvest costs of $54 per ton for green dropped fruit and total costs, less marketing order assessments, $69 per ton for harvested fruit destroyed at the cannery.

resources allocated to cling peach production and by the necessity of depriving other more desired production activities of these resources.

Although the cling peach experience best illustrates the point, similar indirect costs are incurred whenever controlled commodity-industries attract and hold excess resources. Disposal of excess product in low value markets distorts the price signalling system both as to quantity and quality desired by the market. For example, consider the production of high quality lemons which are diverted to processing utilization, or the production of unblemished, well-shaped pears for use in canned fruit cocktail. The extra cost of such production is a waste of resources since the quality characteristics produced have no value for these utilizations. But centralized marketing programs lead to such distortions because all producers must be treated equally. Also, to develop bargaining power in first-buyer markets alternative outlets must be considered available. Product characteristics must fit the requirements of the highest value market even when only a fraction of the total moves to that market. In recent years, primary market consumers have paid for such activities by subsidizing the production of the 45 per cent of the lemon crop which goes to processing. Other such subsidies are inherent in all of the diversion percentages shown in Table 21.

The diversion of excess supplies of marketing order controlled crops is increasing and therefore this burden becomes more costly. As primary market consumers react to this burden and find more substitutes the cost to the remaining consumers rises. Eventually, these costs to all concerned—directly as consumers and indirectly as members of the general economy—lead to the revaluation of the capital assets involved and their transfer to other uses. In the meantime, market control schemes are likely to make such reallocation continually more costly.

Conclusions: Resource Allocation Under Marketing Order Controls

Under perfectly competitive conditions resources available to an economic system—national or international—flow to those uses with the highest returns. Prices of products and factors of production are the major guides to these uses. In an effort to overcome real or suspected market imperfections that may be to their disadvantage, individual industries develop their own institutions which add other imperfections. Marketing orders are one such institution.

Contrary to the often-voiced claim that marketing orders are one type of agricultural policy that largely avoids public cost, it is clear that this cost is merely less direct than that of other farm programs. Although the administrative costs paid from public funds are relatively low, the costs of resource misallocation may be relatively high. Providing any group of producers, in agriculture or elsewhere, with monopoly power and assuming that this power will not be used to the long-run detriment of the public and, eventually, the producers themselves, flies in the face of all historic evidence. In particular, this is true when such power is granted to a heterogeneous group of producers where all decisions must take into consideration the widely differing interests of each member. The effect is similar to any political process. The leadership is forced to compromise what may be sound economic policies in order to maintain the support of all segments. The resulting price and marketing policies must sacrifice the interests of each producer to the interests of the whole, and while this may be the best possible outcome in a demo-

cratic political process the evidence clearly shows that it is not in an economic process.

It can be argued that any economic group sublimates the interests of the individual. Thus, growers voluntarily selling their crops to a processor or the members of a voluntary cooperative are required to accept some restrictions that are common to all. But compulsory industry-wide organization is much different. Once the majority has obtained a marketing order, all producers within the defined industry are forced to adhere to the controls imposed. This abridgement of individual producer freedom has long been defended as necessary for the overall benefit of the industry. Little is usually said about the overall benefits to the public. The experience of the marketing order studies reported here sheds some evidence on both of these issues.

Within the producer group, controls reflect to a large degree the desires of some prominent grower-leaders. Quantity and quality regulations are generally aimed to provide the larger, well capitalized, and more efficient growers with sufficiently high returns to justify their continuance as grower-leaders. In view of the politics discussed above, less efficient producers generally receive short-run benefit, but in the long run their returns are forced to the break-even point or below. In the process new capital is attracted by returns being achieved by efficient producers. Thus, capital flows in on top of existing capital, some of which will exit as the less efficient owners lose out. In this dynamic process, the protective covering of the marketing order, by accelerating entry while slowing exit, results in a continual overcapacity. Resources are trapped in the industry much longer than their net returns would dictate. Efficient producers gain lower average returns on investment than they deserve and consumers pay more for the products than they should, while being denied the products that their preferences indicate because the resources to produce these are tied up in controlled industries.

The cling peach industry provides the best example of this set of circumstances, but the other cases are also applicable. California Bartlett pears are produced under widely different cost, yield, and alternative market conditions, but all are commonly controlled and priced for processing. Similarly, lemons from different production areas vary widely in physical and cost characteristics, but all are centrally controlled with widely differing net profit results. The almond industry, having largely attained a broad goal of stable pricing, finds itself inundated with new entrants seeking just such stability. The result is that years of controlled marketing may end in chaos for many of the producers who sought protection from just such a situation. Walnut growers, having used their marketing controls sparingly, found themselves with fewer problems at the time of this study, but even in that industry, increased "surplus" percentages were being used in recent years to maintain "acceptable" price levels—i.e., levels higher than needed by the efficient grower.

It is not the marketing order alone that allows the market interference which leads to the misallocation of resources. In every case studied here, and others observed, it is the combination of the order with some other form of collective activity, usually some form of cooperative. Whereas voluntary cooperatives must achieve efficiency and responsibility if they are to survive in a competitive environment, they may not achieve these results in the monopolistic environment

created by a marketing order. As noted in this study, it has been to avoid the rigors of competition that cooperatives have usually led the efforts to establish marketing orders. Even the exemption of cooperatives from the antitrust statutes did not seem to be a sufficient competitive advantage once the attractive possibilities of compulsory cartelization of the entire commodity-industry were recognized.

The appeal of entry controls almost invariably becomes apparent after the continued application of marketing controls for a period of years. Although generally cloaked in less offensive language than is used in connection with other government farm programs, entry controls in fruit and vegetable industries mean the same thing. "Producer allotment" or "marketing quota" seem to sound better than "acreage control." The effect of any such program, however, is to freeze capital assets into existing patterns. In the case of many fruits, vegetables, and tree nuts their physical production requirements tend to restrict the feasible production area. Thus, cling peach growers have felt secure in controlling only California because no other state seems to possess the necessary climatic and soil combination. But changing technology, water availability, and land value relationships within California are impinging even on this single control area. In addition, substitute products continue to appear from inside and outside the state and outside the nation.

Another set of constraints faces producers of commodities that can be grown in other areas if returns prove attractive. Thus, Bartlett pear growers in California have sought to include areas of potential expansion, such as Oregon and Washington, in a single marketing order. National marketing orders have been sought, but not approved, for potatoes, eggs, and broiler chickens. California asparagus growers controlled their own production and marketing through a marketing order until other states took a large share of their markets away, and the order was eventually terminated (70, pp. 241–51).

Due to the complex set of decision-making guides in each potential production area, it is virtually impossible to determine where competitive substitutes are likely to arise. But it is not impossible to foresee that such competition will develop if producers can frustrate the price system through the political mechanism of marketing order controls. Resources that are applied in new, and often less efficient, productive areas because of artificially high returns due to such controls result in economic loss to the established producers and, more importantly, to the economy as a whole. There is nothing in the history of production control attempts that suggests positive long-run gains to the growers involved or the public at large.

VII. CONCLUSIONS AND POLICY GUIDEPOSTS

The conclusions reached in this study are based primarily on investigation of five commodity-industries long subject to marketing order control. The experiences of other commodities under such controls have also been studied and taken into consideration. The five case studies illustrate different combinations of economic characteristics upon which marketing controls have been imposed. Structural and organizational differences as well as variation in utilization patterns and production characteristics have been observed. The first part of this section sum-

marizes conclusions specifically related to each case study. The second draws upon these cases as well as the experiences of other industries under marketing order control and presents some general conclusions on the performance of this policy tool. In the third part some recommendations based on these conclusions are set forth as possible guideposts for policy makers.

Case Study Conclusions

Cling peaches.—The California cling peach industry provides a classic example of the conditions generally considered most favorable for marketing order use. The record of experience of this industry also provides an excellent example of the long-run results of monopolistic control at the grower level in agriculture. It should be made clear that such control did not develop from the marketing order alone but rather from the combination of the order and a strong bargaining cooperative. This combination provides a mechanism which for practical purposes vests raw product pricing and supply control in approximately the same hands. This monopoly power has been efficiently exploited by the grower leadership to stabilize and maintain cling peach prices at levels which prove attractive to potential entrants. The long-run result has been a predictable and continuous overproduction of cling peaches at the price levels established.

In the process of achieving "acceptable" grower prices and revenues the cling peach industry has largely ignored the demand characteristics for the principal final product. Although a great deal of detailed analysis of these characteristics has been carried on, the major concern has been exploitation of demand at the grower to processor market level. Due to the large and relatively fixed margins added to raw products that are processed prior to consumption, the derived demand at grower level is usually inelastic. Under this condition, total revenues to raw product producers can easily be raised by supply restriction when the necessary organizational mechanism is present, as it is in the cling peach industry. Thus, while giving superficial attention to the long-run development of markets for the canned product, the cling peach industry has given its real attention to short-run price and income results. This is certainly not an unexpected focus, and any group of rational producers is likely to pursue the same goals given the opportunity. The issue is whether or not these activities are in the long-run interest of the growers or, more importantly, the general public which provides this opportunity.

Since 1950, when stringent supply control began, the cling peach industry has continually expanded beyond the capacity of its markets. In the first 10 to 12 years of this period, a combination of canner desire to maintain market shares and organizational changes within the industry, including cooperative expansion, resulted in generally strong raw product demand. But this demand was not derived from the market for canned product. Consumption expansion to accommodate the increasing production was achieved largely through level prices to consumers although raw product costs were continually increasing. The resulting "squeeze" on marketing margins—especially in processing—led to processor opposition which culminated in marketing order changes designed to overcome the problems raised by creation of an artificial raw product supply situation. These changes, principally the addition of the so-called open market provisions, were

intended to tie surplus controls more closely to canner demands. Nevertheless, the excess production already generated and the continuing pressure upon grower organizations to maintain high price levels led to the adoption of a drastic crop reduction program in 1970 which included tree pulling, green drop, and cannery diversion. This program resulted in the removal of 9,500 acres of peach trees and about 112,000 tons of peaches were green dropped or diverted (*14*, p. 1). But even this level of destruction proved insufficient to relieve the oversupply conditions that had been developing for the previous two decades of marketing order control. Prior to the 1971 season another set of regulations was imposed on cling peach growers. First, in December 1970, a 26 per cent green drop was ordered, but growers were given the option of removing 13 per cent of their producing trees to satisfy the requirement. About 8,600 bearing acres were removed under this program. Another 13 per cent reduction was ordered in March 1971, and an additional 2,700 acres were pulled plus a green drop which would make up the balance of the required percentage (*18*, p. 5). In June 1971, a further 7 per cent green drop was imposed (*29*). Thus, in two successive years, 1970 and 1971, cling peach growers have been required to destroy almost 21,000 acres of bearing trees and up to 200,000 tons of peaches in an attempt to bring their production to levels that industry leaders consider close to market requirements.

The cling peach industry provides a classic example of the long-run results of market control for this type of commodity. Resources far in excess of those dictated by the market have moved into cling peach production. Producers should have gained in this process as members of the cartel group, but with wide differences in production costs and no practical way to control entry, it is not evident that the long-run interests of cling peach growers have been served. This is especially true of smaller producers who have been forced to leave the industry under the disadvantageous conditions of recent years.

