DEVELOPMENT AND APPLICATION OF COOPERATIVE THEORY AND MEASUREMENT OF COOPERATIVE PERFORMANCE

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Comparative Performance of Cooperative and Noncooperative Firms

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Public policy has long supported the growth of agricultural cooperatives. Since 1922, when members of farmer cooperatives were granted antitrust protection under the Capper-Volstead Act, the Federal Government as well as State governments have facilitated cooperative development, growth, and survival through several means. These means include the provision of (1) a unique tax status for cooperatives, (2) technical and credit assistance, (3) research and educational activities, and (4) the authority for cooperatives to vote on behalf of their members on market order issues.

The impact of public support on cooperatives has not been documented. But cooperatives clearly play a growing role in the food system. They are dominant in the fluid milk subsector [9]. Further, eight cooperatives have been listed among Fortune's top 500 industrial firms [10]. And, cooperatives account for substantial shares of raw product handling in grain and specialty crops [11].

Public support of cooperatives assumes that such firms enhance food system performance. But little research has been conducted to compare the performance of cooperatives with that of other firms. Thus, there is little basis for informed public policy choices toward cooperatives.

APPROACH

In 1979, the authors initiated a major research effort to compare the performance of cooperatives and other firms. The research has involved two

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phases. The first phase was designed to identify performance dimensions that may be used to compare the two types of firms. Phase two involved empirical studies that measured performance of several commodity marketing or agricultural supply enterprises.

Phase I: Identification of Performance Dimensions

The findings of phase one are detailed elsewhere [8]. This phase of the research included three major steps. The first was to convene a seminar involving five researchers (other than the authors), each of whom had conducted extensive research on cooperative-related subjects. The participants were asked to identify and justify performance dimensions they believed should be considered in comparing cooperatives and other types of firms. The suggestions of the seminar participants, along with performance dimensions compiled by the authors were combined to create a list of performance dimensions for use in research planning.

In step two, the researchers interviewed persons having an interest in or knowledge of the issues surrounding policy toward cooperatives. These included employees of Federal agencies, legislative aides, trade association leaders, leaders of consumer groups, and leaders of associations of cooperatives. The interviewers asked a series of open-ended questions designed to expand the list of performance dimensions started in step one.

In step three, the final list of 55 performance dimensions was used for a mail survey of all persons previously interviewed and of land grant university researchers known to have conducted research related to cooperatives. The respondents were asked to indicate which kind of firm, in their view, performed better in terms of each performance dimension.

Performance at the Farm Level

Most respondents believed that, at the farm level, cooperatives perform better than other firms. With one exception, the majority of respondents believed cooperatives perform better at the farm level than noncooperatives. These beliefs are much stronger for some performance dimensions than for others. In several cases, median responses indicated respondents were divided on the question of what kind of firm performs best. But in several cases, the perception of superior performance by cooperatives was strong and widespread.

The most widely held perceptions involved the articulation of farmer concerns as patrons and as citizens. Of 130 respondents, 55 believed cooperatives perform "much better" in terms of providing farmers with greater control over their own destinies. In all, 122 of 130 (94 percent) indicated cooperatives performed somewhat better than noncooperative firms in this regard.

A comparable share of respondents perceived that cooperatives do more to represent the interests of farmers in the public arena. Of 127 respondents, 57 believed that cooperatives perform "much better" than noncooperative firms. More than 92 percent (117 of 127) felt that cooperatives perform somewhat better in this dimension.

The level of agreement among respondents was not as great in terms of other farm-level performance dimensions. But in several of those dimensions, the median response indicated that more than half of the respondents felt cooperatives performed at least "somewhat better" than noncooperative firms.

These beliefs were that cooperatives:

- establish programs and services that better meet farmers' needs,
- provide more dependable market outlets for farmers,
- provide more reliable sources of inputs and farm supplies,
- do more to reduce the risks facing farmers,
- make greater effort to serve the needs of farmers who are part-time, small, or disadvantaged,
- provide greater price stability for farmers,
- charge lower prices to farmers for inputs,
- and enable farmers to make greater reductions in production and marketing costs.

