COOPERATIVE ANTITRUST MONOPOLIZATION AND THE THEORY OF CONTESTABLE MARKETS

Terence J. Centner and Michael E. Wetzstein

Abstract

The judiciary has relied on a firm's market share to evaluate the presence of monopoly power for a Sherman Act monopolization violation. However, an allegation that a firm's market share constitutes monopoly power may be refuted by evidence that there exists a contestable market. Contestable market theory shows that there is no monopoly power where there exists a threat of entry of other firms. This theory thereby offers agricultural cooperatives, which may have a large market share by reasons of the antitrust immunity provided by the Capper-Volstead Act, an argument to overcome allegations of a Sherman Act monopolization violation.

Key words: cooperatives, contestable markets, antitrust, monopoly

Workable, as opposed to perfect competition has been employed by economists as a standard for judging real-world market conditions. Markham has proposed that an industry is workably competitive when dynamic forces that determine market structure have been examined and there are no public policy alternatives that would influence this market structure in such a manner that social welfare increases. The criteria for judging such a workably competitive market have been formulated in terms of market structure, conduct, and performance (Sosnick).

Market structure generally encompasses the market shares of individual firms in an industry and firms' freedom to enter and exit the industry. Researchers have measured the market shares of various firms in an industry as an indicator of workable competition with the assumption that the higher a firm's market share, the greater its potential monopoly power. For example, Scherer states that when the leading four firms control 40 percent or more of the total market, it is a fair assumption that an oligopolistic market structure exists. Although Scherer does state that market share is at best only a one dimensional indicator of monopoly power, this type of generalization may lead to the false premise that market share is a sufficient criterion to measure a firm's divergence from workable competition. Under this aegis, three courts have seized upon market share as a basis for evaluating the presence of actual monopolization, a conspiracy to monopolize *(Alexander v. National Farmers Organization)*, and an attempt to monopolize *(United States v. Dairymen, Inc.; Kinnett Dairies, Inc. v. Dairymen, Inc.)* to determine whether dairy cooperatives violated the antitrust monopolization provisions of Section 2 of the Sherman Antitrust Act.

Obstacles to entry and exit are also major determinants of a firm's ability to exercise monopoly power. Except for Kamerschen and Parker and Connor, researchers have implicitly been concerned with the potential entry and exit of firms when measuring welfare costs of monopoly power. Contestable market theory, developed by Baumol and others, provides a unifying theory of market structure based on freedom of entry and exit. The theory implies that market share is at best only a necessary condition for monopoly power and, at worst, of little importance in measuring market efficiency.

The objective of this paper is to discuss the theory of contestable markets and evaluate its importance in the area of agricultural cooperatives. Properties of contestable markets are first explained and related to market shares. Previous research in market structure and judicial interpretations of the monopolization restrictions of the Sherman Antitrust Act are then investigated on the basis of contestability theory with emphasis upon cooperative monopolization and contestable markets.

CONTESTABLE MARKETS

Perfectly contestable markets are defined by Baumol, Panzar, and Willig as markets accessible to potential entrants, with the following two properties. First, potential entrants have identical production technologies and face the same market demands as incumbent firms. This implies potential entrants face no cost barriers to entry. There must also be freedom of exit. Second, potential entrants employ incumbent firms' pre-entry prices in their decision regarding entry. Potential entrants may recognize that an

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expansion of industry output results in depressed prices. However, they assume that if they undercut incumbents' prices, they can market as much of the commodity as the market demands at their price.

Contestable market theory is a generalization of the classical theory of perfect competition with fewer assumptions required to obtain economic efficiency. Unlike perfect competition, firms in a contestable market may not be small or numerous nor produce a homogeneous product. Contestable markets share only one attribute with perfect competition; freedom of entry and exit. Thus, a perfectly competitive market is necessarily a contestable market but a contestable market is not necessarily perfectly competitive. Contestability theory thereby, without modification, becomes applicable to imperfect competition as well as perfect competition. The theory takes market structure to be determined endogenously and simultaneously with the level of industry output and prices. This is in contrast to traditional analysis where the structure of particular markets is exogenous to the analysis of output and price determination.

