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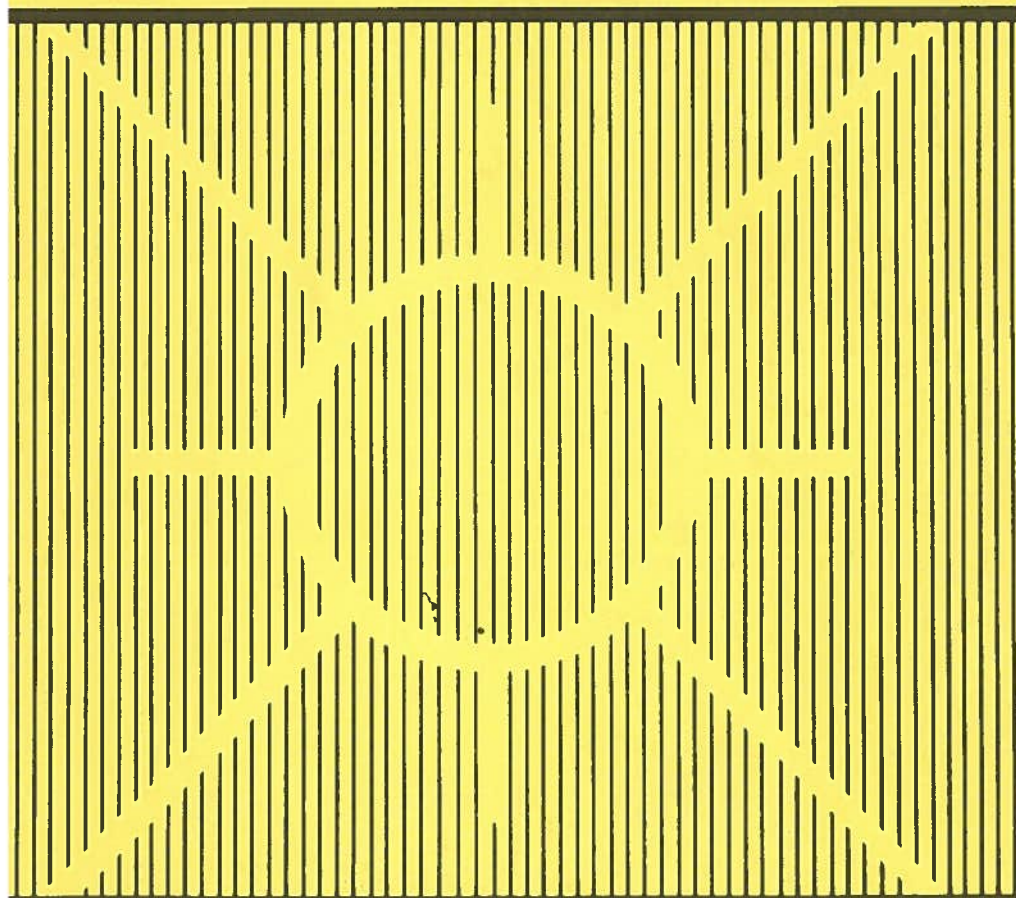
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# AGRICULTURAL COOPERATIVES AND THE PUBLIC INTEREST

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# COOPERATIVE MEMBERSHIP POLICIES AND MARKET POWER

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## INTRODUCTION

Public policy toward agricultural (as well as other types) cooperatives has again emerged as an issue. For more than fifty years farmer cooperatives have been treated differently under federal antitrust laws than their non-cooperative competitors. Indeed, the Capper-Volstead Act of 1922 was specifically designed to clarify national antitrust policy toward farmer cooperatives.<sup>1</sup>

Events of the past decade have once again focused attention on the proper treatment of cooperatives, in the public interest, for antitrust purposes. Many agricultural product and input markets have become more concentrated, increasing the market power of some farmer cooperatives. Cooperative associations have actively participated in the promulgation and operational decision-making of certain federal and state marketing orders, raising further market power issues.<sup>2</sup> The public visibility of agricultural cooperatives has also been increased by the recent active participation of a few associations in political activities.