For each of the above dimensions, a few respondents felt noncooperative firms' performance was superior. The share of such respondents ranged from 3.6 to 8.2 percent of the total.

But responses were more evenly mixed regarding the view that cooperatives:

- provide better coordination between production and marketing,
- provided more marketing options to farmers,
- and provide more technical assistance to farmers.

In each of these cases, a majority of respondents believed cooperatives perform better. But, for each case, at least 15 percent of the respondents believed noncooperative firms performed better than cooperatives.

Cooperative-noncooperative firm comparisons were even more varied for the remaining farm-level performance dimensions. Even though cooperatives were thought by most respondents to perform better, there were widespread differences regarding whether cooperatives or noncooperative firms:

- provide better information to farmers concerning consumers' preferences and concerning marketing conditions,
- pay higher prices to farmers for commodities,
- provide higher quality of services or inputs to farmers,
- make greater efforts to expand the demand for farm commodities,
- provide more liberal credit policies.

Performance at the Marketing and Processing Level

Fourteen of 55 performance dimension relate to the marketing and processing level. A majority of respondents believe that noncooperative firms perform better than cooperatives in terms of nine of these dimensions. The strongest of these perceptions were that noncooperative firms (1) have higher rates of return on investment and (2) provide more rapid payback to investors. Of 120 respondents, 87 (75.8 percent) believe that noncooperative firms provide higher rates of return on investment. Further, 94 of 114 (82.4 percent) respondents indicated noncooperative firms provided more rapid payback to investors.

Perceptions of superior performance by noncooperative firms were not as strong in terms of other performance dimensions. Nevertheless, majorities of respondents believe that noncooperative firms:

- provide more rapid increases in the value of equity to owners (66.4 percent),
- exhibit more innovation in developing new products, services, and exchange arrangements (64.3 percent),
- have better management (67.2 percent), and
- maintain higher levels of productivity and efficiency (55.8 percent).

Cooperatives were thought to perform much better than noncooperative firms in terms of investor involvement in policy decisions and the fairness and ethics of business practices. Responses to the investor involvement question are consistent with responses regarding the farm-level performance dimension where respondents also believed farmers have greater control of their destiny through cooperatives.

Responses to all other dimensions reflect widespread belief that noncooperative firms generate more dollar returns to investors. This belief is consistent with related perceptions that noncooperative firms have better management, are more innovative and generate higher levels of production efficiency.

Comparisons in the remaining dimensions do not reflect perceptions that either type of firm performs better. In sales growth, stability of earnings, investment safety, accurately reporting financial and business conditions, and costs of doing business, the model response indicated no difference in performance between types of firms. The overall perception was that noncooperative firms perform better at the processing and marketing level than cooperative firms.

Performance at the Consumer Level

Clear majorities of the respondents believed noncooperative firms performed better than cooperatives in terms of (1) efforts to determine consumer needs and preferences (67 percent), (2) responsiveness to consumer voice (57 percent), and (3) the production of a greater variety of goods and services (77 percent).

Respondents' perceptions of performance at this level were mixed. Slightly more than half of the respondents thought cooperatives produce more nutritious and safer products, offer lower prices, provide more information about products, and are more likely to support policies directed at consumer interests. The range of responses to these dimensions was great. But in each case, the modal response was that there is no difference between cooperatives and noncooperatives.

Performance at the Public Level

Performance comparisons at the "public level" were also mixed. Of 14 dimensions listed, 8 showed relatively strong perceptions of superior cooperative or noncooperative firm performance. These perceptions were that noncooperative firms generate more tax revenues and place more emphasis on maximizing short-run profits. Other relatively strong perceptions were that cooperative firms: inject more competition among firms, cooperate more with public agencies, have fewer incidences of predatory or monopolistic practices, are more restrained in use of market power, and give less attention to achieving market power. The strongest perception of superior performance by cooperatives was that they are more willing "to provide products or services that have low profitability, but that are important to some groups."