The supply control features of the cling peach marketing order are by far the most controversial. Other provisions of the order are similar to those in most of the other commodity-industries studied. The evidence suggests that while there may be specific problems relating to these other activities, they are for the most part advantageous if efficiently managed in coordination with other industry services and the needs of the marketing system. For example, quality controls, inspection programs, and information services seem to fill a reasonable need. Advertising programs are expensive and of unknown value, but recent efforts to achieve greater coordination between industry and brand promotion may increase their potential returns.

In the course of this study the cling peach marketing order was found to illustrate one of the major problems of public policy in agriculture—the seeming impossibility of phasing out a long-standing program. Once established, such programs have proven almost impregnable. There is always sufficient doubt among individual growers as to the effects such a change may have on their welfare and these doubts are easily exploited by proponents of the existing scheme. The usual path to the termination of such programs is either the very obvious loss of markets—e.g., California asparagus—or the increasing circumvention of the program by industry members acting in their own self-interest. New organizational arrangements in the cling peach industry—e.g., through cooperatives and private contracts—seem to be moving along the latter path.

Bartlett pears for processing.—The major function of the marketing order for California Bartlett pears for processing has been the substitution of third-party grading for processor grading. There has been little effective supply control of canning grade pears. The size and grade minimums have become well established and there is little evidence of excessive culling of small or off-grade fruit.

Although there is a bargaining cooperative representing about the same share of processing tonnage as in the cling peach association, prices have apparently not been raised above competitive levels and thus have provided little incentive for excessive plantings. Prices, total revenues, and returns per acre have achieved somewhat greater year-to-year stability than prevailed prior to World War II, but variability in these returns is still wide enough to reflect production and marketing risks. As a consequence, new plantings have largely reflected shifts to different production areas and replacement of trees affected by disease, especially pear decline.

As is evident from the wide year-to-year fluctuations in yields, weather conditions have played a large role in grower returns since 1962. Nonbearing acreage, reflecting new plantings, which had risen from 1956 to 1962, leveled off in the latter year and has remained about stable since that time. These developments suggest that the Bartlett pear industry has grown in close correspondence to the trend in demand for its products and has been restricted in its growth by the natural risks and uncertainties that characterize agricultural production. The marketing controls instituted have done little to alter the impact of these variables directly. The objectives of these controls have been much less ambitious and much more successful in avoiding the long-run problems evident in the cling peach industry.

The interrelationship between fresh and processing use of Bartlett pears adds a dimension not found in the cling peach industry. The fresh market has provided an alternative source of price information that cling peaches do not have, since the flow to the fresh market is guided by relative prices in the processing market. Consumption of fresh Bartlett pears is declining and the processing price is gaining in importance. The marketing order has aided this pricing process by establishing a quality basis for negotiation and providing for objective grading procedures. Only once, in 1957, were size regulations imposed specifically in an effort to reduce the tonnage available for processing.[86]

An important difference between the Bartlett pear and cling peach industries is the longevity of the trees. Pear trees are productive much longer than peaches. Producing orchards up to 75 years old can be found in some California areas and 50-year-old trees are considered in full production. Bartlett pears require 7 to 10 years to reach reasonably large yields. Hence, pear growing requires a longer-run investment than many other fruits. For example, peaches or grapes reach commercial bearing age within 4 to 6 years and decline in yield after 15 to 20 years of full bearing. There is little doubt that these technical differences in pear production are reflected in the relatively conservative approach to marketing problems taken by the pear industry.

The California pear industry has a long history of group action through cooperatives and other industry-wide organizations, but there has been little reli-

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[86] An estimated 12,000 tons were eliminated by this regulation (*38*, p. 36).

ance on compulsory programs to solve marketing problems. The original canning
Bartlett pear program still exists and has been found adequate with minor amend-
ments for 30 years. The reliance of this industry on market forces rather than
market interference seems clear, as does the success of this approach. Attempts by
industry leaders to gain approval of increasingly restrictive programs have largely
been resisted. Despite continuing warnings about threatened overproduction of
pears, growers have rejected the supply control approach. This no doubt stems in
part from their intimate knowledge of the long-run record of such controls in
the cling peach industry.

Lemons.—Fresh lemons seem to be a commodity ideally suited for utilization
of controls on rate-of-flow to market. When the marketing order was initiated in
1941 the entire commercial supply was produced in California and it was largely
under the control of a single marketing cooperative. An alternative by-product
market was available and demand for fresh lemons was determined to be highly
inelastic at all market levels. Since World War II the allocation among fresh,
product, and export markets has been characterized by a rather dramatic rise in
the quantity of lemons moving to processed products and export markets and a
steady decline in supplies moving to the domestic fresh market.

The experience of the lemon industry under its long existing marketing order
provides evidence on a number of the questions posed in this study. Access to a
relatively elastic secondary market has allowed continually more restrictive con-
trols in the primary market to succeed in raising prices in the face of declining
consumption. Per capita consumption of fresh lemons has decreased continually
as primary market prices have been kept at levels sufficient to maintain satis-
factory producer total revenues under the burden of increasingly larger shares
moving to the lower price secondary markets. An attempt was made to control
secondary market supplies through the adoption of a marketing order for lemon
products in 1951. This order lasted until 1958, and its termination corresponded
quite closely with the emergence of Arizona as a major production area. That
state was not covered by the lemon products order, and from an output of about
200,000 cartons in 1951, Arizona production rose to 2.2 million cartons in 1959,
and stood at 7 million cartons in 1968.

Among the California fruit crops, citrus is most closely associated with a long
history of cooperative marketing. Sunkist Growers has dominated the lemon in-
dustry for most of the 75 years that the cooperative has existed, and as a conse-
quence its influence on the marketing order cannot be denied. But, in common
with many large grower marketing cooperatives, the diversity and pervasiveness
of its membership provides representation of most industry views within Sun-
kist and tends to confine most major industry controversies within the organi-
zation. However, increasing industry conflict has arisen in relation to the mar-
keting order because three districts with quite different production and market-
ing characteristics have been subject to the centralized control mechanism which
is largely dominated by one district—Southern California. The three defined dis-
tricts are allocated fresh market shipping quotas in accordance with the industry-
wide supply situation. Fruit characteristics—principally storability, timing of har-
vest, weather risks, yields, production costs, and marketing history—vary among
the districts and the problem of equity continues to arise. Conflicts over these

differences were sensitive issues as early as 1951, even before Arizona and the central San Joaquin Valley of California became important production areas.

The experience of the lemon marketing order offers evidence in support of several conclusions. First, free access to secondary markets is vital to supply control programs aimed at supporting primary market prices. When the lemon products market was controlled in California, not only did difficulty arise within the state, but Arizona quickly became a site for new plantings largely for processing utilization. The Arizona production eventually entered the fresh market in increasing supply and added to the problems of the control committee which found it necessary to reconcile differences among areas with widely varying characteristics. Changes were made in the marketing order in 1970 to accommodate these differences, but these were generally viewed as inadequate by industry members in the new and expanding production areas. This would be expected because the industry is still dominated by the older production areas on the Southern California coast, and policies basically favorable to the older area are likely to be continued. But, as in the case of most long-standing control schemes, even those in the group who find their self-interest jeopardized are reluctant to abandon the order in fear of making matters worse. Once again, the mere longevity of marketing orders seems to breed continuance, regardless of changes swirling around them.

Walnuts.—The walnut marketing order has been used sparingly in an attempt to deal with year-to-year production and carryover problems and more importantly with quality control problems. Stability of price, returns per acre, and total revenues have been characteristic of the walnut industry since World War II. But, the stability of the industry may stem more from the limited availability of good walnut land and the long-term nature of investment in walnut production than from marketing order operations.

Industry organization has shifted somewhat since the time that the marketing order was put into effect. The share of the total California tonnage handled by the major cooperative, Diamond Walnut Growers, declined during the 1950s and early 1960s from almost 90 per cent to about 50 per cent. Thus, the share of tonnage handled by independent firms increased correspondingly. The position of Diamond Walnut Growers in this industry is more like that of a large independent firm than of a dominant cooperative. The cooperative's membership is limited to efficient growers producing the most desired varieties. In contrast to other commodity-industries dominated by large marketing cooperatives, Diamond gives little emphasis to the role of chief walnut industry representative and spokesman.

The position of Diamond Walnut Growers seems to suggest a significantly different approach to industry leadership than that maintained by large marketing cooperatives in California's past. Diamond has attempted to adapt to the changing nature of agricultural organization. This is in contrast to the more traditional cooperative role of protecting the small farmers and generally preserving the status quo, even when this stance clearly ignores industry trends. The slow shift to emphasis on shelled walnuts and other internal problems seems to have focused the attention of Diamond on the dangers of traditional cooperative operation in a dynamic agriculture.

The interrelationship between the large cooperative and the marketing order is inevitable. In the walnut industry the two seem to be compatible but not completely dependent on each other in more recent years. However, more restrictive supply control policy by the marketing order might set off a policy conflict if Diamond's market expansion efforts were hindered. Quality regulations under the order have not resulted in major intra-industry differences.

The marketing order management seems to play more of a coordinating role than one of control in the walnut industry. Because quantity controls have not been particularly stringent the other, less controversial, aspects of the order have been emphasized and effective. Quality regulation, market development, and information services are major functions of the order. However, as observed in other orders, if the quantity controls are tightened so as to avoid the discipline of the market, the walnut order could well bring on the problems found where such action has been taken.

Almonds.—The most striking characteristic of the California almond industry is the dramatic rise in acreage since the mid-1950s. None of the state's fruit or nut crops has experienced such an increase in production potential in recent history. In 1968 and 1969, nonbearing acres of almonds amounted to 40 per cent of the total acreage. New plantings increased steadily throughout the 1960s, averaging more than 16,000 acres per year in the period 1966–69.

The production of this new acreage will become important in the early 1970s. However, almond production has increased substantially since 1960. Since that time grower prices have leveled off but have not declined perceptibly. The combination of relatively stable prices, total revenues, and returns per acre suggests that a major goal of the marketing order has been achieved.

The California Almond Exchange, a grower cooperative, dominates the marketing of almonds with a membership producing more than 70 per cent of the total tonnage. The remaining share is handled largely by three or four independent firms, and recent mergers have left one firm with the major part of this share. The Exchange played a major role in the development and adoption of the marketing order and continues to support it. Most other handlers now support the order, although in its early years the order was bitterly opposed by the leading independents.

Since the almond marketing order does not regulate quality it has not been necessary to correlate the handlers' grade standards with those of the order or vice versa. Quality, therefore, is a variable which is left to the discretion of the individual sellers as they react to their markets. This aspect of the almond order eliminates one area of conflict which has sometimes led the major marketing organizations in a commodity-industry to oppose or at least not actively support marketing orders. Quality regulations imposed through an order tend to set the standard for general industry quality. Large marketing firms often desire to set their own profit maximizing standards rather than be required to follow industry regulations.

The major use of the almond order has been to spread the burden of the declared "surplus" to all handlers and to reduce the possibilities for speculation on year-to-year fluctuations in supplies. An early goal was to make available the import restriction apparatus under Section 22 of the Agricultural Adjustment Act,

but this has largely beeen submerged in the more general goal of stabilization of prices and incomes through surplus control.

