LTA 4/99 • P. 418–437

MURRAY FULTON

Cooperatives and Member Commitment

1. INTRODUCTION

Agricultural cooperatives around the world are facing major structural challenges as they respond to a more industrialized agriculture, globalization, and freer trade. Co-ops are responding to these changes by merging, by finding new ways of raising capital, and by developing new organizational forms such as New Generation Co-ops.

One of the critically important issues co-ops face as they undergo this transformation is member commitment. Member commitment is critical because it is a measure of how well a co-op is able to differentiate itself from an investor-owned firm (IOF). The greater is the co-op's ability to differentiate itself from an IOF, the easier it is for the co-op to retain its market share as borders breakdown and as multinationals move into markets they have traditionally ignored. In short, member commitment is a sort of glue that allows membership and business volume to be maintained even as trade becomes more fluid and barriers to reorganization are broken down.

Member commitment has a parallel outside the co-op. In product markets, for instance, a company's success is linked to its ability to develop a differentiated product that provides value to a specific group of customers. Companies that are able to develop niche products are able to raise price without losing substantial market share, while those that sell generic products are forced into a strategy of being the low-cost supplier. Similarly, co-ops with high member

MURRAY E. FULTON, Professor
University of Saskatchewan, Department of Agricultural Economics and Director of the Centre for the Study of Cooperatives
• e-mail: murray.fulton@usask.ca

commitment have developed what is in essence a niche product, one that is highly desired by the members and for which they are prepared to pay more if need be. Co-ops without this commitment, however, have no niche product. People who do business with this type of co-op do so only because its price is better; if the price is no longer better, the business goes elsewhere.

The above discussion does not mean that competitive price and service are not important to a co-op – they are. Co-ops that are not able to offer comparable prices and service will eventually lose market share and be forced out of business or into a restructuring. Instead, the discussion is meant to emphasize that a co-op – or any firm for that matter – that has no other base for member (or customer) loyalty than price will have a very difficult time surviving in rapidly changing markets. Given the very large changes that are occurring in agricultural markets, the expression of a preference for something the co-op offers that the IOF does not becomes an important issue for co-ops.

The perspective that member commitment is a preference for something the co-op offers and that the IOF does not highlights a distinction between members and non-members. The source of member commitment is the set of characteristics that appeals to one group of people – the members – but not to another – the non-members. For instance, location, the undertaking of lobbying activities, and local community involvement are some of the characteristics that co-ops have used over the years to differentiate themselves from their IOF counterparts.

The question as to what differentiates members from non-members has generally been ignored in the economic literature on co-ops. Most analysis, in fact, starts with the assumption that co-op membership is more or less fixed and that co-ops can make their pricing decisions without considering competition from their IOF counterparts.[1] In short, member commitment is typically assumed to be high and stable.

While the assumption of high and stable member commitment may have been realistic during previous periods when existing co-ops faced relatively stable markets, when membership bases were well-defined, and when few new co-ops were being formed, these assumptions are no longer tenable today. The markets in which co-ops are operating are highly dynamic and for the first time since the 1930s and the 1940s, new agricultural co-ops are being formed in large numbers – at least in the US. As well, and perhaps most importantly, the membership base is no longer as well defined as it once was. Not only are members more and more heterogeneous, but the traditional source of member commitment – what might be called cooperative ideology – appears to be breaking down.

1 There are exceptions to this general rule. Fulton, Sexton (1990), and Cotterill consider competition between a co-op and an IOF, while Sexton (1990) and Zeuli and King explicitly examine the decision of a farmer to patronize a co-op versus an IOF.

The purpose of this paper is to examine the role that member commitment plays in cooperative organizations. The paper begins by showing in an historical context that member commitment is vital to the formation of cooperatives. The source of this commitment is argued to be cooperative ideology. A method of modeling cooperative ideology is then presented, along with an analysis of the impact of this ideology on the behavior and performance of the cooperative. One of the conclusions reached is that although member commitment is important to a co-op, it also has its costs. Member commitment can often mask inefficiencies in the operation of the cooperative and thus be detrimental to the members' wellbeing.

The paper then presents evidence that cooperative ideology is breaking down, with the result that traditional member commitment is diminishing. As this occurs, co-ops need to find some other feature or features that will differentiate members from non-members. The paper concludes by observing that developing these features presents other challenges for the co-op.

2. COOPERATIVE FORMATION AND MEMBER COMMITMENT

The marking of a century of cooperative involvement in Finnish agriculture this year – Denmark also marked a similar anniversary – is telling. The formation of cooperatives in Northern Europe a hundred years ago is a reflection of the structure of agriculture in this part of the world during that time, since it is this structure that provided the seeds for the formation of co-ops.

The agricultural structure that emerged a hundred years ago was one of relatively small family-owned enterprises (the "family farm") producing raw agricultural products and relatively large companies (sometimes family owned) that handled and processed this raw product. The consequence of this imbalance in scale economies was the creation of an industry structure in which a perfectly competitive sector (the farm production sector) dealt with an oligopolistic sector (the handling and processing sector).

The oligopolistic structure of the handling and processing sector provided the backdrop for the formation of cooperatives. The formation of cooperatives has generally been seen as a response to market failures – failures that in this case arose from the oligopoly power of the handlers and processors. By taking ownership of the handling and processing, farmers became the residual claimant to the returns from these activities. As residual claimants, farmers then had an incentive to price the processing and handling services more competitively (Hansmann).

While farmers – through their co-ops – had an incentive to see processing and handling services priced more competitively, they did not necessarily have the incentive to use the services of the cooperative or to contribute capital to the co-op. For instance, while farmers would like to see the co-op raise the price paid for their farm production, they would prefer to do

business with an IOF if its price was better. In short, as members of a collective organization, co-op members faced a free rider problem (Olson).

The free-rider problem has long been recognized in the literature on cooperatives. Porter and Scully, for example, argue that collective action problems – which emerge because of improperly specified property rights – result in co-ops having a poorer economic performance than IOFs. Yet, Sexton and Iskow, in a survey of the literature on cooperative performance, conclude that cooperatives are generally no less efficient that other firms. The financial performance of cooperatives is also generally as strong as that of IOFs (Harris and Fulton, Parliament, et al., Lerman and Parliament).