The remaining "public level" performance dimensions involved job enrichment for employees, job opportunities for minorities, environmental protection, energy and resource conservation, effects on the inflation rate, and support of public interest efforts possibly conflicting with those of the firm. In all cases, the median response was near zero and the modal response was zero.

Overall Performance

Respondents were asked which type of firm contributed most to the farmer's welfare, the consumer's welfare, and the public welfare. More than half of the respondents thought cooperatives performed better in terms of all three dimensions.

The only relatively strong perception of better cooperative performance was related to farmer welfare. Of 77 respondents, 37 or 48.1 percent thought there was no overall difference in the performance of the two firm types with regard to consumer welfare.

The "public welfare" was thought to be slightly better served by cooperatives. The modal response was that cooperatives performed "slightly better" than noncooperative firms. But nearly as many respondents (37.2 percent) said there was no difference between the firm types in terms of serving the public interest.

The respondents' perceptions of performance and actual performance (as measured through empirical studies) are listed and compared in Table 1.

Phase II: Empirical Studies of Performance

Empirical studies were conducted in the second phase of the research to measure the performance of cooperatives and noncooperative firms. It was difficult to define some performance dimensions such that they could be readilly measured.

The Performance Measurement Problem

It is sometimes difficult or impossible to measure performance directly. For example, profitability can be measured directly and expressed

Table I--Performance of cooperatives and noncooperative firms: Perceptions and actual performance in selected industries.

Performance dimensions	Policy-makers' Perceptions	Farmers' Perceptions*	EMPIRICAL STUDIES							
			Cheese Plants	Country Elevators (Mktg. & Supply)	Fert. & Chemical Retailer	Fruit & Veg. Canners	Agri. Credit Agencies	Grade A Milk Buyers*	Retail Food Outlets*
FARM LEVEL									
1. Higher output price level and greater stability	C			C[2/]	X	X	X		X
2. Lower input price level, including credit	C		X		X	X	X	X	X
3. Improving output markets (options, security, pricing)	C		C[1/]	C[3/]	X		X		X
4. Improving input markets (reliability, quality, etc.)	C		X	C[3/]	X	X		X	X
5. Meeting special needs of farmers	C		C[1/]	C[3/]	X	X			X
6. Give more control over own destiny	C		C	X	X	X	X		X
MARKETING/PROCESSING LEVEL									
7. Greater investor earnings & security	N	X	N	C		X		X	X
8. Greater productivity/efficiency	N		C			X			X
9. Better business ethics	C		X	X	X	X			X
10. More innovative	N		C		X	X	X	X	X
11. Better management	N	X	X	X	X	X	X	X	X

(Continued)

Table I--(Continued)

Performance dimensions	Policy-makers' Perceptions	Farmers' Perceptions*	EMPIRICAL STUDIES						
			Cheese Plants	Country Elevators (Mktg. & Supply)	Fert. & Chemical Retailer	Fruit & Veg. Canners	Agri. Credit Agencies	Grade A Milk Buyers*	Retail Food Outlets*
CONSUMER LEVEL									
12. Lower prices and greater stability	-	X	-	X	X	X	X	X	
13. More responsive to consumer needs/voice	N	X	X	X	X	-	X	X	
14. Promotes product nutrition and safety	-	X	X	X	X	X	X	X	
15. More product variety and better availability	N	X	C	X	X	X	X	X	
16. More product information		X	X	X	X	X	X	X	
17. Support consumer interest rules & legislation	- C		X	X	X	X	X	X	
PUBLIC LEVEL									
18. Conserve and protect energy and environment	-		C	X	X	X	X	X	X
19. Less emphasis on short run profit	C		X	N 3/	X	X	X	X	X
20. More job opportunities and job enrichment	-	X	X	X	X	X	X	X	X
21. Behave in spirit of healthy competition	C		X	X	X	X	X	X	X
22. Promote public interest, including reducing inflation	C		X	X	X	X	X	X	X
23. Geneate more tax revenues	N	X		N	X	X	X	X	X

* = in process. 1/ From Grade B dairy farmers survey, 2/ Corn only; other study in process, 3/ Based at least in part on manager ranking of firm goals.