The buying side of the almond market is dominated by a few large confectioners, although there has been some increase in the number of smaller users as new utilizations for almonds have been developed. One large buyer has purchased and planted almond orchards of its own since 1960. Other large firms have recently entered almond production on a broad scale in the southern San Joaquin Valley. These new entrants are geared for highly mechanized operations and are organized for low cost, large volume production. The influence of these producers on the marketing order is not yet clear. However, it is inevitable that the handling of at least a share of these almonds will be outside of the Exchange, with the result that the cooperative's influence on marketing policy may be reduced.

The changes in the almond industry reveal a complex pattern of interaction among technical developments (mechanization), marketing developments (new uses), and structural developments (entry by large firms bringing in capital from outside of agriculture). The use of marketing controls in this situation raises the issue of the propriety of a government policy which implements monopoly power within a market structure dominated by a few large firms that are not cooperative organizations. Other examples of this are found in the use of marketing orders by the Florida celery and California brussels sprouts industries.

The almond industry experience clearly illustrates the problems that arise when the combination of a marketing order and a large grower cooperative seems to achieve the goals set forth by the public policies that make such industry organizations possible. Almost all of the factors found in this industry favor the type of rapid expansion noted. The industry organization has made possible short-run stabilization of prices at levels attractive to low cost producers. Almonds can be produced under climatic and soil conditions not conducive to many other high-value tree crops. In addition, other public policies—e.g., government water plans—have made available huge acreages of land satisfactory for almonds, and the taxes and assessments applied to this land have forced the planting of high value crops. These circumstances, plus the broad changes in agriculture which are attracting a great deal of outside investment capital, have once again pointed up the long-run futility of cartel arrangements among agricultural producers.

General Conclusions

The marketing orders analyzed in this study represent the use of this policy implement over periods from 20 to 35 years. These orders have been used for a variety of purposes in widely varying industry situations. General conclusions based on these studies should be valid for most commodity-industries utilizing such orders, although adjustments for specific production and marketing conditions must always be considered.

Total revenues in these industries have increased since 1950 at about the same pace as those in all fruit and nut industries. Some variation from this pattern is apparent for almonds, lemons, and cling peaches, where the rate of increase in revenues has been somewhat faster. Among those studied, it has been these three commodities where the most restrictive controls have been applied. It is also these

commodities that are facing the greatest problems of overproduction as they enter the 1970s. In cling peaches overproduction has been almost constant since 1950. Almonds, having achieved some measure of success in stabilizing grower prices at "acceptable" levels, are on the threshold of huge production increases. Lemon production is rising rapidly in Arizona under conditions favoring continuous expansion by large-scale low cost producers. Bartlett pears and walnuts have been under less restrictive control, and their expansion is more limited by the availability of requisite climatic and soil conditions than is the case for almonds or cling peaches.

The nature of the stability achieved, especially in cling peach and almond returns, supports the view that marketing control schemes are used principally to reduce the depth of troughs rather than the height of peaks in prices and revenues. The emphasis is on "stabilization" policies that provide a floor but no ceiling. This is largely a result of the pressure in commodity groups that continually is exerted by the highest cost producers who break even only in high price years.

Since in these industries there are wide differences in costs of production and other factors bearing on net returns, the policies found appropriate for the group as a whole encourage entry by low cost producers. The new entrants in these industries have been attracted by the apparent success of the control institutions in achieving returns high enough to maintain the favorable support of the "average" producer member of the cartel group.

The evidence from these studies clearly supports the contention that effective marketing controls applied at the grower level in industries such as these breed their own problems. The cycle seems to evolve as follows: depressed grower prices and incomes provide the climate for successful introduction of a marketing order control mechanism. Supplies sold in primary markets are reduced under the inelastic demand conditions generally prevailing at the grower level, and short-run gains in prices and incomes are achieved. These short-run gains lead to production expansion by low cost producers or other potential entrants attracted by returns that are high enough to be acceptable to the higher cost members of the group. As production increases more stringent controls must be applied to continue acceptable price levels. Under these conditions, low cost producers develop methods either within or outside of the group to circumvent controls that tend to restrict their earnings. Fearful that without the control program they could not survive under the production and marketing conditions that resulted from program operation, most growers continue to support increasingly restrictive controls until sufficient producers are finally forced out of business or external conditions force policy change within the cartel.

Although the cling peach case provides the best example of this cycle in progress, it is not alone. In almonds and lemons the percentage of "surplus" tonnage diverted from the primary market has risen rapidly in the past few years. Similarly rising "surpluses" are found in raisins and prunes. In each case, any degree of short-run success in achieving the stated goals of the marketing order has been matched by entry or expansion that has eventually nullified the gains. The long-run effect on resource allocation is seldom considered in the policy discussions of these schemes. But such misallocation clearly results and is a costly inefficiency in the economic system. The public, thus, provides the policy tools through

legislation, and pays for their results both in prices that are higher than necessary to support efficient production and in misuse of scarce resources that consumer preferences would guide elsewhere.

To maintain a continuing program that results in excess resources flowing to the controlled industry, growers eventually, and inevitably, turn to plans designed to limit entry. The objective then becomes the preservation of the gains already made by the control scheme and avoidance of the dynamic change which is certain to result from the entry of low cost producers. As noted in this report, such entry restrictions have been formally considered in almost all commodity-industries covered by marketing orders, and informally discussed in the rest. In most cases, economic realism has prevailed, for in only a few minor commodities has production control actually been approved by growers. The threat of other production areas increasing or initiating production and the unknown danger of substitute products taking a share of the market have provided a strong constraint on most producer groups edging toward production control. Nevertheless, the existing marketing order legislation can be used to apply producer quotas and allotments, and such an application may prove increasingly attractive as "surpluses" grow and controls tighten in the attempt to maintain and stabilize prices and incomes at levels acceptable to many existing growers.

The major contribution of marketing orders to marketing efficiency and, more generally, to economic efficiency stems largely from their activities other than centralized marketing control. The services provided—information, inspection and grading, support of research, and providing an industry "headquarters"—seem to be worth the cost they add to marketing margins. Advertising and promotion programs cannot be evaluated accurately, but the evidence suggests that the grower contribution might be of positive value if effectively coordinated with such programs at higher levels of the marketing system. The absolute amounts available from growers alone are probably too small to carry on successful advertising in today's markets.

A major advantage of marketing order administration and financing of needed marketing services lies in the fact that such services can be tailored to industry needs more closely than if provided by government. Through the order the industry assumes control of these services and the public cost is reduced. For example, research support can go toward specific problem solving for the industry rather than the more general research carried on in publicly supported agricultural colleges.

The various services provided through the marketing order mechanism have added most to efficiency in circumstances where supply-control has not been the major focus for industry attention. Where the quest for market control has been the primary goal, the positive effects of these industry programs have largely been submerged in the disruption caused by restrictive regulations.

Marketing order controls that impinge directly on the marketing of the commodity show little evidence of increasing marketing efficiency beyond that achieved by individual firms. In most of the cases studied, the controls limited the flexibility of the marketing firms by establishing industry-wide regulations which could not recognize the economic advantages of each individual firm. Under the lemon, walnut, and almond marketing orders, the policies of the domi-

nant cooperatives generally guide specific actions of the order. Thus, a great deal of the independent marketing strength of other firms is submerged in the "in-dustry-wide" approach of such cooperatives.

In the cling peach and Bartlett pear industries, cooperative processors are not dominant, but the emphasis on grower bargaining power at the first-buyer level has tended to weaken the relationship between growers and commercial proces-sors, substituting a confrontation atmosphere and reducing rather than strength-ening efficiency and coordination. Historically growers of these crops have focused their bargaining efforts on obtaining higher prices from processors. Although there have been vast and significant changes in the structure and organization of markets for these commodities at all levels, this focus on the grower-processor transaction continues. Marketing orders together with bargaining cooperatives act directly on this transaction. But it is clear from trends noted in the industry that the market is facing a reorientation of this traditional confrontation. The need for closer coordination of grower-processor activities and for the exertion of uni-fied market power beyond the processor level is increasingly apparent. As an integrating device marketing orders are currently outmoded because they empha-size the exertion of power at the wrong market level. The resulting deterioration of industry cooperation has weakened the market position of the entire canned fruit industry. As constantly pointed out by industry leaders, cling peaches con-tinue in oversupply, raw product prices seem unsatisfactory to a large share of growers, processors face operating losses, and consumers will not pay more for the canned product. These are not symptoms of a healthy industry and the mar-keting order–bargaining cooperative combination is a major root of the problem.

Orderly marketing is a long-standing goal of marketing orders, and it has been interpreted to include almost any control activity within the legislative authoriza-tion. But this goal cannot be fulfilled by interfering with the adjustment of the marketing system to a changing environment and that is what is most evident in the cling peach industry, and to a more limited degree in others studied. Orderly marketing is not achieved when traditional primary markets are singled out for control while other markets are seldom developed except as outlets for excess supplies. When control schemes become a fixed part of the industry struc-ture as in some of the industries studied, survival of continued control becomes an end instead of a means. The goals of grower groups under these conditions evolve into the maintenance of independent market power regardless of the long-run damage resulting.

Inherent in almost all collective efforts by agricultural producers has been the desire to control their own destiny, free of coercion by marketing firms. Coopera-tives have long exploited this view, and marketing orders, as noted in this study, were often thought of as a needed adjunct to cooperative control of the marketing of many specialty crops. While this view was probably justified under the mar-keting conditions of the 1930s, it is not relevant in today's markets. Market power for these commodities lies in the efficiency with which the needs of the total mar-keting system are met, from consumer back to producer. Bargaining for shares of the available revenues at the various levels of exchange is fundamental to the operation of a competitive marketing system. But, bargaining power exerted at inappropriate levels of the system only disrupts orderly marketing. The type of

bargaining power developed in grower-processor markets through supply controls at the grower level is such a disruption in today's markets for processed fruits and vegetables.

The emphasis on structural market power in these markets was originally a valid attempt to offset the superior power of first buyers. Processors and handlers were the relevant opponents in the struggle for market power. Cooperatives and then marketing orders were authorized by the public through special legislation to add to growers' power in this confrontation. While early returns from the power conferred on growers may have justified its use, this is no longer the case. The burdens of excess production and increased costs of supporting resource mis-allocation as well as disruption of market coordination are all too evident. Structural power at the grower-processor level is built on public policies which can no longer be counted on or justified under today's food marketing conditions.

Marketing order enabling legislation gives public sanction to the control activities reported in this study. This sanction was approved more than 35 years ago and subsequent amendments have added to the original authorizations. There is no evidence that the basic policy assumptions and objectives of this legislation have been seriously questioned or evaluated during this 35-year period. On the contrary, the control authorizations have been continually expanded to include additional crops and additional activities. Other long-existing farm programs are finally being modified and seem to be on their way to extinction in the face of the obvious changes that have occurred in agriculture and in its relationship with the rest of the economy. But marketing order control schemes not only seem immune from this trend but are advanced as appropriate tools readily available for an even greater role in farm policy. Except as institutions through which needed marketing services might be provided at reduced public cost, there is nothing in the histories of the marketing orders analyzed that suggests they are any more appropriate in today's environment than any other part of the restrictive farm policies of the Great Depression of the 1930s. The time has passed when agricultural policy makers can afford the luxury of setting lofty goals on the basis of textbook theory. The evidence is in. It shows what has been achieved rather than what should have been achieved. Policies for the future can utilize this long experience. They do not have to rely on theory and conjecture as was the case three and one-half decades ago.

