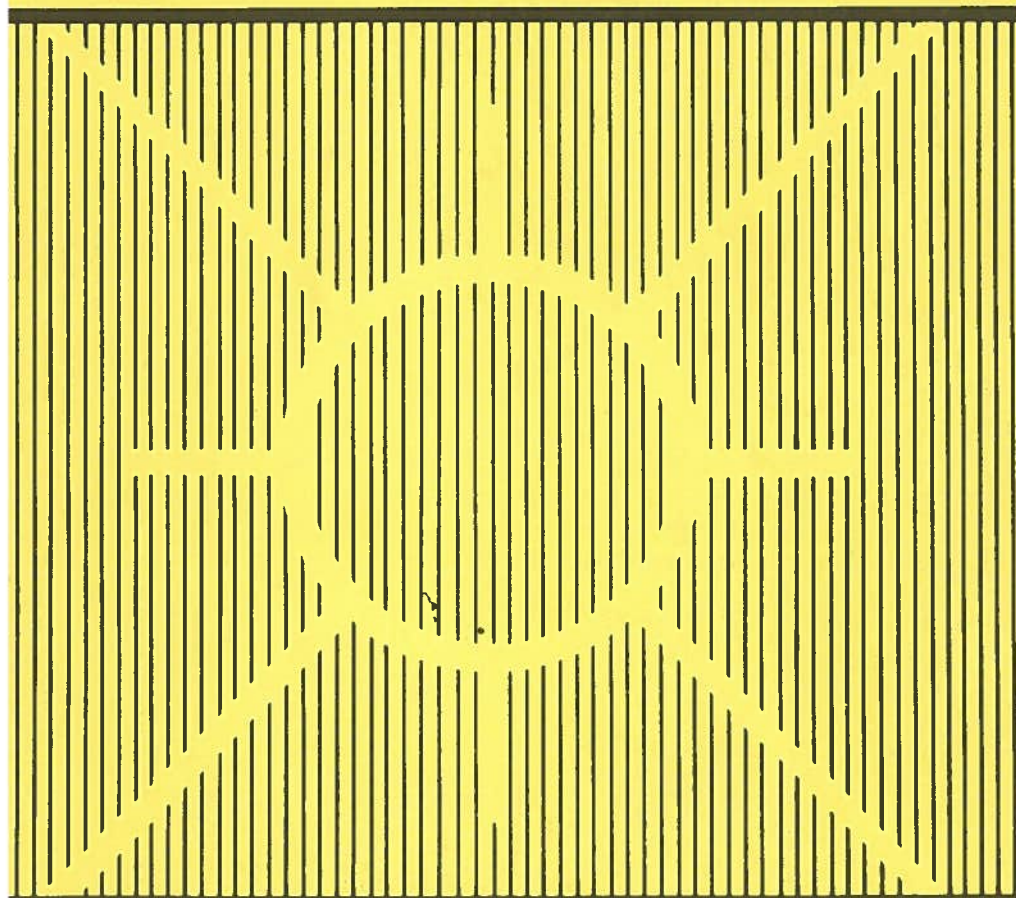lies of the
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COOPERATIVE HORIZONTAL MARKET POWER AND VERTICAL RELATIONSHIPS: AN OVERALL ASSESSMENT*

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INTRODUCTION

Much dialogue in recent years has been focused on the role of agricultural cooperatives in our economy—are they detrimental or beneficial in their impact? In this paper we examine the use of horizontal market power and vertical integration by cooperatives, to determine the impact on competiton and economic efficiency. The analysis that follows is not an antitrust analysis as generally defined. We are not attempting to define the coverage of antitrust laws or their impact. We are instead attempting to delineate the key competitive issues and their impact in light of the usual standards of market organization and economic efficiency.

