DEVELOPMENT AND APPLICATION OF COOPERATIVE THEORY AND MEASUREMENT OF COOPERATIVE PERFORMANCE

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THE OBJECTIVE OF THE COOPERATIVE ASSOCIATION*

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I bring to the writing of this paper, as each of us brings to our work, a full quota of personal biases. I will start the paper by outlining the biases that affected the content of this paper. That will be followed by a historical survey of views of cooperative objectives and of empirical studies of objectives. The last section of the paper will argue that the best simple statement of a farm cooperative's objective is: maximization of present value of members' total net revenue.

PERSONAL BIASES

Good Microeconomics Not Elegant

One set of my biases was expressed better than I can express them by Martin Shubik. The flavor of his article is well represented by its last two paragraphs.

> "Unfortunately, microeconomics is probably not an elegant subject when really well done. In order to keep us going, every now and then it is a good idea to set almost all parameters equal to one or zero, keep everything convex, and make a few further simplifications here and there, and for this price we can be rewarded with some nice convergence theorem. The Invisible Hand appears, pats us on the head, and we feel elegant. Beyond that it is necessary to go back to the miasmal swamp of reality.
>
> Our theorizing and our results are probably better than any other social science. Yet we still have an enormous distance to go. New mathematical methods, additional data-gathering, and added computational capability combined yield greater support than ever before for the development of an understanding of microeconomic phenomena. This step taken, our greater wisdom will provide us with the opportunity to be able to put detail and institutions back into microeconomic theorizing."

*I am indebted to Roger Ginder and Marvin Hayenga for their comments on an earlier draft of this paper, and to Jeffrey Royer and John Van Sickle for all they have taught me about cooperatives.

One reason that well done microeconomics is not elegant lies in its concern for detail, its explicit treatment of institutional complications, and its allowance for differences in objectives of firms. Well done microeconomics lacks the elegance of generality, but has the virtue of applicability. From Shubik [p. 407]

> "It may be desirable to have a theory of choice which covers with the same neat axioms Mrs. Jones' decision to buy an extra pound of bacon or Mr. Jones' decision to murder Mrs. Jones or to climb an impossible mountain peak. It would be nice: but for almost all purposes of economic theorizing it is not necessary. Furthermore, there is every indication that the price paid to include these phenomena under one unified theory is too high for an economist to pay."

The same assertion can be made about cooperative theory. The price we would have to pay for a general theory of cooperation is too high. We need a number of special theories because no general theory can be small enough to be useful and manageable while also being large enough to incorporate existing variations in cooperative objectives, environments, and problems. And even some of these special purpose theories will be complex.

Mathematical-Institutional Economics

A second bias is my conviction that it is possible to use mathematics to carry out informative institutional economics.

Means-End Continuum

The third of my biases that has influenced this paper was expressed by Ackoff. He wrote [pp. 214-215]

> "Choosing the course of action which maximizes expected relative value is what many economists mean by 'rationality.' This I believe is an irrational concept of rationality because

> it omits a major type of value.... We have preferences for means as well as ends, for we know that ends and means are relative concepts.... Every end is a means to a further end and every end is an end-in-itself.... Means have two kinds of value: extrinsic or instrumental and intrinsic or stylistic. The extrinsic value of means has to do with its efficiency relative to an end; intrinsic value of a means has to do with the satisfaction its use produces independently of its outcome."

As one example of the distinction between intrinsic and instrumental value, consider a lock-set study of routing of a cooperative's feed delivery trucks. The objective of the study is minimization of delivery costs. We recognize that the main value of this objective lies in its instrumental value--in its contribution to the cooperative's higher level goal of serving members. Or consider farming. Farming as a way of life expresses intrinsic value. Farming as a way of earning a living expresses instrumental value.

Cooperative Should Benefit Members

The fourth prejudice is the belief that a cooperative's objective should be to benefit its members.

Cooperative Leaders

The fifth of my biases that affects this paper is my agreement with Sherlock Holmes' assertion, "It is a capital mistake to theorize without facts." This leads me to believe that (a) a professor who writes about cooperative objectives ought to pay attention to what cooperative managers and directors say about objectives, and (b) that he can fruitfully study the writings of other students of cooperatives. The next section, therefore, is a survey of the literature on cooperative objectives.