Policy Guideposts

The assumption that monopoly power can be granted to a group of producers and be used in accordance with the long-run best interests of either the industry or the general public is clearly false. This is particularly true when the industry organization is such that the power conferred can be effectively utilized. For example, marketing orders in the fresh deciduous fruit industries are not dominated by large marketing or bargaining cooperatives and have generally been unable to exploit the potential for market control. But, in those industries where this potential can be realized the long-run effects have generally been detrimental. In particular, excess supplies have resulted from overexpansion within the production areas covered and entry outside of those areas. Small growers have suffered most as excess resources have moved into the industry, mostly from large

and financially strong firms attracted by the short-run success of control programs in conjunction with cooperative activities at the grower level.

In future policy decisions, the potential for exploitation of the monopoly power conferred must be appraised as well as the long-run effects of such exploitation. The governmental restraint on the use of this power by marketing order groups is very limited due to the long-run nature of the problems that develop. Year-to-year programs usually can be justified because of the immediate situation. Since that situation is the cumulative result of past programs it has proven very difficult to halt increasingly stringent control schemes. The governmental authorities find themselves in a position of having approved the past controls which caused the current problem and their refusal to approve new measures to overcome such problems meets with justifiable producer opposition. Producer members of the group, especially the smaller and financially weaker ones, are caught in this dilemma and are usually reluctant to terminate a program that is offered as the only available solution to the problem it has largely created. Thus, the cycle is endless unless outside forces effectively circumvent the control program.

As noted in this study, the exigencies of the market and the flexibility of individual firms have tended to circumvent eventually the most damaging aspects of market control schemes. But, this process is costly in terms of marketing efficiency and resource allocation. To avoid such costly results, authorization for market controls could be specifically limited by legislation. For example, allowable "surplus" percentages could be limited or reduced over time, especially if applied in two or more consecutive years. Crop or tree destruction could be limited to a specific percentage and to not more than one year in three or some such ratio. In no case should restrictive marketing controls be approved for use when acreage expansion and mounting surpluses are found to accompany each other.

It should not be assumed, as is traditional, that the terms of trade between farmers and first buyers are inevitably against the farmer. The organization of agriculture at the grower level has shifted greatly since the era of small, uninformed, unorganized farmers seeking market power. As this change has come about competition at the other levels of the marketing system has increased. The so-called power center has moved closer to the consumer with the growth of mass-merchandising retailers. The proliferation of new products and substitutes accompanying this growth has weakened the relative market strength of each commodity. Marketing orders continue to aid the exploitation of monopoly power at the farm gate as if the results of such exploitation could be passed along to the consumer with minimal effect on prices and consumption.

In the context of the political and social environment surrounding agriculture it seems appropriate for commercial farmers to reconsider their priorities. As noted throughout this report, short-run increases in producer prices and incomes along with stability in these variables have been the sole objectives of most marketing order programs. These are the stated goals of this public policy. Clearly, the shifts in public concern and the changes within agriculture do not augur well for such policies. Governments are not likely to continue to aid and abet monopolistic activities openly designed to raise food prices through the destruction or diversion of produced supplies. Nor are import restrictions to accomplish this goal likely to prove popular, especially when some segments of

agriculture argue for freer trade in industrial goods. The causes espoused by farm labor leaders attract increasing attention and will eventually focus on monopolistic powers publicly provided to farmers, particularly growers of the high value commodities covered by marketing orders. Pollution controls on farmers are likely to be much more popular with legislators and their constituents than marketing controls to benefit farmers.

Under these conditions commodity-industries which utilize public policies as a basis for many of their marketing institutions face the prospect that some of these privileges may be cancelled. Compulsory market control schemes are likely to be prime candidates for loss of public sanction. Voluntary marketing and bargaining cooperatives also enjoy public privileges, including antitrust exemption and tax advantages. These institutions have generally proven of substantial value to farmers, especially if they have adjusted their operations to the changing needs of the marketing system. But, in those commodity-industries where cooperatives have turned to the police power of the state under marketing order control schemes the results have been different. Not only does the compulsory nature of such arrangements lead to intra-industry discord, but industry efficiency declines with the growth of reliance on compulsory control programs. Commercial farmers, looking to the future, are likely to give priority to the continuance of public authority for voluntary organizations rather than compulsory schemes tied to the policies of the past.

ADDENDUM: MARKETING CONTROLS IN OTHER NATIONAL AND INTERNATIONAL MARKETS

Other than marketing orders as used in the United States, marketing boards of various kinds are the major instruments of control utilized within the boundaries of other nations. Although not as thoroughly evaluated as international schemes, marketing boards have been critically appraised to a greater extent than have marketing orders. Such appraisals have been made largely by students from outside the country involved, a situation that seems to be characteristic of objective evaluation of most national agricultural policies. Unfortunately, those most familiar with the marketing systems directly involved rarely find it opportune to view their national policies dispassionately. Such observation is left to those less intimately familiar with those policies. In the less developed countries this may not have been as great a constraint as in the developed nations, since until very recently most research work in the former areas has been carried on by outside scholars. It follows that appraisals of marketing boards may suffer less from the national pressures that bear on researchers who are often in the employ of the government whose policies are subject to evaluation.

The marketing board activities in various African countries have received considerable attention from economists. In general, the conclusions of researchers who are not connected in some way with the formation or administration of marketing boards have been highly critical. Most of the criticism is leveled at the failure of these boards to contribute significantly to their specific objective of enhancing producer welfare. As pointed out by Helleiner, in relation to the stabilization goal (62, p. 200):

The record of the Nigerian Marketing Boards with respect to their pursuit of domestic stabilization is a mixed one—much better with respect to price stabilization than with respect to income stabilization, and, in the former instance, better with respect to intraseasonal than interseasonal prices. These results lend weight to the view that Nigerian Marketing Boards are better defended in their role as (successful) earners of tax revenues than in their role as stabilizing authorities.

In its report to the Nigerian government in 1969, the Consortium for the Study of Nigerian Rural Development (CSNRD) concluded that marketing board policies should be critically reexamined (*105*, pp. 53–55). In particular, the failure of the boards to recognize the importance of price incentives for agricultural growth and producer motivation was scored. In the CSNRD view, the boards have been used to tax away agricultural "surplus earnings" in order to promote the general development of the economy. Although such policies might have been justified in the 1940s and even the 1950s they were probably of negative value in the 1960s. There is the implication in the CSNRD report that the Nigerian marketing boards suffer from the same lack of objective evaluation that is evident in relation to American marketing order policy. Original goals, no longer relevant, continue to be pursued to the detriment of not only the producers themselves but, in developing countries, to the nation as a whole.

An evaluation by the East African Royal Commission of marketing boards in that area of Africa in 1953–55 concluded that African farmers were insulated from the world market by the boards and thus were hindered in their development of an entrepreneurial sense (*72*, p. 126). In this same vein, Caine concludes (*11*, p. 43):

> The experience of the African marketing boards only reinforces the misgivings already expressed in relation to the compensation type of scheme about the tendency of organised action in this field to transfer resources and powers of decision from individuals to governments. If such a transfer is a necessity of effective action it must be weighed as a large "cost" in the ultimate reckoning of the balance of advantage in any scheme.

A similar conclusion about the Kenya marketing boards for maize and beans was reported by W. O. Jones on the basis of a recent study by Alvis and Temu (*71*, p. 258; *3*):

> It was not our task to appraise the operation of the statutory boards but to try to get a better understanding of the entire process by which staple foods are marketed in Kenya. The overall impression that results is of a vigorous and aggressive, if somewhat illegal, private marketing system that is being hindered more than it is being helped by government.

Jones further concludes as follows (*71*, p. 298):

> It must be recognized, that although the Board covers its costs at the end of the year, the total cost to the economy of the Board's operations in terms of inefficient marketing in private channels must be very large. These costs are paid by the people of Kenya in higher food prices and a lower economic growth.

In his benchmark study, *West African Trade*, Bauer concluded a discussion of the many arguments advanced in support of African marketing boards as follows (5, p. 340):

> Thus the policies of the marketing boards cannot be explained satisfactorily in terms of the arguments usually advanced, which are more nearly in the nature of retrospective rationalization of the policies, rather than effective supporting arguments. They were not mentioned among the functions of the marketing boards at the time of their establishment ..., nor were most of them advanced at the time when the policies were adopted. The absence of any clear idea of the meaning of stabilization, and the failure to distinguish this aim from other aims of policy, has served to encourage such retrospective rationalization, since in these circumstances practically any decision can be justified by reference to one or other of different and often conflicting aims of policy.

Bauer's comments can be aptly applied to most of the national marketing control schemes discussed in this report. They are also appropriate to some of the international controls that have been attempted.

International Commodity Agreements

A review of the many appraisals of international commodity agreements leads to the unmistakable conclusion that although their purposes have always appeared noble, their goals have seldom been achieved. As early as 1933 the first multilateral International Wheat Agreement was concluded and signed by 22 importing and exporting countries. "Though intended to run for two years, this pact virtually broke down within a year, after having disappointed the hopes of its supporters at practically every point," according to J. S. Davis, one of the early students of such agreements (48, p. 26). This evaluation is suggestive of many of the appraisals of various subsequent wheat agreements.

This first wheat agreement was concerned more with raising price levels than with stabilizing prices. As Davis points out, in the wheat exporting countries from 1919 to 1939 only the highest price years were politically considered most nearly normal. "Prices considerably below these levels were highly stimulating to wheat production. Steps were repeatedly taken to raise wheat prices above levels that were currently considered low, when they were not low in relation to supplies available" (48, p. 78). This all too familiar pattern has been repeated in the agricultural policies of almost all developed nations.

In 1947, Davis appraised international commodity agreements in the light of the post–World War II discussions advocating their increased use. In summary he said, "Careful study of prewar ICAs and proposed new ones indicates elements of danger, illusion, and promise, and none gives assurance of meeting the high expectations usually held out" (47, p. 5). In particular, Davis refers to commodity-control agreements which have as a major purpose the control of trade. These, he found, involve a widespread system of monopolistic commodity controls under international auspices. Such an agreement ". . . implies multiplying national controls, though many commodity problems owe their origin or persistence to ill-conceived, excessive, or mismanaged national measures. The faith of its advocates, that its past evils and weaknesses can be overcome and persistent problems

really met, is ill-founded. In practice, such controls would be mainly restrictive of production, consumption, and trade, in stark contradiction to widely voiced convictions in favor of an expanding world economy" (*47*, p. 6).

