
**AN ECONOMIC ANALYSIS OF POLICIES PROTECTING
SMALL BUSINESS IN THE MILK INDUSTRY ***

H. M. Harris, Jr., R. D. Knutson, C. E. French

Regulatory activity to maintain the status of the independent milk company as a viable competitive force in the milk industry has been a central focus of regulatory policy since the 1930's. Some authorities question the degree of emphasis on preservation under the law, but most feel that there is an important element of protection embodied in regulatory activity affecting the industry. We feel that this aspect of the law is important and is the focus of this article.

Legal protection of the independent dairy is afforded from three sources. The Robinson-Patman Act, which prohibits firms from discriminating in price where the effect may be to substantially lessen competition, has been enforced extensively by the Federal Trade Commission (FTC) on behalf of independent milk companies. For example, of 53 complaints filed by the FTC from June 1950 to June 1964, nine were against dairy companies [21, p. 176]. Independent firms have protected their own position under the law in treble damage private litigation. As a group, the national and regional dairy concerns have been involved in almost continuous treble damage litigation on charges of discriminatory pricing in recent years.

In 1970, the dairy industry in 34 states have secured for its own "benefit" special state laws prohibiting price discrimination and/or sales below cost, or state milk control laws fixing resale milk prices [14]. The main advocates of such laws have been the independent segment of the industry. They were enacted largely for independents' protection to

prevent sales of milk at "unreasonably low" price levels [15].

Beginning in the early 1960's, the FTC ordered and stringently enforced prohibitions against the four largest dairy companies -- Beatrice, Borden, Kraftco, and Foremost -- and one medium size concern -- Dean Foods -- from acquiring any other milk company without prior FTC approval. These orders had as their primary goals stemming the absorption of independent milk companies by the largest firms in the industry, preventing further increases in market concentration, channeling merger activity toward smaller firms, and forcing larger firms to expand internally [4, p. 16, 17, 18]. These merger guidelines, of course, also had a direct effect on the merger activity of all other major dairies.

With the expiration of the 10-year merger prohibitions, the FTC in June 1973 announced a new enforcement policy with respect to mergers in the dairy industry [11]. The new policy marks a radical departure from the old in that the Commission attempts to define suspect mergers in terms of aggregate size, market delineation, and market shares. Detailed analysis of the potential impact of the new guidelines on specific markets is needed to assess what changes, if any, the policy may have on merger activity. It is significant to note, however, that an underlying basis of the new policy is that, "The preservation of [a strong middle-tier] of viable independent companies is as essential to the competitive health of the dairy industry today as when the Commission cited it in its finding in

H. M. Harris, Jr. is assistant professor of Agricultural Economics and Extension Specialist-Marketing at Virginia Polytechnic Institute and State University, R. D. Knutson is associate professor and C. E. French is Head of the Department of Agricultural Economics at Purdue University. Based in part on research results found in Harris, H. M., "The Economic Outlook for the Independent Dairy Company," Ph.D. Thesis, Purdue University, 1971 [14].

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Beatrice Foods . . ." Thus, it appears that the policy toward horizontal mergers may be perpetuated despite the inclusion of local market guidelines.

REQUIREMENTS FOR AN EFFECTIVE POLICY DESIGNED TO PRESERVE A PARTICULAR INDUSTRY SECTOR

The question addressed here is to the appropriateness and effectiveness of policies designed to protect a certain industry sector. The relevance of this question for the milk industry owes to two key points. First, current policy has impeded reasonable adjustment of industry capacity to market sales. Second, current policy may have tended to suppress competition in the industry rather than enhance it.

This article does not challenge the soundness of a policy designed to stem the tide toward increasing market concentration. Such policy, along with laws designed to prevent collusive and truly predatory market activity, is presumed to be an essential part of preserving a competitive market economy.

