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## Cooperatives and Investor Owned Firms: Do They March to the Same Drummer?

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**COOPERATIVES AND INVESTOR OWNED FIRMS:  
DO THEY MARCH TO THE SAME DRUMMER?**

Introduction

Do cooperatives and investor owned firms march to the same drummer? In a survey performed by Purdue University in the late 1970's and early 1980's (Schrader et al.), policy makers and university economists felt there were significant differences between the goals of cooperatives and investor owned firms (IOFs), while the "managers of cooperatives and proprietary firms ranked goals of their firms essentially the same" (Babb and Lang, p. 12).

Perhaps the difference in opinion is due to the general absence of widely accepted criteria by which to measure the performance of cooperatives. Schrader et al. have argued that both critics and defenders of cooperatives have suffered from a lack of objective measures of cooperative performance. This lack of accepted performance measures may be caused by disagreements over the role or function of cooperatives in society. In addition to their business activity, cooperatives also provide goods and services for which no market values are available, and conventional economic analysis, based on financial performance measures, usually fails to capture the nonmarket dimensions of cooperatives. Complete evaluation of cooperative performance requires consideration of these nonmarket dimensions. This paper argues that while some aspects of cooperative performance may be evaluated in comparison to investor owned firms, the nonmarket aspects of cooperatives should also be included in the evaluation of cooperative performance.

The next two sections review alternative schools of thought about agricultural cooperatives and provide a preliminary comparison of dairy cooperatives and investor owned firms over the period from 1973 to 1987 using a number of standard financial ratios. Nonmarket dimensions of cooperative performance are then identified along with some methods that could be applied to their evaluation. The final section contains concluding remarks.

### Economic Models of Cooperative Behavior

One school of thought views cooperatives as a variant of an investor owned firm. Cooperatives are viewed as organizations having scope for decision making independent of farmer-members and are modeled as investor owned firms, but with a different objective function. For example, an appropriate objective function of a cooperative, as originally suggested by Enke, may be to maximize the sum of producer surplus (profits) and consumer surplus (lower prices) rather than return on members' investment in the cooperative.<sup>1</sup>

A second school of thought views cooperatives as a form of collective action in which individuals join together to accomplish what would be more costly or impossible to achieve individually (Zusman). Farmers and other small operators can use collective action to ameliorate their potential disadvantage in the market system. With this definition of a cooperative, an appropriate measure of agricultural cooperative performance could be the profitability of the members' farming operations with and without the cooperative.

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<sup>1</sup> Cooperatives also have been modeled as maximizing average per unit surplus or price received by members (see Helmberger and Hoos).

## Cooperative Performance Evaluation: Comparison To Investor Owned Firms

If cooperatives are viewed as a variant of investor owned firms, then it is appropriate to compare cooperatives and IOFs using standard techniques of financial performance evaluation, such as financial ratio analysis. Four financial ratios measuring profitability, leverage, solvency, and liquidity were selected for comparison in this study. The financial ratios of cooperatives were calculated using financial statements collected from 10 of the largest U.S. dairy cooperatives for the period 1973 to 1987. The comparable ratios for IOFs were obtained from the Dairy Product Manufacturers category as reported in Robert Morris Associates Annual Statements Studies (RMA). The number of IOFs in the RMA studies for the corresponding years varied from 82 to 158 for most ratios. The dairy sector was used because of the relative comparability of IOFs and the cooperatives with respect to the scope of operations.<sup>2</sup> Both dairy cooperatives and investor owned dairy establishments produce creamery butter; natural and processed cheese; dry, condensed and evaporated milk; ice cream; and specialty dairy products.

