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A CRITIQUE AND EXTENSION OF COOPERATIVE THEORY

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INTRODUCTION

In the past, most observers welcomed and encouraged the development of cooperatives in the belief that they provided agriculture a needed element of countervailing power similar to that of organized labor, and that these new forms of competition improved industrial performance in the public interest. For more than half a century, it has been public policy of the United States to encourage cooperative development. As cooperatives have grown in size and financial strength, some have begun to question whether the effects of cooperative competition are as beneficial as in the past. Observers are interested in what can be learned from recent experience to help formulate sound cooperative policy for the future. This paper provides answers, however tentative, to some of the questions that have been raised.

The previous paper reviewed the history of economic thought on agricultural cooperation. It contained an excellent review of the alternative concepts of cooperation and theories of cooperative behavior. Here I will attempt to evaluate some elements of an extension of cooperative theory. The basic framework is the theory of industrial organization as developed by Joe Bain and others. The recent history of cooperatives in the U.S. provides the basis for evaluation. The approach is pragmatic, i.e., whether the theory of industrial organization provides an adequate basis for addressing important questions about agricultural cooperatives and the public interest depends on how well the theory explains cooperative practices in the real world. For the most part, scientific applications such as controlled laboratory experiments are unavailable in the realm of economics. Fortunately, the experience of cooperatives has been of sufficient diversity that it is possible to derive a number of general conclusions from an understanding of recent economic history. Two decades of study and research has led me to conclude that the competitive behavior of cooperatives and their effects on industrial performance are primarily related to the structure of the markets in which they buy and sell.

COOPERATIVES AS A FORM OF VERTICAL INTEGRATION

The theory of industrial organization treats agricultural cooperatives as a form of vertical integration. The farmer as producer and consumer simply integrates vertically to make rather than to buy farm inputs and to process rather than to sell raw farm commodities. Basically, the enabling legislation is the Capper-Volstead Act which provides that farmers have a right to enter agreements with other farmers (integrate horizontally) in order to integrate vertically. The act is analogous to labor legislation which enables workers to enter into agreement to form unions. Both were designed to introduce an element of justice in the distribution of income.

The incentive to form cooperatives is related to the structure of the markets

into which farmers integrate. The easiest areas of cooperative integration often are not worthwhile. Only the difficult areas promise real gains. Through cooperatives, farmers have integrated into some highly concentrated industries. Once there they shared in the market power of those already in the industry. They also shared in profits which result.[1] When instead cooperatives have entered into more competitive industries, they usually have not improved their market power. For when each firm constitutes an insignificant part of the industry into which the cooperative integrates, it is often as powerless as its rivals in influencing prices and profit. For example, after World War II, many regional fertilizer cooperatives had net margins of only 2 to 3 percent when they bought manufactured products and wholesaled them to local cooperatives. By the early 1960s they were realizing net margins of 20 to 30 percent from manufacturing fertilizer products.[2] Fertilizer wholesaling was a competitive industry, while fertilizer manufacturing was an oligopoly. Perhaps fertilizer wholesaling was a necessary step toward successful entry into manufacturing. Even today, regional cooperatives tend to have outlets already established before expanding.

It is not surprising that vertical integration by cooperatives has proceeded as far as it has. One of the ironies of modern industrial capitalism is that the farther one moves away from the farm both on the input and product sides, the higher the profit potential. On the farm product side, it appears that profit potentials tend to be higher in restaurants than grocery stores, which in turn are higher than in packing plants, which exceed those in terminal livestock markets. Feeders tend to have higher profit potentials than ranchers. On the farm input side, the highest profit potentials are in crude oil and natural gas production, followed by pipeline ownership and then refineries and ammonia plants. The lowest profit potentials, aside from farming, are in fertilizer product wholesaling and retailing to farmers. The profit potential in these industries appears to be primarily related to market power [4]. It is not the same thing as average profit performance which tends to vary with world supply and demand conditions, and is also affected by decisions of governmental entities.

COMPETITIVE BEHAVIOR OF REGIONAL COOPERATIVES

The key to understanding the market behavior of regional cooperatives is their historic relationship to local cooperatives. Feasibility studies for new cooperative manufacturing facilities have emphasized this fact again and again. Their supply curve is assumed to be flat (elastic) up to the volume that they can reasonably expect to capture through local cooperatives, and then becomes completely vertical (inelastic) at that point. Demand is assumed to be quite vertical (inelastic) and shifting at a historic trend rate. Price is assumed to be consistent with historic trends and at a level which provides an umbrella covering the costs of the industrial giants and a target rate of return on investors' capital.