C, N, or - indicates that a study has generated a performance comparison and concluded that cooperatives (C), or noncooperatives (N) performance best, or that no difference (-) existed between firm types. If cell is blank, performance comparison are current by being made. If cell contains an X, no plans exist to conduct research in this area.

in cardinal terms. A farmer's sense of influence on the firms with which he deals can be measured directly and expressed only in ordinal terms. Performance in some dimensions can be measured only by proxy (indirectly). For example, the degree to which a firm provides technical assistance to farmers may be reflected in numbers of services offered, technical bulletins distributed or farm visits recorded. While all may be related to technical assistance, none measure performance directly.

Second, even if all dimensions of performance in a commodity subsector were quantified, the problem of comparing the importance of one dimension (say the farmer's control over his own destiny) relative to another (such as the firm's return on net worth) would remain. Such trade-offs are difficult to evaluate because of the performance measurement problem. They are impossible to evaluate when performance valued by one group of market participants can be improved only at the expense of performance valued by another group of participants. One cannot say which firm has the best performance without knowing the weights a participant would place on each performance measure.

The Selection of Empirical Studies

The project was designed to obtain data representative of the range of locations and enterprises in which cooperatives are engaged. Some constraints prevented the study from being comprehensive. A major constraint was the fact that in some enterprise or commodity areas, one firm type or the other was so dominant that there was no basis for comparison by firm type. Thus, studies were conducted for industries in which the firm types were about equally represented. Other constraints were: a limited

number of measurable performance dimensions, lack of access to data, and the researchers' limited knowledge of some enterprise areas.

Within these constraints, the researchers chose to conduct studies related to cheese manufacturing, milk marketing, livestock marketing, grain marketing, agricultural supplies and agricultural credit. Some of the studies drew upon nationwide data bases, while others had a regional or State level focus. In geographic terms, the bulk of the studies covered the Corn Belt and other North Central States.

EMPIRICAL STUDIES

Milk Marketing Services

Milk marketing services provided by cooperative and noncooperative firms were compared. Data were collected through a nationwide, mailed survey of milk buyers. Respondents included 58 cooperatives (74 percent response) and 63 other firms (73 percent response). Respondents were asked to identify their producer services and marketwide services. The conclusions of the research were (1) that cooperatives more frequently provided each kind of producer service than do noncooperative firms, (2) that regional cooperatives provide more of each kind of service than did local cooperatives, and (3) that among noncooperatives, national firms provided more services than did local firms. These findings are detailed in Appendix I [1].

Performance of Cooperative and Noncooperative Cheese Plants

Financial and other data were collected from 56 Wisconsin cheese plants. Of these, 28 were cooperatives and 28 were noncooperative firms.

The population included all plants processing more than 50 million pounds of milk per year and a sample of smaller plants from three clusters of counties. The findings represent the 44 plants for which complete financial data were provided.

Cooperatives in the sample were found to have lower processing costs and to pay higher milk prices. The other firms in the sample generated more tax revenues and achieved higher returns on net worth. These differences were found to be statistically significant. But for most measures of performance, differences between the two firm types were not statistically significant. An overview of findings is presented in Appendix II [3].

We also compared cooperatives and noncooperatives in terms of prices paid to Grade B milk producers. Two data sources were used. The first source was the Wisconsin Agriculture Reporting Service, which provided monthly prices paid for Grade B milk in 1977 and 1978. The data were gathered from more than 350 Wisconsin plants manufacturing dairy products. To supplement these data, the researchers drew on the interviews with managers of 28 cooperative and 28 noncooperative cheese manufacturing plants. The finding of the study was that cooperative plants in the population paid an average of seven cents per hundredweight more than the average price paid by noncooperative firms [2].