The rationale of regulatory policy designed to maintain the competitive status of a particular segment of an industry is based on three assumptions about the relation of protection to effective competition:

1. *It assumes that the protected sector is operationally (technically) efficient.* Without operational efficiency in the independent sector, the long term merits of a policy designed to protect the status of the sector can, in general, be questioned.¹
2. *It assumes that the protected sector provides an active source of competition for the remainder of the industry.* The ability to actively compete in the short run may result from operational efficiency, willingness on the part of ownership and management to accept lower returns on either management or investment, or living off depreciation. In the long run, only operational efficiency provides the basis for (but does not assure) an active source of competition.
3. *It assumes an absence of adverse external effects on other sectors of the market.* If a policy either impedes the ability of another sector to achieve operational efficiency or effectively limits its pricing strategy alternatives, the policy may have more undesirable long term consequences than the

malady sought to be remedied.

A recently completed study at Purdue University provides insight into each of these aspects with implications for contemporary regulatory policy in the fluid milk industry [14]. The main objective of the study was to determine the economic status of the independent milk company in today's milk industry - and coincidentally after over 20 years of protective treatment under state and federal statutes.

The study involved 20 independent dairy companies. This sample was selected because these same firms had participated in a 1965 experiment at Purdue, thus affording a unique data base for purposes of comparison [12]. A strong rapport between case firms and the institution permitted access to information often withheld from university researchers. It is not claimed that the sample was representative of the independent sector. On the contrary, case firms were a good deal larger and more progressive than the average independent processor.

The 20 sample firms, five of which processed milk in more than one facility, had plants located in six midwestern and southeastern states. Their products were distributed collectively in eight states. Sales of the case firms averaged about \$8 million in 1969, ranging from about \$2 million to over \$30 million annually.

OPERATIONAL EFFICIENCY OF THE INDEPENDENT SECTOR

Efficiency in processing in the fluid milk industry is to a large extent a function of economies of size. Other major factors influencing processing costs are utilization of plant capacity, degree of specialization, and management ability.

Studies of economies of scale in milk processing have been extensive [6, 7, 9, 17, 29]. They indicate that milk processing costs decline continuously but at a decreasing rate as plant size increases to a volume of 800,000 quarts per day. Beyond 100,000 quarts per day the fall in per unit costs slows considerably.

A conservative 75,000 quarts per day was selected as a norm for minimally efficient plant size. Based on this norm, one-half of the case firms were operating plants of insufficient size to generate scale economies in milk processing. But because the case firms were larger and more progressive than typical independents, this drastically understates the national picture. Data from a 1965 USDA study indicated that in 85 markets encompassing more than half of the

¹ This is not to suggest that particular firms in the sector might not be operationally efficient and merit protection. Nor is it to imply that short-term policies designed to provide an orderly transition to the new equilibrium structure are unwarranted.

