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Agricultural cooperative losses: their influence on earnings allocation

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CHAPTER 1. INTRODUCTION

The 1980s have brought a changed economic climate that has caused financial stress in the agricultural sector. The financial stress has hit many farmers hard and cooperatives as an extension of the farm business have been affected as well. Figure 1.1 shows the decrease in the number of farmer cooperatives due to reorganizations and liquidations. Despite the general decreasing trend, cooperatives have increased their proportion of products marketed and supplies purchased by the farmer. Figure 1.2 presents the general increase.

In the 1960s and 1970s when volumes marketed and inputs purchased were increasing (via increasing exports), cooperatives expanded their capacity with many capital intensive investments. This expansion occurred throughout the federated cooperative system. An effort was made to create a stronger agent through which producer members could purchase their inputs and sell their products. However, recent conditions in the export and domestic markets and government programs such as PIK have reduced cooperative business. Lower volumes in marketing/processing activities and reductions in supply input activities have occurred in many cooperatives.

The decreased volumes have created excess capacity and have caused an income squeeze at each level of the federated cooperative system. For an increasing number of cooperatives, the income squeeze has resulted in the cooperative suffering operating losses. These losses have resulted

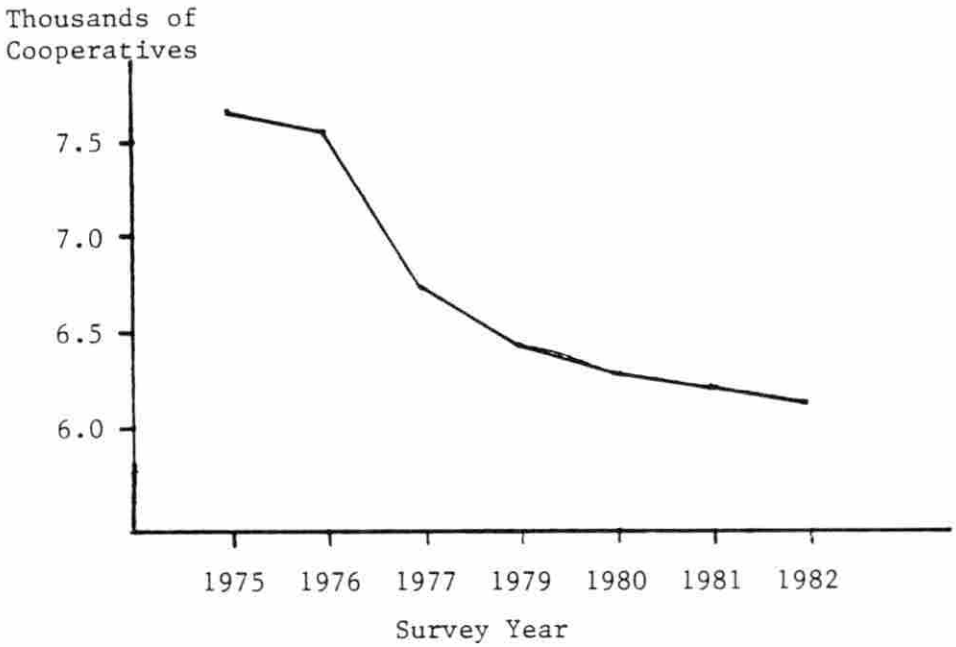


Figure 1.1 Farmer cooperatives in the United States

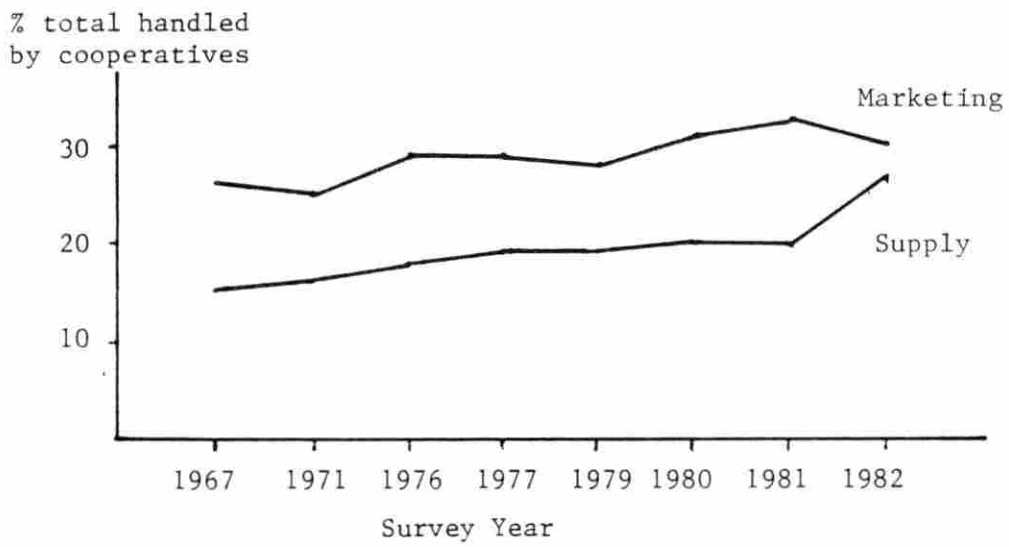


Figure 1.2 Farmer cooperative's share of products marketed and supplies purchased by producers

from a combination of high levels of noncontrollable expenses (such as depreciation and interest expense) and insufficient gross margins (due to low sales volumes) to cover them. For these reasons, the losses have been difficult to avoid and management alternatives to prevent them are limited.