For the financial performance comparisons, the median financial ratio of the dairy cooperatives was compared to the top and bottom quartile rankings of the same financial ratio for IOFs.<sup>3</sup> The RMA top (bottom)

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<sup>2</sup> The availability of financial statements and the relative comparability of asset size were also factors in selecting dairy cooperatives as the basis for comparison. Although financial data were available for a number of farm supply cooperatives, the RMA financial data base did not include farm supply IOFs prior to 1988. Financial data were also available for a number of grain marketing cooperatives, but their asset size was significantly larger than the RMA-listed investor owned grain marketing firms.

<sup>3</sup> Medians were selected as the basis for comparison because this, and the two quartiles, are the only statistics published by RMA for investor owned firms. Solvency ratios were not published by RMA prior to 1977.

quartile ranking is such that the ratios for 25% of the listed firms are better (worse) than the quartile value. The time-series comparisons of cooperatives and IOFs for each of the selected ratios are presented in graphical form. The detailed values of the ratios and the number of observations are given in the Appendix tables.

### *Profitability*

In this study, profitability was measured by the ratio of profits before taxes to net worth<sup>4</sup>. This ratio is reported as a percentage and expresses the before-tax rate of return on equity capital.<sup>5</sup> A low rate of return, normally indicating inefficient management, could reflect a conservatively financed, low-debt firm, or alternatively the pursuit of goals other than maximizing the rate of return on equity. The profitability measure was selected with the expectation that it could reveal a difference between IOFs and cooperatives, given that the primary goal of cooperatives may not be maximizing return on investment.

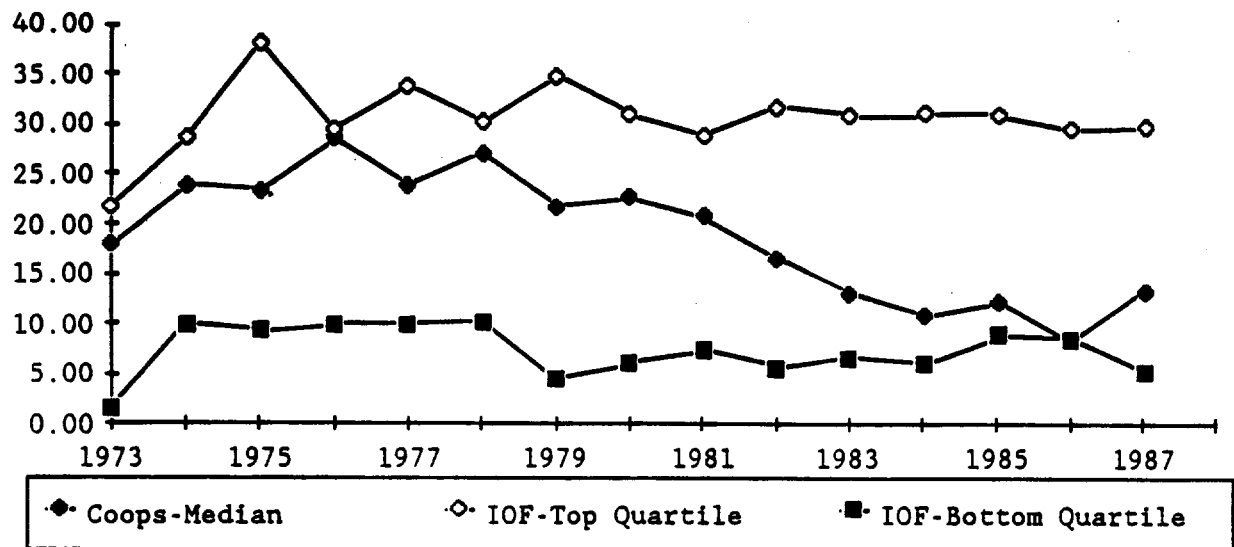
As illustrated in Figure 1, the median profitability ratio for cooperatives has declined over the years but still lies within the middle 50% of the IOFs. There is no strong evidence to support the claim that cooperatives are less profitable than the IOFs. Although their objective may not be to maximize return on equity, these results indicate that dairy cooperatives in fact perform similarly to dairy IOFs with respect to return on equity.