Among the available evaluations of commodity agreements those covering wheat and coffee are especially relevant to this study. Helen C. Farnsworth, a long-time student of national and international wheat policies has focused on both the price level and price stability objectives of the wheat agreements. In a 1956 appraisal she found that the International Wheat Agreement did not operate during 1949–56 as its sponsors had anticipated (*54*, p. 232). These sponsors had sought price stability—the removal of "excessive" price peaks and dips but with prices free to move in response to supply and demand conditions. What occurred was generally unstabilizing. The 1949 Agreement price range was inappropriately rigid and low and the 1953 Agreement range was probably too high. Also, the stabilized prices of 1949–53 ". . . proved perversely *unstable* in terms of purchasing power over competitive and substitutable commodities" (*54*, p. 234). When wheat prices are "stabilized" either too high or too low distorted price relationships with other grains and with livestock products result. These relationships in turn result ". . . in unduly restricted or wasteful consumption of wheat, in undesirable marginal acreage shifts, and/or in the tightening and extension of direct governmental controls over grain production, trade, and utilization. Such dangers are inherent in any multilateral commodity agreement of the IWA type" (*54*, p. 234).

Mrs. Farnsworth reaches the conclusion that there was a considerable gap between the objectives of the 1949 and 1953 wheat agreements and the world's real wheat problems at that time. Stability rather than instability characterized world wheat prices from 1870 through 1955. What instability did occur resulted in desirable contraction in production and utilization. The danger lies more in governmental price interventions that build up accumulative strains which could result in drastic instability (*54*, p. 244). Price instability is only a symptom of the more basic problems that require attention. In 1956 for wheat, there were huge surplus stocks, political pricing, and "unfair" trading, the latter being largely a product of unwise national policies (*54*, p. 246).

Another evaluation of international commodity agreements was made by Boris C. Swerling in 1964. On the basis of his studies, Swerling concluded (*100*, p. 530):

> Because "free market" and "world market" prices are inherently unstable, various efforts are made to "stabilize" international prices of individual primary products through multilateral agreements. Since such efforts never have as their purpose the mere evening-out of fluctuations over time, they display the fundamental weaknesses of all artificial market-support arrangements. In particular, proper canons of economic efficiency, of production adjustment, of consumer response, and of administrative ease tend to work at cross-purposes; adverse long-run elasticities in supply and demand tend to be underestimated, and so on. Any favourable effects on income distribution, in short, are far more than offset by adverse repercussions on resource allocation, and even the income effects undergo serious erosion the longer the agreement remains in effect.

Turning to the International Coffee Agreement of 1962 we find a different type of commodity and a somewhat different set of problems. V. D. Wickizer summarized the basic objectives of the parties to the agreement as follows (*123*, p. 273):

> Producer interests seek stability in the market in the sense of maintaining coffee prices at sufficiently high levels to generate profits under a wide variety of conditions. Coffee interests in consuming countries favor stability at prices that will not discourage the coffee drinking habit, restrict consumption, and adversely affect the industry in importing countries.

Typical of Wickizer's conclusions are the following two excerpts (*123*, pp. 301, 303):

> To most disinterested students the agreement was economically indefensible, but was considered politically necessary by officials in key producing and consuming countries. Despite the poor record of commodity agreements of the type now in effect for coffee, the contracting parties were unable to resolve major issues which time will surely bring to the fore. One of these is of course the important matter of enforcement, not only in specific technical details, but in the spirit necessary for accomplishing the broad objectives of the coffee pact. The record of compliance under the year-to-year coffee agreements is not impressive.
>
> The new International Coffee Agreement has aroused great hopes, but strong political pressures have made it possible, and there is scant reason to believe that economic influences and human nature will not continue to be the chief factors in this type of commodity agreement in the long run. Past experience with such arrangements is not encouraging, and those who believe that "this time will be different" must bear the burden of proof.

The history of the coffee agreement has probably been too short for an accurate appraisal of its long-run effects. However, nothing so far evident serves to allay the fears expressed by the students of international commodity agreements reported in this section. The basic problems stem from the national interests and policies of the producing and consuming countries. As long as the policies of the two major factors—Brazil and the United States—appear to be consistent the agreement will probably exist. However, the impact on countries wishing to increase their market share and upon the coffee trade in consuming areas is not yet clear. The difficulties of enforcing quotas and the possibilities for uncontrolled shipments through nonmember nations are clearly evident (*95*, pp. 221, 223–24).

As Rourke points out, the International Coffee Agreement provides a mechanism which may help to support coffee prices while the major coffee producing countries diversify and reduce their dependence on coffee (*95*, pp. 270–71). Unfortunately, the history of national efforts to establish policies designed to solve overproduction problems such as exist in Brazil does not suggest a high degree of success in such efforts. In fact, commodity control schemes tend to discourage the development of such policies. As has been discussed earlier, the proponents of international agreements traditionally overlook the necessity for national poli-

cies to coordinate with international objectives. Discussions of commodity con-
trol schemes are replete with comments such as the following: "*If* in late 1963
and 1964 the International Coffee Organization had put greater pressure on
Brazil to reduce its stocks of coffee, thus discouraging international price ad-
vances, and *if* this had been facilitated by the appropriate readjustment of quotas,
later stresses on the international marketing system for coffee could have been
avoided" (*95*, p. 271 [emphasis added]). Rourke suggests that the infant status
of the coffee agreement precluded such action. But the history of such agreements
would suggest that no effective action of this type would likely be taken at any
age.

In a 1963 evaluation of the price problems facing primary producers, Sir
Sidney Caine set forth some major conclusions concerning the goals of inter-
national price schemes. He observed that such schemes are not really aimed at
controlling *upward* movements of prices. Although concern is expressed about
price fluctuations, in practice it is *downward* fluctuation that is really meant (*11*,
p. 8). In relation to any direct intervention by governmental institutions in mar-
kets Caine concludes (*11*, p. 55):

> Most of these devices have been tried with only partial success, and there
> are reasons for doubting the possibility of any really comprehensive scheme
> being successfully administered. An important consideration is the ten-
> dency of all such schemes to transfer real power from the individuals who
> are theoretically being helped to governments which can by no means
> always be trusted to use it properly. Indeed government actions have been
> the causes of most of the major disturbances in commodity prices.

In a summary observation on the international commodity agreements pro-
posed in the 1940s, J. S. Davis provides a capsule version of much of the criticism
that is leveled by students of these schemes (*47*, pp. 22–23):

> These proposed ICAs, like their prewar prototypes, would undertake to
> exercise essentially monopolistic restraints on production and trade, with
> governmental blessing, designed to protect producers and profits. This is
> merely camouflaged by fine words and phrases. Advocates of this most
> monopolistic type of cartels and ICAs are fond of using terms such as "co-
> operation," "price stabilization," "fair price," "orderly marketing," "adjust
> supply to demand," "fair share of international trade," "ever-normal gran-
> ary," and "protection of consumers," because these all sound well, and to
> attack as evils "chronic surpluses," "trade warfare," "excessive price fluctu-
> ations," and "speculation," because these have disagreeable connotations.
> The real intent is obscured by such terms. In every case it is necessary to
> look beyond both fair and foul words to their very different underlying
> meanings in the actual context.
>
> What is clearly implied may fairly be called thoroughgoing regimenta-
> tation of production and international trade, and more or less substantial
> regulation of stocks and prices, by government action, national and inter-
> national. It would mean official cartelization of primary foodstuffs and
> materials, with assigned quotas reached by bargaining instead of permit-
> ting quality and price competition to determine the flow of commodities.
> It would necessarily entail far more extensive governmental controls, and
> more governmental buying, selling, and holding, than have been common

in peacetime except in totalitarian countries, or than democratic governments have shown themselves competent to conduct to advantage, at least in times of peace.

Significance of Marketing Control Experience

The long history of commodity control institutions summarized here could probably best be characterized as one of lofty goals which have seldom been achieved. Although there have been attempts to exert restrictive regulations of almost every conceivable kind, market systems have consistently adjusted to counteract those restrictions that conflict with market forces. Mechanisms for such control if not replaced are usually paralleled by institutions which tend to offset the most undesirable effects and frustrate the stated purposes of the control scheme.

The case of Kenya's maize marketing control scheme is a classic example of a highly restrictive system which has largely been circumvented by producers and traders in response to the demands of the market *(71)*. The 1969 spectacle of major grain producing nations selling below the minimum prices set by the current International Grains Arrangement is another example of such control failures. This possibility was clearly foreseen by long-time students of such agreements before ratification by the United States.[87] Similarly, the experience of the various coffee agreements points out the counter-pressure of disadvantaged participants to circumvent the control scheme in response to their own interests as derived from market conditions *(95)*.

Some of the objectives of the national and international marketing control arrangements discussed in this section are different from those of marketing orders, but there are many obvious parallels in their experience and problems. Among the domestic, as opposed to export, oriented control schemes the conflict between the consumer interest and producer objectives is clearly evident. In Kenya, for example, maize is the principal food crop and thus of great political importance. Consumers' interests are clearly of as much concern to government as are producers' interests. A 1966 statement by a government inquiry commission points this out *(73,* p. 21):

> The Government should therefore be initially concerned not only to see that the producer receives a fair price for his maize, but also that it is available to the consumer at a reasonable price, and that processing and distributive margins are kept to the minimum necessary. The Government must seek to strike a balance which safeguards both producer and consumer interests.

An appraisal of the maize control operation by Marvin Miracle and the rejoinder by A. A. Haller, chairman and general manager of the Kenya Maize Marketing Board, provide a typical example of the discussion that usually surrounds marketing control scheme evaluation *(82,* pp. 117-25; *61,* pp. 126-32). The critic advances the economic arguments relating to misallocation of resources and the inequities resulting from controlled markets while the control authority

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[87] See, for example, testimony of Helen C. Farnsworth before the Senate Subcommittee on Foreign Relations *(108,* pp. 73-88).

responds with detailed data and arguments tied to the day-to-day operation of the scheme largely unrelated to the broad issues which have been raised. The similarity between this exchange and those found in the annals of public hearings and discussions of marketing orders in California and in Washington, D.C. is unmistakable.[88]

The price and income stability goal has generally meant prevention of downward fluctuations rather than movements in both directions. Such a policy, of course, results in a net flow of resources into the affected industry that would be allocated to alternative uses under free market conditions. The results of attempts to stabilize coffee prices provide an example of this experience. Another familiar conclusion is the differential impact of African marketing schemes on large and small producers. For reasons which vary by commodity, control regulations have decidedly different implications for individual firms. This characteristic appears in the appraisal of the Kenya maize scheme as well as the California cling peach industry (*82; 69*).

Probably the most important observation to be drawn from the literature on the numerous national and international marketing schemes studied is the consistent expressed need for continuing evaluation of relevance and results. In particular, there is an urgent call for review of original objectives and methods in the light of a changing social, political, and economic environment. The same sentiment runs throughout the published work and unpublished statements of students of marketing orders in the United States. But, these types of public and quasi-public institutions, worldwide, seem to have a tenacious ability to exist regardless of the changes that swirl about them. Almost any performance by industries subject to marketing control schemes can be termed successful by control authorities because the objectives are so flexible that their attainment defies precise measurement. Thus, once established, such schemes thrive in the atmosphere of uncertainty that normally surrounds economic activity. Fear of the consequences of control removal is a constant ally of market control advocates, although evidence of the realization of these fears has rarely been found when programs are terminated.