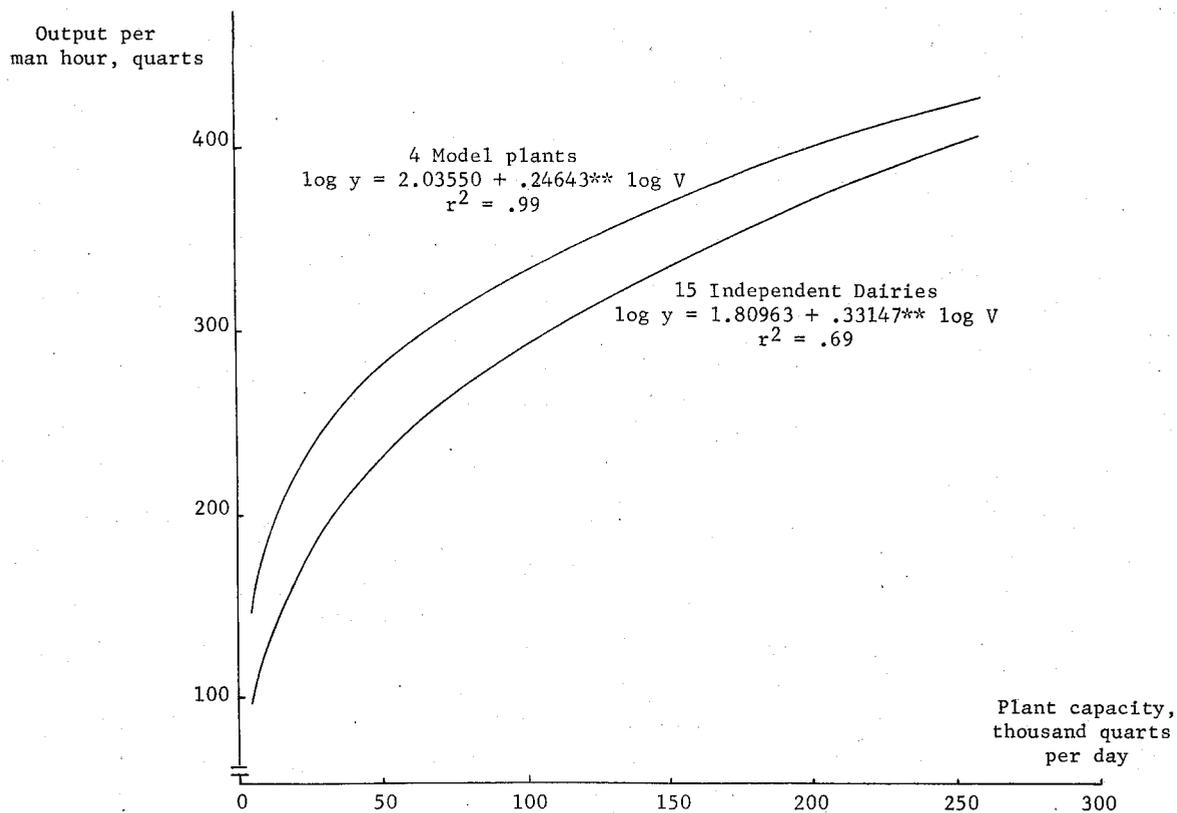


Figure 1. LABOR PRODUCTIVITY CURVES FOR FOUR MODEL PLANTS AND 15 INDEPENDENT DAIRIES.

milk plants in the country, over 90 percent of the independently owned plants were below this minimally efficient size [16]. In comparison, only about one-fourth of the plants of national and regional dairies were below this level of production. In even sharper contrast, in November 1969, 18 plants of the six largest vertically integrated chain stores processed an average of nearly 200,000 quarts per day.

Actual processing cost figures were not gathered from the case firms because of reticence in discussing costs, lack of data, and incompatibility of accounting systems. Instead data were gathered on labor productivity. Plant labor costs probably represent the most crucial controllable cost category in milk processing² - accounting for almost 25 percent of

total processing costs in a modern 100,000 quart per day plant [9, p. 9-10].

Figure 1 shows the labor productivity curve estimated for the 15 independents furnishing sufficient data for this analysis, and the curve for four model plants with a comparable degree of automation [29]. The results indicate the labor efficiency of independents within given size categories is below the norms set by economic-engineering studies.³

Of course it is unrealistic to suggest that a real life plant could operate as efficiently as the model plants. But the magnitude of difference between the curves is substantial. For example, based on these data, a 50,000 quart independent could save around \$30,000 per year by improving labor productivity to

² Carton costs represent about 40 percent of total costs, excluding raw product cost, in a 100,000 quart plant, but these are much more easily controllable than labor costs and increase in almost direct proportion to plant size.

³ The hypothesis that the "b" coefficients were identical could not be rejected at the 5 percent level of significance ($t = .855$, 15 d.f.). The intercepts were tested by aggregating the data and using a 0-1 dummy variable for case firm and model plant observations respectively. The coefficient for the dummy variable was significantly greater than zero at the 95 percent level of confidence ($t = 1.851$, 17 d.f.).

the norm.⁴ This \$30,000 cost differential approximates the average after-tax profits of similar sized case firms. The lower labor productivity of the independents stems primarily from a proliferation of product lines.⁵ The average case firm handled 133 product identifications. Large multi-plant firms control the costs of product proliferation by plant specialization. Independent concerns could accomplish similar savings by joint processing agreements with other independents or even national or regional concerns. However, independent managers were reluctant to utilize other processors as a major source of supply.