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<sup>4</sup> The net worth of the dairy cooperatives is the total equity as reported in their financial statements.

<sup>5</sup> RMA reports only the before-tax rate of return to equity for IOFs. This measure may be justified for the purposes of the present comparison because of possible differences in tax treatment among firms.

Figure 1. Ratio of Net Profit Before Taxes to Net Worth  
for Cooperatives and Investor Owned Firms, in Percent



### *Leverage*

Leverage is a measure of outside financing that the firm raises in addition to owners' equity capital. In this study, leverage was defined as the ratio of total liabilities to net worth and indicates the level of protection provided to creditors. The higher the leverage ratio, the greater the risk assumed by the creditors due to the probability of default by the firm, while a lower ratio generally indicates greater financial security for the creditors.

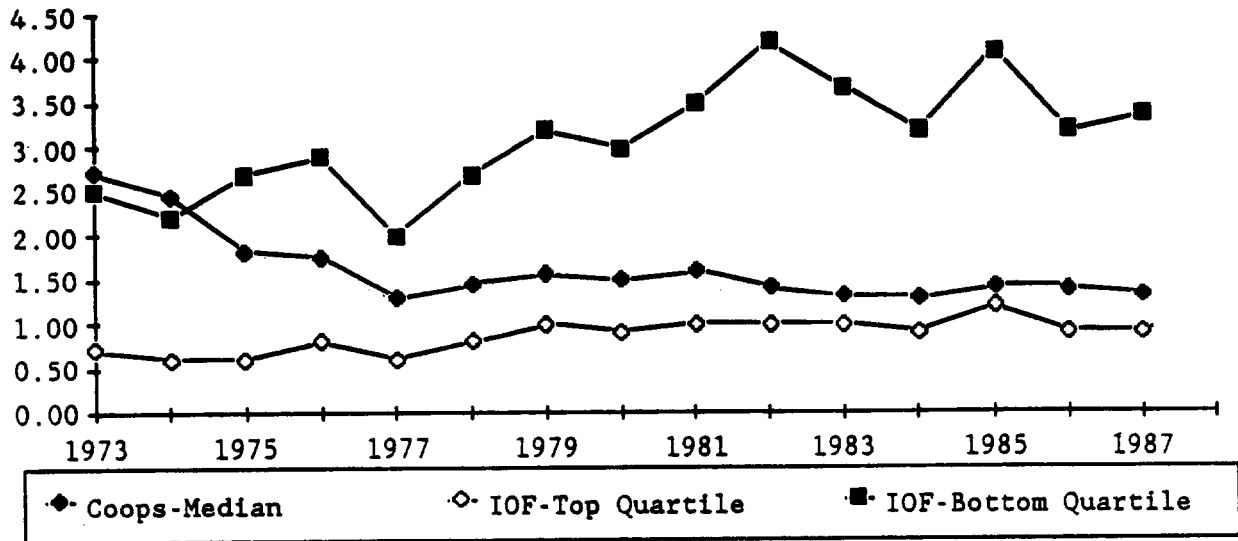
While IOFs are free to raise equity capital by issuing stock, equity formation in cooperatives is normally restricted to retained earnings. As a result, cooperatives are regarded as equity-bound and are forced to rely on debt for a larger portion of their financing needs. Accordingly, higher leverage ratios may be expected for cooperatives than for IOFs.

Contrary to this expectation, the median leverage ratio of the dairy cooperatives, as shown in Figure 2, has been within the middle 50% of the leverage ratio for IOFs. In fact, the leverage of the dairy cooperatives has improved over the years, declining from the bottom quartile of the IOFs to the top quartile. Dairy cooperatives thus compare very favorably to dairy IOFs with respect to their debt levels.