The relatively strong performance of cooperatives – indeed the very existence of co-ops – suggests some other factor is ameliorating the collective action problem. What is this other factor? While it could be given many different names, the term used in this paper is member commitment. Without the glue of member commitment, cooperatives would have difficulty operating and hence would have difficulty even forming in the first place. This observation suggests market failures are only a necessary condition for co-op formation; they are not a sufficient condition. While some sort of market failure is required for the formation of a co-operative, other elements must also be present. One of these elements is member commitment.

Why is member commitment required for the formation of cooperatives? Consider the following thought experiment involving two countries. In both countries an oligopsonistic processing sector has lowered the price of the farm product. Farmers in both countries know that if they could form a co-op and if they and their neighbours did business with the co-op, then the price of the farm product could be raised. In the first country, each farmer knows that regardless of the price the cooperative is willing to pay, farmers will always opt for the processor (IOF or co-op) that provides the highest price. In the second country, each farmer knows that the other farmers will choose to deliver to the co-op, even if the cooperative's price is not as high as that of the IOF.

In which country will a co-op be formed? The answer is, of course, the second. In the first country, the farmers know that unless their co-op will always out-price the IOF, investing in the co-op will be fruitless. Regardless of the price the co-op can offer in the future, the IOFs can always get the entire market by charging slightly more than the co-op. The result is that the co-op fails financially, the IOFs are left with the entire market, and oligopsonistic pricing can be re-introduced. Since entry by the co-op has no long-term market benefit – and in fact results in a loss of the farmers' investment – farmers do not invest in the co-op. Evidence for this type of predatory pricing can by found in early U.S. grain cooperatives, many of which went under because they were undercut by IOFs (Knapp).

In the second country, the farmers know the co-op will be able to obtain a portion of the market, even if their price is not as high as that of the IOFs. If the co-op can obtain a high enough market share, it can remain in business and provide continued competition for the IOFs. The result is that entry by the co-op has a long-term benefit and farmers have an incentive to invest in the co-op.

In the above example, a long-term benefit is obtained from the co-op only when the members of the cooperative have some commitment to that organization. [2] Other stories could, of course, be told that would lead to the same outcome. For instance, if the members of the co-op had a high degree of trust in each other, then each would have some assurance that the cooperative would be patronized, even if the IOF offered a better price. Or if the co-op offered something else – some feature that the IOF did not offer – then again members would have assurance that others would patronize the co-op.

The important conclusion to draw from this discussion is that the co-op must offer something valuable to its members that the IOF does offer. It is this something else – this other factor that is valuable – which results in member commitment.[3] Many different features can be the source of member commitment. For instance, later in the paper it is argued that member commitment arises because the co-op offers farmers an opportunity to invest further down the supply chain, something the IOFs have more difficulty offering. Historically, however, the feature that most often gave rise to member commitment was likely ideology.

For the purposes of this paper, ideology is defined as a preference for certain types of outcomes. This definition closely matches that of Hirschman (1982) who suggests people have meta preferences – preferences over preferences – that can change with time. Echoing ideas found in Sen, Hirschman (1982) argues that ideology can be thought of as preferences for certain outcomes, even when these outcomes are not the most beneficial in a narrow self-interest perspective.

The meta preferences examined in this paper are those held by farmers for the type of organization with which they would prefer to do business. Two types of organizations are considered – collective organizations (of which co-ops are archetypal) and non-collective action

2 Sexton and Sexton show that the mere threat of entry by a co-op is enough to keep the existing firms pricing at average cost, plus any sunk costs that must be incurred by new entrants. This result will be obtained in the case where there is strong member commitment on the part of the members. When member commitment is low, members will act opportunistically and deliver to the IOF if they are given the incentive. Thus, the IOF can influence the viability of the cooperative *ex post*. In such a case, the mere threat of entry of a cooperative is not enough to keep the IOF pricing at average cost. To obtain the results of Sexton and Sexton, member commitment is required. Note that even with member commitment, the presence of sunk costs – an important element in Sexton and Sexton's analysis – will influence the ability of the IOF to forestall entry by the co-op.

3 The notion that collective action problems can be overcome when individuals receive a benefit in addition to that being provided collectively has a strong similarity with Olson's notion that providing members of collective organizations with private benefits can solve collective action problems.

organizations (of which IOFs are archetypal). A cooperative ideology, therefore, is a preference by at least some farmers to do business with an organization that they own and control.

The idea of cooperative ideology as a factor in co-op formation stems from the social and economic setting in which co-ops were formed. The history of most agricultural cooperatives involves more than just market failures. In many instances, farmers' associations, formed to lobby for better economic and social conditions, preceded agricultural cooperatives. Farmers were not only concerned about the prices they received and paid – they were also concerned about the larger economic, political and social environment of which they were part. Cooperative formation was thus typically associated with grass root political movements, movements in which farmers saw themselves as a distinct group or class, battling with capitalists and business barons.

Put another way, low output prices and high input prices were linked to a larger political and social reality. Low farm income was not just a market failure. Rather, it was viewed as the expression of a larger societal discrimination against agriculture in which agriculture was not being treated fairly relative to other sectors of the economy. Laycock provides an account of how co-operation and the formation of cooperatives was an integral part of a democratic and populist movement in western Canada during the first half of this century.

This social setting is important because it suggests the existence of a culture – an ideology – in which the provision of services through collective action involving farmers would be preferred to the provision of services by other, third party, companies. One manifestation of this ideology by the farm population would be member commitment to a co-op. Co-op members would be expected to do business with the cooperative, even if the cooperative's price was not as good as that of an IOF.[4]

The notion that social and cultural factors play an important role in our economic system is not new. Casson convincingly describes the role that culture or trust plays in the performance of economies, cities, and companies. He points out that the source of transactions costs in game theory models is the assumption that contracts and agreements are completely unenforceable. If factors such as trust are introduced, transactions costs can be reduced, which in turn affects not only economic performance but the organizational structure chosen to undertake activities.