With such losses occurring at all levels of the cooperative system, there has been concern that traditional methods of handling losses may be inappropriate. As larger and more frequent losses occur, a large burden must ultimately be borne by the producer members. It is the overall objective of this study to document the size and frequency of cooperative losses and determine the economic implications that alternative loss distribution methods might have on the cooperative and its members.

Cooperative Background

To explore cooperative losses, an understanding is needed of the financial and organizational characteristics unique to cooperatives. Three major characteristics to consider are the federated cooperative system, operation at cost, and the cooperative's objective.

Federated cooperative system

The federated cooperative system starts with producer members financing the local cooperative. The local holds equity in the regional cooperative which in turn holds equity in the interregional cooperative. Thus, in the federated system "members" may refer to producers, local cooperatives, and/or regional cooperatives in a hierarchy that extends from the farm to the interregional cooperative. Figure 1.3 below

presents a graphic representation of the system's structure. In the federated system, ownership and equity financing at the local cooperative level implies that net savings (losses and gains) must reach the producers via the local allocation.

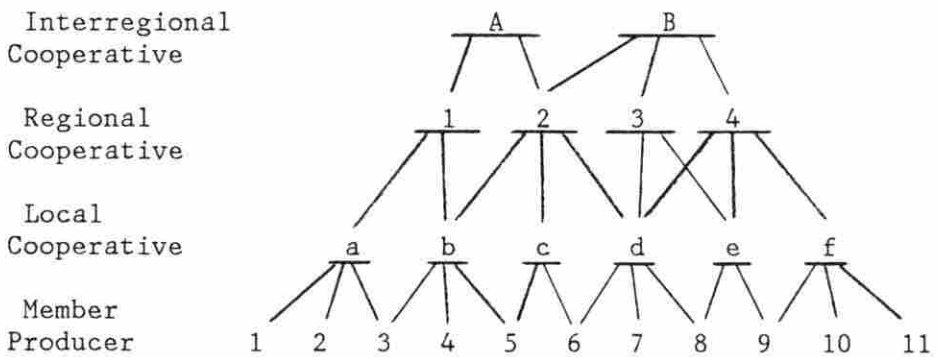


Figure 1.3 Graphic representation of the federated cooperative system

It should also be stated that members do not finance cooperatives solely for direct financial returns on capital invested. Although returns represent a benefit, members finance the cooperative in part because they want access to markets where they may buy and sell. They want the competitive advantages that large numbers acting collectively will bring in marketing their products or purchasing production inputs. They want the assurance that necessary inputs will be available in times of shortage.