### *Solvency*

Solvency measures a firm's capacity to service debt. In this study, following RMA, solvency was measured by the ratio of net profit plus depreciation to the current portion of long term debt. This ratio expresses the coverage of current maturities by cash flows from operations. Because cash flow is the primary source of debt retirement,

Figure 2. Ratio of Total Liabilities to Net Worth for Cooperatives and Investor Owned Firms



this ratio measures the ability of the firm to service principal repayment and is an indicator of its debt capacity.

Several of the cooperatives in the study had little or no long term debt. With fewer solvency ratio observations, ranging in number from six to eight over the years, the cooperative median value as shown in Figure 3 was relatively volatile. For the firms that did have long term debt, the median coverage ratio for cooperatives has been higher than the coverage ratio for 75% of IOF dairies in half of the years reported and in all years the cooperative median has been above the IOF median. The comparison provides evidence that in general cooperatives are at least as able as IOFs to make principal repayments.

#### *Liquidity*

Liquidity is a measure of the adequacy of current assets to meet current obligations. For this study, liquidity was measured by the "quick ratio," the ratio of cash plus receivables to current liabilities. A value less than one implies a dependency on inventory or other current assets to liquidate short term obligations.

As illustrated in Figure 4, the median dairy cooperative has consistently had a quick ratio near 1, indicating a comfortable liquidity position for the top half of the dairy cooperatives. Over the past 15 years the median quick ratio of the dairy cooperatives has consistently been near the top quartile of the IOF dairy enterprises.

Figure 3. Ratio of Net Profit to Current Portion of Long Term Debt for Cooperatives and Investor Owned Firms

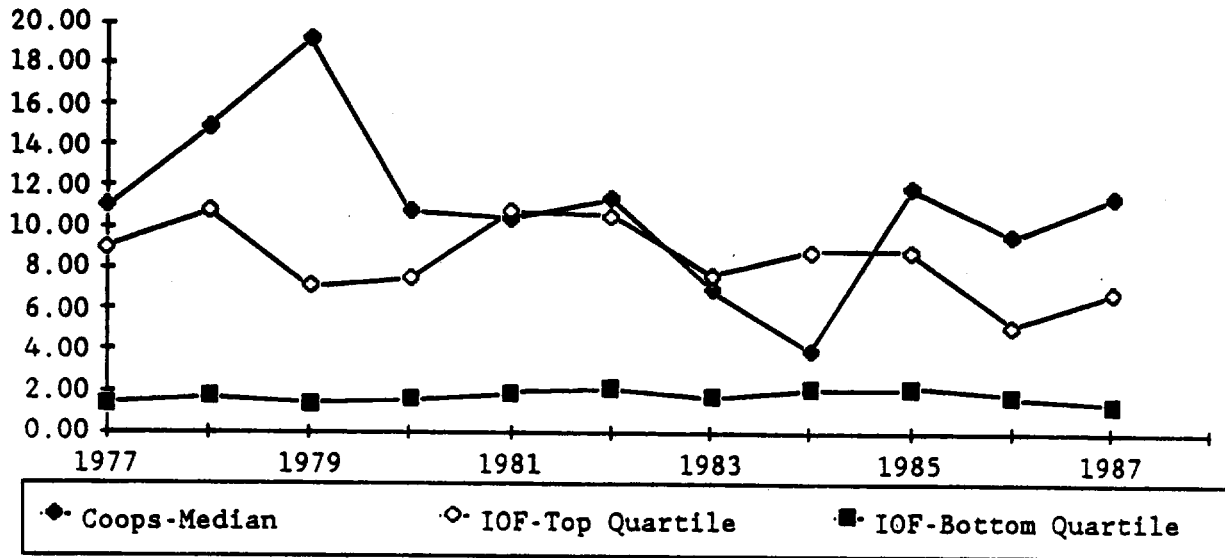
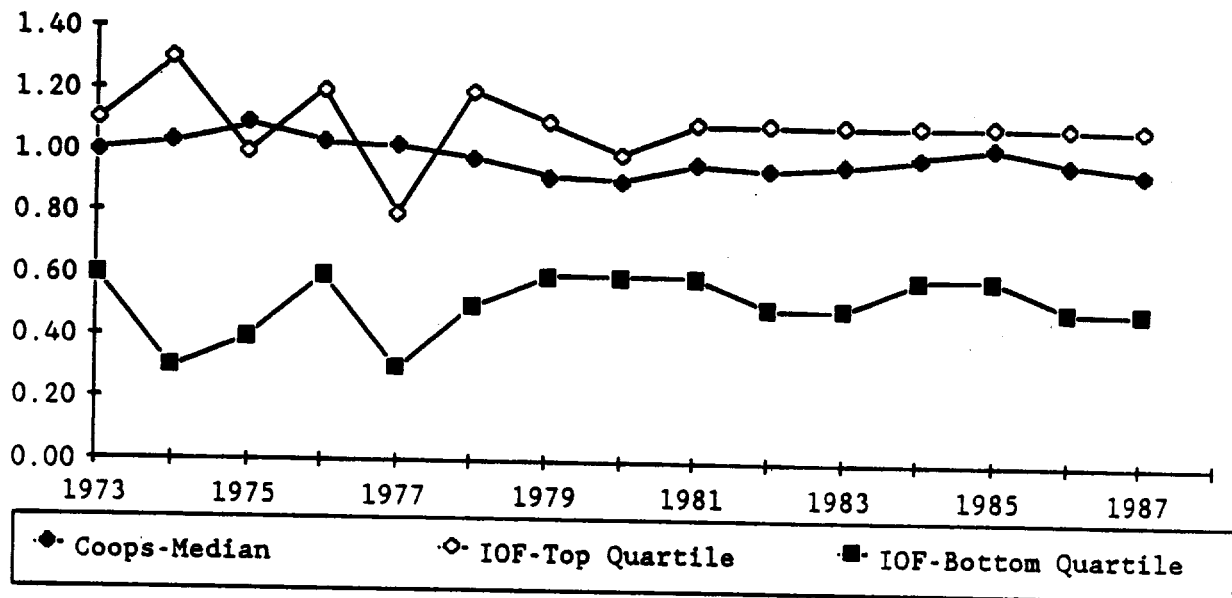