Ethics and social values are a critical element in Zusman's analysis of the Israeli moshav. He argues that cooperatives cannot be understood without introducing factors such as trust and fairness. In his analysis, values play an important role in reducing corruption in manage-

4 A simple definition of member commitment is the preference of co-op members to patronize a co-op even when the co-op's price or service is not as good as that provided by an investor-oriented firm (IOF). For a more detailed definition, see Craig.

ment and in ensuring the majority does not impose its will on the minority. The role of trust is a common element in Israeli writing on co-ops. Shapira, for instance, argues that a shift from a high-trust culture to a low-trust culture was the cause of a reduction in innovation in kibbutzim.

Social factors also play an important role in Hirschman's analysis of exit, voice and loyalty (Hirschman 1970). The notion that voice, which often accompanies loyalty, may act as a substitute for exit assumes some willingness on the part of individuals not to simply seek the best economic alternative. In short, voice and loyalty are an indication that other factors besides those that are strictly economic are important in the behaviour of organizations and the people in them.

In summary, cooperatives developed when family farm operations emerged as the most efficient way of producing most livestock and field crops. The agricultural processing and handling firms, however, operated on a much larger scale, with the result that oligopolistic market structures developed in these sectors. The resulting market failures combined with other factors to create a culture – an ideology – that collective action involving farmers was preferable to other organizational forms. This ideology was important, for without it cooperatives would not have formed. Indeed, without the member commitment engendered by this ideology, the collective action problems of the cooperative would have been fatal. Simply put, the formation of cooperatives involves co-operation and without it cooperatives will not exist.

3. MODELING MEMBER COMMITMENT

The previous section outlines why member commitment is critical to understanding the formation of cooperatives. In this section the implications of member commitment for cooperatives and their members are examined. One of the themes explored is the notion that member commitment has both advantages and disadvantages. The impact that a decline in member commitment can have on cooperatives is also explored. While other factors are obviously at work, a change in member commitment is one of the factors behind the cooperative transformations that are currently underway. This change in member commitment can be linked to a change in ideology.

To assist in the analysis, consider the following simple analytical model that shows how member commitment can be introduced into economic analysis. Figure 1 shows the basic set-up for the model. The vertical axis on the LHS of the diagram shows the price paid by the cooperative (p_C) for a homogenous farm product x, while the vertical axis on the RHS shows the price paid by the IOF (p_I). In the absence of member commitment, the relative height of p_C versus p_I determines whether the co-op or the IOF gets the entire market. Thus, all farmers will deliver to the co-op if $p_C > p_I$ and to the IOF if $p_C < p_I$.

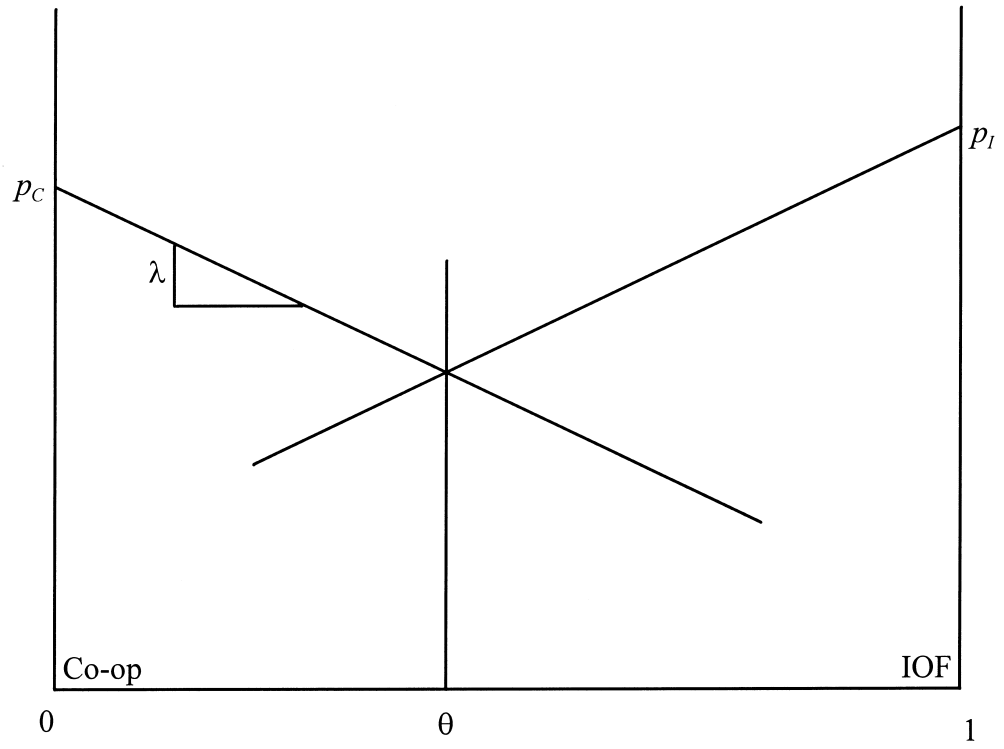

FIGURE 1. Modeling commitment to co-ops and IOFs.

Member commitment is introduced into the model by assuming price is not the only factor determining where farmers will sell their product. Specifically, farmers are assumed to have a preference for some other attribute or factor. Farmers are not identical in this preference ranking, however. Some farmers are assumed to strongly prefer this other factor, others have a deep distaste for this factor, while others do not have a strong preference either way. In addition, it is assumed that doing business at the co-op not only involves receiving a price p_C for the product delivered, but involves obtaining this other factor. Doing business at the IOF means this other factor is not obtained.

Figure 1 illustrates these notions. In the diagram, farmers are arranged according to their preference for this other factor. A farmer located at the far left-hand side of Figure 1 strongly prefers this other factor, while a farmer located at the far right-hand side does not. Since doing business with the co-op involves obtaining this other factor, a farmer located at the far left-hand side prefers a co-op to an IOF, all else equal. Farmers located at the other end of the line prefer an IOF. Thus, for farmers located at the two extremes, the price they receive for their

product represents the full value that they obtain. Farmers located between the two endpoints are not able sell their product to precisely the type of organization they prefer, since only the two endpoint choices are available. The value they obtain is thus discounted according to the distance they are from the choices they have available.