HISTORICAL SURVEY

This paper is not going to deal with all types of cooperatives. It is not going to cover, e.g., the cooperative farms of Eastern Europe and of some third-world countries; nor production cooperatives in which members' contributions are their labor and capital; nor consumer cooperatives. It is only going to deal with marketing and/or supply cooperatives owned by farmer-members. Also, it is not going to deal with the topic of the title: "The Objective Of The Cooperative Association" if "association" is interpreted to mean "members and cooperative corporation." It will deal only with the goals of the cooperative corporation.

Theoretical Studies

My fourth bias is a value judgment: a cooperative's objective <u>should be</u> to benefit its members. The corresponding belief--that a cooperative's objective <u>is</u> to benefit its members--showed up early though sometimes only implicitly--in the literature on cooperatives. See Emelianoff for a review. The earliest explicit statement that I know was made by G. H. Powell [quoted in Nourse, p. 89] "A co-operative association is one in which the members form an agency through which they conduct their own business for their greatest mutual advantage." Nourse [p. 81] wrote, that "the economic benefits from [the cooperative's] operations ... shall accrue to participating members to enhance the return from their own operations as producers." And Koller [p. 1134] wrote "Basically, cooperatives seek economic gains for members and patrons. The objective of a farm producers' cooperative is to improve

the returns, the gains, to be derived from individual farm business."

The first theoretically rigorous economic treatment of cooperatives was presented by Phillips. He accepted Emelianoff's position that a cooperative is not a firm, and was soon criticized for adopting this view. But the most telling criticism of Phillips's model was put forth in Helmberger and Hoos's [pp. 276-277] statement that "the frame of reference espoused by Phillips does not reflect the emergence of a new decision-making unit upon the organization of a cooperative." That is, Phillips's cooperative does not make any decisions and has no objective. Helmberger and Hoos dealt with a single-product marketing cooperative and assumed it had an objective of maximizing cooperative surplus per unit of raw product that members supply. Because Helmberger and Hoos ignored patronage refunds, their assumed objective was maximization of price paid to members.

In part of my 1974 study of a bargaining cooperative, I followed Helmberger and Hoos and previous empirical work by assuming the cooperative's objective to be maximization of price paid to members. In another part of that paper, I assumed the cooperative's objective to be maximization of quantity of raw product marketed under the control of the cooperative. One finding of my study provides a justification for having a discussion of cooperative objectives at this symposium. It showed that our choice of objective does make a difference in our conclusions. The first-order conditions for a price-maximizer are quite different from the first-order conditions for a quantity-maximizer; both differ from the first-order conditions for a

profit-maximizing noncooperative firm; and an efficient price-maximizer does not behave in the same way as an efficient quantity-maximizer. These findings justify empirical study of cooperative objectives so that we know their objectives before we try to describe or prescribe their behavior. They also support my first bias.

I can see from various criticisms of my 1974 paper that I need to defend it at least a little to gain any credibility for it. Recently Helmberger, Campbell, and Dobson wrote "Unfortunately the model appears to sweep many interesting bargaining problems under the rug." I would have used the rug analogy to make quite a different criticism. The paper pulled a number of bargaining problems into clear view that had previously been hidden under the rug. Its weakness is that it leaves these things lying on the rug. It doesn't pick them up off the rug and weave them into a completed study. They also wrote "the five-equation model may be internally consistent from a strictly mathematical point of view, the basic problem seems to be that the behavioral equations are asserted rather than derived from assumptions about human motivations and endowments." Concerning the first part of this expression, of course we all recognize that internal consistency from a mathematical (or any other) point of view is no guarantee of good economics. Internal consistency is necessary, though not sufficient, for good analysis. But neither internal consistency, nor observation, nor insight, nor data can guarantee consistency between a theory and the real world. But the last part of this quotation is the criticism that really hurts. The reason it hurts

so badly to receive such criticism from Peter Helmberger is that I thought that the economic and organizational insights that I incorporated into my model were nearly as good as the ones that he and Sidney Hoos incorporated into their model.