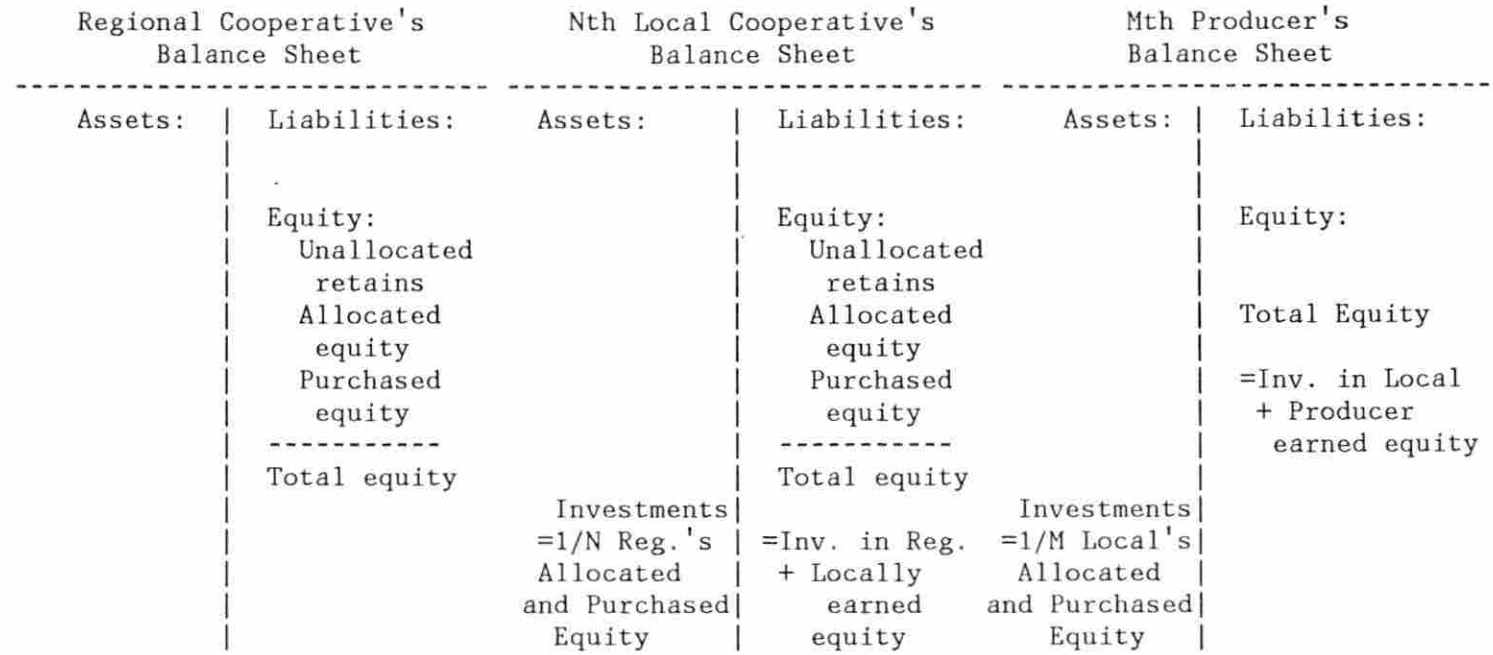
Figure 1.3 may also represent the centralized cooperative system. However, the critical question of ownership and control at the local cooperative level is different. In contrast to the federated cooperative system, the centralized cooperative system exists without the independently owned and controlled local cooperatives. The producers

hold direct membership in and directly control the regional. The local cooperatives become distribution centers owned and directly controlled by the regional rather than by the producers. Thus, in a centralized system net savings (losses and savings) reach members via direct regional allocation to members. The focus of this study is on the federated cooperative system rather than the centralized system.

The financial relationship between the members and the cooperative is a key aspect of cooperative accounting and financial management. The federated cooperative system is capitalized from the bottom up through investment (equity) relationships. These relationships are similar between each level of the system. Members finance their cooperatives by direct and indirect investment. Direct investment is made when members purchase nontransferable stock using cash. Indirect investment is made when members conduct business with the cooperative and allow a portion of the patronage to be retained as equity in the cooperative.

The cooperative distinguishes these types of investments by dividing member equity into components of purchased equity (common stock) and allocated equity (qualified and/or nonqualified retained patronage). The member should carry these investments as an asset on its balance sheet. Usually, the cooperative has an additional component of equity (called unallocated retained earnings) that the member does not carry as an investment.

Figure 1.4 helps clarify this discussion by expressing a hypothetical set of investment and equity relationships between the regional and the local cooperatives and between the local cooperative and



Note: The diagram assumes N local cooperatives of equal size and use participating in the regional cooperative and M producers of equal size and use participating in the local cooperative.

Figure 1.4 Partial balance sheets expressing investment and equity relationships

the producer. In some cases, regional cooperatives may have an analogous relationship with an interregional cooperative.

The key aspect of the federated cooperative system for this study is the financial linkages that exist between the levels. As net savings are passed down through the system as deferred patronage, equity is passed up through the system.

Operation at cost with gains or losses

Cooperatives are expected to operate on a cost basis. Cooperative statutes and the Internal Revenue Code (the Code) state that an exempt cooperative should return all net savings (allowing for exceptions and specific requirements about required or reasonable reserve, dividends on capital stock, and/or proportions of nonmember business) to the patrons in proportion to their business conducted with the cooperative (1). To fully understand the implications of this statement, it is desirable to examine its components.