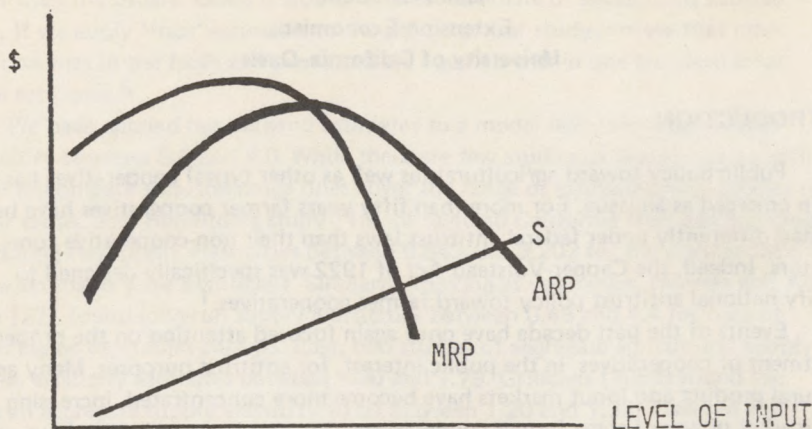
A myriad of public policy issues and questions about cooperatives are cogent in a contemporary setting. This paper focuses on one set of issues: relations between marketing cooperatives' market power and membership policies, and the implications of these relationships for public policy toward cooperatives. We first summarize the theoretical framework for analysis, then examine some empirical evidence, and conclude with a discussion of policy implications.

## THEORETICAL CONSIDERATIONS<sup>3</sup>

Cooperative theory uses an average revenue product (ARP) function to define the maximum price an association can pay its members for a given level of commodity input after all other costs have been met. The corresponding marginal revenue product (MRP) function shows the rate of change in total revenue product associated with various levels of input (Figure 1). The marketing cooperative's long-run equilibrium position is represented by the intersection of the ARP and the aggregate supply curve for its member producers. At this point the member is maximizing his profit by equating price to marginal cost, while the cooperative is maximizing net returns to members for a given level of aggregate production. Nonmember patronage is not allowed in this theoretical model (its implications will be discussed later as a special case).

It is clear in Figure 1 that the point where the members supply function intersects the ARP curve directly affects members' returns (provisional prices plus patronage refunds). Net return to members could be increased if the supply function shifted to the left as a result of declining cooperative membership; a rightward shift in aggregate input supply would reduce members' return.

Fig. 1. Hypothetical Average Revenue Produce (ARP) and Marginal Revenue Product (MRP) Curves and a Supply (S) Curve for Members of a Cooperative



Cooperative membership policies are directly related to the intersection point of the ARP and S functions. A *restricted membership* marketing cooperative purposefully limits its membership (and/or the quantity an individual can market through the association) to enhance existing members' returns by influencing the quantity handled.<sup>4</sup>

An *open membership* cooperative accepts new members regardless of that policy's supply impacts on existing members' returns.

It is also apparent that the shape of the ARP curve is an important determinant of a cooperative's membership policy. In particular, if this function is downward-sloping in the relevant region, economic incentives exist to restrict the number of members in—and in some cases the volume each member can market through—the association.

Several conditions could result in a downward-sloping ARP function for a marketing cooperative. If the firm holds substantial amounts of market power, an increase in its final product supply (which is a direct function of aggregate member input) could lower product prices enough to cause the ARP curve to fall in the relevant range. Thus, a major hypothesis derived from cooperative theory is that market power may explain the restricted membership policies of some agricultural marketing cooperatives.

Diseconomics of scale are another possible source of a downward-sloping ARP curve. In the short run the law of diminishing return may turn the ARP function downward by turning the average cost curve upward, leading to restricted membership until firm capacity is expanded. Food processing cooperatives commonly encounter this short-run situation. However, empirical studies suggest that long-run scale diseconomics are rarely encountered over relevant volume ranges where capital and labor resources adjust competitively.

Relations between market power, cooperative plant capacity, annual variations in members' production, and nonmember patronage also deserve mention.

Suppose a marketing association's ARP curve slopes downward due to sales market power and/or plant capacity restraints. Also assume the cooperative members' production of commodity input per acre (and therefore total production) fluctuates widely from year to year (tree fruits provide good examples). An association in this situation may restrict its membership to input levels it can handle in high-production years, purchasing nonmember commodities in lower-yield seasons to maximize total member returns.

The difference between federated and centralized cooperatives is also important in evaluating hypotheses arising from cooperative theory. A federation's members are local associations, distinct from the individual producers who comprise the membership of a centralized cooperative. Even if a federation has substantial market power, it cannot control the membership policies of its local association, who may seek additional members to achieve scale economics, regardless of this policy's supply impacts on product prices for the entire federated system. Thus, the hypothesis that market power leads to restricted membership cooperatives applies only to centralized associations.

It is not argued that this body of theory will account for every nuance found among cooperatives in their membership policies. For example, some associations require their members to belong to a particular farm organization, and some producers may refuse to do so, even though otherwise they qualify and their business would be welcome. The theoretical hypotheses are advanced to test their usefulness in understanding the reasons for and implications of restricted membership policies.