Cooperatives operate in various economic spheres, however most co-op activity can be seen as serving one of two functions: (a) arranging for the supply of farm inputs or (b) arranging for the disposition of farm outputs. On the input or output side the co-op can operate by one of three modes. It can vertically integrate into the production process, it can act as would a broker to assure efficient arbitrage, or it can bargain with suppliers or processors. Looking at cooperatives that arrange for the supply of farm inputs (input co-ops) and disposition of farm outputs (output co-ops), we cover three basic topics, cooperative horizontal power without vertical integration, vertical integration without cooperative horizontal power, and vertical integration with cooperative horizontal power.

THE HORIZONTAL MARKET POWER PROBLEM

Cooperative horizontal market power goes to the heart of the Capper-Volstead Act. Farmers are required to do business with large corporate firms that possess market power in their dealings with farmers. The farmers are allowed under the act to organize to obtain equivalent countervailing market power. The issue that arises then, is that once farmers have such power, what is to prevent them from more than countervailing that power of the corporate firms with whom they must deal? The answer, according to the farmers of the Capper-Volstead Act, was that it was impossible for agricultural cooperatives to obtain and exercise monopoly power. If farmers attempted to exercise market power to more than countervail the power of the corporate firms with whom they deal and thus raise their prices above competitive levels, overproduction would drive the price back down. Expe-

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rience has taught us otherwise. Only the most blind partisan of farmers cooperatives could claim there have not been instances in recent years when cooperatives have succeeded in exercising market power sufficient to raise prices above competitive levels.

We take the position that cooperative horizontal market power is a positive economic force as long as that market power only leads to countervailing power and not to supracompetitive pricing. The point at which cooperative market power surpasses the power needed to countervail buyers of agricultural products is easily determined, not by the structural criteria of the size of the cooperative or its market share but by the behavioral criteria that a cooperative monopoly must pursue one of two policies to charge supracompetitive prices. The cooperative must either limit total supply, possibly through a closed-end organization bolstered through either economies of scale or exclusion, or else it must pursue price discrimination, limiting not the total supply, but the supply available to one submarket, preventing arbitrage between markets. Helmberger and Hoos [3] discussed the first method, in our work with dairy cooperatives we have discussed the second method (Eisenstat, Masson, and Roddy, [13]). Helmberger and Hoos explained how a co-op using closed-end membership policies operating in a market with entry barriers, may raise the supply curve and achieve an artificial competitive equilibrium where quantity is restricted and price is higher. They discussed the standard natural entry barriers of economies of scale, product differentiation, etc. Other work has noted other types of entry barriers created by the co-op, or by government regulators. Local, state, and even some federal provisions have erected entry barriers. Entry barriers have sometimes artificially been raised by the coercion of full supply contracts and/or vertical integration. However, these barriers are used to protect price discriminatory schemes which play the main role in the supracompetitive pricing. Whenever an agricultural cooperative is price discriminating in its output market we assert that it has market power beyond what is necessary (and desirable) to countervail the buyers' market power, and it is charging supracompetitive prices.

Classified sales or classified pricing is the term which is applied to price discrimination for agricultural commodities. The price discrimination is necessary to charge supracompetitive prices in case total production cannot be restricted. Cooperatives cannot restrict supply in the same way that an industrial corporation can restrict supply. Farmers are "price takers." Observing the price in the market, each farmer will continue to produce additional product as long as the price he receives for his product exceeds the marginal cost of producing more product. The changing production decisions of many individual farmers will change the total supply and the price of the farm product.

If the price that farmers are receiving for their product induces a supply which exceeds the demand for the product, then there will be a surplus supply. In a competitive market this would lead to a decline in price. In a market with a cooperative monopoly, the cooperative must dispose of all the surplus production to maintain its high price. In various agricultural commodities this surplus problem is called by different terms. In milk the term is referred to as "surplus disposal," in citrus fruits it is called "eliminations," and in cranberries the euphemistic

term is "shrink." In each of these cases what happens is that the surplus commodity is sold at a lower price in a market that is artificially segregated to accept the surplus. The necessity of using such price discrimination does not exist as long as the price being received by producers is less than or equal to the price where demand and supply are equal. The need for surplus disposal only arises when the price for product in one market exceeds this competitive price.