The diagonal lines drawn from p_C on the RHS and p_I on the LHS indicate the degree to which the price they receive for their product is discounted. For example, a farmer located at point θ sees a value of $p_C - \lambda\theta$ if she delivers to the co-op, not p_C. Similarly, the effective price she sees if she does business with the IOF is $p_I - \lambda(1-\theta)$, not p_I. The farmer located at point θ is, of course, indifferent between selling to the co-op or selling to the IOF, since $p_C - \lambda\theta = p_I - \lambda(1-\theta)$. Those farmers located to the left of θ will prefer to sell to the cooperative, while those to the right will prefer the IOF. If the assumption is made that farmers are uniformly distributed between the two endpoints and all farmers sell the same quantity of output, then the location of θ will determine the market share of the co-op. The market share of the IOF is $1 - \theta$.

The model illustrated in Figure 1 assumes members do not consider any profits that might be forthcoming from the co-op – the strict economic benefit is limited solely to the price they receive currently for the product they sell. The assumption that profits are not considered by members is consistent with the capital structure in most traditional co-ops. In this structure, the co-op retains most of the profits and redeems them to members when the member retires or leaves the co-op. As a result of this delay in receiving the profits, the member will discount their value. The assumption used in this model is that the discounting is high.[5]

The slope of the diagonal lines in Figure 1 is given by the parameter λ. The value of λ determines the strength of the preference for this other, non-price, factor. If λ is zero, there is no preference for this other factor and farmers simply choose that organization that has the best price. As λ becomes larger, greater price deviations can exist between the two organizations without the organization with the lower price losing all its sales. Thus, positive values of λ imply member commitment, with larger values of λ associated with higher member commitment. For instance, in Figure 1, even though $p_C < p_I$, the cooperative still retains a significant market share.

Because λ expresses the strength of a preference for some non-price factor, both the cooperative and the IOF experience commitment to their respective organizations. Thus, a corollary of strong member commitment to the co-op is strong customer commitment to the IOF. This notion of two polar forces each attracting their sphere of customers is an often remarked

5 The notion that farmers discount the value of their capital that has been retained in the cooperative is consistent with a view of cooperative ownership that stresses ownership of a collective entity rather than personal ownership of individual property. The idea of collective ownership is, of course, consistent with the idea of an ideology in which some farmers have a preference for doing business with collective enterprises.

upon feature in markets where cooperatives and other forms of collective organizations exist.[6] The model developed above also nicely captures the sentiment that is often expressed that there are some people that will never do business anywhere but at the co-op, while there are others that will never do business with the co-op. Of course there are others who will choose the organization with the best price – these are the people in the middle portion of Figure 1.

The model developed in Figure 1, of course, a variation of Hotelling's spatial model that has been used in such widely diverse areas as location theory, product differentiation and the analysis of political parties. A common theme in these analyses is that the firms or parties will not remain at the extremes of the diagram, but will attempt to move towards the centre in an attempt to 'capture the middle.' The idea is that if the firms or parties can position themselves near the middle, they can attract customers or voters that are located far away from their core constituency, while at the same time retaining this core.

The same idea can be applied to the analysis in this paper. Once established, both the co-op and the IOF would have an incentive to move towards the middle. There is some evidence that this occurs. Using an analysis of the annual report statement of the chairman of the cooperative, Hind finds that these statements become more corporate-centred and less member-centred as the cooperative ages. Interestingly, Hind could find no evidence that this shift in focus was related to calendar year time; rather, the shift was related to the time since incorporation of each individual co-op.

As Hirschman (1970) notes, attempts by firms or parties to try and take over the middle are fraught with some dangers. The one he focuses on is the possibility for voice that is created by moves to the middle. While the members, customers, or voters located at the extremes may not be able to exit, they may experience disappointment that can have numerous consequences, including vocal disapproval and an unwillingness to work for the party or to provide advertisement for the firm. Similar outcomes are likely to occur in cooperatives that try to capture the middle.

Hirschman (1982) explores the linkage between disappointment and changes in ideology in his book *Shifting Involvements* in which he argues that disappointment with organizations over which people have meta preferences can lead to shifts in the meta preferences. Hirschman's analysis can be applied to co-ops. When co-op members are displeased with the performance of their cooperative they may first use voice rather than exit. The use of voice is in fact indicative of member commitment. However, if voice proves to be ineffective in turn-

6 The debate in Canada over the Canadian Wheat Board (CWB), a compulsory marketing authority for wheat and barley destined for export and domestic human consumption, shares this feature. There is currently a very vocal portion of farmers who strongly object to the CWB philosophically – they believe the CWB does not allow freedom of choice. There is another portion of farmers who strongly support the CWB, again for philosophical reasons – they believe that only a collective approach to marketing can earn maximum returns.

ing a co-op's performance around, member commitment may begin to wane as members' preference for collective organizations shifts.

The next section provides evidence that cooperative ideology does in fact appear to be changing. There are likely many reasons for this change – for instance, changes in demographics or increases in farmer heterogeneity – as well as those discussed immediately above.[7] Regardless of the reason(s), the evidence is clear that cooperative ideology is subject to change over time.

4. CHANGES IN IDEOLOGY AND MEMBER COMMITMENT

The introduction of ideology into an economic model is valuable only if there is a strong belief that this feature has changed over time. The purpose of this section is to review the literature on this question. While evidence on this question is difficult to obtain, there are strong indications that such a pattern is in fact occurring.

Some of the most compelling evidence for a change in the ideology of cooperative members is found in the work of Karin Hakelius (Hakelius 1996, 1999). Hakelius finds that while older farmers view fairness and solidarity as the top ranking reasons to do business with the cooperative or to participate in the cooperative's democratic process, these are secondary to economic efficiency in the minds of younger farmers.

Other research comes to similar conclusions. Fulton and Adamowicz show that cooperative patronage at the Alberta Wheat Pool is influenced largely by economic factors such as dividend payments and the availability of agro-services. Public good aspects such as being active in farm matters and active in the community were not important in determining patronage. Once again, there was evidence that these public goods were more important to older farmers than to younger farmers.

Richards et al. show that younger farmers in Alberta, Canada place greater weight on price and less importance on non-economic benefits such as member control or community voice relative to managers than do older members. Respondents who rely on farming for all of their income tended to be dissatisfied with the lack of focus on price and return on equity shown by co-op managers. Larger farmers also perceived the profitability of the co-op to be more important than did the managers. The presence of differing views between members and managers is also found in Burt and Wirth. They find that managers put a high premium on farmer loyalty, even to the point where farmers are sometimes asked to pay a higher price.