Figure 4. Quick Ratio for Cooperatives and Investor Owned Firms



## *Summary*

The comparisons in Figures 1-4 indicate that there is not much difference between the performance of dairy cooperatives and IOFs as measured by these four financial ratios over a 15-year period. These findings are similar to what Schrader et al. found in their comparison of "small" cooperatives and IOFs, using cross-sectional rather than time-series data. In contrast, for "large" cooperatives and IOFs, Chen observed substantial differences in leverage and profitability. As hypothesized in this study, Chen found leverage to be higher for cooperatives and return on net worth to be lower. However, Chen used a diversified sample of 79 large agribusiness firms in five different industry groups. The difference in findings between this study and Chen may be attributable to either industry or size effects. The cooperative firms used in this study, while definitely large, were all from the dairy industry. The dairy IOFs, on the other hand, were a mix of asset sizes, as reported in RMA. More detailed analysis may reveal that comparative performance varies across industry and size category.

## Alternative Performance Criteria for Cooperatives

Cooperatives and IOFs are generally viewed as different in a number of nonfinancial dimensions and performance evaluation of cooperatives should not be limited to financial comparisons with IOFs.

Cooperatives, in particular, are often thought of as providing a public good. One of the roles that cooperatives might play, as suggested by Nourse, is that of competitive yardstick: cooperatives should add enough competition to the system to give farmers a basis upon which to

judge the terms offered by investor-owned firms. Staatz (p. 97) notes that:

Farmers, faced with unsatisfactory performance by IOFs, may form a cooperative firm whose purpose is to force the IOFs, through competition, to improve their service to farmers. If successful in enforcing competition, the cooperative generates benefits that it does not capture itself but which accrue to the farmer-stockholders, as well as to other farmers in the area.