The misallocation caused by similar price discrimination has been examined elsewhere. [Ippolito and Masson 4, Masson and Harris, 6]. It is sufficient to summarize here that classified pricing will result in distortions to the market allocation, raising the price and restricting purchases in the market where the cooperative is raising the price and lowering the price and subsidizing increased purchases in the market where the price discrimination lowers the price.

Cooperative market power up to that point where cooperatives countervail the power of buyers, we believe is beneficial and to be encouraged. If buyers of agricultural products (large corporate processors are an example) have market power, and have more power in the market than the farmers/sellers, than the buyers can impose a price for product which is below the competitive price. Then farmers who sell the product will supply less for the market than they would if they were offered the higher competitive price. The quantity of the farm product produced *and* the price of the product paid to farmers would be less than in a competitive market. The buyer of the product will accept less of the product than if forced to pay the competitive price for the product because the marginal cost of obtaining larger quantities at a higher price exceed the marginal value to the buyer. This is the standard monopsony result.

The consumer loses from such monopsony power just as he does from monopoly power. Both monopoly and monopsony work by restricting the quantity of product. Both types of market power for an intermediate product restrict total final product, driving up the final product price. Fully competitive pricing is the most efficient way to reduce costs to society and consumers. Countervailing power is a good second best method if the power can be controlled.

It is argued that monopsony would be endemic in agriculture in the absence of effective cooperative organization to have countervailing market power. This we believe to be an overstatement, but it is true for some markets. If cooperatives establish virtual monopolies for their product under the Capper-Volstead Act, but do not charge a price above the competitive price, then the cooperatives would be allowed the benefits of countervailing power without extracting any benefits of power in excess of the countervailing power. If they are not allowed to have market power and if buying market power is an excess of the sellers' power then farm prices will be below the competitive price, and consumer prices higher than the competitive price because countervailing power would not exist.

We thus belive that horizontal cooperative market power can be both good or bad depending upon the level of that power. There is a simple test of that market power if the cooperative is open ended. If there is no price discrimination then any market power (supply contracts, artificial barriers to competitors, etc.) that a cooperative possesses is beneficial (or at worst neutral) in its impact on markets. When the cooperative is closed ended, classified pricing is also indicative

of harmful monopoly power. In the absence of classified pricing entry barriers may also allow for supracompetitive pricing. Thus classified pricing is always an indicator of harmful market power in excess of buyer power, and with closed ended co-ops, even in the absence of classified pricing, the erection of artificial entry barriers is anticompetitive and even natural entry barriers may lead to supra-competitive pricing. Moreover, we believe that market power by an input coopera-tive is so unlikely to ever reach the point where it becomes harmful in the input market that a good general rule is that all input cooperatives will be neutral or beneficial in their impact market organization and efficiency.

VERTICAL INTEGRATION WITHOUT COOPERATIVE MARKET POWER

The majority of cooperatives do not have substantial market shares or mar-ket power in any market: farm supplies, farm output, or processed product. In such cases vertical integration by cooperatives is generally neutral or procompeti-tive in its effects.

INTEGRATION INTO AN UNCONCENTRATED MARKET

Vertical integration by unconcentrated co-ops into unconcentrated markets tends to be neutral or beneficial in its impact on competition. For supply coopera-tives, if the supply market is unconcentrated and is earning no supracompetitive returns, a vertical supply co-op will be equivalent to any proprietary firm in the market. The supply market will operate where price equals both marginal and average costs. A vertically integrated supply co-op will lose money if it operates at any output level other than where its price is equal to industry price and its own marginal and average costs. Losses will accrue to any other output level and will translate to reduced membership because either the co-op's stated price will exceed that available to non-members or else losses in the operation will lead to patronage subsidization and an effective price in excess of that paid by non-members. Any co-op that is more efficient than proprietary firms in meeting the needs of its consumers will cause pressures on the marketplace not unlike those caused by a peculiarly efficient proprietary firm. In cases where the co-op is the first to realize that temporary disequilibrium has led to profitable entry conditions, the co-op's integration is beneficial in speeding the reestablishment of long run competitive equilibrium.