7 The ability of a co-op to meet the needs of all member groups falls with an increase in member heterogeneity (see Sexton (1986), Staatz, and Vercammen et al. for further discussion of this point).

5. THE IMPACT OF MEMBER COMMITMENT ON THE CO-OP AND THE MEMBERS

The model developed in the previous section can be used to develop a framework in which the role of member commitment – and changes in this commitment – can be analysed and examined. Figure 2 illustrates this framework. In Figure 2, the price paid by the cooperative is graphed against λ, the strength of member commitment. The shaded area in Figure 1 shows those combinations of p_C and λ that result in non-negative profits for the cooperative. Construction of the figure is based on the assumption that there are only two companies – an IOF and a co-op. As well, the behaviour of the IOF is modeled by assuming that it chooses its price p_I so that its profits are maximized given whatever price p_C the cooperative sets.[8]

The size and shape of the area in Figure 2 is determined by a combination of strategic interactions with the IOF and the cost and revenue structure faced by the co-op. For a given λ, the upper bound of the area is determined largely by the fact that if the co-op pays too high a price for the farm product, its profits will drop below zero. The lower bound of the area is determined by the fact that if the co-op's price is too low, members will shift their deliveries to the IOF, which sets a higher price. The loss of volume results in lower revenue for the co-op.

Higher fixed costs will result in a shift downward of the upper boundary, a shift upward of the lower boundary and a shift rightward of the entire area. A similar change will occur if the size of the market to be shared between the co-op and the IOF shrinks, if the per unit revenues earned by the co-op fall, or if the co-ops per unit costs increase.

The crucial feature of Figure 2 is that when member commitment is strong (a large value for λ), the area in which the co-op can operate and not lose money is reasonably large. This feature creates both advantages and disadvantages for the cooperative. One of the advantages is that even if the co-op offers relatively low prices, it can still attract members and force the IOF to offer higher prices than would otherwise be the case. Thus, member commitment creates a pro-competitive effect in the industry. Indeed, as outlined above, member commitment is a necessary condition for a co-op to form in response to a market failure and is one way that this market failure can at least be partially offset.

This advantage, however, can also be a disadvantage. High member commitment can result in the co-op having a significant market share, even if the price the co-op offers is not that high. In such a situation, the co-op can appear to be operating effectively, while in reality

8 In game theory terms, the best response function of the IOF to the price chosen by the co-op is incorporated into the construction of Figure 2. Thus, the shaded area in Figure 2 contains a large number of potential equilibria, including simultaneous price games between the co-op and the IOF and sequential price games with the co-op as the first mover. The shaded area also supports a large number of objective functions for the co-op, including profit maximization, maximization of member welfare, and average revenue pricing. See Sexton (1984) and Levay for detailed examination of different co-op objective functions.

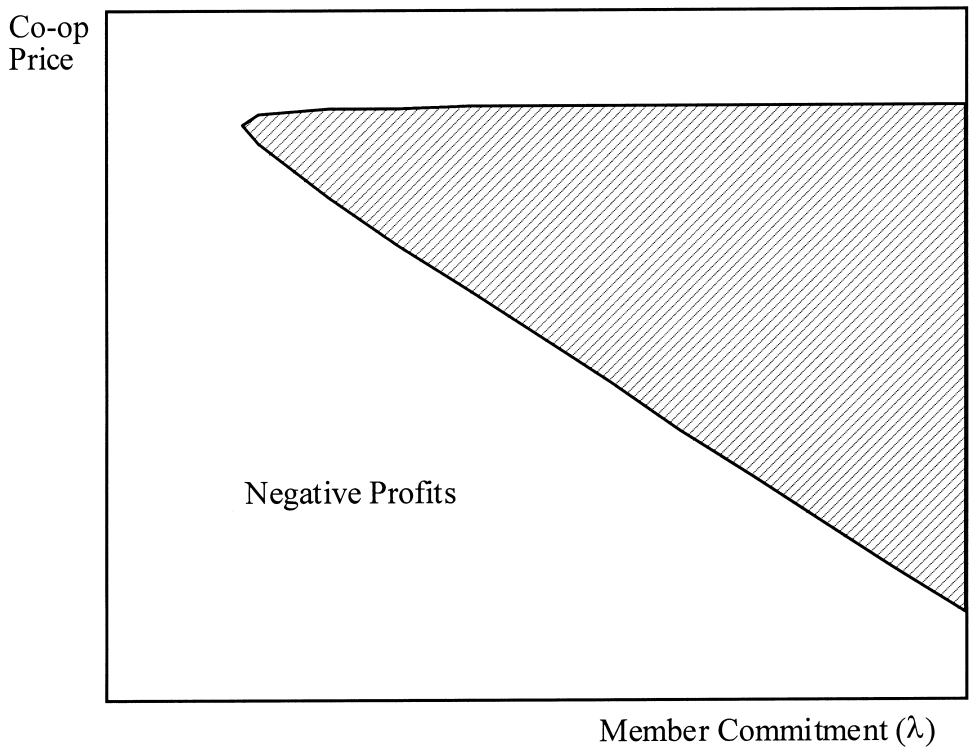

FIGURE 2. Relationship between member commitment and the price paid by the co-op.

it is significantly under performing (if the co-op were to raise its price, it would cause the IOF to raise its price as well). Thus, member commitment can disguise poor management and/or accentuate the principle-agent problem.

The principal-agent problem arises in part because of the presence of organizational slack in the cooperative. Since the upper boundary is upward sloping in λ, greater member commitment can allow a co-op to offer a better price. Thus, when properly employed, member commitment can result in better returns for members. At the same time, member commitment can allow the co-op to exploit its members. Strong member commitment provides co-op managers with a greater ability to pursue other objectives such as personal perks, all the while retaining a profitable co-op. Monitoring the actions of the managers also becomes more difficult when member commitment is high. Since members are committed, exit cannot be used as a mechanism by which to judge performance. And voice may be muted because of ideological concerns. Lack of monitoring, along with a stable customer base, reduces the incentive of managers to lower costs or to find ways of increasing revenue. Evidence that managers see member loyalty as important in the operation of the co-op is found in Burt and Wirth.