## EMPIRICAL EVIDENCE

In 1964 we analyzed the relative market power held by regional marketing cooperatives in the sales of their final products, and its relationship to their membership policies and structures. Evidence was gleaned from interviews with 31 "leading cooperatives" and from a mail survey of 119 regional marketing associations.

Cooperatives were classified according to the degree of market power they possessed. Classification and ranking of the cooperatives was based on the traditional market structure variables: seller concentration, barriers to entry, and extent of product differentiation. In general, the cooperative's market share and levels of industry concentration were assigned considerable weight in classifying and ranking the associations.

The extent of product differentiation, as measured in part through advertising expenditures, was a second major criterion. Product differentiation is also an important entry barrier, and concentration levels reflect barriers to entry arising from economics of scale. Other entry barriers were identified in the course of interviews with management of the cooperatives. The classification and ranking were based on subjective weighting of the relevant variables.

It was found that theoretically predictable relationships existed between cooperative membership policy and structure, and the degree of market power held by most associations in 1964. Of the 7 firms in Class 1 (the greatest relative amount

of market power), 5 were centralized, and all but 1 of these restricted membership. Reasons given for closed membership policies indicated that management was attempting to match volume marketed with consumer demand to maximize producer returns. The remaining 2 Class I associations were federations that did not restrict membership.

An update to June, 1977 indicates that the general pattern observed in 1964 still exists among Class I cooperatives. One firm converted from federated to centralized structure and now restricts its membership. Another centralized-restricted association in 1964 has recently opened up its membership in an attempt to increase its market share. The Class I dairy cooperative's marketing area has since been merged into a larger, marketwide-pool federal marketing order, and it now follows an open-membership policy. Ocean Spray Cranberries, Inc., remains the notable exception to expected membership policy.

Among the Class II associations, membership policies in 1977 appear similar to those found in 1964 for the remaining 7 firms (one recently terminated its business operations). Two former restricted-membership cooperatives no longer operate in individual-handler milk marketing orders, and have opened their memberships. The two California canning cooperatives apparently prefer to keep membership closed and utilize nonmember volume to efficiently utilize plant capacities and allow for members' interseasonal yield variations, especially in tree fruits.

To the best of my knowledge, all of the associations in Classes III and IV continue to follow open membership policies, as they did in 1964. With relatively little market power and unexhausted scale economics, they find themselves on the upward-sloping portion of their ARP functions.

The following general observations can be made today about the 30 "leading cooperatives" surveyed some 13 years ago. About one-fourth of the associations still restrict membership, with market power the rationale for four firms. Relative to other cooperatives, those firms that restrict membership (1) have a higher market share, (2) advertise more, (3) are protected from new competition by barriers to entry, and (4) deal more heavily in finished consumer products. Federated cooperatives still do not restrict memberships, regardless of their market power. The conversion of one cooperative from federated-open to centralized-restricted since 1964 illustrates the need for centralized control to make a restrictive membership policy effective.

Our 1964 mail survey of 119 additional regional marketing associations found similar patterns between membership policies and market conditions. Of the 14 restricted-membership associations in this group, only two—in olives and honey—apparently were doing so as a result of product market power. The remaining 12 restricted new members due to plant capacity restraints or federal milk marketing order provisions making such a policy advantageous.

We conclude then, that empirical observations of cooperative membership policies and market power in output markets yield results generally consistent with hypotheses derived from theory. A limited number (less than 10, or under four percent) of all centralized farm marketing cooperatives in the U.S. restrict membership because of final product market power. No cooperative federation was found that restricts membership, even where they have significant product market power.

## POLICY IMPLICATIONS

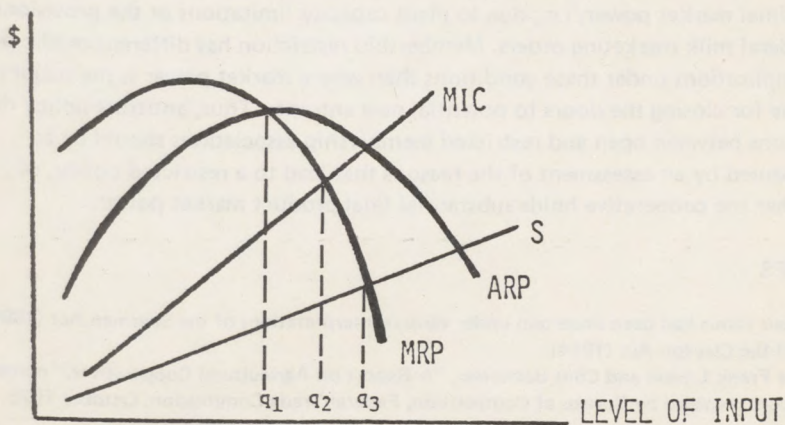
What difference, if any, does it make whether cooperatives follow restricted or open membership policies as a result of the competitive conditions they face in their output markets? Cooperative theory under alternative market structures (and the consistent empirical evidence cited above) indicates that market performance differs considerably between open and restricted membership associations under conditions of imperfect competition.<sup>5</sup>

If perfect competition exists in the final output market and neither net scale economies nor diseconomies occur in the relevant portion of the ARP curve, cooperative marketing leads to competitive equilibrium regardless of the structure of local input markets. If net scale economies exist in the relevant ARP region, cooperative marketing pushes performance closer to the perfectly competitive equilibrium than would a profit-seeking firm. These are the most compelling theoretical cases in favor of cooperative marketing.