I do, however, draw some comfort from one inference that can be drawn from their criticism. I infer that they agree with my view that some of our special purpose cooperative theories will be complex. This inference comes from their criticism that a model having 5 equations and 3 instrument variables sweeps many things under the rug. Evidently the model needs to contain additional behavioral equations and additional variables.

Maximization of price paid to members (as per Helmberger and Hoos, or Ladd) is not a useful statement of the objective of a multi-product or multi-service cooperative. In a 1971 comparison of cooperative and noncooperative corporations, Schaars presented a more useful statement of the objective function for such a multi-product cooperative. He described cooperatives' purpose as "to maximize net and real income of member users." He added "and to provide goods and/or services at cost to member users. To serve its members primarily."

In his model of a cooperative in a collective Israeli village, Bar used the same idea. He assumed the cooperative society's management aimed to maximize the aggregate surplus left to the members: the multi-product and multi-service variant of Helmberger and Hoos's maximization of cooperative surplus. Bar's is the first model I am

aware of that used the objective function that I argue for in this paper.

In their studies of cooperative financing we find Snider and Koller, and Dobson and Dahl stating the cooperative's objective as minimization of the cooperative's cost of financing.

Empirical Studies of Objectives

In the early 1960's, I was struck by the paradoxical observation that when two economists argued over businessmen's goals, objectives, or motives, each cited other economists to support his views, and no economist ever asked a businessman what his goals were. My fifth bias lead me to try to learn something about businessmen's objectives by asking businessmen. As part of his Ph.D. thesis on Grade A dairy bargaining cooperatives, Milton Hallberg worked with managers of bargaining cooperatives and with Cooperative Extension Service specialists and developed a list of seven objectives. They were:

1. negotiating a price that will give members the highest possible net return for their milk,
2. maintaining a market for members' milk (i.e., assuring members they will always be able to sell their milk),
3. maintaining past highest percentage of class I sales,
4. securing 100-percent control of milk produced in cooperative's procurement area,

5. increasing the size of procurement area,

6. negotiating for the estimated value of services provided handlers and

7. maintaining good relations with handlers.

Each cooperative manager interviewed was asked to rank the importance of these objectives to his organization (from 1 for most important to 7 for least important). Results are presented in Table 1, which shows substantial variability in the relative importance of most of the objectives. For example, the first objective was ranked first by three cooperatives, and fifth by two cooperatives.

Economists typically predict (or analyze) firm behavior on the basis of assumed objectives. There is a good deal of evidence in psychology, group dynamics, and organization theory that an organization's goals are affected by environment, past experience, and expectations. We statistically analyzed the rankings in Table 1 to find determinants of relative importance of various objectives. Rankings were regressed on characteristics of the cooperative, its members, and its markets. Results are summarized in Table 2. These high values of R^2 suggest that information on the characteristics of a cooperative association and its market can be used to determine how that cooperative will rank its objectives.

Under the direction of C. Phillip Baumel, Bernard McCabe studied objectives of cooperatives that handled fertilizer and at least one other line of merchandise. He used the method of paired-comparisons to study relative importance of the goals, and he compared the goals

Table 1. Ranks assigned to various objectives by managers of each of nine dairy bargaining cooperatives.

Objective	Ranks assigned by manager of cooperative[a]									Pooled ranking
	1	2	3	4	5	6	7	8	9	
1	1	3	5	4	2.5	2.5	1	5	1	2
2	2	1	1.5	1	2.5	1	2	3	2	1
3	5	2	3	3	2.5	4	3	4	4	3
4	4	4	4	6	5	7	6	1	6.5	5
5	7	7	7	7	7	6	7	7	6.5	7
6	3	6	6	5	6	5	5	6	3	6
7	6	5	1.5	2	2.5	2.5	4	2	5	4
	Rank correlation between cooperative rankings and pooled ranking[b]									
	0.643	0.929	0.704	0.821	0.889	0.830	0.929	0.393	0.722	

[a] Tied rankings are each assigned the average of the ranks they would have been assigned if no ties had occurred.
[b] Spearman rank-correlation coefficient corrected for tied rankings. To be significant at the 5-percent level this coefficient must equal or exceed 0.750 and, at the 10-percent level, 0.626.