Another public good aspect of cooperatives is their ability to correct for market failures by providing services for which a functioning market does not exist. Additional nonmarket dimensions of cooperatives include education in democratic control, leadership training, and experience in political activity.

For some nonmarket dimensions of cooperatives it may be possible to estimate a value, which can be used to judge cooperative performance. Evaluation of nonmarket goods has received a great deal of consideration in the area of environmental and resource economics, where two general approaches of evaluating nonmarket goods are: (1) inferring values from observed behavior, and (2) direct elicitation. Both approaches may lead to alternative techniques for evaluation of cooperative performance.

As indicated previously, cooperatives can be viewed as a form of collective action. Cooperative performance can therefore be measured by estimating the incremental value of cooperative organization to the members. As suggested by approach (1) above, the incremental value of cooperatives can be inferred by measuring differences in the observed prices between cooperatives and IOFs. For example, the value of a marketing cooperative can be inferred from the differences in the prices received by member producers from their cooperative and those received by producers dealing with comparable IOFs. This approach is conceptually similar to

hedonic pricing, a technique which values attributes that are not traded separately. Hedonic pricing has been used to infer the value of such nonmarket goods as airport noise and air pollution from the differences in housing prices over spatially separated markets (Nelson and Brookshire et al.).

Selected attributes of cooperatives can be valued by direct elicitation approaches, which include contingent valuation, contingent ranking, and factorial survey methods<sup>6</sup>. Each of these approaches involves contacting a sample of individuals, identifying for them a contingent or hypothetical market and eliciting the value they attribute to the nonmarket good. Contingent valuation elicits the willingness of individuals to pay for an improvement or to accept a decrease in the quality or quantity of the nonmarket good. Contingent ranking avoids the difficulty of asking individuals to place a monetary value on a nonmarket good by simply asking them to rank the outcomes from most to least preferred. Factorial survey or vignette analysis asks individuals to rank bundles of goods or vignettes, rather than ranking single outcomes<sup>7</sup>.

The observed price differences between cooperatives and IOFs make it possible to estimate the value of the total nonmarket services of the cooperative. Directors, managers and members may be more interested in the valuation of specific cooperative attributes, which can be achieved by the survey-based direct elicitation methods. Application of these techniques to empirical evaluation of cooperatives is a subject for future research.

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<sup>6</sup> For contingent valuation methods, see Cummings et al. and Mitchell and Carson. For contingent ranking, see Smith and Desvouges (specifically, Ch. 6). Factorial survey methods are discussed in Goodman.

<sup>7</sup> Mitchell and Carson review the different biases inherent in direct elicitation methods and provide suggestions of how to minimize their effects. For a comparison of survey and hedonic approaches to valuing public goods, see Brookshire et al.

### Concluding Comments

There is some evidence, based on the Purdue University study (Schrader et al.) and the preliminary financial ratio analysis in this study, that cooperatives and IOFs do march to the same drummer. These results lead one to ask questions such as: Has the standard of financial analysis "forced" cooperatives to adopt the same goals as investor owned firms? Has the emphasis on efficiency and return in the business community had a determining influence on the behavior of cooperatives? Cooperatives, however, have had and may continue to have objectives which differ from those of IOFs. In order to capture these objectives, it may be necessary to evaluate nonmarket aspects of cooperative behavior.

In addition to efficiency and financial performance, Schrader et al. examined some nonfinancial performance dimensions of cooperatives. They considered performance perceptions of producers, managers, policy makers, and university economists in such areas as degree of price leadership, price competitiveness, provisions of services, and public responsibility. They did not attempt to estimate a value for the nonmarket dimensions of a cooperative, but rather obtained qualitative information, such as whether or not farmers perceived cooperatives as providing better service than IOFs. Some of the techniques suggested in this paper can be used to assign values to nonmarket attributes of cooperatives.