Pertinent to the contestability theory, determination of structure, conduct and performance of an industry are three basic cost concepts. These three cost concepts, in conjunction with truly free entry and exit, provide an endogenous and simultaneous determination of the size and number of firms in the industry. A brief discussion of the relationship among these cost concepts, industry sustainability and contestability is provided. For a detailed discussion of these concepts and formal proof of the following contestability properties, refer to Baumol, Panzar, and Willig. The three basic cost concepts are as follows:

1. Strict Subadditivity:
   A cost function $c(q)$ is strictly subadditive at q if for any and all quantities of outputs $q_1, \ldots, q_n$; $q_i \neq q$; $i = 1, \ldots, n$;

   $$\sum_{i=1}^{n} q_i = q, \quad c(q) < \sum_{i=1}^{n} c(q_i).$$

   A cost function is subadditive at output q if it is more expensive for two or more firms to produce q than it is for q to be produced by a single firm.

2. Declining Average Costs:
   Average c osts decline through output q if

   $$c(q_i)/q_i < c(q_j)/q_j \text{ for all } q_i \text{ and } q_j \text{ with } 0 < q_j < qi \leq q.$$

3. Declining Marginal Costs:
   Marginal costs decline through output q if

$$MC(q_i) < MC(q_j) \text{ for all } q_i \text{ and } q_j \text{ with } 0 < q_j < qi \leq q.$$

These cost concepts are essential in the determination of the structure, conduct, and performance of an industry. With these cost function concepts and the industry demand function $Q(p)$, the equilibrium market structure of a single product industry can be determined. Any equilibrium industry structure must satisfy the following two properties:

1. Feasible Industry Configuration:
   A feasible industry configuration is composed of n firms respectively producing the output quantities $q_1, \ldots, q_n$ for sale at price p,

   $$\sum_{i=1}^{n} qi = Q(p) \text{ and } pqi - C(qi) \geq 0$$
   $$\text{for } i = 1, \ldots, n.$$

Every market structure analysis at least implicitly incorporates this feasibility condition. However, for a feasible industry configuration to be in equilibrium in a contestable market, it must not offer any opportunities for profitable entry, even when entry costs are zero. Rather it must satisfy the following property for a sustainable configuration.

2. Sustainable Industry Configuration:
   A feasible industry configuration with price p and firm outputs $q_1, \ldots, q_n$ is sustainable if $p_i q_i \leq c(q_i)$ for all $p_i \leq p$ and $q_i \leq Q(p_i)$.

This implies that no potential entrants can expect to earn positive pure profits, given the incumbents' prices and outputs.

Output determination, pricing, and efficiency in a contestable market follow directly from these two properties. A sustainable configuration must minimize the total cost to the industry of a given level of industry output. No different configuration of size distribution, output levels, or production technologies for firms can provide a given level of industry output at a lower total cost than that incurred by firms in a sustainable configuration. Intuitively, this result implies that if there existed an alternative industry configuration that could produce the same given level of output at a lower cost, at least one of those producers would earn positive pure profits. There would then exist at least one profitable entry plan for potential entrants. The present configuration is then vulnerable to entry and thus blocked by an alternative configuration until a Nash equilibrium is obtained where total industry cost is minimized for a given level of

output.[1] Furthermore, this result suggests that if two or more firms produce positive amounts of the same commodity in a sustainable industry configuration, their outputs must be such that their marginal costs are equal. This result is analogous to multi-plant firms or the operation of cartels where firms attempt to minimize costs. A configuration is not sustainable if total cost could be reduced by a reallocation of output to lower cost firms.

The nature of equilibrium pricing and efficiency in a contestable industry was determined by Baumol, Panzar, and Willig, and was shown to have the following two properties:

1. In any sustainable industry configuration,

$$p \geq MC(q_i), \quad i = 1, \ldots, n.$$

A counter example provides a proof of this property. If marginal cost was greater than price, a potential entrant could earn a positive pure profit by employing the same production technology with a small reduction in quantity. Reduction in output decreases total cost more than the decrease in total revenue and thus profits increase.

2. In a sustainable industry configuration involving two or more producing firms, all firms must produce outputs at which $p = MC(q_i)$, and $pq_i = C(q_i)$, $i = 1, \ldots, n \geq 2$.

The previous property prevents price from being less than marginal cost in a sustainable industry configuration. To prove that price cannot be greater than marginal cost for firms in an industry, suppose that for firm q_j, price does exceed marginal cost. A profitable entry plan now exists since a potential entrant can mimic the production technology of this incumbent firm and increase output. This leads to potential pure profits for the entrant. The presence of at least two incument firms is required for the proof since this enables an entrant to market a higher level of output than q_j without a significant reduction in market price.