Source: Ladd, p. 883.

Table 2. Rank correlations between ranking of objectives by each cooperative and predicted rankings from multiple regressions.

Cooperative number	Correlation[a]
1	0.89
2	0.93
3	0.88
4	0.93
5	0.91
6	0.85
7	0.96
8	0.96
9	0.91

[a] All significant at the 1-percent level.

Source: Ladd, p. 886.

with various measures of cooperative performance. His list of goals and their average rankings by managers and by presidents of boards of directors are presented in Table 3.

Among his interesting findings are these two. On page 33, he writes

> "It appears that goal 2, maximizing the income of the members, does not mean the same thing to managers and board presidents although it is often held as the basic purpose of cooperatives. This indicates a need for managers and board presidents to get together on a precise and operational definition of company purpose. There is no evidence that there was any ambiguity in the perception of goal 8, maximum operational efficiency of the cooperative, so it appears that board members rank this goal higher relative to the other goals than do managers."

And on page 54,

> "From the point of view of management training, it would appear that some importance should be attached to the relative ordering of goals by future managers. Relative goal orderings of managers are significantly related to the economic success of the cooperatives while this is not true for board presidents. Further research is necessary to test the predictive value of these relationships but it is conceivable that the potential of management trainees can be indicated by their responses to certain goal pairs."

In the late 1960's, the North Central Regional Dairy Marketing Research Committee made a survey of dairy marketing cooperatives. Part of the study concerned objectives. Managers were presented a list of 21 possible objectives. They were asked to rate each one by assigning a number between -99 and +99 according to the effect its achievement would have upon the cooperative. A score of -99 meant its achievement would have an extremely harmful effect and a score of +99, an extremely beneficial effect. The findings are summarized in Table 4. Here, as in Table 1, we see substantial variability in

Table 3. Goal rankings by managers and board presidents

Goal	Rankings	
	Managers	Board presidents
1. Increasing the area served by the cooperative	5	7
2. Maximizing the income of the members	11	3
3. Increasing the sales volume of the cooperative	6	6
4. To provide products and services at lowest prices	9	11
5. To be a business leader in the area	12	12
6. To serve our members by providing a policing type of competition to the other agribusiness firms	4	9
7. To maintain the present policies and practices and avoid risk in the operation of the cooperative	3	5
8. Maximum operational efficiency of the cooperative	8	2
9. To build a good public image for the cooperative	10	10
10. To make a satisfactory net savings each year	1	1
11. To expand and update the facilities of the cooperative	2	4
12. Maximum net savings of the cooperative	7	8

Source: McCabe, p. 22.

TABLE 4.—Objectives of Dairy Cooperatives: Mean Values and Standard Deviations for All 59 Cooperatives and Nine Sub-classes of Cooperatives, Based on Scale of —99 to +99.*