To my knowledge, no regional cooperative has entered a manufacturing industry with the specific goal of leading the industry price. Their goal has been to achieve an efficient level of operation [6] and thus to share in the excess profits of the industry, and to distribute patronage refunds to local cooperatives on a re-

volving fund basis. This means that very little cash refund is made until the manufacturing facility is paid for. With rapid technological change requiring the rapid amortization of plant and the construction of new larger plants, the ultimate distribution of savings to local cooperatives is highly uncertain for most regional cooperatives.

VULNERABLE TO RETALIATION

The most important feature of the market behavior of large regional cooperatives is that they tend to be price followers. There are good reasons why they will continue as in the past. They are very vulnerable to retaliation by large integrated chemical and oil corporations [3]. First, they have reciprocal agreements with them. They buy crude oil, exchange products from pipe lines, follow major oil company price changes, and otherwise behave as "good" industrial citizens in the petroleum industry. They do the same in fertilizer and chemicals. Their managers come from the petro-chemical industries. They know the rules of the game. They know that although they are the dominant fertilizer manufacturers in their primary service areas, they are far from being a dominant firm in the petro-chemical industry. [2].

Second, they know that their large competitors can and will practice price discrimination in those products or markets where they meet regional cooperatives. Over the past 30 years, gas wars tend to be in rural areas and small towns of the Midwest more than in the large cities of the region. This hurts regional cooperatives much more than its large competitors. This tells regional cooperative management to behave. The wars could be made longer and deeper, and they could spread to other products.

Also as part of their large competitors' arsenal are several non-market uses of power. They can hire the best lawyers, engage in legal harrassment, acquire political strength, subsidize studies, and buy their reputations. They can also buy, should they choose, a blackened public image for cooperatives.

ENTRY OF ALREADY ESTABLISHED FIRMS

It is also evident that cooperative management has discovered that as already-established firms, they command financial strength, managerial experience, and prestige among local cooperatives sufficiently to prevent the large oligopolists from frightening them away by threats, or from driving them out of a market once they entered. History has shown their power to survive as diversified operations. This new confidence is the most important aspect of regional cooperative decision-making in manufacturing industries.

Another important aspect of cooperative decision making is the changing structure of some industries into which they have integrated. As the group has enlarged, for example in meat packing and fertilizer manufacturing, it has been more difficult and more costly to work out a new group consensus. Differences in the newcomer's attitudes toward aggressive competition, his product variety, his market strategies, or his costs, compared to those of others in the group, have added to

the difficulties of working out a new consensus. Combine the increased capacity of the group with the added uncertainties of competitive relationships, and the new pattern of behavior becomes less profitable than before. In short, competition has emerged in some industries in which cooperatives have entered.

RELATION TO NATIONAL COOPERATIVES

Another important question concerning regional cooperative market behavior is their relationship to national cooperatives. In the past, regional cooperatives often have been profit maximizers with respect to their ties to national cooperatives. Board members of national cooperatives have indicated that some regionals cooperate only insofar as it is in their best economic interest. In other words, some regional cooperatives have ignored external costs of their decision. When one regional reached sufficient size to manufacture its own batteries efficiently, it pulled out of the national battery cooperative, which reduced its efficiency because of the fall in volume. This did not concern the regional in the least. Questions concerning making or buying other products often will be decided on the same basis. Regionals will remain in national cooperatives only insofar as it is more economic for them to do so. When their planning divisions can figure out a way to make it cheaper than buy it through national cooperatives, they will do so. Such regionals are not reliable bedfellows. They often behave in competitive ways.

PRICE FOLLOWERS

If other firms lead prices upward in a tight supply situation, regional cooperative management tends to follow. Cooperative management is doing a better job in the eyes of members when savings are large rather than moderate or zero. My father was one cooperative manager who was delighted when he could follow a competitor upward in price. It meant that he could relax somewhat irksome cost control efforts and still do a good job of management as measured by savings. Also, it meant that he could expand his program on other than a price basis.

With the added income, regional cooperatives attempt to provide through local cooperatives more service to farmers, for example, soil testing, fertilizer recommendation and more careful product specification for the farmers' need. Also an expensive public relations program is likely to be inaugurated showing farmer members that the regional cooperative is progressive and is moving ahead as evidenced by the increased earnings. The costs of non-price competition offset a considerable portion of the increased savings resulting from the increased prices.

With the added income, regional cooperative management tends to invest in expanded capacity, but only to the extent of local cooperative sales. In other words, they make more rather than buy. This is limited by the size of the market. They do not manufacture products for the open market except as this might be a temporary expedient in the expectation that future growth in their local cooperative market will eliminate this need.