Finally, if total revenue was less than a total cost, a firm could not remain solvent in the long run and the configuration would not be sustainable. If pure profits existed (total revenue greater than cost), an entrant could undercut incumbents' prices and still earn pure profits. Thus, in a sustainable industry configuration, incumbent firms must earn zero pure profits with price equaling both marginal cost and average cost. This result is inconsistent with the traditional view dating back to Cournot that

the smaller the number of firms in a market, the greater will be the divergence between price and marginal cost. The constant threat of entry ensures that only firms which practice marginal cost pricing can be present in long run multifirm equilibrium.

RESEARCH IMPLICATIONS

Contestable market theory is of particular importance in agricultural cooperative research involving allegations of antitrust violations. Previous research in this area has employed market shares as a measure of market imperfection without considering entry and exit conditions. For example, Parker and Connor in estimating consumer losses due to imperfections in the U.S. food manufacturing industries base their analysis on market share. Contestable market theory indicates that market share may be irrelevant in showing the presence of monopoly power because of the threat of entry by other firms. Thereby, it may be inappropriate to use market share as a screening criterion to identify whether a cooperative has violated section 2 of Capper-Volstead, as suggested by Jesse, Johnson, Marion, and Manchester. The relative size of a cooperative and the market shares of competing firms may be unimportant and the problems of computing and interpreting a cooperative's market share may be avoidable.

Jesse, Johnson, Marion, and Manchester also advocate the use of the concept of workable competition in determining if a cooperative has exercised market power and unduly enhanced price. Performance comparisons can be made between prices in a suspected monopoly power market with prices in a workably competitive market. They suggest that the prices of workably competitive markets are more appropriate as norms for evaluating price enhancement than those of perfect competition. The problem is to define an operational criterion for judging a workably competitive market. For appraisal, assumptions of size and number of firms in the industry under a workably competitive model may be overly restrictive. Contestable market theory is not restricted by these assumptions. Thus, an appraisal that relies on the contestability of markets offers a standard against which actual markets can be compared even though perfect contestability is not likely to be satisfied by any real market.

COOPERATIVE MONOPOLIZATION

Section 2 of the Sherman Antitrust Act declares that it is unlawful for any person to monopolize, attempt to monopolize, or

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[1] An industry is in Nash equilibrium if the strategy of each player (firm) maximizes the payoff to that player (firm), given the strategies of all of the players (Nash).

conspire to monopolize trade. This monopolization prohibition applies to agricultural cooperatives but the Capper-Volstead Act constitutes an affirmative defense to immunize some activities of qualifying cooperatives from antitrust prosecution. The Supreme Court found that Capper-Volstead enables organizations comprised of persons engaged in the production of agricultural products to engage in activities necessary to accomplish their assigned purpose of effective farmer representation *(Maryland and Virginia Milk Producers Association, Inc. v. United States)*. The judiciary has labeled these activities as "legitimate objects" permissible by reason of Capper-Volstead.

Although the major trust of Capper-Volstead was to immunize cooperative price-fixing activities from prosecution under Section 1 of the Sherman Act, the courts have found other activities to be within the legitimate objects of Capper-Volstead. Recently, some courts have interpreted the legitimate objects permissible under Capper-Volstead to include activities that constitute a Sherman Act Section 2 monopolization violation,[2] such as monopolization activities of fixing prices, joining together with other cooperatives, and obtaining a monopoly through the voluntary enrollment of members of a voluntary combination with another cooperative *(Fairdale Farms I)*. At the same time, any monopolization activity that is not within the legitimate objects of cooperatives is a nonexempted activity that would subject the cooperative to prosecution under Section 2 of the Sherman Act *(id.; Fairdale Farms II; Kinnett Dairies, Inc. v. Dairymen, Inc.)*.

In addition, Section 2 of Capper-Volstead offers a check on cooperative activities that unduly enhance the price of an agricultural product through monopolizing or restraining trade in interstate or foreign commerce. The Secretary of Agriculture is required to initiate a complaint against such activities. However, no secretary has used this provision.

O'Hara notes that arguments concerning antitrust monopolization show a dichotomy between a focus on conduct, the judicially preferred criterion, and structure and performance criteria favored by economists. Cases interpreting the antitrust laws governing cooperatives show courts adopting conduct as a determinant of activities that are illegal. Conduct, such as predatory pricing through pool-loading, is not within the legitimate objects immunized by the Capper-Volstead Act. Thus, courts have routinely held that predatory conduct having no legitimate business justification is not within the legitimate objects of Capper-Volstead *(Maryland and Virginia Milk Producers Association, Inc. v. United States; Fairdale Farms I)*.