The same general principles apply when a cooperative without market power integrates vertically into processing in markets that are unconcentrated.

INTEGRATION INTO CONCENTRATED MARKETS

If markets are concentrated and existing firms are earning supracompetitive profits then vertical integration by cooperatives without horizontal market power will generally be procompetitive and aid in efficient resource allocation. If farmers are facing a supply industry with firms with market power they may feel that they could reduce their net price by vertically integrating into the supply function. A co-op considering vertical integration into such a supply market has both advan-tages and disadvantages relative to a proprietary firm. The co-op will run into the

basic dilemma brought out analytically in the Helmberger-Hoos model. If a co-op enters into a supply function and earns excess profits, then internal supply expan-sion and/or new membership responding to either the lower stated supply price or to prorate patronage refunds will tend to drive the co-op's rate of return on in-vested capital to the competitive rate of return.

For example, let us assume that entry barriers exist in the supply market. Otherwise the long-run result is the competitive result covered above. Specifically, let us assume that the supply industry can earn (but needn't be earning) 10% on invested capital over and above the competitive rate of return without making it profitable for a proprietary firm to enter the market in competition with the existing firms. If the industry is earning less than this 10% rate of return, then a co-op *facing the same entry barriers* will lose money upon *de novo* entry into the supply function despite these excess profits being earned by the existing firms. If the existing firms are earning only slightly more than this 10% excess return, then proprietary entry will be profitable, but co-op entry may not be profitable because of the tendency for over supply within the co-op entry may not be pro-fitable because of the tendency for over supply within the co-op á la Helmberger-Hoos. Larger rates of return could lead to positive profitability for the co-op, but again due to the over expansion problem, these returns would be even greater for a proprietary entrant. At first glance then it would appear that co-op entry into a supply function to avoid monopoly pricing for inputs would only occur when proprietary entry would accomplish the same result and would be more likely than co-op entry. This conclusion may frequently be true and may explain a lack of vertical integration in some areas and its unprofitability in others. However other factors may offset this result under some circumstances.

A farmer's cooperative purchasing supplies in a market may, with sufficient expertise[1], be particularly able to detect a supracompetitive rate of return. The information problem may protect supracompetitive pricing for extended periods of time in some markets before any firm, cooperative or proprietary, discovers that entry will be profitable. Firms with better information on the market are most likely to be able to recognize the potential for entry profits and gain these by being the first to enter. A co-op may, by its own market involvement, be the first to recognize this potential and enter.

Similarly, a co-op may face lower entry barriers than other firms if part of the entry barrier is based on a product loyalty—product differentiation entry barrier. A new proprietary entrant's primary entry costs may be due to the costs of market penetration—achieving minimal optimal scale of output by pricing below competitors, advertising, and on farm sales promotion. A co-op may have estab-lished loyalty, farm news letters, and/or farm representatives who already visit the farm on other matters. In such cases co-op entry barriers may be less than proprietary entry barriers.[2]

Thus co-op entry may in some cases serve a similar role to proprietary firm entry in making for more competitive markets. In addition, to the extent the co-op has better information on supracompetitive pricing and/or has lower entry barriers, such entry may both speed the market rationalization and/or lead to an even more competitive market place. In addition, a co-op operating in an oligop-

oly structure may well lead to another major benefit. Oligopolistic coordination is considerably eased when each of the oligopolists acting independently will react to changes in demand and cost changes in like fashion. A market comprised of oligopolists with the same technology and demand structures each operating as profit maximizers can most easily enjoy the benefits of tacit coordination or most easily organize a coercive price fix. Vertically integrated co-ops, however, are inherently destabilizing in this regard. A co-op's incentives to conspire for a price rise are severely attenuated. And even if they did support a price rise, prorate patronage refunds would tend to make its price increase more apparent than real, leaving it in effect free riding on the supracompetitive cartel price and breaking down the cartel. Unprofitable co-op vertical integration into a supply market where the co-op supplies inputs at prices no lower than proprietary firms in some cases may indicate that the co-op's integration was procompetitive, helping both farmers and society as a whole. An oligopolistic structure may well, for the same market shares of participants, be more competitive when there is co-op vertical integration.