As was pointed out earlier, cooperative performance often matches that of IOFs (Harris and Fulton, Parliament, et al., Lerman and Parliament, Sexton and Iskow), suggesting these monitoring problems have been solved to at least some degree. One reason for the comparable performance may be found in cooperative education. Over the years cooperatives have taken great pains to educate their members and their elected and corporate officials, which in turn has reduced agency costs and free rider problems. For instance, compulsory board training is a feature of most large cooperatives in Canada and the United States. This training is carried out both in-house and through the expertise of the various educational and training centres that have been developed over the years. In 1990, for instance, 122 agencies in the U.S. were identified that conduct cooperative education or training. The bulk of training and education in the U.S. is carried out in universities and in associations or federations of cooperatives. In Canada, 13 agencies were identified. These agencies are again divided between universities and associations or federations of co-ops. As well, many of the large commercial cooperatives conduct their own in-house training (Hammond Ketilson and Fairbairn).

While strong member commitment creates both advantages and disadvantages, weak member commitment creates some major disadvantages. On the organizational side, weaker member commitment can unleash free rider, property right, and horizon problems (see Cook for a description of these problems in the context of co-ops). Unless properly checked through such efforts as education, a high λ allows agency and horizon problems to begin to build and go undetected. If the co-op is not successful in addressing these problems, the co-op will tend to be located near the bottom boundary of the shaded area in Figure 2. These problems will, however, emerge when the economic environment of the co-op shifts (for instance the shaded area shrinks and/or shifts to the right because of change in the economic environment) or when member commitment falls. Indeed, a fall in member commitment is closely linked to an increase in the free rider problem, since the essence of the free rider problem is that members act more and more opportunistically. Thus, a fall in λ is linked to greater opportunistic behaviour, and even more problems with agency and horizon problems.

As member commitment declines, the cooperative has three basic options (see Cook for a somewhat similar set of options). The first option is to shut down or to sell to another company. The second option is for the co-op to adopt a strategy of being the low cost player in the industry. This strategy typically entails dealing with a relatively homogeneous product – both on the input and the output side.

The third option is for the co-op to find some other dimension or characteristic to differentiate itself along. One way to differentiate itself is to move into a new product area where there is little or no competition from IOFs. The rise of New Generation Cooperatives (NGCs) can be understood at least in part as an example of this type of strategy. Many NGCs are situ-

ated in niche markets, such as bison, specialty cheeses, edible beans, and sugar beets in which there is little IOF involvement (in the case of sugar beets, for instance, the NGCs replaced the previous IOFs when the IOFs left the area) (Harris et al.).

Another way of differentiating members from non-members is to find some factor that can provide a stronger linkage between the cooperative and the welfare and well-being of its members. In consumer cooperatives and credit unions, attempts can be made to focus on the life-style or values of a particular group of consumers. One example of this focus is Mountain Equipment Co-op, an outdoor and wilderness supply company operating out of Vancouver, that stresses environmental sustainability. A second example is VanCity Credit Union, the largest credit union in Canada. Part of its success can be linked to its attention to community issues, including the provision of micro-credit.

For agricultural cooperatives, attempts to develop linkages via life-style or values are much more difficult. One dimension that cooperatives have exploited is the degree to which farmers wish to participate in profits from a value-added enterprise versus simply receiving a price for their product. For a variety of reasons, not all farmers will have the same preference for becoming involved in value-added ownership. One reason is risk. While investment in value-added enterprises should provide greater expected returns than simply selling a product on a spot market or through a contract, the investment is also considerably more risky. To the extent that farmers differ in their preference for risk, farmers will thus differ in their preference for investment versus simply receiving a price for the product they produce. This in turn can result in a preference for co-ops versus IOFs (Zeuli and King). Farmers may also differ in their ability to access capital or in their discount rates. Either of these factors could also result in differential preferences for value-added enterprises versus market transactions.

One of the key features of NGCs is the ability of members to participate directly in the returns generated by a value-added enterprise. Evidence shows that NGC members tend to view themselves as being in the food system rather than farming and see NGC co-op investment as having higher returns and higher risk than other investment opportunities (Cobia) Thus, NGCs appear to have found a way in which members are differentiated from non-members.

For cooperatives to be successful in attracting those farmers that have a preference for investment in value-added enterprises, they have to be able to offer the farmer-investor a rate of return comparable to what the farmer could earn elsewhere. To be able to do this, co-ops either need to enter very specific niche markets (see discussion above) or they need to be able to create differentiated products that will return the co-op sufficient returns to be able to continue to attract farmer investors.

This strategy is a difficult one. First, it is one with which co-ops are unfamiliar. In the traditional agriculture, products were largely undifferentiated (Drabenstott, Boehlje). In such a

world, member commitment in a co-op conferred market influence on the cooperative. If the cooperative was able to obtain a significant share of the farm product, then the co-op in turn would be guaranteed a market for the product, since processing firms would have to deal with the co-op to obtain a product source. Indeed, the empirical evidence suggests cooperatives have traditionally focused their attention on the input supply sector and the first-level handling and processing sectors (Rogers and Marion).

Second, and perhaps more importantly, the creation of differentiated products is a very costly business. Even if cooperatives had a structure that would allow their members to participate directly and meaningfully in the earnings from value-added enterprises, their relatively small size and their reliance on retained earnings and debt to finance growth could mean insufficient resources to play this game.

As Sutton points out, large-scale R&D investments may give firms in R&D intensive industries a strategic advantage. In particular, escalation strategies in which a company spends large amounts on R&D to achieve a dominant role in the market can be successful if there are strong R&D linkages. R&D linkages are strong when there is a high degree of substitutability with competitors' products on the demand side and there are scope economies on the supply side.

One example of this escalation strategy appears to be Monsanto, who have led the seed and chemical industry with massive investments in biotechnology research, and with seed and biotechnology company mergers and acquisitions (Hayenga). On the supply side, the isolation of the gene that provides resistance to Round-Up herbicide and which could be inserted into a number of crops (e.g., canola, soybeans, cotton and corn) is an excellent example of economies of scope. On the demand side, the sale of herbicide resistant plants is having substantial effects on herbicide markets. As would be expected, the biggest market impact occurs where weed control from prior herbicide programs is not effective. Herbicide resistant seed has had a large impact on the soybean herbicide market, but is having less effect in the cotton and corn market, at least to date (Hayenga). Nevertheless, it is clear that herbicide resistant seed and the accompanying chemical are clearly a substitute product for traditional seeds and herbicides.