The term net savings (also referred to as earnings) is confined to ordinary net savings which the Code defines as income after reasonable (or necessary) deductions for expenses incurred. Ordinary net savings are earnings resulting from normal business operations of the cooperative. In contrast, extraordinary net savings may include earnings resulting from unusual circumstances of the business. For example, a gain or loss from the sale of a fixed asset would be considered an extraordinary net savings item not related to ongoing business operations.

Although extraordinary net gains and losses have been occurring more

regularly as cooperatives divest fixed assets to reduce expenses, they do not represent the majority of cooperative net savings. Furthermore, they are subject to different tax treatment under the Code and present difficulties in assigning such earnings to current members. Therefore, the focus of the study was confined to the portion of cooperative earnings defined as ordinary net savings by the Code (positive net savings were referred to as savings or gains in this study but do not include extraordinary gains).

The way that net savings are returned to members is important because the distribution method affects the financial and tax position of both the cooperative and its members. Some positive level of net savings (gross income greater than expenses) is generally intended and achieved in cooperative operations. These earnings are usually distributed by the board of directors according to the cooperative's bylaws in one (or combination) of the following four ways: 1) cash, 2) qualified allocated equity, 3) nonqualified allocated equity, and 4) unallocated retained earnings. The workings and specifics of each of these can be found in VanSickle and Ladd (22) or Touche Ross (1), as well as the Code.

IRS viewpoints and letter rulings on taxation of cooperative net savings under various methods of distribution are also of importance. The IRS through interpretion of federal law and usage of court cases and rulings have provided guidelines to follow. Three principles that have emerged are as follows: 1) cooperatives should operate at cost, 2) net savings should be distributed in an equitable fashion, and 3) net savings should be traced and allocated to the patrons in accordance to the

approximate amount of business done by each (1). These principles imply that net savings are to be returned to the cooperative's patrons (member or nonmember) based on patronage whether the net savings are positive or negative.

Recently there has been "...considerable uncertainty about proper tax treatment of net operating loss allocation..." (20, p. 25). The uncertainty is due to many factors. Part of the uncertainty has been due to the changing positions taken by the IRS and the fact that the courts have at times been inconsistent in backing the IRS's position. Some of the ambiguity arises from applying loss allocation methods under the Code which makes no specific mention of losses (20). To make matters more complicated, the applicable court cases and rulings are frequently based upon a variety of different characteristics and practices of cooperatives. Some decisions are based upon whether the cooperative is a section 521 or a nonsection 521 cooperative. Others have been rendered on the basis of whether the income is patronage or nonpatronage based, and still others on whether the income is netted over different departments or kept separated. Useful guidelines for specifics in these areas are provided in writings by Touche Ross (1) and Baarda (2 and in 20).

Cooperative's objective

Since no specific guidelines concerning the handling of losses are provided by the Code or cooperative statutes, by-laws may be a useful vehicle to establish these practices. Unfortunately, individual cooperative's bylaws usually ignore the topic also. It is appropriate to

apply the net member benefit criterion to losses as well as savings (gains). Cooperatives like all business firms face the risk of periodic losses. Changes in the business environment, weather patterns, government policies, and the level of risk assumed in the operations may at any time create a situation where a loss occurs.

Many of the decisions regarding earnings distribution depend on what the cooperative perceives as its objective. Generally, business firms (including cooperatives) may choose among numerous objectives, such as maximizing sales, maximizing net income, or maximizing shareholders wealth. One valid objective for a cooperative is the maximization of net member benefits, after-tax, as discussed by Ladd (12). It is this objective that will be assumed as the cooperatives guide for the purposes of this study.

Even if a local cooperative operates with positive savings at the local level, it is possible (in the federated cooperative system) for local patrons to receive negative patronage refunds. Operating losses generated by the regional cooperative and passed to the local may exceed local savings and create a net loss. There are three situations where net savings available for distribution to local patrons may be negative. Figure 1.5 presents these three situations which are based on the premise that netting of regional and local savings is sound even with the uncertainty discussed earlier.

Thus, cooperative boards of directors need to carefully consider loss management strategies whether or not a local loss is sustained. Recent literature by Touche Ross (1), Baarda (2), Junge (11), and various

	Situation One	Situation Two	Situation Three
Local Savings	small gain	large loss	loss
+ Regional Patr.	large loss	small gain	loss
= Net Savings	loss	loss	loss

Figure 1.5 Three situations where net savings results in a loss

seminars and articles by the Agricultural Cooperative Service (20) provide some guidance in distributing net savings, negative as well as positive. Additionally, Junge's thesis (11) has done some preliminary analysis on allocation of losses using a simulation model which offers a more practical analysis to the problem.