The same principles generally apply when coops vertically integrate into processing. Entry barriers due to consumer brand identification are more likely to exist in this realm, and the co-op will generally have no unique advantages in this area. In fact proprietary firms with established brand reputations for other food products may often be the most advantaged potential entrants. However some cooperative integration into processing will still exist. Because of the product differentiation barriers, co-op integration into processing is most likely in atomistic markets without strong consumer brand loyalties. Such markets would be workably competitive in product sales in any case. But co-op vertical integration in these markets may be undertaken to offset oligopsony power, and in such cases the effects are directly analogous to the supply co-op case and are procompetitive.

We would expect a co-op without horizontal market power to vertically integrate into a market with an oligopoly structure in final product sales, such as the fluid milk markets. In this case the existence of a co-op in the oligopoly final product market structure will be procompetitive. In such a market the co-op, just like its proprietary firm counterpart, does have an incentive to maintain supracompetitive prices. Two factors errode their ability to do so. If supracompetitive prices are reflected in higher farm prices for co-op members proprietary processors will also have to pay higher prices. These higher prices will lead to higher supplies. If the final equilibrium retail price leads to a farm price which is above the competitive price, farm product supply will exceed farm product demand. As a consequence, either final price must drop or else some method of "surplus disposal" or classified sales (see Masson and Eisenstat [5] in this volume) must be developed. In the absence of horizontal market control by the co-op (or through regulation), free riding will destroy the classified pricing, and the supracompetitive price cannot be maintained in the long run. Probably of as great or greater importance, a vertically integrated co-op with the objective of raising farm income will not view its farm input (shadow) price in the same fashion as a proprietary firm would view its input price. Oligopolistic coordination on the final product price will thus be considerably harder, leading to more competitive results.

VERTICAL INTEGRATION WITH COOPERATIVE HORIZONTAL POWER

Once a cooperative has horizontal market power, our verdict must be modified. It is less likely that the vertical integration will be procompetitive and it may be used in an anticompetitive fashion. There are rare cases, where the cooperative horizontal power is due to natural monopoly at the cooperative level, that such vertical integration can be procompetitive. We can briefly summarize the latter argument where the vertical integration is procompetitive, recognizing that the preconditions for procompetitive vertical integration with horizontal market power are probably rarely satisfied in agricultural markets.

The reasons why vertical integration may be procompetitive even when there is horizontal market power have previously been presented (George Hay [2]). If there is a seller with monopoly power greater than the monopsony power of the buyers who purchase from the seller, and the buyer has monopoly power in its final product market, such a case will arise. The monopolist in the final product market will purchase the input until the marginal revenue product of the input is equal to the input's price. If the agricultural cooperative is charging a monopoly price for the input, then the marginal revenue product for that input will be higher in the processing market. Marginal revenue product will in general be higher due to two influences. Since marginal revenue product is simply the marginal revenue for final product times the marginal product of the input, marginal revenue product can be raised by either a higher marginal revenue or a higher marginal product for the input. The processing market monopolist will in general respond to a higher input price by both a reduced quantity and a reduced input use for each level of final quantity. The processing monopolist is in effect taking into account the higher input price in his marginal cost function and charging what can be loosely viewed as a monopoly markup on a monopoly price.