Unless cooperatives are able to undertake relatively large-scale R&D programs, they may be unable to operate profitably in an industry. Yet, if the cooperative is to differentiate itself and to attract new members, it must offer attractive rates of return. The dilemma that cooperatives face is that while they must appeal to farmers' desire for investment opportunities, they may find it difficult to deliver a rate of return that will retain the farmer as a member. There is thus likely to be a feedback effect at work – co-ops that are successful in development member commitment will likely have greater success in undertaking R&D, which in turn should strengthen member commitment. This feedback mechanism, however, can also work in re-

verse. Co-ops that fail to develop member commitment will likely have little success in R&D activities, which in turn will make it more difficult to develop member commitment.

6. DISCUSSION AND CONCLUDING REMARKS

Cooperatives are highly complex organizations. Part of this complexity is that co-ops must develop and nurture member commitment if they are to form and succeed. At the same time, member commitment can hide inefficiencies in a cooperative and result in members being worse off. The purpose of this paper was to investigate this complexity involving member commitment.

Member commitment is a preference by members for something that is offered by the cooperative and not by an IOF. Historically, the source of member commitment can be linked to cooperative ideology, or the preference that some farmers had for doing business with organizations they owned and controlled. Member commitment was vital to the formation of cooperatives – without member commitment, the threat of predatory pricing by IOFs would have made cooperative formation totally ineffective.

While member commitment resulted in fewer free rider problems in the co-op, it also created the possibility that co-op managers could under-perform without serious consequences. A failure to provide the best service or the best price, for instance, would not result in a total loss of business. The result was that co-ops relied extensively on member education and other internal control mechanisms – the mechanisms of voice described by Hirschman (1970) rather than exit – as means of promoting efficiency and accountability. Generally speaking, cooperatives have been successful in doing this – the empirical evidence shows cooperatives have generally performed comparably to their IOF counterparts.

The traditional form of member commitment, however, appears to be waning. This loss of member commitment is coming at a time when cooperatives are facing some tremendous challenges. The more important among these challenges are the opening up of what have been traditionally closed market areas to outside competition and the development of marketing systems in which product quality and differentiation is essential. These market developments pose significant challenges for cooperatives. One of the more important challenges is that co-ops are being asked to focus their efforts more and more towards the final customer, whether this is a further processor or a final retailer. Such a strategy is vital, since long-term success for the co-op depends on its ability to meet its customers' needs.

However, this strategy has problems if it reduces the co-op's focus on its members. A loss of member focus can have quite damaging results if it occurs at the same time that traditional member commitment is falling. While co-ops require a focus on the downstream portion of

the supply chain, they also need to focus on the upstream portion, since the two can rarely be separated. For instance, a co-op faces major problems if it has been able to develop downstream markets but is unable to obtain the raw product from its members. More generally, co-ops must find a way of ensuring that the new firms entering their markets as a result of freer trade do not capture the products produced by what have traditionally been co-op members. Member commitment is one way of ensuring that this does not happen.

Cooperatives therefore need to find ways of re-introducing member commitment to their organizations. Member commitment is created when the co-op finds a set of characteristics that appeals to the members but not to the non-members. The development of agricultural policy issues, for instance, is one activity that many cooperatives have used to differentiate themselves from their competitors. While some of these traditional mechanisms for creating member commitment may still work, co-ops need to look for new ways of connecting with their members. New Generation Co-ops, for instance, appear to be using the opportunity for farmers to invest in downstream enterprises as a distinguishing feature.

Recreating member commitment has its own challenges. For instance, while appealing to members' desire for an investment opportunity can be an effective differentiation strategy, this strategy requires the co-op to produce strong earnings year after year. As agriculture becomes more product oriented, strong earnings will only be possible if the co-op is able to engage in substantial R&D, an activity that requires substantial amounts of capital. There are likely to be strong feedback effects between member commitment and co-op performance. A co-op that is able to develop a strong R&D initiative will likely have strong member commitment, which in turn will allow a strong R&D initiative. One of the conclusions of this paper is that co-ops must become increasingly aware of these feedback effects and manage them accordingly. ■

REFERENCES

BOEHLJE, M. "Industrialization of Agriculture: What are the Implications?" *Choices*, First Quarter (1996): 30–33.

BURT, L., and M.E. WIRTH. "Assessing the Effectiveness of Farm Supply Cooperatives: A Comparison of Farmer and Manager Viewpoints." *Journal of Agricultural Cooperation* 5(1990): 17–26.

CASSON, M. *The economics of business culture: Game theory, transaction costs, and economic performance*. Oxford: Oxford University Press: 1991.

COBIA, D.W. (1997) "New Generation Cooperatives: External Environment and Investor Characteristics." In *Cooperatives: Their Importance in the Future Food and Agricultural System*, ed. M. Cook, et al. Washington, D.C., National Council on Farmer Cooperatives and The Food and Agricultural Marketing Consortium.

COOK, M.L. "The Future of U.S. Agricultural Cooperatives: A Neo-Institutional Approach." *American Journal of Agricultural Economics* 77, December(1995): 1153–1159.

COTTERILL, R.W. "Agricultural Cooperatives: A Unified Theory of Pricing, Finance, and Investment." In *Cooperative Theory: New Approaches* (J. S. Royer, ed.). Agricultural Cooperative Service, United States Department of Agriculture, Washington (1987).

CRAIG, J.G. *Member Commitment: A Thing of the Past or a Possibility for the Future?* Cooperative Future Directions Project Working Papers. Saskatoon: The Cooperative College of Canada, 1980.

DRABENSTOTT, M. "Industrialization: Steady Current or Tidal Wave?" *Choices* Fourth Quarter(1994): 4–8.

FULTON, J.R., and W.L. ADAMOWICZ. "Factors That Influence the Commitment of Members to Their Cooperative Organization." *Journal of Agricultural Cooperation* 8(1993): 39–53.