The expanded evaluation of the performance of cooperatives suggested in this paper should be of interest to cooperative members, managers, directors, and government policy makers. Through the use of nonmarket valuation techniques, it will be possible to elicit members' preferences. This information can be used by the members in evaluating the performance

of their cooperative, by managers in setting plans and strategies, and by directors in evaluating the cooperative managers. Government policy makers can incorporate the nonmarket evaluation results to assess the justification for continued public support of cooperatives.

## References

- Babb, E.M., and M.F. Lang. 1985. "Implication of Comparative Performance of Cooperatives and Investor Owned Firms." Farmer Cooperatives for the Future: NCR-140 Research on Cooperatives and Extension Committee on Organization and Policy Published Proceedings. West Lafayette, Indiana, Department of Agricultural Economics, Purdue University.
- Brookshire, D.S., M.A. Thayer, W.D. Schulze, and R.C. D'Arge. 1982. "Valuing Public Goods: A Comparison of Survey and Hedonic Approaches." American Economic Review, 72, 165-177.
- Chen, K.-S. 1984. The Growth of Large Cooperative and Proprietary Firms in the U.S. Food Sector, unpublished Ph.D. thesis, Purdue University.
- Cummings, R., D. Brookshire, and W. Schulze. 1986. Valuing Environmental Goods: An Assessment of the Contingent Valuation Method, Towtowa, Rowman and Allanheld.
- Enke, S. 1945. "Consumer Cooperatives and Economic Efficiency." American Economic Review 35, no. 1 (March): 148-55.
- Goodman, A.C. 1989. "Identifying Willingness-to-Pay for Heterogeneous Goods with Factorial Survey Methods" Journal of Environmental Economics and Management, 16, 58-79.
- Helmberger, P.G. and S. Hoos. 1962. "Cooperative Enterprise and Organization Theory." Journal of Farm Economics 44 (May):275-90.
- Mitchell, R. and R. Carson. 1989. Using Surveys to Value Public Goods: The Contingent Valuation Method. Baltimore, Johns Hopkins Press.
- Nelson, J. 1979. "Airport Noise, Location Rent, and the Market for Residential Amenities." Journal of Environmental Economics and Management, 6, 320-331.
- Nourse, E.G. 1922. "The Economic Philosophy of Cooperation." American Economic Review 12, no. 4 (December): 577-97.
- Robert Morris Associates. 1973-1987. Annual Statement Studies, Philadelphia, Pa.
- Schrader, L.F., E.M. Babb, R.D. Boynton, and M.G. Lang. 1985. "Cooperative and Proprietary Agribusinesses: Comparison of Performance." Purdue Agricultural Experiment Station Research Bulletin 982, Purdue University, West Lafayette, Indiana.
- Smith, V.K. and W. Desvouges. 1986. Measuring Water Quality Benefits. Boston, Kluwer-Nijhoff.
- Staatz, J.M. 1987. "Farmers' Incentives to Take Collective Action via Cooperatives: A Transaction-Cost Approach." in J.S. Royer, ed, (1987) Cooperative Theory: New Approaches. U.S. Department of Agriculture, Agricultural Cooperative Service, ACS Service Report Number 18, Washington. D.C.
- Zusman, P. 1988. Individual Behavior and Social Choice in a Cooperative Settlement, Magnes Press, Jerusalem.