A vertically integrated firm will view the input at a shadow price equal to its marginal cost to producing the input. Thus if a monopoly firm merges with a firm which is competitive in purchases of inputs, but is in turn monopolistic in the sale of final product, the final market monopoly price which will be charged will be somewhat below the "monopoly on monopoly" price. Similarly, in terms of the use of society's resources in producing whatever quantity is being produced, the vertically integrated firm by evaluating the input at marginal cost will produce whatever quantity it desires to produce at least cost in terms of the social costs of production rather than least costs given the artificial monopoly input price. Generally, agricultural markets are not characterized by economies of scale approaching the monopoly level in the farm product market. Thus in general this type of procompetitive vertical integration would be unlikely in agricultural markets.

The other case where vertical integration can be procompetitive is when the intermediate product market is oligopolistic. In this case a price fix in the oligopolistic intermediate product market may be effectively a free ride by vertical integration with one of the oligopolists. A vertical integrater agrees to charge a price to processors of, for example, ten dollars. By vertically integrating he can charge his own operations a price slightly below $10 and expand his market share. This type of vertical integration could have procompetitive effects in some agricultural markets. However for this type of integration to be procompetitive would generally

require several cooperatives with large market shares and with large economies of scale. For instance if only 5 or 6 cooperatives of minimal optimal scale could exist in the marketplace and there are in fact 5 or 6 such cooperatives in the marketplace, then procompetitive vertical integration in the oligopolistic market may exist.

The potential anticompetitive effects of vertical integration are greater in the area of agricultural cooperatives than in the area of industrial market power. The key to gaining and maintaining co-op market power in excess of offsetting monopsony power is the control of free riders. A co-op can only charge a price in excess of the competitive price if it can use classified pricing and eliminate the emergence of free riders. Classified pricing cannot survive in the long run if co-op members are free to leave the co-op and compete against it. To prevent this in the long run, a co-op must have economies of scale and a natural monopoly or it must employ some combination of long-term membership agreements, long-term supply contracts bolstered by vertical integration, or a consistent image of having the power and will to employ predation.

Where economies of scale are not large and free riders can operate in competition with the cooperative, the cooperative may be able to gain and maintain market power by controlling market outlets and making them unavailable for free riding competitors. A good example of such behavior is presented in some of our other work. In a report that we filed with the court in *U.S.* v. *Associated Milk Producers, Inc.* we alleged that AMPI used such vertical integration to enable the use of a powerful predatory device. The market power goal was to charge classified prices. The free rider problem could be handled in part by coercing exclusionary full supply contracts and by vertical integration with market outlets. However the anticompetitive use of vertical integration went even further.

In the instance that we documented at length, we alleged that AMPI used one of its bottling operations to sell milk virtually at cost to a dummy corporation that was organized by an AMPI official. We further alleged that this dummy corporation specifically solicited the final product accounts of a processor who was not purchasing 100% AMPI milk. We present what we believe to be highly convincing evidence that the final price that this dummy corporation was willing to sell milk at in competition with this processor was well below marginal cost. We also alleged that contemporaneous with this action AMPI undertook other forms of predatory tactics again directed at the same processor, including using the federal regulatory scheme to drive down the price that this processor's independent producers would receive for their milk and arranging that this processor receive unreliable and restricted shipments of raw milk. During this time period they solicited a full-supply contract from this processor and eventually the processor signed the full-supply contract and the dummy corporation was disbanded. In our work we also explain some similar uses of other processing operations by AMPI. Finally, we show that when AMPI was facing the possibility of losing one customer in a market, they sent the AMPI official who had operated the dummy corporation to the customer who was thinking of using an alternative source of supply and told him about the operations of this dummy corporation to " . . . be sure he got the message" [Eisenstat, Masson and Roddy, 1].