The conditions under which most marketing orders operate seem almost ideal when compared to those faced by international commodity control schemes. Each of the marketing orders analyzed in this study encompasses a relatively small, centralized production area, and the producer groups are far more homogeneous than those covered by any international agreement. But even with their limited scope, marketing orders have generally brought distortions in economic efficiency and resource allocation in addition to their failure to achieve the long-run goal of enhancing the welfare of producers. It is possible to document the detailed experience and implications of marketing orders because of their relatively narrow application. In contrast, the economic implications of international control schemes are so vast that it is probably impossible to analyze them with any degree of accuracy. The specific record of marketing performance reported here should suggest some of the problems that arise even under the most favorable conditions.

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[88] For example, see *107*. See especially letter of Ralph B. Bunje, manager of the California Canning Peach Association, pp. 26–27, in which critics of the cling peach marketing order are dismissed as biased and lacking impartiality.

APPENDIX A
CLING PEACH MARKETING ORDER: SUMMARY OF PROVISIONS[89]

Quality Provisions

Three quality grades are defined in the cling peach order. The standards for these grades have not changed in any major degree since the 1945–50 order; however, the definitions for the Number 1 grade in the 1968–71 order are much more specific than previously. This reduces the leeway for subjective interpretation in actual grading.

Grade as well as size provisions have been included in every order covering cling peaches. The official standard in an order has generally been based on trade specifications which are widely understood by the growers and processors, and there is little evidence of serious conflicts among industry members in relation to them. The principal latitude in the use of these provisions has concerned the permission to deliver grades other than Number 1 and the degrees of tolerance allowed.

The order requires the Advisory Board to investigate the economic and market conditions under which the crop has to be sold. If the board finds that the tonnage of Number 1 cling peaches available is more than adequate to meet the estimated demand, then it may increase the minimum size required. If the conditions indicate a less than adequate supply, the board may authorize delivery of Number 2 or Number 3 grade peaches, or both, in quantities sufficient to satisfy "the reasonable market demands of consumers." On the basis of the board's investigation and recommendations, the California Director of Agriculture establishes the applicable minimum grades and sizes prior to the harvest season. However, other provisions permit changes in the grade and size regulations if unforeseen conditions make this necessary to prevent "economic waste of agricultural wealth."

Sections of the order prescribe in specific detail methods by which quality and maturity are to be determined. All cling peaches must be inspected, graded, and certified prior to delivery for processing. Sampling methods, grading facilities, and inspection procedures are all presented in meticulous detail. These specifications have become much more detailed since the 1954–57 order, and inspection and grading procedures were only briefly mentioned in the 1945–50 order. These provisions have tended to spell out to an increasing degree the day-to-day details of grower and processor operations.

Diversion of off-grade peaches—i.e., their removal from commercial preparation for human consumption—at the processing plant is accomplished by a procedure outlined in the marketing order. Processors may divert peaches at various stages of preparation, and may receive credit for tonnage so diverted on the basis of a schedule which takes into consideration the weight removed from the raw product prior to diversion. Thus, if 7 per cent of the peaches received were off-grade, a tonnage comparable to that tonnage could be diverted when convenient. If such removal from processing took place after the fruit had been halved, peeled, and pitted or partially pitted, the processor would receive credit at the rate of 125 per cent of the actual tonnage delivered at that stage.[90]

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[89] All discussion of order provisions in this section refers to *31* unless otherwise noted. This Appendix is a revision of the discussion of the 1960–63 cling peach order presented in *70*, pp. 115–27.
[90] Based on the schedule in the 1968–71 grower-processor order (*31*, p. 37).

This diversion is supervised by inspectors authorized by the Advisory Board. Processors who fail to divert proper quantities must pay to the Advisory Board trust fund an amount equivalent to the Number 1 price for each ton not diverted. The other penalties contained in the enabling legislation are also applied. Omission of proper diversion of each five tons of fruit is considered as a separate violation.

Surplus Elimination

Two broad categories of surplus have been defined in the cling peach marketing order since the early 1950s. A *general surplus* is defined as "a general condition wherein the productive capacity of the acreage planted to cling peaches would normally exceed the market requirements for cling peaches." A *seasonal surplus* is defined as "a condition during any marketing season in which the estimated supply of cling peaches likely to be available for harvest is in excess of the estimated market requirements therefor."

Separate provisions deal with methods for the elimination of each type of surplus. However, the manner in which the existence of either type of surplus is determined is substantially the same. The following factors are to provide the basis for the determination of a *seasonal* surplus:

(a) the total supply of cling peaches for processing of the various varieties, grades, and sizes available or about to become available in the producing areas in such season;

(b) costs of producing cling peaches as determined by cost surveys available to the Board and acceptable to the Director;

(c) the past, present, and prospective market demands for the various grades, sizes, varieties, and uses of such cling peaches;

(d) the past, present, and prospective market price levels for the various grades, sizes, varieties, and uses of such cling peaches in relation to the purchasing power therefor;

(e) the past, present, and prospective consumer demand for the various grades, sizes, and varieties of such cling peaches and cling peach products; and

(f) other pertinent economic and marketing factors affecting the marketing of cling peaches as canned or frozen cling peaches or of the various grades, sizes, and varieties thereof (*31*, p. 20).

To assist the board in utilizing the surplus elimination and quality control provisions of the grower-processor order a Subcommittee on Surplus and Quality Control is established under the order. This committee governs the procedures set forth for surplus elimination, establishes inspection procedures, and prescribes the manner in which grade specifications are applied. Any rules or regulations established require the affirmative vote of six of the eleven producer members of the committee and six of the eleven processor members.

General Surplus Elimination through Tree Removal

On the basis of the economic information indicated above, the advisory board may declare that a general surplus exists after determining the following:[91]

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[91] These requirements are contained in the 1965–68 order, on page 12, and are referred to in the 1968–71 order on page 12.

1. The estimated bearing acreage of canning cling peach trees within the state;

2. The "potential tonnage," defined as the estimated tonnage of Number 1 cling peaches which would become available from the estimated bearing acreage if no general surplus elimination were adopted;

3. The "marketable tonnage," defined as the estimated tonnage of Number 1 cling peaches which could be marketed during the ensuing sales year without causing an economic waste of agricultural wealth;

4. The "general surplus tonnage," the potential surplus of Number 1 cling peaches, expressed in tons, resulting from excess bearing acreage of canning cling peach trees;

5. The "reserve tonnage," defined as that portion of the estimated surplus tonnage (from excess acreage) which should be maintained in production as a reserve in addition to "marketable tonnage," as defined. This is to assure adequate supplies in the event of adverse weather or growing conditions prior to the next harvest.

The Advisory Board submits a report to the Director of Agriculture based on its findings in respect to the factors mentioned above, including data on historical supply, demand, and price relationships. If this report indicates that a general surplus seems to exist, the Advisory Board recommends, and the Director may approve plans which permit the *optional* removal of bearing cling peach trees up to the maximum acreage established.

The incentive for removal of trees is the granting of credits for trees removed against any seasonal surplus elimination program that may be carried out during the succeeding season or, in some cases, the second succeeding season. Thus, a grower may remove bearing trees (up to 108 trees per acre) in a contiguous block and receive credit on a "tree-for-tree" basis. That is, immature fruit would not have to be eliminated from remaining bearing trees equal in number to the trees removed. Administrative rules and regulations issued by the California State Department of Agriculture, when general surplus removal is authorized, cover the details of the removal and credit procedure. The tree-credit procedure has been the subject of considerable controversy within the industry and a number of hearings as to its continuance were scheduled in 1969/70.

Seasonal Surplus Elimination

As defined in the grower-processor marketing order (1968–71), a *seasonal surplus elimination* means "green drop" or other methods of removing or diverting peaches from normal seasonal production or commercial channels. A "green drop" is defined as "the mandatory removal of cling peaches from producing trees, at thinning or other times" in order to accomplish the desired elimination.

In addition to the "green drop" procedure, surplus diversion at the processing plant may be used under certain conditions. Diversion means the removal of peaches from normal processing for human consumption and their utilization in other products, excluding dried peaches, which are not directly competitive with specified cling peach products. Alternatively, such diverted fruit may be disposed of as waste or turned over to the Advisory Board for some other type of disposal. Diversion of surplus fruit at the processing plant is accomplished

in much the same way as diversion of off-grades, but the two procedures are utilized for different specific purposes.

The joint grower-processor order adopted in 1965 included a new alternative procedure for determination of a seasonal surplus. These so-called "open market" provisions are also included in the 1968–71 order.

These provisions must be put into effect by May 15 preceding the harvest season. In general, the open market provisions require the Advisory Board to determine that a seasonal price has been established for cling peaches that will fulfill the objectives of the enabling legislation.[92] If, after an investigation of relevant economic variables, the board finds that such a price has been established it may effectuate the open market provisions. Under this procedure, a final date for purchases by processors is established. As of that date, unsold tonnage is determined using block-by-block estimates. The estimated unsold tonnage is pooled and a supplemental purchase period of seven days is established during which processors can buy tonnage from this pool through the Advisory Board. If any tonnage remains unsold after the close of the supplemental purchase period, the board recommends a green drop or cannery diversion, or both, to eliminate a tonnage of fruit up to the amount left unsold. An "equalization fund" is established by assessments on processors based on the tonnage of peaches eliminated from orchards under contract to them. An equal assessment is levied against producers. This fund is used by the board to buy any unsold fruit remaining in the pool.

If the open market provisions are not used, the board makes its determination as to the existence of a *seasonal surplus* on the basis of an investigation of approximately the same economic factors that bear on *general surplus* determination. However, estimation of a possible seasonal surplus does not take place until the crop has reached a stage of maturity that allows such an estimate with a reasonable degree of accuracy. The following quantities are determined in accordance with the listed definitions:

1. The "available tonnage," equivalent to the estimated tonnage of Number 1 cling peaches with a minimum diameter of two and three-eighths inches that would become available at time of harvest if no surplus elimination program were undertaken.

2. The "marketable tonnage," equivalent to the estimated tonnage of Number 1 cling peaches that could be marketed during the ensuing year without causing an economic waste of agricultural wealth.

3. The "surplus tonnage," equivalent to the surplus of Number 1 cling peaches determined on the basis of the above estimates.

As in the case of *general surplus* elimination, a report containing the above information and the board's recommendations is submitted to the Director of Agriculture. On the basis of this report, the Director may establish regulations *requiring* the elimination of a portion of the estimated crop by removal of imma-

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[92] The goal of the California Marketing Act of 1937 as restated in the joint order is as follows: a level of price or prices for cling peaches which will tend to provide a purchasing power for cling peaches which is adequate to maintain in the business of producing such cling peaches such number of producers as is required to provide such supply of the quantities and qualities of such cling peaches as is necessary to fulfill the normal requirements of consumers thereof.

ture peaches. The factors upon which the board's recommendation and the Director's order are to be based must be reexamined during the period of fruit growth prior to harvest.