Objective	All 59	Low Share Small Size	Low Share Medium Size	Low Share Large Size	Medium Share Small Size	Medium Share Medium Size	Medium Share Large Size	Large Share Small Size	Large Share Medium Size	Large Share Large Size
1. Negotiating price which will give members the highest net return for milk this year	77 (23)	82 (15)	82 (17)	78 (27)	66 (24)	65 (34)	76 (18)	95 (5)	85 (26)	75 (25)
2. Maintaining a continuous market for members' milk	87 (17)	97 (4)	84 (16)	90 (13)	76 (26)	94 (10)	86 (18)	81 (28)	85 (21)	92 (9)
3. Obtaining largest possible Class I sales	74 (36)	86 (16)	87 (12)	76 (31)	61 (43)	90 (11)	66 (43)	70 (47)	48 (74)	89 (9)
4. Securing as nearly 100 percent control of milk produced in procurement area as possible	61 (46)	42 (35)	38 (80)	67 (41)	39 (72)	43 (39)	72 (39)	56 (39)	74 (19)	90 (13)
5. Increasing the size of the procurement area	23 (46)	38 (79)	30 (37)	37 (36)	—1 (60)	25 (19)	—4 (46)	44 (33)	6 (13)	37 (42)
6. Obtaining for producers the estimated value of services performed for handlers	55 (34)	68 (39)	56 (35)	64 (30)	42 (34)	60 (36)	50 (41)	69 (46)	47 (41)	51 (29)
7. Maintaining good relations with handlers	76 (24)	88 (13)	74 (26)	77 (21)	77 (27)	85 (10)	59 (29)	93 (7)	65 (41)	79 (20)
8. Improving efficiency in milk procurement and assembly	70 (34)	55 (78)	84 (16)	78 (19)	75 (27)	58 (26)	53 (35)	69 (46)	80 (32)	73 (26)
9. Helping members to adjust to changing conditions	65 (31)	79 (28)	60 (40)	57 (34)	62 (39)	70 (12)	52 (31)	93 (7)	70 (30)	62 (29)
10. Making better market information available to members	71 (29)	70 (37)	56 (29)	68 (28)	75 (35)	75 (19)	51 (32)	93 (7)	76 (33)	84 (12)
11. Securing control of as much milk sold in major market as possible	59 (35)	24 (30)	60 (37)	73 (29)	26 (29)	53 (41)	67 (31)	63 (42)	68 (39)	79 (19)
12. Providing standby manufacturing facilities for market	55 (37)	36 (29)	62 (30)	50 (45)	67 (38)	33 (30)	59 (34)	0 (41)	81 (19)	70 (19)
13. Processing as much milk into manufactured products as possible	—26 (58)	—42 (81)	—34 (53)	—1 (59)	—29 (66)	—45 (41)	—35 (55)	59 (41)	—33 (30)	—51 (47)
14. Manufacturing as much as possible of members' Grade A milk which has to be manufactured	36 (58)	—22 (87)	38 (59)	52 (42)	34 (66)	—20 (54)	54 (34)	19 (89)	61 (44)	54 (43)
15. Reducing intermarket competition among cooperatives	61 (44)	54 (43)	48 (65)	56 (47)	82 (27)	—15 (30)	71 (37)	63 (42)	68 (41)	81 (18)
16. Negotiating intermarket agreements with other cooperatives to maximize prices to farmers	76 (32)	84 (22)	80 (20)	65 (49)	73 (35)	87 (9)	85 (17)	93 (7)	74 (42)	75 (34)
17. Merger or consolidation with other cooperatives as means of increasing farmers' bargaining power	58 (48)	50 (59)	18 (73)	75 (28)	37 (60)	70 (25)	58 (31)	47 (55)	58 (77)	84 (20)
18. Increasing control over hauling in order to strengthen bargaining power	41 (37)	54 (45)	40 (37)	55 (38)	21 (25)	30 (35)	19 (17)	47 (55)	45 (44)	57 (36)
19. Represent producers effectively in Federal order hearings and in legislation	80 (22)	87 (16)	78 (20)	72 (34)	75 (29)	80 (14)	82 (16)	95 (5)	85 (16)	80 (23)
20. Gain prestige as the largest cooperative in the market	15 (47)	—32 (41)	0 (58)	30 (40)	—11 (28)	0 (65)	37 (41)	45 (52)	20 (35)	24 (46)
21. Gain prestige as the sole supplier of major handlers in the area	13 (47)	—18 (49)	—20 (58)	28 (62)	—6 (28)	—10 (20)	38 (40)	23 (45)	24 (43)	26 (40)

*In each case, the mean is the first reported value; the standard deviation is in parentheses directly below the mean.

Source: Jacobson and Hoddick, p. 6.

relative importance of each objective. For discussion of the findings, see Jacobson and Hoddick.

The first statement that I quoted from McCabe's thesis indicated that he did not originate the idea that maximizing income of members is a basic purpose, but his is the earliest written expression of that goal that I have come across. It is not, however, the last. As I have already indicated, Schaars and Bar later stated this same objective.

In the early 1970's, three sociologists used McCabe's list of goals in another study of cooperative goals. They constructed a cooperative organizational goal model on the basis of Talcott Parson's functional imperatives. They grouped McCabe's goals into four organizational goals: flexibility, satisfaction, efficiency, and productivity. They measured managers' perceived importance of the goals and found significant differences among mean importance scores. They also studied managers' felt pressure to achieve each goal. See Warren, Rogers and Evers, and Evers, Warren, and Rogers for more complete discussion.