Analysis of the distribution systems of independents revealed that the case firms were more heavily dependent on low-volume, high-cost distribution channels such as small grocery stores and home deliveries than were the major dairy companies. For example, 23 percent of the average case firm's volume was delivered to the consumer's doorstep. Another 22 percent was sold to vendors, most of which was distributed on home delivery routes. This may be a rational strategy on behalf of the independent. But the problem is not only that such sales are characterized by high costs; these segments of the market are shrinking, leaving the independent in a tenuous position to grow or even maintain volume.

Only four of the 20 firms had trade areas in excess of 100 miles, while six distributed within a 50 to 70 mile radius. The remaining firms confined their operations to a small area surrounding their plant. An analysis of the effect of marginal increases in firms' distribution areas revealed that half of the independents could reduce average total costs by market expansion even on relatively high cost, small truck distribution routes. If distribution of the added volume was transportable on trailer trucks, all firms analyzed could have reduced average total costs.

COMPETITIVE BEHAVIOR OF THE INDEPENDENT

Disruptive pricing by independents has been ascribed an important role in thwarting joint profit maximization strategies by the "core" of dominant firms [28]. Whether this is the case in the dairy industry today is questionable based on this study. Case firms were reluctant to "shake-up" a market.

Pricing policies of all but six sample companies

were very conservative. Several firms consciously priced a few cents higher than direct competitors. Dominant firm price leadership, both tacit and overt, by major dairy companies and integrated chain store processors was the price coordinating mechanism for the markets served by 14 of the 20 firms studied. Most case firms willingly went along with this market mechanism.

Even in situations when independents would be expected to be most aggressive – after loss of a large account – they tended to react conservatively. Eleven of the case firms had suffered recent loss of a major account, which meant volume losses ranging up to 40 percent of total sales volume. Only three firms had priced more aggressively in an effort to recoup this lost volume. The others tended to take losses passively or engage in internal defensive measures. As one manager said, "We were philosophical about it. We didn't want to start anything."

Vatter traced such an inactive role by the fringe to fear of retaliation by the dominant firms in a market [28]. For the case firms, however, there appeared to be five factors which influenced reluctance to price aggressively:

1. Lack of accurate cost data on which to base bids relative to major dairy companies.
2. No distinction between average and marginal cost.
3. Inability to bid for large accounts because of high costs and/or limited trade area.
4. The assumption of a high propensity to react by competitors – probably too high in many instances.
5. Moral aversion to price "cutting."

There are, of course, other facets of rivalry besides price in oligopolistic milk markets. For example, advertising and product development could offset pricing disadvantages.

Advertising, however, was becoming less important as a competitive weapon by the independents studied. Average advertising expenditures by the case firms had declined from 1.2 percent of sales in 1965 to 0.8 percent in 1969. Thus, the case firms seemed to recognize the increasing difficulty of gaining brand name product differentiation for one of the most homogenous food products in the marketplace today.

It was hypothesized that independents, with their greater managerial flexibility, might be able to skip several traditional stages of product development and be the first to introduce new products in their

⁴ Based on a conservative \$3 per hour average plant wage rate.

⁵ Another contributing factor was excessive day-to-day fluctuation in production runs by the case firms.

local markets. This hypothesis was confirmed by the independent managers interviewed. Of the 94 instances of new product introduction in the case firms' markets since 1965, 38 percent were by independents. But the new products that independents introduced were most often judged "failures" or "questionable." Examples included imitation and filled milks, and home bulk dispensers. On the other hand, new product introductions by the majors such a yogurt, low fat milk and individual creamers were judged unqualified successes. Thus, while major firms tended to obtain a successful new niche in the market by innovation, independents more often incurred losses in attempting to introduce new products.

FINANCIAL CONDITION AND GROWTH

Data on profits gathered from case firms and several secondary sources led to the following conclusions: 1. Case firms were comparable in profit performance to other similar-sized independents, and were considerably above the average for all independents. 2. In none of three key measures of profit performance⁶ did the case firms or independents generally compare favorably with national or regional dairy companies. 3. Profits for the industry as a whole trended sharply downward between 1965 and 1970 [12, 13, 14, 20]. For 1969, case firms furnishing an income statement averaged a return of 0.9 percent on sales and 2.7 percent on total assets after taxes. In contrast, 10 major dairies averaged 2.2 percent on sales and 5.2 percent on total assets.