If seasonal surplus elimination should be required, the board may recommend issuance of a regulation applying a uniform elimination percentage to the potential production of all producers. The elimination of this portion of each producer's crop is to be performed by one of the following methods or a combination thereof:

1. "Green drop." As defined earlier, this involves the removal of immature peaches from trees. All peaches from a sufficient number of trees within each orchard must be removed. The order states that, " . . . insofar as possible, the said trees shall be in a uniform pattern within single rows, spaced an equal distance apart by row count of each variety generally of the same age, throughout the orchard."

2. Removal of bearing trees. As alternative methods of achieving the required elimination, a producer may utilize one or both of the following procedures:

    a. Remove a sufficient number of bearing trees.

    b. Apply credits for bearing trees removed pursuant to general surplus elimination procedures discussed earlier.

The order provides that detailed administrative rules and regulations be issued covering the procedures to be followed in meeting the various requirements. Certificates of elimination are issued to each grower after the Board's representatives determine that the requirements of surplus removal have been met. No producer can begin to deliver his crop for processing unless he has such a certificate and no processor can receive cling peaches from a producer not holding a certificate.

Surplus Diversion by Processors

Immediately prior to harvest, the Advisory Board reviews its earlier estimates of cling peach tonnage available in relation to market requirements. It then determines if the quantity available for processing is greater than the reasonable market requirement therefor. If such is found to be the case, it recommends to the Director that each processor be required to divert a quantity of Number 1 cling peaches from normal processing during the season.

The quantity to be diverted is calculated as a uniform percentage of the Number 1 cling peaches delivered to each processor, but cannot exceed 7 per cent. The diversion percentage may be established, terminated, or revised at any time during the season dependent upon the board's review of pertinent economic information. When diversion requirements are established, they apply to all cling peaches received by the processors during the period covered, including those grown by the processor. Actual diversion is carried out under supervision of the Advisory Board.

In order to carry out the diversion procedures discussed above, a Surplus Diversion Stabilization Fund is established. This fund is created from monies withheld by processors from payments to producers for peaches delivered. Withholding takes place at the rate of the seasonal market price on up to 7 per cent

of the tonnage delivered unless a lesser percentage is recommended. Such monies are remitted weekly by the processors to the Director of Agriculture after deducting the amounts applicable to peaches actually diverted.

After the processing season the Director of Agriculture receives relevant data from the Manager of the Advisory Board and the rate of payment to producers is calculated. Such payment is determined by dividing the total in the fund by the number of tons of Number 1 peaches delivered by all producers. The balance of the fund is then disbursed to the producers through the processors under a trust agreement procedure.

Other Methods of Seasonal Surplus Elimination

In addition to what has been mentioned, the order provides that the board may develop other methods of reducing a seasonal surplus. Such methods may be recommended to the Director of Agriculture along with details of the procedures to be followed. However, prior to any such statement or recommendation, the Board must hold public meetings to obtain grower opinion on its plans, and once it appears that the suggested procedures would be favorably received, a referendum must be held. A majority vote of producers voting and a majority vote by number and volume of processors voting would be considered a majority opinion. Upon adoption of any such plan, the order provides for the creation of any fund that might be required and establishment of any necessary rules and regulations.

Advertising and Promotion

The provisions for advertising and promotion have remained approximately the same in all cling peach orders since World War II. The Advisory Board recommends prospective plans to the State Director of Agriculture at the beginning of the fiscal year. The principal restrictions placed on the type of programs developed prohibit mentioning any particular trade or brand name, making any false claims, and disparaging any other agricultural commodity.

Prior to 1963 funds for these programs were obtained by assessments shared equally by growers and processors. The 1968–71 order provides that producers be assessed for the cost of the advertising and sales promotion program and one-half of the total administrative costs of the order, up to a maximum total assessment of $2.50 per ton of peaches processed. Processors are assessed only for the quality control program and one-half of the administrative costs up to a limit of $1.90 per ton. The 1968 season assessment rates were: producers, $2.25 per ton of Number 1 cling peaches and $.22 per ton for pickling-size Number 1 grade; processors, $1.50 per ton on all Number 1 peaches.

Research and Other Provisions

The Advisory Board may recommend research studies relative to the production, processing, and distribution of cling peaches and carry these on with funds available from assessments for administration. In addition, the board has from this assessment funds for surveys of acreage, plantings, and removals of cling peach trees.

Unfair trade practices, as defined in the order, are considered in violation of the marketing order and subject to the penalties provided. In the 1968–71 grower-processor order two such practices were defined: (1) contracting for the purchase or sale of off-grade cling peaches; (2) contracting for Number 1 cling peaches in violation of regulations relating to grade tolerances.

APPENDIX B
BARTLETT PEARS FOR PROCESSING MARKETING ORDER:
SUMMARY OF PROVISIONS

The control program for California Bartlett pears destined for canning or dry-ing has been in effect continuously since 1938.[93] It includes the entire state and covers growers only. The program is governed by a Program Committee made up of 12 growers, which is comparable to the Advisory Board for other California orders. In addition, there is a Canning Pear Grading Committee consisting of the 12 grower-members of the Program Committee and an equal number of canner representatives. There is also a Drying Pear Grading Committee made up of seven members of the Program Committee and an equal number of pear dryer representatives.

The pear program authorizes volume control through the establishment of a minimum number of grades, raising the minimum quality standards for grades, and/or establishing minimum size requirements as long as pears two and three-eighths inches in diameter or larger are not excluded. When any of these regula-tions for controlling volume are utilized, the Program Committee also estab-lishes specific grade descriptions and tolerances applicable to grades and sizes adopted. Utilization of this volume control authorization is dependent upon findings that supply and demand conditions indicate a substantial surplus of pears for processing is likely to become available. If the Program Committee finds that such a surplus situation is *not* likely to occur, the Committee may still recommend grade regulations to be applied to pears for processing.

If grade regulations not related to surplus control are recommended, they must be approved by a majority of the producer members and a majority of the canner members of the Canning Pear Grading Committee. In addition, such regulations as may apply to drying pears must be reviewed by the Drying Pear Grading Committee; however, this Committee acts only in an advisory capacity, and its approval of grades is not required as is that of the canning grade Com-mittee.

Other provisions of the pear program authorize the following: uniform inspection, grading, and certification by a state inspection agency or other quali-fied persons employed by the Program Committee; education and trade stimula-tion (i.e., advertising and promotion); research in marketing, production, and processing; surveys of pear acreage and production. Expenses of program opera-tion are deducted from grower returns by processors and are established by a Program Committee budget. Promotion costs are limited by the program to $1.25 per ton certified.

The pear program has no specific termination date, but a referendum on its continuance must be held every two years. If a majority of the producers voting

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[93] This summary refers to 32. The following major changes were made in a new Bartlett pear order approved in 1970:
  1. A Drying Pear Advisory Committee of three members replaces the Drying Pear Grading Com-mittee.
  2. Quality regulations, including minimum sizes, may be established by the Grading Commit-tee regardless of the finding that a substantial surplus of pears exists.
  3. Funds collected from assessments on processing pears may be used in the promotion of pears for the fresh market.
  4. The maximum rate of assessment for promotion programs was raised to $2.50 per ton.

in such a referendum favor discontinuance, the program will be suspended for the current year, provided the majority voting delivered more than 50 per cent of the Bartlett pears for processing during the preceding year. If the program is suspended in this manner, a referendum is conducted in each succeeding year between April 1 and May 31 to determine if producers favor reinstatement. This procedure continues annually until the program is either reinstated to active operation or terminated by the State Director of Agriculture upon his finding that the basis for its existence no longer exists (*39*, pp. 702–4).

APPENDIX C

LEMON MARKETING ORDER: SUMMARY OF PROVISIONS

The order adopted by the California-Arizona lemon industry in 1941 is still in effect although it has been amended nine times (*118*). It covers the fresh lemons marketed in the United States and Canada that are produced in Arizona and in California south of a line drawn due east and west through the Turlock, California post office. This line approximately specifies the part of California south of San Francisco Bay and includes all of the state's commercial lemon production area.

The order authorizes quantity and size controls and the financing of marketing research development projects. The major activity of the order is the weekly proration of shipments among districts and handlers. Size regulations are also used regularly. The total production area is divided into three distinct districts as follows: District 1—Central California, the production area centered on the east side of the San Joaquin Valley; District 2—Southern California, including the major production areas around Santa Barbara and Ventura, the Los Angeles Basin, and the San Diego area; District 3—California and Arizona desert areas, including the Coachella Valley and Imperial Valley in California and the entire state of Arizona.

The weekly proration of shipments to the domestic fresh market, including Canada, is accomplished in the following manner by the Lemon Administrative Committee: an estimate is made of the supply of lemons available prior to the beginning of the new crop year in Districts 1 and 3, usually during August.[94] District 2 is on a continuous shipping year and hence, a specific date, November 15, is set forth in the order as the time by which annual marketing policy is to be established for that District. Other relevant variables such as estimated utilization in various forms, the general economic situation, and competitive conditions are also considered. An estimate of parity price is also made. The Committee first recommends an estimate of regulated shipment for Districts 1 and 3 on the basis of the estimated supply available from those districts and from District 2 during the period from the start of the District 3 season, about September 1, and the end of its season, about March 1. These estimates and calculations for the 1967/68 season are as set forth in Appendix Table I. The comparison shown in the table illustrates the method of assuring comparable treatment for each of the districts during the period when all of them are shipping. The utilization allocations for Districts 1 and 3 shown in Appendix Table I are based on these computations and estimates. A proposed tentative shipping schedule, by district and week is also developed by the Committee at its August meeting. At the November meeting, revised estimates for Districts 1 and 3 and a specific utilization schedule for District 2 are developed on the basis of data then available, including actual storage amounts. A revised weekly shipping schedule is also set forth, and in 1967/68, another revision was made at a January meeting of the Committee.

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[94] Amendments to the order approved early in 1970 changed the method of prorate allocation. In general, the prorate base for all districts is now computed on the basis of lemons actually picked and delivered to the handler rather than the estimated crop in Districts 1 and 3. This is the method previously used only in District 2. In addition, allotments can be transferred among districts rather than confined to the same one. This new system operated for the first time during the 1970/71 season.

APPENDIX TABLE I.—LEMON ADMINISTRATIVE COMMITTEE ALLOCATION
ESTIMATES, 1967/68*

PART A: DISTRICT 3 COMPARED WITH DISTRICTS 1 AND 2—ON AVAILABLE SUPPLY BASIS
(*Carloads*)

	District 3	Districts 1 and 2	Total
Estimated storage 9/16/67	0	775	775
PLUS estimated picks 9/16/67–2/24/68	6,400	7,580	13,980
TOTAL	6,400	8,355	14,755
MINUS estimated storage 2/24/68	0	1,900	1,900
Estimated Available Supply	6,400	6,455	12,855
Per cent of total available supply	49.8	50.2	100.0
Estimated regulated shipments	2,410	2,430	4,840
Per cent regulated shipments of available supply	37.7	37.7	

PART B: DISTRICT 1 COMPARED WITH DISTRICT 2—ON AVAILABLE SUPPLY BASIS
(*Carloads*)

	District 1	District 2	Total
Estimated storage 11/18/67	0	600	600
PLUS estimated picks 11/18/67–3/30/68	550	8,500	9,050
TOTAL	550	9,100	9,650
MINUS estimated storage 3/30/68	0	2,500	2,500
Estimated Available Supply	550	6,600	7,150
Per cent of total available supply	7.7	92.3	100.0
Estimated regulated shipments	219	2,631	2,850
Per cent regulated shipments of available supply	39.9	39.9	

PART C: UTILIZATION ESTIMATE BASED ON THE COMPUTATIONS ABOVE; LEMON ADMINISTRATIVE
COMMITTEE INDICATES A 1967–68 SEASON CROP UTILIZATION FOR DISTRICTS 3 AND 1
IN THE TABLE FOLLOWING

	District 3		District 1	
	Carloads	Per cent	Carloads	Per cent
Domestic	2,410	37.7	219	39.9
Export	640	10.0	83	15.0
Other	3,350	52.3	248	45.1
TOTAL	6,400	100.0	550	100.0

* Data are from Lemon Administrative Committee letter to U.S. Department of Agriculture
Secretary Orville Freeman, dated August 29, 1967.