Some of the added income is returned as cash to local cooperatives. Essentially, all is allocated to them in the form of stock or revolving certificates. How-

ever, the amount paid in cash to local cooperatives would be based more on historic income placed into the revolving fund rather than current higher returns being thus placed.

EFFECT ON OUTPUT

There is little evidence to suggest regional cooperatives will tend to lead price changes in the future. Regional cooperatives will continue to effect the profit position of their competitors in profound ways, nonetheless. They will continue to have an important effect on output and sales. Regional cooperative growth and share of industry output has been limited to the growth in both number and sales of local cooperatives that they service. This is an advantage because local cooperatives will continue to grow in the future. I am optimistic about local cooperative growth because of the increasing number of them operating efficient service center type facilities. A decade ago, there was a good deal of publicity about large corporations setting up farm service centers in the Midwest and it was predicted that this would be the wave of the future. It was widely believed that cooperatives would not be able to match the convenience of this competition. I predicted then that cooperatives would hold the edge in efficiency over these new service centers. Helgeson's study at Nebraska showed that many cooperatives have sufficient volume in a large number of products including grain and feed to offset any advantage this new competition might achieve in chemicals and fertilizer. History has shown this to be true as non-cooperative farm service centers have exited from the industry in large numbers.

Already there is evidence that some regional cooperatives have achieved their goal of market coverage in much of their traditional trade areas and are changing their strategy to promote consolidation of small inefficient local cooperatives into large viable service centers. This is particularly attractive to them when a cooperative served by another regional or a non-cooperative brand can be consolidated with a stronger regional's account in which the regional's brand is the only one to survive the merger. The work by Rathjen and Dahl in Minnesota predicted the decade of the 1970s as a period of consolidation to achieve efficiency of size and multi product operations. My research would support this expectation.

COMPETITIVE BEHAVIOR OF LOCAL COOPERATIVES

It is difficult to predict the effects of competitive behavior by local cooperatives. Markets tend to be less than a county in geographic size. And although cooperative managers may enter into informal pricing agreements with other dealers in their market areas, these agreements often break down. Local markets are frequently competitive.

My work at Nebraska in the 1960s suggests that when cooperatives are large and dominant in local markets, margins tend to be higher than when cooperatives are small and a part of the competitive fringe. There are good reasons why this would be true. Large growing cooperatives have large cash flow requirements and high margins generate the needed capital for expansion. Thus, rather large patronage refunds would tend to be in the form of stock and revolving fund certificates

rather than in cash. This is important because large cash patronage refunds would be price disruptive in a situation where competitors may have pledged to match the cooperative cash patronage refund, as was frequent in Nebraska. Also local independent competitors that are small and inefficient and often single product firms, would follow the cooperative leadership toward higher prices because they see it as an umbrella covering their high cost operations. Nearly everyone survives and competes on a non-price service basis. It is the best of all possible worlds for the community of local dealers.

In the more general case, regional cooperatives have stimulated the formation of a large number of local cooperative dealerships in order for the regional to achieve market coverage. This was a product distribution strategy designed for the short run. The results at the local level are several times too many dealers and surplus capacity. Small local cooperatives have very high costs. In this more general case, the regional cooperative's costs of wholesaling rise sharply. They offer price protection and supply storage tanks and equipment free to the retail cooperative.

The important point is that small local cooperatives will often act as price cutters in a desperate attempt to increase their product sales. They may be multi-product operations and if they can make enough net margin on other products, they can cover losses on one. In many cases they handle a product only as a service to hold customers of other product lines, and using it as a loss leader becomes attractive. Some small local cooperatives have plants that are old and have already paid out from higher margins in earlier years. Others have low costs despite low volumes because all of the equipment is owned by the regional cooperative and is provided free for purchase or sales agreements. Nearly all have price protection agreements with regional cooperatives, which provide an incentive for volume hungry local cooperatives to cut prices, and receive a protected margin. The long-run distribution strategy of regional cooperatives will be to encourage expansion of key dealerships through attrition of competitors and consolidation by merger at the local level. [1] In the long run, competition at all levels of the agribusiness industry will require that local cooperatives become efficient and yield a net saving equal to the opportunity cost of the resources employed. This need not detract from competition in local farm supply markets. [7]

SUMMARY AND CONCLUSIONS

These conclusions should be viewed as partial and first approximations to be verified or rejected by further study. The theory of industrial organization seems to provide a useful framework to understand the competitive behavior of cooperatives and their effects on agricultural markets. Competitive behavior of cooperatives is primarily related to the structure of the markets in which they buy and sell. An important incentive for cooperative development is to enable farmers to share in excess profits of concentrated industries. Cooperatives can thrive in both markets with an excessive number of companies as well as in markets with excessive levels of concentration and profits. When markets contain an excessive number of inefficient firms, cooperatives can prosper by achieving greater economies of size and plant utilization than their competitors and thus increase savings for their members.