Grade B Dairy Farmers' Perceptions of Milk Buyer Performance

Grade B dairy farmers were surveyed to determine their opinions regarding 20 dimensions of performance of cooperative and noncooperative milk buyers. Of 585 farmers surveyed, 286 responded. Of the respondents, 141 sold to cooperatives and 145 sold to noncooperative firms.

The sample results showed that producers' median evaluations of performance by cooperatives were as high or higher than those of producers selling to noncooperative firms. But statistically significant differences in evaluations were not found for all performance measures. All responses are summarized in Appendix III [4].

The Performance of Country Grain Elevator and Agricultural Supply Firms

Country elevator and agricultural supply firms in Illinois, Indiana, Iowa and Kansas were analyzed. Of 200 firms contacted (50 per State), 170 agreed to cooperate. For each firm, this involved the completion of a mailed questionnaire and subsequent participation in an interview which clarified and expanded on responses to the questionnaire. A subset of these data has been analyzed.

This was an analysis of financial performance. It employed data from the 124 respondents that provided all of the requested financial data. Its findings were that the cooperative firms (87) had higher returns on total assets, higher returns on total sales and higher net margins than noncooperative firms [37]. Other analyses using these data are in process [5].

In a related study, a farm panel was used to survey 2,456 farmers in Illinois, Indiana, and Iowa. Of the farmers surveyed, 2,063 responded and provided data on prices paid for agricultural supplies and prices received for grain. There were no statistically significant differences in prices paid for grain (corn, soybeans, wheat) or livestock (cattle, hogs) by cooperatives and noncooperative firms. Prices paid for selected agricultural supplies including chemicals, nitrogen fertilizer, materials and fuels were analyzed. Only in the case of diesel fuel was there a statistically

significant difference in prices paid by farmers patronizing the two types of outlets. In that case, prices charged by cooperatives were lower than those charged by noncooperative firms [7]. These findings are important because in the absence of consistent differences in pricing, measures of financial performance are more comparable between firm types.

Another part of the study compared cooperatives and noncooperative firms engaged in chemical and fertilizer retailing. Financial and other data were collected from 34 cooperative firms and 75 noncooperative firms in four midwestern States. The focus was on operating expenses and operating margin per dollar of sales. In comparing the two firm types, the hypothesis of equal margin per dollar of sales was not rejected. While noncooperative firms had significantly higher operating expenses, cooperatives had significantly higher cost of goods sold. This is because cooperatives incorporate some operating expenses in the cost of goods sold [6].

Pricing Accuracy in the Fruit and Vegetable Processing Industry

The aim of this study was to determine whether raw product characteristics affecting use value are priced in a way that reflects use value. Specifically, the aim was to compare cooperative and other processors in terms of pricing accuracy with respect to raw product characteristics.

Interviews were conducted with eight West Coast firms canning Bartlett pears, Clingstone peaches and tomatoes and eight Florida-based citrus processors. The researchers found no differences between cooperatives and noncooperative firms with respect to pricing accuracy (publication forthcoming).

PRIOR PERCEPTIONS AND RESEARCH FINDINGS

Table I presents an overview of research findings in each of six broad commodity and enterprise areas. The summary includes perceptions of comparative performance identified in Phase I of the project and the results of actual performance measurement conducted in Phase II.

In Phase I, 55 performance dimensions were identified. For ease of presentation, these have been collapsed into the 23 performance dimensions shown in Table I.

Each cell in the matrix provides one of three types of information:

(1) If the cell contains a letter (C, N, -), this indicates a study has generated a performance comparison and concluded that cooperatives (C), or noncooperative firms (N) performed best, or that there is no difference (-) between firm types.

(2) If the cell is blank, this indicates performance comparisons are being made.

(3) If the cell contains an X, this indicates there are no plans to conduct research.

In most performance areas examined by the research, findings were consistent with perceptions identified in Phase I. In some important areas, however, performance findings were contrary to the expectations of persons surveyed. Among findings consistent with expectations were those indicating (1) that cooperative members sense greater control over their own destinies than do farmers who are not cooperative members, (2) that noncooperative firms generate more tax revenue, and (3) that noncooperative firms earn higher returns on net worth than do cooperatives.