In standard industrial oligopoly situations, overt predation of this nature is less common. One primary reason for this is the full coverage of the Sherman Act. Another reason is that many oligopolies involve significant economies of scale. When there are significant economies of scale then there are generally relatively few sellers all of whom recognize their mutual interdependence. In the case of cooperative monopoly where the economies of scale are generally considerably less, then individual groups of potential free riders are more numerous and the possibility of one group of free riders willing to compete against the oligopoly is greater. This bring on the frequent necessity in cooperative markets of having to use stronger and blunter instruments in attacking competitors. At the same time, the Capper-Volstead Act partial exemption from the antitrust laws makes the probability of establishing initial market power through mergers, despite low economies of scale, much greater. As long as the Capper-Volstead Act effectively allows cooperatives to use classified pricing and to have highly dominant market shares and/or use price fixing vis-a-vis marketing agencies in common then the greater possibility of anticompetitive raw produce pricing and vertical integration tactics is stronger here than in standard industrial monopoly situations. Apparently, as we saw in the AMPI case, it does not take a dominant market share in the processing market to be able to effectually use this type of predatory price squeeze to coerce a processor into a full supply contract. To be able to achieve anticompetitive effects from vertical integration without using vertical price squeezes would mean achieving market dominance over processing through the dual use of coerced full supply contracts and/or through vertical integration. In this case the vertical integration could become an effective tool of exclusion. Nonmember producers may have no outlets for their products, particularly if full-supply contracts can be coerced out of the other market processors.

In the case of supply cooperatives vertical integration to establish a price squeeze is much less likely. The only likely deleterious effects of a monopoly cooperative vertically integrating into supply would occur when the cooperative is able to foreclose the vast proportion of alternative supplies from their competitors in the market by the vertical integration.

Thus the recognition of whether general vertical integration is beneficial or detrimental is more difficult when the cooperative has horizontal market power than when it does not. By integrating into processing, the cooperative with horizontal market power may increase the efficiency of a market by substituting its own shadow price of inputs for the market price of its production in the calculus of final product price. Alternatively, it may use the vertical integration as a tool to prey on potential free riders. One final possibility is that the vertically integrated cooperative will use its integrated facilities to hide the price discrimination it uses to exercise its horizontal market power. For instance a vertically integrated cooperative may be able to separate its product into two categories. One category might be the product available for the fresh market and the other the product available for the processing market. This would not be classified pricing if in fact all the product of a high enough grade to go into the fresh market was going into the fresh market. However if the cooperative could artificially downgrade some of its product into a lower price processing market (e.g., claiming that a high percent

of its input was not suitable for fresh use) then it might be able to classify price without any external appearance of doing so.

CONCLUSION

There are obvious benefits to be gained by promoting cooperative marketing of agricultural products. There seem to be no deleterious effects of cooperative marketing (including vertical integration as a marketing tool) as long as the cooperative does not price discriminate and if the cooperative is closed-ended. There are low entry barriers. One way to eliminate the deleterious effects of cooperative market power for vertically integrated and non-integrated co-ops is to eliminate classified pricing. Any price differential exceeding the additional marginal costs associated with marketing a particular subpart of the co-op's production is a monopoly differential in excess of the price that represents countervailing power. The only other step needed to establish competitive markets would be to allow only open-ended co-ops, or in markets where there are closed-ended co-ops to monitor the erection of artificial entry barriers imposed by legislation or exclusionary practices.

Removal of the ability to use classified pricing not only removes the monopoly losses from the pricing of product, but removes the cooperatives incentives to use predatory and exclusionary tactics to coerce non-member producers. If a co-op using classified pricing were to lose its antitrust exemption, then vertical integration would be beneficial, or at worst neutral unless the integration was used as a subtrafuge to avoid the prohibition of classified pricing, or used by a closed-ended co-op to exclude competitors. The degree of monopoly from classified pricing and its normal fellow travelers, predation and exclusion, would be highly limited. Nothing in this approach, however, would limit a co-op's abilities to develop truly countervailing power.

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NOTES

[1] We suspect that not infrequently farmers without such expertise assume there to be a supra-competitive rate of return where there is none. This may lead to unprofitable vertical integration.

[2] Another possible reduced entry barrier is that co-op loyalty may lead to lower management salaries due to use of charitably inclined co-op members. However this factor may sometimes backfire, particularly in more technical undertakings in which trained management has a substantially higher marginal product.