As already established firms, large regional cooperatives can often hurdle en-

try barriers which would prove too high for other firms. Their key advantage lies in long-term supply relationships with local cooperatives. However, even the largest regional cooperatives seldom are price leaders, owing to their vulnerability to retaliation by more powerful firms. They are often content to grow at a rate similar to the growth of local cooperative members. Competition may break out in industries entered by large regional cooperatives as a result of reduced sales volume forced on some existing firms. But there is little consistent relationship between the effectiveness of cooperatives and the market conduct and performance of agriculture-related industries. The possible "yardstick" effect of cooperatives received scant support in studies of fourteen agriculture-related industries [4, p. 405].

Regional cooperatives have an incentive to assist new and expanded local cooperatives financially in an effort to achieve market coverage. With an excess number of small cooperatives, costs rise. However, efficiency eventually improves as multiproducts continue to be added with the result that local cooperative volume climbs toward optimum levels. While there is an excessive number of small cooperatives and other firms in local markets, price competition may break out, with some firms eventually exiting from the market or consolidating with others. When cooperatives become dominant in local markets, they tend to hold a price umbrella over other competitors in the market. Periodically, short supply conditions lead to high prices and the increased savings by cooperatives result in increased farm services, expansion in facilities and higher payout of patronage refunds in the form of cash, primarily through redemption of past revolving fund stock.

To the extent that cooperatives are price followers or otherwise have a high margin policy, their ultimate effect on the public interest in competitive prices for food products depends largely on patronage refund policy.[3] Income of farmers may rise either because: (1) prices paid and/or received are more favorable to farmers, or (2) patronage refunds increase farm profits above competitive levels. The result is that farmers gain in the short run. However, the public becomes the beneficiary in the long run, as higher than competitive prices induce farmers to increase output which forces long-run farm prices to competitive levels. More food is produced at a lower price which increases social welfare. This results from the fact that the structure of agriculture tends to be competitive. Thus, the essential level of competition is in agriculture. Profits which farmers receive above a minimum level necessary to keep assets employed on the farm and in their cooperatives are eventually passed forward to the consumer. This cannot be said for the non-cooperative share of agribusiness where market power often protects inefficient operation and high profit positions from competition [5].

These conclusions should be viewed as partial and first approximations to be verified or rejected by further study of cooperatives in agriculture-related markets. The treatment is brief, and far from complete. It is intended to stimulate the reader's interest in further and more intensive study of contemporary policy issues involving competition of cooperatives. The past accomplishments and future potential of cooperatives in agriculture-related industries are in large part regulated through the forces of the market, as opposed to direct government ownership and regulation. Indeed, it is because economic theory shows that conditions of the market are so very important in a private enterprise economy that they are explored and evaluated in this paper.

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NOTES

1 Farmers have found that average returns from capital invested in efficient industrial cooperatives can be greater than average returns from investments on the farm. A study of investment capital and returns in food production and marketing, demonstrated that on an aggregate basis, if farmers were to invest up to 10 percent of their assets in food marketing (processing and retailing) cooperatives, they could increase their returns to invested capital by about two-thirds. Walsh, Richard G., Arnold L. Aspelin and Clarence J. Miller, *Aggregate Forward Integration of the Agricultural Economy: Investment Capital and Returns in Food Marketing.* University of Nebraska, Department of Agricultural Economics Report No. 36, July 1965.

2 Walsh, Richard G., and R. K. Rudel, *Effects of Vertical Integration on Profitability of Ammonia and Solution Fertilizer Retailing by Cooperatives,* Nebraska Experiment Station Bulletin No. 512, February 1971. Walsh, Richard G., and Robert A. Rathjen, "Structural Implications of the Price-Minimum-Cost Gap in Anhydrous Ammonia Production and Distribution," *Journal of Farm Economics,* December 1963, pp. 1380-1385.

3 The tax exemption of cooperatives is analogous, in my view, to the tax exemption of nonprofit corporations, and tax exempt patronage refunds allocated to members are analogous to rebates, which any ordinary corporation can return to its customers without paying corporate income tax on the amount rebated. The public interest is affected when rebates or patronage refunds are made in the form of stock rather than cash, and that stock has indefinite value. Patrons should pay their own way in cooperative finance; beyond that, the public has an interest in the issuance of patronage refunds in cash rather than stock.