Analysis of the financial statements of case firms generally revealed sound equity positions. Six of the case firms had no long term debt at all. This conservative financial attitude gives independents a reservoir of strength in case of hard times. However, it also was symptomatic of a risk aversion preference that left many case firms in the position of being unable to generate internal financing for modernization, plant expansion, and acquisitions – but extremely reluctant or unwilling to borrow funds for these purposes.

Technological change and shifts in the buyer market have created strong pressures for smaller dairies to grow rapidly in order to remain effective competitors. Several theorists have postulated that growth of any firm is a key measure of performance

[2, 22, 24]. All sample firms showed positive growth rates (as measured in yearly dollar sales) over the decade, 1959-1969. Average compound rate of growth in sales were 5.6 percent yearly. Deflated for price changes, the true rate of growth was about two percent annually over the past five years. National and regional firms grew twice as fast as the case firms during this period – but it is important to note that most of their growth stemmed from non-dairy and even non-food items [20, p. 104-107].

Most sales increases of the case firms were accounted for by acquisitions of smaller dairies. The 20 case firms had acquired a total of 69 dairies since 1959. Acquisitions accounted for all growth in sales for six firms between 1959 and 1969. That is, in the absence of acquisitions of smaller dairies, they would have been stagnant or would have actually suffered declines in sales. To illustrate the importance of acquisitions to growth, during 1965-1969, seven case firms grew at a compound rate in excess of 10 percent. These seven accounted for 23 of the 30 acquisitions during the span. On the other hand, four firms showed no growth or lost sales during this period. None of these firms had purchased smaller dairies.

Eighteen of the case firms were closely held corporations and two were operating cooperatives. For most of the closely held firms, family ownership had a pervasive influence on virtually all aspects of firm organization and behavior. Aversion to debt, constrained and conflicting goals, and conservative competitive attitudes were characteristics exhibited by most case firms which appeared directly related to family domination. When management expressed the desire to expand – even at the risks of added debt load and competitive reaction – ownership often vetoed any such move.⁷ The owners' attitude seemed often to be, "Don't risk the family fortune," even though family assets may have been largely attained from the milk industry in its heyday.

EXTERNAL EFFECTS ON OTHER SECTORS AND IMPLICATIONS

Three facets of external effects are relevant to this inquiry. First, the independent sector may be a source of competitive stimulus for other sectors in the industry.

The study has indicated that in spite of

⁶ The three ratios were net income to sales, net income to net worth, and net income to total assets.

⁷ In some cases this conflict was evident even when ownership and management were vested, for practical purposes, in the same person.

protective policies, the independent sector continues to be plagued by efficiency and management problems. In addition, its contribution to the market as a viable source of competition has been questioned.

These findings raise doubts concerning the extent to which the independent sector acts as a competitive pacemaker for other sectors of the industry. While certain independents do act as viable sources of competition for their individual markets and deserve regulatory protection from predation, generalization of this behavior to the independent sector as a whole is unwarranted.

Second, the regulations designed to preserve the independent sector as a viable competitive force, may themselves be having an adverse impact on the competitive behavior of other sectors.

The Robinson-Patman Act, as well as the state unfair trade practice laws, prohibits only instances of price discrimination having the prescribed adverse effect on competition. While a decline in Robinson-Patman litigation by the FTC appears to have occurred in recent years, private treble damage Robinson-Patman litigation remains plentiful. In the opinion of many, jury findings of competitive injury and awards of substantial damages to independent concerns seem to have been based on meager evidence of injury to the plaintiff and little or no injury to competition in the economic sense. The *Utah Pie* case provides an excellent illustration [27]. In this case, the Supreme Court upheld a jury finding of competitive injury despite the fact that the independent Utah Pie Company initially possessed 66.5 percent of the relevant market; experienced a steady increase in sales; and improved its profits and financial condition throughout a four-year period of geographic price discrimination by national food processors. The only tangible evidence of injury to the independent was a decline in market share to 45.3 percent of frozen pie sales.