There are several important areas in which findings are not consistent with expectations. For example, it was expected that noncooperative firms would secure higher returns on total assets and have lower costs of production than cooperatives. It was also expected that cooperatives would charge lower prices to farmers for inputs, pay higher prices for farm commodities and do more to assist small, part-time and disadvantaged farmers.

Our research indicated that cooperatives have higher returns on total assets and lower unit costs of production. Further, there were few instances of statistically significant difference between cooperatives and noncooperative firms in prices paid for commodities or prices charged for agricultural supplies. Cooperatives did not make any greater efforts than noncooperative firms to serve the small, part-time or disadvantaged farmers.

NEEDED RESEARCH

This constitutes what we believe to be the most extensive research yet undertaken to compare the performance of cooperative and noncooperative firms, but many research opportunities remain. In the enterprise areas studied (cheese manufacturing, fluid milk processing, country grain elevators, and agricultural supply firms), several performance dimensions were compared. But in some enterprise areas, only one or two performance dimensions were examined. Therefore, much comparative performance research remains in such enterprise areas as fruit and vegetables for processing and agricultural credit.

Further, not all areas of cooperative activity were explored. Other commodity groups such as poultry and rice have been ignored. And in those commodity groups examined, the focus of research has been on cooperative and noncooperative firms dealing directly with farmers. Nothing has been done to study firms that perform marketing functions closer to the consumer or export levels. For example, associations of cooperatives to perform wholesaling activities and terminal or export elevators have not been examined.

POLICY IMPLICATIONS

The research provides no evidence that, as some Phase I participants suspected, cooperatives were weak, uncompetitive or inefficient. There is little ground for the concern that public support of cooperatives fosters weakness in the food system.

But more complete policy analysis requires research to determine the costs of public support for cooperatives and the impact of such support. To the extent that public support is responsible for the role of cooperatives in the food system, there is a need to know whether that role enhances food system performance in a way that justifies the cost of public support.

To an extent, this research has identified unique features of cooperatives that may justify such support. For example, cooperatives provide more marketwide and producer services than do noncooperative firms. They also provide farmers with a greater sense of control over their own destinies than do noncooperative firms. Further, farmers may find more market security through the cooperative than through noncooperative firms.

This research has not provided an understanding of how cooperatives affect market access, nor has it demonstrated the effect of cooperatives

upon competition in the food system. Research that enables policy analysts to know which of these benefits exist, along with the cost of providing them, is essential to a capacity for more informed public policy toward cooperatives.

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APPENDIX I

Table AI1--Percentage of cooperative and noncooperative firms providing services for milk producers, by type of organization.

Producer Service	Cooperative		Noncooperative		
	Regional	Local	National	Local	Integrated
	(percent)				
1. Field services--assist with production problems.	100	91	60	53	46
2. Assist with inspection problems including duplication.	81	88	60	53	36
3. Sell milking supplies and equipment.	100	60	30	25	0
4. Provide information on price and availability of hay, herd replacements, etc.	69	24	25	16	27
5. Provide marketing and outlook information.	100	91	30	16	27
6. Provide insurance programs --life, health, disaster.	100	74	25	25	9
7. Provide retirement programs.	50	12	10	0	0
8. Guarantee daily market for milk.	100	93	55	56	27
9. Negotiate hauling rates.	69	79	45	22	9
10. Collect and insure payment from buyers.[1/]	100	83	--	--	--
11. Check weights and tests.[1/]	100	98	--	--	--

[1/] Processors not asked to respond.

Table AI2--Percentages of U.S. cooperative and noncooperative firms providing services for milk producers, 1973 and 1979.