Suppose the final product market is imperfectly competitive, causing the ARP curve to slope downward in the relevant region. Membership policy becomes important here. If an open membership association is the only buyer of the farm commodity and a monopolistic finished product supplier, output will exceed the perfectly competitive level and higher farm prices likely will be capitalized into farm land values. Similar results would follow with several open membership cooperatives, each holding strong market power in the sale of its products. The proper amount of open membership cooperation might countervail oligopolistic output restriction by increasing output levels, pushing performance toward a highly competitive market result.

The outcome with a single restricted-membership cooperative is more straightforward. Long-run output will be less than under perfect competition, and it may be less than a profit-seeking monopsony-monopoly as the cooperative seeks the maximum point on the ARP curve ( $q_1$  in Figure 2). A profit-maximizing firm

Fig. 2. Hypothetical Supply and Revenue Product Curves (S = Supply, MIC = Marginal Input Supply Cost, MRP = Marginal Revenue Product, ARP = Average Revenue Product, and  $q$  is Level of Input)



in this dominant market position would equate marginal input cost (MIC) and marginal revenue product (MRP), leading to input level  $q_2$  closer to the perfectly competitive equilibrium (to the right of  $q_3$ ) than the restricted-membership co-operative.

## CONCLUSION

We have found, first in 1964 and again in 1977, that empirical observations of cooperative membership policies and product market power are consistent with hypothetical relationships derived from cooperative theory. A few (less than 10) centralized cooperatives restrict membership to maximize returns to present numbers by maximizing revenues in imperfect final output markets. Theory suggests that this conduct results in less desirable market performance than would obtain if those associations followed open membership policies.

Given these findings, should public antitrust policy distinguish between open and restricted membership cooperatives? Although our empirical evidence shows that a limited number of farmer cooperatives have gained substantial market power, relevant antitrust issues still exist for two reasons. First, any market imperfections that do exist have potentially serious ramifications for farmers and consumers in industries where they are encountered. Second, it is more advisable to prevent the development of market power than to undertake remedial action after it has developed.

In our judgment, a restricted membership cooperative in its capacity as a seller should be given the same treatment as any other type of business enterprise. Conspiracies to restrain trade, predatory and exclusionary conduct, and mergers that lessen competition should not be allowed. That the firms involved might all be cooperatives is scarcely relevant. Except where economies of scale dictate high levels of concentration, no convincing reasons exist why monopoly in the form of cooperation should be allowed to flourish. This policy view is, of course, wholly consistent with recent Supreme Court interpretations of the Capper-Volstead Act. While a distinction between open and restricted membership marketing association is useful, it would need to be carefully and selectively applied. Our analysis found 16 (out of 22) marketing cooperatives restricted membership for reasons *other than* final market power, i.e., due to plant capacity limitations or the provisions of federal milk marketing orders. Membership restriction has different public policy implications under these conditions than where market power is the major rationale for closing the doors to potential new entrants. Thus, antitrust policy distinctions between open and restricted membership associations should be accompanied by an assessment of the reasons that lead to a restricted policy, *viz*, whether the cooperative holds substantial final product market power.

## NOTES

- 1 Their status had been uncertain under various interpretations of the Sherman Act (1890) and the Clayton Act (1914).
- 2 See Frank Lipson and Clint Batterton, "A Report on Agricultural Cooperatives," mimeo report prepared by Bureau of Competition, Federal Trade Commission, October 1975.



- 3 For a more complete development of relevant cooperative marketing theory, see James Youde and Peter Helmberger, *Membership Policies and Market Power of Farmer Cooperatives in the United States*, Research Bulletin 267, University of Wisconsin Experiment Station, August 1966, pp. 4-9.
- 4 Volume may be reduced by attrition of present members and/or by increasing delivery (quality) standards for existing members.
- 5 For a more detailed explanation, see Peter Helmberger, "Cooperative Enterprise as a Structural Dimension of Farm Markets", *Journal of Farm Economics*, Vol. 46, August 1964, pp. 603-617.