In retrospect, for the national concerns to have penetrated the market⁸ and avoided the geographic price discrimination charge, they would have been required to lower their price structure in all U. S. markets where they sell pies. Such suits and interpretations have acted as a direct deterrent to internal penetration by national and regional firms desiring to expand their market sales. The effect is to make prices more rigid, provide the smaller concerns with an umbrella for inefficiency, and stifle the kind of competition the antitrust laws were designed to instill.

Contemporary structural and competitive conditions in the milk industry require careful consideration of the proper standard for finding the requisite competitive injury under both state and federal discrimination statutes lest competition at all market levels be discouraged. Traditional standards such as diversion of business, intense competition, downward price pressure, and even sales below cost [3, 27] may have little predatory significance in an industry where adjustment of capacity to market sales and a new effective source of competition, the integrated chain grocery, stand as important threats to the remainder of the industry – nationals and regionals as well as independents.

Third, the impact of regulations which suppress competition upon the structure of the industry has already been demonstrated. As early as 1963, Clark warned of incentives created by state milk control laws for vertical integration by chain stores thereby distorting the structure of the milk industry from that which would have existed under competitive pricing [5, p. 26]. Today more than 30 percent of California's milk processing capacity is vertically integrated. This compares with 11.4 percent for the nation as a whole in November 1969. Significant further shifts in market shares from the conventional sector to the integrated chain dairy sector are in prospect unless adjustment of industry capacity to industry sales and more intensive price competition are achieved. In order for such adjustments to occur it is suggested: 1. That price discrimination laws be interpreted more liberally, 2. that legal barriers to mergers be lowered, and 3. that state milk control and dairy industry unfair trade practice laws at the resale level be abandoned or modified.

This study indicates that at least half and probably three-fourths of the case firms, and a higher proportion of all independents could cease operations over the next few years with no obvious deterioration of market competition. Indeed, an increase in the technical efficiency of the industry would result, even if this means allowing independents to be absorbed by the major dairies. Improved stature of the major dairy companies might well prove valuable in future confrontations with the growing power of the rising force in the industry – the vertically integrated chain grocery. Also, some contend that growth of major dairies will give countervailing power to offset the recent shift toward bargaining strength of regional producer associations.

The point is this. When the stated purpose of regulatory policy is to encourage competition, a firm

⁸Which under the Sherman Act standards could have been considered to be monopolistically controlled [26].

that is not competing, whether large or small, does not deserve special protection from its rivals. And no firm should be insulated from the competitive *environment* itself. The milk industry experience demonstrates in some ways the effects of failure of laws and legal interpretations to take this view. In this sense it is but a case in point. But the issue is crucial.

If the public, because of the sheer magnitude of physical and human capital invested in the independent sector, deems it desirable to protect this institution, the nature of such protective policy should be radically changed. The emphasis must be on improved economic efficiency of this sector to

make it an effective competitor. For example, a feasible alternative which should receive consideration is the establishment of a program in an agency such as the Small Business Administration to provide managerial, technical, and financial assistance to independent firms. Other programs which use direct improvement of this segment rather than restriction of its competitors merit consideration. University Extension programs also have an important role to play in providing educational assistance to the independent sector and the industry as a whole.