Areeda and Turner concluded that a price at or above average cost, or at or above reasonably anticipated short run marginal and average variable costs, is not predatory. Likewise, a short run profit-maximizing price below average cost should also be found to be nonpredatory. However, a price below a firm's reasonably anticipated short run marginal costs or average variable costs is predatory. Under this hypothesis, unless a cooperative's price is less than its marginal cost, there is no predatory pricing to constitute a monopolization violation under Section 2 of the Sherman Act.

Recently, structure and performance have received increased attention as appropriate concepts for analyzing cooperative antitrust violations (O'Hara; Kaplin; and Jesse, Johnson, Marion, and Manchester). Courts also appear to be reducing their dependence upon conduct and accepting arguments based upon structure and performance. Three recent cooperative anticompetitive federal court decisions, *United States v. Dairymen, Inc., Alexander v. National Farmers Organization,* and *Kinnett Dairies, Inc. v. Dairymen, Inc.,* adopted market share as a criterion to be employed in determining whether there was a Sherman Act monopolization violation. The *Alexander* court noted that actual monopolization requires a showing of monopoly power in the relevant product and geographic market, while a minimal showing of product and geographic context is required for an alleged conspiracy to monopolize. The court did not need to rely on a market share evaluation for its decision because it found that three of the defendant dairy cooperatives had engaged in predatory conduct that was clearly not immunized by Capper-Volstead.

The cooperative in *Dairymen* was charged with attempted monopolization; the cooperative had explicitly intended to achieve the unlawful goal of monopoly power. The court stated the standard test for attempted monopolization as being anticompetitive conduct with a specific intent to monopolize and a dangerous probability of success. An intent to monopolize could exist even if there was economic justification if the anticompetitive practice was undertaken in the desire to achieve an unlawful goal. A dangerous probability of success of achieving monopoly power in violation of Section 2 of

[2] The circuit courts are not in agreement as to the applicability of the Capper-Volstead affirmative defense to allegations of a Section 2 Sherman Antitrust violation. The Supreme Court declined to grant a writ of certiorari in Fairdale Farms I and II to consider this issue, but may decide to address the issue by accepting certiorari in L. & L. Howell, Inc. v. Cincinnati Cooperative Milk Sales Association, 1983-2 Trade Case ¶ 65,595 (6th Cir. 1983).

the Sherman Act could be evaluated by examining the cooperative's market share within relevant geographic submarkets. The cause of action was remanded to the district court to determine the relevant geographic submarkets.

Thus, *Dairymen* says that market share in relevant geographic submarkets may be used to show a Sherman violation of an attempt to monopolize. Although the circuit court did not directly connect market share with the cooperative's unlawful goal, their relationship is mandated by the proof requirements of an attempted monopolization violation. There must be a specific intent of achieving monopoly power. The only proof reported by the court in *Dairymen* that is responsive to the element of monopoly power was evidence of the cooperative's market share in relevant geographic submarkets.

The district court in *Kinnett Dairies* concluded that market share was the primary indicator of market power as required for a monopolization violation under Section 2 of the Sherman Act. The court looked at the cooperative's relevant markets and market share and found that the possession of a dominant share of the available milk production was permissible under the scope of the Capper-Volstead exemption since none of the cooperative's actions were predatory.

MONOPOLIZATION AND CONTESTABLE MARKETS

The courts are correct in finding that an analysis of a Sherman Act Section 2 monopolization violation is generally dependent upon some showing of a requisite market share. This does not mean, however, that a firm's market share is conclusive evidence of the existence of monopoly power. As suggested by Baumol, market share may be relevant to the presence of monopoly power, but it is not necessarily a measure of that power. A cursory analysis of the milk marketing activities of the cooperatives in *Dairymen, Alexander* and *Kinnet Dairies* suggests that the theory of contestable markets may offer an insight into whether the cooperatives had monopoly power.

Many of our country's milk markets have an unusual structure because of the unique legislative provisions which govern marketing arrangements and strategy. Large cooperative organizations qualifying under the Capper-Volstead exemption market over 60 percent of our country's dairy products (U.S. Government Accounting Office). Capper-Volstead allows these business organizations to enter into nonpredatory pooling arrangements, supply and consignment contracts and price-fixing agreements that are precluded by the antitrust laws for nonqualifying organizations. There also exist a complex set of government marketing regulations and excess milk production. These circumstances markedly alter the structure of many milk markets.