Producer Service	Cooperative 1973[1/]	Cooperative 1979	Noncooperative 1979
	(Percent)		
1. Field services--assist with production problems.	97	93	54
2. Assist with inspection problems including duplication.	92	86	52
3. Sell milking supplies and equipment.	85	71	22
4. Provide information on price and availability of hay, herd replacements, etc.	30	36	21
5. Provide marketing and outlook information.	77	93	22
6. Provide insurance programs--life, health, disaster.	85	81	22
7. Provide retirement programs.	27	22	3
8. Guarantee daily market for milk.	87	95	51
9. Negotiate hauling rates.	60	76	27
10. Collect and insure payment from buyers.[2/]	77	88	--
11. Check weights and tests.[2/]	97	98	--

1/ Source: Deiter, Gruebele and Babb [4].

2/ Processors not asked to respond.

Table AI3--Percentage of U.S. cooperative and noncooperative firms providing marketwide services, 1973 and 1979.

Marketwide Services	Cooperative 1973[1/]	Cooperative 1979	Noncooperative 1979
	(Percent)		
1. Direct farm to market movement of milk.	72	95	44
2. Pay haulers.	80	88	42
3. Allow for farm shrinkage of milk.	50	52	42
4. Maintain quality control and related lab services.	80	98	76
5. Deliver preconditioned or standardized milk.	17	27	8
6. Sell milk f.o.b. receiving points.	55	68	18
7. Split loads among processors.	17	29	2
8. Maintain spot and hold tank storage.	60	61	23
9. Full supply arrangement--divert milk and provide supplemental milk on request.	52	82	19
10. Balance milk supplies among processors to reduce reserve requirements.	57	75	11
11. Handle milk in excess of Class I use.	52	89	45
12. Make out-of-market raw milk sales.	45	73	15
13. Participate in Federal order hearings.	85	88	66
14. Negotiate Class I prices and service charges.[2/]	65	82	--

1/ Source: Deiter, Gruebele and Babb [4].

2/ Processors not asked to respond.

Table AI4--Percentage of cooperative and noncooperative firms providing marketwide services, by type of organization.

Marketwide Services	Cooperative		Noncooperative		
	Regional	Local	National	Local	Integrated
	(percent)				
1. Direct farm to market movement of milk.	100	93	58	44	18
2. Pay haulers.	100	83	58	41	18
3. Allow for farm shrinkage of milk.	75	43	47	41	36
4. Maintain quality control and related lab services.	100	98	79	75	73
5. Deliver preconditioned or standardized milk.	50	18	0	6	27
6. Sell milk f.o.b. receiving point.	81	63	37	13	0
7. Split loads among processors.	31	28	0	3	0
8. Maintain spot & hold tank storage.	88	50	26	25	9
9. Full supply arrangement--divert milk and provide supplemental milk on request.	94	78	32	19	0
10. Balance milk supplies among processors to reduce reserve requirements.	100	65	5	19	0
11. Handle milk in excess of Class I use.	94	88	53	53	9
12. Make out-of-market raw milk sales.	94	65	32	9	0
13. Participate in Federal order hearings.	100	83	79	63	55
14. Negotiate Class I prices and service charges.[1/]	100	75	--	--	--

1/ Processors not asked to respond.

APPENDIX II

Table AII 1--Summary of differences in characteristics and performance of 56 Wisconsin cooperative and noncooperative cheese plants.[1/]