REFERENCES

- [1] Adelman, M. S., "Price Discrimination as Treated in the Attorney General's Report," *University of Pennsylvania Law Review*, 104: 22-42, 1955.
- [2] Alderson, Wroe, *Marketing Behavior and Executive Action*, Homewood, Illinois; Richard D. Irwin, Incorporated, 1957.
- [3] American Bar Association, *Antitrust Developments, 1955-1968*, American Bar Association, Chicago, June 1968.
- [4] *Beatrice Food Company, 1965 Trade Reg. Rep.*, para. 17, 244.
- [5] Clark, D. A., Jr., *Economic Aspects of Government Milk Price Regulations*, Univ. of Calif., Agri. Exp. Stat. Bull. No. 63-64, Nov. 1963.
- [6] Cobia, D. W. and E. M. Babb, *Determining the Optimum Size Fluid Milk Processing Plant and Sales Area*, Ind. Agri. Exp. Stat. Bull. 778, May 1964.
- [7] Conner, M. C. and H. M. Harris, Jr., "Effect of Processing and Distribution Costs in Outside Markets on Marketing of Fluid Milk," *Virginia Agricultural Economics*, No. 277, Oct. 1971.
- [8] *Dean Milk Company, 1965 Trade Reg. Rep.*, para. 17, 357.
- [9] Devino, G., A. Bradfield, J. Mengel, and F. Webster, *Economies of Size in Large Fluid Milk Processing Plants*, Vt. Agr. Exp. Sta. Res. Report MP62, 1970.
- [10] Fallert, R. F., *A Survey of Central Milk Programs in Midwestern Food Chains*, USDA, ERS, Marketing Res. Report No. 994, Dec. 1971.
- [11] *Federal Register*, Vol. 38, No. 137, July 3, 1973.
- [12] Fife, C. L., *The Decision Making Process in Large Independent Fluid Milk Firms in the Midwest*, Ph.D. thesis, Purdue University, 1967.
- [13] Grieg, W. S., *Balance Sheets, Income Statements, and Financial Operating Ratios in the Food Processing Industry*, Mich. State Univ. Ag. Econ. Report No. 117, Nov. 1968.
- [14] Harris, H. M., *The Economic Outlook for the Independent Dairy Company*, Ph.D. thesis, Purdue University, 1971.

- [15] Knutson, Ronald D., "The Economic Consequences of the Minnesota Dairy Industry Unfair Trade Practices Act," *Journal of Law and Economics*, 12:377-389, Oct. 1969.
- [16] Manchester, Alden C., *The Structure of Fluid Milk Markets: Two Decades of Change*, USDA, ERS, Ag. Econ. Report No. 137, 1968.
- [17] Mengel, John, G. Devino, and A. Bradfield, *Specifications and Costs for a 100,000 Quarts Per-Day Fluid Milk Processing Plant*, Rutgers Agr. Exp. Sta. Bul. 825, 1969.
- [18] Mueller, W. F., "Merger Policy in the Dairy Industry," 21st Annual Midwestern Milk Marketing Conference, East Lansing, Michigan, April 27, 1966.
- [19] Mueller, W. F., *Status and Future of Small Business*, Hearings before Select Committee on Small Business, March 15, 1967.
- [20] National Commission on Food Marketing, *Organization and Competition in the Dairy Industry*, Tech. Study No. 3, June 1966.
- [21] National Commission on Food Marketing, *Special Studies*, Tech. Study No. 10, June 1966.
- [22] Penrose, Edith, *Theory of the Growth of the Firm*, New York, John Wiley and Sons, 1959.
- [23] Schneidau, R. E. and Ronald D. Knutson, "Price Discrimination in the Food Industry: A Competitive Stimulant or Tranquilizer?" *American Journal of Agricultural Economics*, 51: 1143-1148, Dec. 1969.
- [24] Thorelli, Hans. B., "The Political Economy of the Firm: Basis for a New Theory of Competition," *Schweizuesche Zeitschrift fur Volkswirtschaft and Statistik*, 1965.
- [25] USDA, *Federal Milk Order Market Statistics*, C & MS, Dairy Div., Nov. 1971 Summary, FMOS-143, Jan. 1972.
- [26] *U. S. V. Aluminum Company of America*, 148 F. 2nd 416 (2nd Cir.) 1945.
- [27] *Utah Pie Co. V. Continental Baking Co.*, 386 U. S. 685 (1967).
- [28] Vatter Harold G., *Small Enterprise and Oligopoly*, Oregon State College, 1955.
- [29] Webster, Fred, et. al., *Economies of Size in Fluid Milk Processing Plants*, Vt. Agr. Exp. Sta. Bul. 636, 1963.
- [30] Williams, S. W., D. Vose, C. E. French, H. L. Cook, and A. C. Manchester, *Organization and Competition in the Midwest Dairy Industries*, Ames, Iowa State Press, 1970.