The timing of Committee estimates and revisions varies from season to season
as the need arises, hence, no specific schedule of activities is applicable; however,
the same estimates and computations are made each year and the continuous
process of revision is carried out at weekly meetings throughout the year. The
order also provides for adjustments for under and overshipments, within-district
loans or transfers of allotments, and exemption certificates for producers abnorm-
ally affected by size regulations.

The Lemon Administrative Committee is composed of 13 members—eight
growers, four handlers, and one who is neither a grower nor a handler. The mem-
bers are chosen as follows: (a) four grower and two handler representatives from
any cooperative marketing organization handling more than 60 per cent of the
tonnage in the current year. At least one of these growers shall be from District 1

and one from District 3; (b) other cooperative marketing organizations shall be represented by three growers and one handler member; (c) unaffiliated growers shall choose one grower and one handler. Either the grower member or his alternative must be from District 3; (d) the 13th member shall be selected by a vote of at least seven of the other members chosen as indicated above. As the industry was organized in 1967/68, Sunkist Growers, Inc., had four growers and two handler representatives, Pure Gold, Inc., had three grower members and one handler representative, and unaffiliated growers had one grower and one handler representative, and the neutral member was from Los Angeles with an alternate from Ventura. Seven members of the Committee constitutes a quorum and any action of the Committee requires seven concurring votes.[95]

[95] See *118*, pp. 114–34, and recent amendments to the order as published by the Lemon Administrative Committee.

APPENDIX D

WALNUT MARKETING ORDER: SUMMARY OF PROVISIONS

The order currently in effect for walnuts grown in California, Oregon, and Washington dates from August 1, 1948 (*121*, pp. 62–80). It regulates all shipments of English varieties of walnuts by handlers, and specifically excludes shipments from growers to handlers. The major provisions of the order govern quantity and quality controls, although there is also a provision for research and market development.

Quantity control is accomplished by the establishment of marketable and surplus percentages of the annual product, using the computational form shown in Appendix Table II. The marketable percentage prescribes the portion of in-shell and shelled walnuts that may be sold in normal markets. The surplus percentage is withheld from normal markets and sold outside of the United States,[96] Puerto Rico, or the Canal Zone or sold to government agencies, charitable institutions for charitable purposes, or for diversion into walnut oil, poultry or animal feed, or other such noncompetitive outlets which the board finds acceptable.

Quality regulations authorized include minimum grades and sizes for all in-

APPENDIX TABLE II.—WALNUT MARKETING POLICY COMPUTATION FORM*

Item	In-shell	Conversion Factor	Kernel-weight
	1	2	3
	1,000		1,000
	Lbs.	%	Lbs.
SUPPLY			
1. Orchard-run production			
2. Less miscellaneous farm use			
3. Commercial production			
4. Plus undeclared carry in: In-shell			
: Shelled			
5. Total merchantable supply			
6. Plus non-merchantable creditable for surplus			
7. Total supply subject to regulation			
DEMAND			
8. In-shell demand			
9. Plus desirable carry out			
10. Less declared and consigned carry in			
11. Adjusted in-shell demand			
12. Shelled demand			
13. Plus desirable carry out			
14. Less declared and consigned carry in			
15. Adjusted shelled demand			
16. Total demand (item 11 + item 15)			
17. Marketable percentage (item 16 ÷ item 7)			
18. Surplus percentage (100% minus item 17)			

* As used by Walnut Control Board.

[96] Under the walnut order, Canada is usually considered a domestic rather than an export market.

shell and shelled walnuts handled. These minimums are based on specific U.S. grade standards but they may be modified or added to by the board. These quality requirements apply equally to walnuts destined for domestic and export markets, but other minimums may be set for surplus walnuts destined for use as by-products.

The board's ten members include six from California with one representative from each of the following groups: cooperative packers, independent packers, the packer group (cooperative or independent) handling over 50 per cent of the unshelled walnut tonnage in the preceding year, grower members of cooperatives, growers who market through independents, and growers in the group handling over 50 per cent of the preceding year's crop. The two members from Oregon-Washington include one representative of packers whose plants are in those states and one representing growers in those states. The remaining two members of the ten-member board include one sheller representative and one nominated by the other nine members. Any action of the board requires a majority vote of those present and a quorum is six members.

APPENDIX E

ALMOND MARKETING ORDER: SUMMARY OF PROVISIONS

The federal marketing order for California almonds was made effective on August 4, 1950 (*120*, pp. 29–48). In common with most federal orders, it regulates the handlers of almonds, not the producers. The order applies to all sales of almonds, except those by a producer to a handler within California. The only major provision is authorization for quantity controls when deemed advisable by the Almond Control Board. Quantity control is carried out by the establishment of a salable percentage of the total crop and the disposition of the remainder of the crop—the surplus percentage—in markets that are not competitive with normal domestic markets. The computational procedure for developing these percentages in 1968/69 is shown in Appendix Table III. Surplus almonds are withheld by handlers and are required to be inspected and certified as to quality as specified in the order. Salable almonds are not subject to quality control under the order.

Authorized outlets for surplus almonds include export markets and such domestic uses as almond butter, almond oil, livestock feed, and sale to government agencies, or charitable institutions for charitable purposes.[97] Certain other outlets which the Control Board finds are noncompetitive with normal markets may also be used. The power and authority to sell or dispose of surplus almonds is held by the Control Board. The board is obligated to get the "best terms and at the highest return obtainable consistent with the ultimate complete disposition of surplus" (*120*, p. 39). This applies not only to its own sales, but it also establishes a minimum export price for handler sales. Surplus almonds are disposed

APPENDIX TABLE III.—CALIFORNIA ALMONDS, COMPUTATION OF SALABLE AND SURPLUS PERCENTAGES FOR 1968/69 CROP YEAR FOR MARKETING ORDER CONTROL*

Item	Thousand tons-shelled weight
1. Estimated production 1968 crop	41.5
2. Plus handler carryover July 1, 1968	11.6
3. TOTAL	53.1
4. Less desirable handler carryover June 30, 1969	12.6
5. Supply available to meet trade demand, 1968–69 crop year	40.5
6. Estimated total domestic acquisitions, 1968–69 crop year 32.5	
7. Less imports for consumption, 1968–69 crop year .3	
8. Trade acquisitions from domestic production, 1968–69 crop year	32.2
9. Surplus quantity (line 5 less line 8)	8.3
10. Salable quantity (line 1 less line 9)	33.2
11. Recommended salable percentage (line 10 divided by line 1)	80%
12. Recommended surplus percentage (100% minus line 11)	20%

* Data from California Almond Growers Exchange, *Blue Diamond, Almond Facts*, Vol. 33, No. 5, September–October, 1968, p. 14.

[97] In contrast to the walnut order, the almond order defines Canada as an export market.

of during three pooling periods, with the last period beginning on September 1 and including all surplus almonds not disposed of prior to that date. Surplus almonds remaining after September 1 are to be disposed of as soon as practicable by the board through the "most readily available outlets" (*120*).

The Almond Control Board is composed of five handler representatives and five grower representatives. Both of these groups are chosen on the basis of their type of organization. Thus, of the five handlers, two represent cooperatives, two represent non-cooperative firms (independents), and one represents either cooperatives or independents depending on which group markets the majority of the almond tonnage during that current crop year. The five producers represent the groups through which they market and are divided the same as the handlers—two cooperative, two independent, and one from the majority group. Board action requires a majority of the members present, and with the continuing control of the majority of the tonnage by the California Almond Growers Exchange it is clear that the cooperative representatives have dominated the Board since the beginning of its operations.

<center>APPENDIX F</center>

<center>SOURCES OF DATA FOR CHARTS</center>

Data for acreage, production, yield per bearing acre, grower's price, return per acre, and total revenue from or computed from:

California: California Crop and Livestock Reporting Service, *California Fruit and Nut Crops 1909–55* (Special Publication 261, Sacramento, July 1956); *California Fruit and Nut Statistics, 1954–67* (Sacramento, 1968); *ibid., 1967–68* and *1968–69*.

Oregon and Washington pears, Washington and U.S. apples, and U.S. cash receipts from all fruits and tree nuts: USDA, Bureau of Agricultural Economics, *Fruits (Noncitrus) 1899–1944* (May 1948); *ibid., 1945–47* (July 1948) and *1948–49* (June 1950); USDA, Crop Reporting Board, *Fruits-Noncitrus by States 1949–55; ibid., 1954–59* and *1959–64* (Statistical Bulletin No. 192, Sept. 1956; No. 292, Aug. 1961; and No. 407, June 1967); USDA, *Agricultural Statistics*, various issues.

Arizona, lemons: Sunkist Growers, *Statistical Information on the Citrus Fruit Industry 1967* and its *1968 Supplement.*

Oregon, walnuts: USDA, Statistical Reporting Service, *Tree Nuts by States 1909–65 Revised Estimates: Production, Value, Use* (Statistical Bulletin No. 473, June 1971); *ibid., 1966 and 1967* and *1967 and 1968.*

Data for f.o.b. prices at processor or handler level shown in Charts 23–25 are from the following sources: Cling peaches, Bartlett pears, and fruit cocktail from Sidney Hoos and George M. Kuznets, *Pacific Coast Canned Fruits, F.O.B. Price Relationships 1968–69* (Giannini Foundation Research Report 302), July 1969, p. 8. Lemons from Sunkist Growers, *Statistical Information on the Citrus Fruit Industry, 1967*, p. 15 for the years 1940–59; for the years 1960–68 data are from *ibid., 1969 Supplement*, p. 9. Walnuts for 1925–61 from Kenneth R. Farrell, *World Trade and the Implications of Tariff Reductions for the United States Walnut Industry* (Giannini Foundation Research Report 274), April 1964, p. 97; for 1962–68 from the Walnut Control Board. Almonds for 1935–54 from USDA, Agricultural Marketing Service, *Marketing Tree Nuts: Trends and Prospects* (Marketing Research Report 139), October 1956, p. 35; for 1955–63, from USDA, Economic Research Service, *The Domestic Tree Nut Industries: An Economic Appraisal* (Agricultural Economic Report 62, November 1964), p. 31; and for 1964–68 from *Pacific Fruit News*, various issues.

Tables giving data for the charts are available on request from the Food Research Institute, Stanford University, Stanford, California 94305.

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