APPENDIX TABLE 1. Ratios for Cooperatives and Investor Owned Firms

Year	Net Profit Before Taxes to Tangible Net Worth			Total Liabilities to Net Worth			Net Profit to Current Portion of Long Term Debt			Quick Ratio		
	Coops-Median	IOF-Top Quartile	IOF-Bottom Quartile	Coops-Median	IOF-Top Quartile	IOF-Bottom Quartile	Coops-Median	IOF-Top Quartile	IOF-Bottom Quartile	Coops-Median	IOF-Top Quartile	IOF-Bottom Quartile
1973	18.0	21.9	1.6	2.7	0.7	2.5	N.A.	N.A.	N.A.	1.0	1.1	0.6
1974	24.0	28.7	10.0	2.5	0.6	2.2	N.A.	N.A.	N.A.	1.0	1.3	0.3
1975	23.3	38.3	9.3	1.8	0.6	2.7	N.A.	N.A.	N.A.	1.1	1.0	0.4
1976	28.7	29.6	9.9	1.8	0.8	2.9	N.A.	N.A.	N.A.	1.0	1.2	0.6
1977	23.9	34.0	9.9	1.3	0.6	2.0	11.0	9.0	1.4	1.0	0.8	0.3
1978	27.3	30.4	10.3	1.5	0.8	2.7	14.9	10.8	1.7	1.0	1.2	0.5
1979	21.9	35.1	4.6	1.6	1.0	3.2	19.2	7.1	1.4	0.9	1.1	0.6
1980	22.9	31.2	6.2	1.5	0.9	3.0	10.8	7.5	1.6	0.9	1.0	0.6
1981	20.9	29.1	7.5	1.6	1.0	3.5	10.4	10.8	1.9	1.0	1.1	0.6
1982	16.7	32.1	5.7	1.4	1.0	4.2	11.4	10.6	2.1	1.0	1.1	0.5
1983	13.2	31.2	6.8	1.3	1.0	3.7	7.0	7.7	1.7	1.0	1.1	0.5
1984	10.9	31.4	6.1	1.3	0.9	3.2	4.0	8.9	2.1	1.0	1.1	0.6
1985	12.4	31.2	9.0	1.4	1.2	4.1	11.9	8.8	2.2	1.0	1.1	0.6
1986	8.3	29.8	8.6	1.4	0.9	3.2	9.6	5.2	1.7	1.0	1.1	0.5
1987	13.5	30.2	5.2	1.3	0.9	3.4	11.6	6.9	1.4	1.0	1.1	0.5

The Coops-Median values were calculated using financial statements from 10 of the largest U.S. dairy cooperatives. The IOF-Top Quartile and IOF-Bottom Quartile values were obtained from Robert Morris Associates Annual Statement Studies, various years. Coverage ratios were not reported by Robert Morris Associates prior to 1977.

APPENDIX TABLE 2. Number of Observations

Year	Net Profit Before Taxes to Tangible Net Worth			Total Liabilities to Net Worth			Net Profit to Current Portion of Long Term Debt			Quick Ratio		
	Coops-Median	IOF-Top Quartile	IOF-Bottom Quartile	Coops-Median	IOF-Top Quartile	IOF-Bottom Quartile	Coops-Median	IOF-Top Quartile	IOF-Bottom Quartile	Coops-Median	IOF-Top Quartile	IOF-Bottom Quartile
1973	9	82	82	9	82	82	N.A.	N.A.	N.A.	9	82	82
1974	9	90	90	9	90	90	N.A.	N.A.	N.A.	9	90	90
1975	9	85	85	9	85	85	N.A.	N.A.	N.A.	9	85	85
1976	9	102	102	9	102	102	N.A.	N.A.	N.A.	9	102	102
1977	9	85	85	9	86	86	6	51	51	9	86	86
1978	9	98	98	9	99	99	6	53	53	9	99	99
1979	10	86	86	10	89	89	6	56	56	10	89	89
1980	10	110	110	10	112	112	6	68	68	10	112	112
1981	10	115	115	10	119	119	6	78	78	10	119	119
1982	10	116	116	10	124	124	6	80	80	10	124	124
1983	10	120	120	10	124	124	8	74	74	10	124	124
1984	10	118	118	10	123	123	8	77	77	10	123	123
1985	10	136	136	10	147	147	6	107	107	10	147	147
1986	10	123	123	10	131	131	6	87	87	10	131	131
1987	10	147	147	10	158	158	6	91	91	10	158	158