FULTON, M.E. "Cooperatives in Oligopolistic Industries: The Western Canadian Fertilizer Industry." *Journal of Agricultural Cooperation* 4, (1989): 1–19.

HAKELIUS, K. *Cooperative Values – Farmers' Cooperatives in the Minds of the Farmers*. Dissertation No. 23. Uppsala: Swedish University of Agricultural Sciences, 1996.

HAKELIUS, K. "Farmer Cooperatives in the 21st Century: Young and Old Farmers in Sweden." *Journal of Rural Cooperation* 27, 1(1999): 31–54.

HAMMOND KETILSON, L. and B. FAIRBAIRN. 1994. "Education and Training in North America, Cooperative." In *International Handbook of Cooperative Organizations*, E. Dülfer (ed.), Gotttigen: Vandenhoeck and Ruprecht.

HANSMANN, H. *The Ownership of Enterprise*. Cambridge, Mass.: Harvard University Press, 1996.

HARRIS, A., and M. FULTON. *Comparative Financial Performanc Analysis of Canadian Cooperatives, Investor-Owned Firms, and Industry Norms*. Occasional Paper Series. Saskatoon: Centre for the Study of Cooperatives, 1996.

HARRIS, A., B. STEFANSON, and M. FULTON. "New Generation Cooperatives and Cooperative Theory." *Journal of Cooperatives* 11(1996): 15–28.

HAYENGA, MARVIN. (1998). Structural change in the biotech seed and chemical industrial complex. *AgBioForum*, 1(2), 43–55. Retrieved June 4, 1999 from the World Wide Web: http://www.agbioforum.missouri.edu.

HIND, A.M. "The Changing Values of the Cooperative and Its Business Focus." *American Journal of Agricultural Economics* 79, 4(1997): 1077–1082.

HIRSCHMAN, A.O. *Exit, Voice and Loyalty: Responses to Decline in Firms, Organizations, and States*. Cambridge: Harvard University Press, 1970.

HIRSCHMAN, A. O. *Shifting Involvements: Private Interest and Public Action*. Princeton: Princeton University Press, 1982.

KLEIN, K.K., T.J. RICHARDS, and A.M. WALBURGER. 1997. "Determinants of Cooperative Patronage in Alberta." *Canadian Journal of Agricultural Economics* 45, 2: 93–110.

KNAPP, J.G. *The Rise of American Cooperative Enterprise: 1620–1920*. Danville, Ill.: Interstate Printers and Publishers, 1969.

LAYCOCK, D. *Populism and Democratic Thought in the Canadian Prairies, 1910 to 1945*. Toronto: University of Toronto Press, 1990.

LERMAN, Z., and C. PARLIAMENT. "Comparative Performance of Cooperatives and Investor-Owned Firms in US Food Industries." *Agribusiness* 6, 527–540(1990).

LEVAY. "Agricultural Cooperative Theory: A Review." *Journal of Agricultural Economics* 34(1983): 1–44.

OLSON, M. *The logic of collective action; public goods and the theory of groups*. Cambridge, Mass.: Harvard University Press, 1971.

PARLIAMENT, C., Z. LERMAN, and J. FULTON. "Performance of Cooperatives and Investor-Owned Firms in the Dairy Industry." *Journal of Agricultural Cooperation* 5(1990): 1–16.

PORTER, P.K., and G.W. SCULLY. "Economic Efficiency in Cooperatives." *The Journal of Law and Economics* XXX, October(1987): 489–512.

RICHARDS, R.J., K.K. KLEIN, and A. WALBURGER. "Principal-Agent Relationships in Agricultural Cooperatives: An Empirical Analysis from Rural Alberta." *Journal of Cooperatives* 13, 1(1998): 21–34.

ROGERS, R.T., and B.W. Marion. "Food manufacturing activities of the largest agricultural cooperatives: Market power and strategic behavior implications." *Journal of Agricultural Cooperation* 5(1990): 59–73.

SEN, A.K. "Rational Fools: A Critique of the Behavioural Foundations of Economic Theory." *Philosophy and Public Affairs* 6(1976/77): 317–344.

SEXTON, R.J. "Perspectives on the Development of the Economic Theory of Cooperatives." *Can. J. Agric. Econ.* 32(1984): 423–436.

SEXTON, R.J. "The Formation of Cooperatives: A Game Theoretic Approach with Implications for Cooperative Finance, Decision Making, and Stability." *Amer. J. Agric. Econ.* 68, 2(1986): 214–225.

SEXTON, R.J. "Imperfect Competition in Agricultural Markets and the Role of Cooperatives: A Spatial Analysis." *American Journal of Agricultural Economics* 72 (August 1990): 709–20.

SEXTON, R.J., and J. ISKOW. "What do we know about the economic efficiency of cooperatives: An evaluative study." *Journal of Agricultural Cooperation* 8(1993): 15–27.

SEXTON, R.J., AND T.A. SEXTON. "Cooperatives as Entrants." *RAND J. of Econ.* 18, Winter(1987).

SHAPIRA, R. "Loss of Communal Sustainability: The Kibbutz Shift from High-Trust to Low-Trust Culture." *Journal of Rural Cooperation* 27, 1(1999): 55–68.

STAATZ, J.M. "The Cooperative as a Coalition: A Game-Theoretic Approach." *American Journal of Agricultural Economics* 65, 5(1983): 1084–89.

SUTTON, J. *Technology and Market Structure*. Cambridge: The MIT Press, 1998.

VERCAMMEN, J., M. FULTON, and C. HYDE. "Nonlinear Pricing Schemes for Agricultural Cooperatives." *American Journal of Agricultural Economics* 78, 3(1996): 572–84.

ZEULI, K.A., and R.P. KING. "A Model Assessing Alternative Organizational Forms For Value-Added Enterprises." American Agricultural Economics Association Annual Meeting, August 2–5, 1998, Salt Lake City, Utah

ZUSMAN, P. (1993) Participants' Ethical Attitudes and Organizational Structure and Peformance: Application to Cooperative Enterprise, in *Agricultural Cooperatives in Transition* ed. C. Csaki and Y. Kislev. Boulder, Westview Press.

ZUSMAN, P. *Individual Behaviour and Social Choice in a Cooperative Settlement*. Jerusalem: The Magnes Press, The Hebrew University, 1988.