Warren, Rogers, and Evers [p. 43] excellently summarized the important results of these empirical studies when they wrote "These findings tend to support the position that organizations have a plurality of goals but emphasis on (or primacy of) a particular goal will vary, not only by the type of organization it is but, also, organizations within classification types can differ depending upon internal and external conditions." Putting this conclusion together with the results of my 1967 study leads me to believe that cooperatives'

objectives and their relative importance vary over time and among cooperatives in explicable ways.

These findings support my previously reported bias that we need institutional detail and special purpose theories to study cooperatives adequately.

Some people have looked at one of these lists of objectives and complained, "Items C and D are not really objectives. They are means to the attainment of B. B is a true objective." My response to that is implied by my first and third biases. An objective is also a means, and a means is also an objective. It is possible that items C and D may be means to the higher level goal B for one cooperative whereas for another cooperative, items B, C, and D are all goals on the same level of the means-end continuum.

MAXIMIZATION OF MEMBERS' NET REVENUE

In this historical survey we see many different possible cooperative objectives. In the rest of this paper, I am going to argue that the best simple statement of a cooperative's highest-level objective is: maximization of members' net revenue, more precisely, maximization of present value of members' net revenue.

Note that I said "best <u>simple</u> statement." We can probably introduce more realism into our analyses by using a more complicated objective function and including, e.g., members' net revenue, net savings, and cooperative growth in the objective function, and by allowing for conflict among objectives. Note also that I said <u>simple objective</u>, not <u>simple model</u>. Perusal of my 1974 paper or of the paper presented at this

Symposium by Jeffrey Royer shows that a simple objective can be part of a complicated model. This observation is one source of my first bias.

Explicit support for my argument is provided by the previously cited works of McCabe, Schaars, and Bar. Additional support for my argument can be derived from Powell, Nourse, Koller, Robotka, and others who state that the purpose of a cooperative is to help members achieve their objectives. The conventional assumption in studying noncooperative firms, which all cooperative members are here assumed to be, is that each attempts to maximize its profits. Therefore, it makes sense to assume that the cooperative helps members to achieve their objectives by acting to maximize total profits of all members. This objective can be used in short-run and long-run analyses and in analyses of prices, capital structure, and investment.

An obvious alternative is the assumption that the cooperative places a greater weight on profits of some members or groups of members than on others and maximizes a weighted sum of member's profits.

Research dealing with optimization of the capital structure in corporate enterprises is exemplified in the analysis done by Vickers. Vickers looked at two sources of capital, debt and owners' equity. He developed an equity cost function that states the capitalization rate of owners' equity as a function of the coefficient of variation in the firms' total net operating income stream, the total capital employed, and the leverage ratio (equity/total liability). He then developed a debt-cost function that gave the average interest rate of debt as a

function of the coefficient for the variation in the earnings stream available to cover the interest on debt and the leverage ratio. Vickers selected the financial leverage that maximized the rate of return on the book value of owner investment and found that the optimum degree of financial leverage occurs where the marginal rate of return on equity is equal to the marginal rate of interest on debt. For the general case, he concluded that the optimum allocation of the firm's demand for capital over alternative capital sources would be such as to equate the cost of each capital source at the margin. In the short-run, the book value of owner investment in a noncooperative firm is a constant. Thus, short-run profit maximization also maximizes rate of return on book value. Short-run price analysis and long-run investment and financial analysis of the noncooperative firm, therefore, have equivalent objectives.

I think it is desirable that analyses of cooperative pricing decisions, of financial structure, and of investment decisions likewise start from the same assumed cooperative objective. This is the only way I know to assure that the various results will be consistent and not be contradictory.

One reason for my choice of objective is my belief in its superiority over the other objectives discussed in the literature. Some writers have referred to a cooperative principle, or goal, of provision of goods and services at cost as an objective. In my view, this is not an objective, but a means to the objective that I have suggested. Using this as an objective does not help the cooperative

decide which goods and services to provide.