Characteristic	Type of Firm	
	Cooperative	Noncooperative
Plant size--milk receipts (mil. lbs.)[2/]	117	49
Patron size--daily pounds of milk from Grade B producers, Sept. 1979[3/]	877	804
Assistance to small dairy farmers[2/]	N	N
Ave. number of services provided to dairy farmers[3/]	6.5	5.9
Patron voice in decisions[2/]	H	L
Grade B milk prices paid		
May 1979[3/]	$10.71	$10.89
Sept. 1979[3/]	$11.55	$11.41
Promptness of payment[2/]	N	N
Price leadership[2/]	H	L
Automated processing[2/]	H	L
Large cheese sizes[2/]	69.8%	23.9%
Whey dumped[2/]	L	H
Cheese processing cost (¢/lb.)[4/]	10.3	13.3
Utilization of plant capacity[4/]	53.3%	36.6%
Cheese yield[3/]	10.03	10.00
Labor efficiency--lbs. cheese/hour labor		
May 1979[4/]	382.5	180.6
Sept. 1979[4/]	392.8	182.1
Profits before tax (B.T.)/sales (%)[3/]	1.53	1.24
Asset turnover (sales/assets) %[2/]	5.03	5.91
Return on assets B.T. (profits/assets) %[2/]	7.70	7.33
Leverage (assets/equity) $[2/]	2.51	2.84
Return on equity B.T. (profit/equity) %[2/]	19.33	20.82
Tax revenue generated[2/]	L	H
Product quality[2/]	N	N
Cheese prices received ($/lb.)[3/]	$1.063	$1.089
Diversified cheese sales outlets[2/]	L	H
Goals of firm[2/]	N	N

1/ For some characteristics, the symbols N, H and L are used where N = no difference, H = higher or more, and L = lower or less.

2/ No test made for statistical significance of differences.

3/ Differences not statistically significant at the .05 level of significance.

4/ Differences statistically significant at the .05 level of significance.

Table AII2--Opinions of Wisconsin Grade B dairy farmers concerning performance of cooperative and noncooperative plants to which they delivered milk.[1]

Performance dimension[2]	Median evaluation[3]		
	Cooperative	Noncooperative	All
1. I receive prompt payments for my milk.	1.1	1.2	1.1
2. I am confident that my weights and tests are correct.	1.4	1.6	1.5
3. My buyer will be able to handle all of the milk I produce in the next 12 months.	1.5*	1.8*	1.6
4. My buyer provides good field services.	1.5*	1.9*	1.7
5. My buyer provides good marketing information.	1.8*	2.5*	2.1
6. The price I receive is the highest paid in my area for the same grade of milk.	2.0	2.0	2.0
7. My buyer helps me reduce production costs.	2.7*	3.0*	2.8
8. My buyer attempts to improve the economic position of dairy farmers.	1.9*	2.4*	2.1
9. If the plant to which I deliver went out of business, I would receive full payment for milk delivered.	1.8	2.1	1.9
10. I have a voice in plant and marketing decisions that affect me.	1.8*	3.8*	2.8
11. My buyer provides assistance on any inspection or quality problems I encounter.	1.6*	1.9*	1.7
12. My buyer keeps milk hauling costs down.	1.8	1.8	1.8

(Continued)

Table AII2--(continued)

Performance dimension[2/]	Median evaluation[3/]		
	Cooperative	Noncooperative	All
13. My buyer agrees with my views about milk support prices.	2.1*	2.5*	2.3
14. I could not improve my income by shifting to another buyer.	1.8	2.1	2.0
15. I can easily communicate my problems or complaints to my buyer.	2.0	2.0	2.0
16. My problems or complaints receive prompt attention.	1.9	1.9	1.9
17. My buyer provides valuable fringe benefits in addition to my milk price.	2.0*	2.8*	2.4
18. My buyer is the leader in establishing milk prices in my area.	2.1	2.3	2.2
19. I have a good relationship with my buyer.	1.6	1.7	1.6
20. I have confidence in my buyer.	1.6	1.8	1.7

1/ Dairy farmers evaluated each performance dimension by checking one of the following symbols: SA=strongly agree, A=agree, N=neutral--neither agree nor disagree, D=disagree, SD=strongly disagree, NO=no opinion or don't know.

2/ The statements circled have been changed from a negative to positive context to facilitate comparisons among performance dimensions. See Appendix Table 4 for original statements.

3/ Median evaluations based on a scale where 1=strongly agree, 2=agree, 3=neutral, 4=disagree, and 5=strongly disagree. The "no opinion" response was not used to compute medians.

* An asterisk indicates that the differences between cooperative and noncooperative median evaluations were statistically significant at the .05 level of significance, based on the Mann-Whitney U test.