Market conditions for fluid milk imply that, relative to existing suppliers, a new milk supplier is not at a disadvantage in terms of production technique or product quality. A milk supplier may also have relative freedom of entry and exit to a given market. Freedom of entry exists by reason that a hauler or supplier may have excess capacity that could be utilized by expanding into a new area. The pooling, marketing, and pricing arrangements available to cooperatives also may provide for relatively costless entry into a new market.

Two examples from recent monopolization litigation enumerate this point. In *Alexander,* Mid-America Dairymen, Inc. (Mid-Am) and Associated Milk Producers, Inc. (AMPI), two large dairy cooperatives, had entered consignment agreements whereby Mid-Am marketed AMPI milk in some areas while AMPI marketed Mid-Am milk in other areas. This arrangement supports a conclusion that at the termination of their agreement Mid-Am could easily commence marketing its own milk in those areas where Mid-Am had sold AMPI milk. Thus, entry would not involve significant costs. In *Green v. Associated Milk Producers, Inc.,* the court noted the purchase of a milk route to enable certain existing customers of the milk hauler to change milk markets. This practice thereby enabled a cooperative to acquire new producers and expand its milk supply without incurring any additional costs.

Availability of pooling, marketing, and pricing arrangements may also provide for freedom of exit. The previously noted Mid-Am consignment agreement demonstrates this possibility. At the end of the consignment agreement, Mid-Am should be able to stop supplying AMPI its milk and thereby exit from that market without incurring any costs. Exiting a market may even offer cost savings. If a cooperative incurs regulatory taxes for interhandler shipments of milk involving down allocations and compensatory payments, exit from a market that terminated these taxes would reduce costs *(Kinnett Dairies).*

These arrangements suggest that a firm with an excess or deficit supply of milk may be able to enter or leave certain milk markets without impediment. Thus, selected markets of the milk hauling and supply industry may be vulnerable to hit-and-run entry and thus be close to a perfectly contestable market. The degree of contestability is, of course, an empirical question. However, if these conditions had characterized

the markets at issue in *Dairymen* and *Alexander*, each cooperative's market share would have been immaterial. The welfare properties of a contestable market mean that there is no monopoly power. Since monopoly power is the crux of a Sherman monopolization violation, the existence of the properties of a perfectly contestable market precludes a finding of such a violation.

In *Alexander*, the high overhead costs of the existing milk suppliers constituted an inefficiency that resulted in the price of their milk being greater than the marginal costs associated with efficient production. This situation allowed the National Farmers Organization to enter the market and price its milk at marginal cost, which was lower than the price of existing firms. Rather than reducing their overhead costs in order to make themselves competitive with the National Farmers Organization, the existing firms adopted practices including supply shorting and late deliveries, discriminatory pricing, coercive threats of supply cutoffs, committed supply agreements, and threats of litigation. These predatory activities were designed to prevent the National Farmers Organization from supplying milk at marginal cost. If permitted, these activities would have resulted in prices greater than marginal cost and would have destroyed the contestability of the market.

Because the predatory conduct was illegal under the Sherman Act, the *Alexander* court did not need to consider further the concepts of structure and performance in order to determine whether there was monopoly power. Had the court continued, however, the contestable market theory may have shown that the existing firms did not have monopoly power. The National Farmers Organization was able to enter various milk supply markets and successfully compete with the existing milk suppliers despite their overwhelming share of the market. Thus, the milk supply markets were open to competition. It follows that there was no monopoly power as required for a Section 2 monopolization violation.

CONCLUSION

Contestable market theory not only provides a unifying analysis of market structure but also extends Adam Smith's invisible hand into imperfect competition. The theory may be especially important for agricultural cooperatives which are able to engage in certain monopo-listic activities by reason of the Capper-Volstead affirmative defense. This is because the theory offers a procedure to determine whether a firm has monopoly power, a required condition for an actual and attempted monopolization violation.

Courts have suggested that a large market share may constitute an unlawful goal or may demonstrate monopoly power. The theory of contestable markets offers evidence to counter the assumption that a firm's market share is sufficient to prove a monopolization violation. A Sherman Act Section 2 actual or attempted monopolization violation requires substantiation of the existence of monopoly power or the dangerous probability of success of achieving such power. In a perfectly contestable market, the market is open to competition so there is no monopoly power.

An allegation that a cooperative's large market share constitutes monopoly power may be refuted by showing a threat of entry of other firms with evidence establishing the major properties of contestable markets. The evidence would show a market accessible to potential freedom to exist. Such evidence means that the cooperative could not use its market position to control prices or stifle competition. Thus, the cooperative does not possess monopoly power as required for an actual or attempted monopolization violation.

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