Maximization of price paid to members is useful for studying a single-product marketing cooperative but is not useful for studying a multiproduct cooperative because some way must be found of aggregating the different prices. It makes no sense to simply add up the prices as, e.g., (corn price) + (soybean price) - (fertilizer price). One way to aggregate them is by use of a total-member-profit function.

An alternative way of aggregating prices is by incorporating them into the cooperative's net savings function. Why not use maximization of net savings as the highest-level objective? Net savings provide only a small part of the members' income. An objective that measures members' income should measure all of it, not only a fraction of it. And consider this. If the fraction of net savings that is paid out in cash is fixed, then maximizing net savings is equivalent to maximizing the amount of money that the cooperative withholds from members.

An objective that considers only total patronage refunds is unacceptable to me because most of a member's income and expenses are made up of prices, not of refunds, and it makes more sense to focus on the major part of a member's income and expenses than on a minor part, and it makes still more sense to consider the total of income and expenses than to consider any part thereof.

Some studies of cooperative financial structure have aimed at minimizing the cooperative's cost of financing. One thing that bothers me about these studies is that they treat stock-dividend

payments to members and income tax payments to the IRS both as costs. Treating payments to members as a cost seems antithetical to the purpose of cooperatives. It views cooperative welfare as opposed to member welfare. It seems to me that a study that treats payments to members as a cost, is looking at the wrong costs. I am also bothered by the fact that these studies do not measure the member sacrifice required by the cooperative's decision to withhold some net savings from members' current income. I have a similar problem in seeing how it makes sense to compute the cost of allocated savings as equal to the cost of short-term debt to members, but to ignore the members' foregone current income that made up the allocated savings.

My argument may seem to overlook the benefits that members do obtain from the cooperative's use of unallocated savings and deferred patronage refunds. But it really doesn't. Study of benefits belongs on the investment side of the ledger, not on the financing side. Typically financial studies start from a given "amount of financing needed by the cooperative." But amount of financing "needed" should not be a given to the cooperative management. It should be a variable determined by the number and size of favorable investment opportunities. And by "favorable investment opportunities," I mean opportunities that help the cooperative to maximize present value of members' net income.

And also we must remember that members would obtain benefits from the current income they do not receive when the cooperative withholds funds from them. Do the benefits that members receive from the cooperative's use of these withheld funds exceed the benefits they

would receive if they had personal control over the withheld funds?

Using maximization of members' net income as an objective helps to guard us against the error that some cooperative managers make. French et al. [p. 19] wrote "The raison d'etre of a cooperative is the economic and social welfare of the individual farmer. Too often a cooperative can lose sight of that.... [The cooperative managers interviewed] saw the farmer's survival mainly as his own business. Once he brought in his product or came in to buy his supplies, they saw an obligation to act on his behalf, but that was mainly the emphasis. Management saw the cooperative more and more as a business and farmers either as its suppliers or its customers."

Cooperative managers and directors commonly mention the need to educate members. This quotation leads me to the observation that it looks like we need to educate managers on cooperative purposes.

Perhaps you prefer satisficing to maximizing in a statement of cooperative objectives. Then I believe that you should state the cooperative's highest-level objective as "obtaining a satisficing level of members' total net revenue."

RELATION TO PERFORMANCE MEASURES

In another paper at this Symposium Lang, Boynton, Babb, and Schrader list services performed by cooperatives and present measures of cooperative performance. How can we relate their results to the objective of maximizing members' net revenue? I haven't had time to study their paper thoroughly, but I can give a partial answer. Many of the services listed by Lang et al. fall into one of three

classes: (a) sale of productive inputs, (b) provision of excludable public goods to members, and (c) performance of a nonexcludable public good that benefits members and nonmembers. The bargaining cooperatives modeled in my 1974 paper provided one service in each class, and they used these services as instruments in attainment of their goals. A cooperative can use the services listed by Lang et al. as tools for achieving a goal of maximum members' total net revenue, and for achieving other goals.

Lang et al. also report a number of measures of cooperative performance. Some of these measures fit into the expression for members' net revenue. Some enter the analysis through the cooperative's production function.

CONCLUSION

After considering what has been written on cooperative objectives, my choice for the best simple statement of a cooperative's highest level objective is maximization of present value of total net revenue of all members.

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