Objectives and Procedure

It is hypothesized that the economic environment of the 1980s has created larger and more frequent losses. Analysis and research is needed to inform cooperative personnel, boards and patrons, about the impacts of cooperative losses and how losses affect the cooperative's objective of maximizing net member benefits. The purpose of this study is to extend the initial work performed by Junge (11) on cooperative losses.

Objectives

The specific objectives are as follows:

1) Analyze the past performance of selected regional cooperatives by documenting net savings and the methods of distributing those net savings.

2) Analyze the past performance of a sample of Midwestern local

cooperatives by examining net savings variability, allocation methods, and equity classification.

3) Analyze the financial effects when alternative methods of distributing losses were employed. Examine the specific impacts of holding or passing losses originating at the local and at the regional cooperative levels on the locals' and members' cashflow, taxes, and equity accounts.

4) Determine the effect of regional losses on the local cooperative's valuation of its regional investments.

Methods employed

To fulfill these objectives, this study uses a variety of analytical tools.

To document the past net savings performance of regional and local cooperatives, samples of cooperative financial data were analyzed. Annual reports which contained the present and past publicly available audited financial statements were obtained. Using these data, average net savings and distribution strategies were examined and compared to earlier strategies to identify changes that have occurred over the years.

A quantitative comparison of loss distribution methods was conducted. Different methods of handling losses that occurred at the regional or local levels were examined. The quantitative comparison focused on the financial and tax consequences of distribution strategies selected by the local and/or regional cooperative.

Specifically the study addressed local cooperative strategies of holding or passing its net savings (positive or negative). To make

quantitative comparisons, a computer model was used to simulate financial statements in accordance with generally accepted cooperative accounting principles. Using the model, comparisons could be made consistently between distribution strategies for the regional and local cooperatives among various regional-local net savings combinations (holding other factors constant).

The importance of a local cooperative's investment in a regional cooperative was examined under the assumption that the regional cooperative sustained a loss. The importance was determined by the local and regional cooperatives' dependence on their investments relative to total equity and total assets. Quantitative estimates were made as to the effects on debt-to-equity ratios of writing off a portion of the cooperatives' investment.

CHAPTER 2. ANALYSIS OF COOPERATIVE SYSTEM'S PAST EARNINGS

Analysis was conducted to show the frequency and size of losses being suffered by Midwest local cooperatives, as well as the regional and interregional cooperatives serving them. The analysis focused on earnings of the 1980s. A small sample of federated regional and interregional cooperatives were examined for earnings variability and earnings distribution methods. A large sample of local cooperatives was then examined for these same earnings characteristics and compared to results of an earlier study to show the basis for increased concern about using appropriate loss distribution methods.

Federated Cooperative Analysis

The federated cooperative sample consisted of four regional and two interregional cooperatives. The data were constructed from each cooperative's publicly available 1981, 1982, and 1983 consolidated reports. To construct the data, two methods were available; (1) build the data from the historic comparison in the 1983 reports or (2) use each year's annual report for the corresponding data. Data for a particular year were sometimes inconsistent with past annual reports due to accounting changes or discontinued operations. Generally, the accounting changes from report to report were not as significant as the discrepancies from year to year due to discontinued operations. Therefore, the data for each year were extracted from its corresponding annual report (Except for one cooperative whose three years of data came

from just the 1983 annual report.).

The three years of data for each cooperative consisted of selected balance sheet and operating statement aggregates. With such a small sample of federated cooperatives and the wide diversity of size and operations, it was difficult to draw conclusions about the historic financial situation of federated cooperatives. However, the data did provide information concerning earnings variability and earnings distribution methods.

Earnings variability

The earnings among the federated cooperatives varied greatly. In 1981, the range of net savings allocated was observed as -$3,946,000 to $68,587,000. In 1982, the range extended from -$98,474,000 to $21,688,000. In 1983, the range extended from -$15,983,000 to $66,051,000. Table 2.1 shows these values as well as the mean.

The net savings were variable within the cooperatives as well as among them. The range of net savings allocated over the last three years by each of the federated cooperatives demonstrates this. Table 2.1 shows the net savings distributed for 1981, 1982, and 1983. The standard deviation could be calculated and then used to apply a two standard deviation rule above and below the mean to give a 95% confidence interval for each cooperative. Though the means and standard deviations are useful in this way to present the variability of earnings, the number of observations were judged too low to construct confidence intervals or significance testing. Whether the confidence intervals or the ranges are used to show variability, the net savings

Table 2.1 1981, 1982, and 1983 net savings distributed by the federated cooperatives (in $1,000)

Cooperative	1981	1982	1983	Mean
A	68,587	-32,241	-15,983	17,443
B	-3,946	-19,165	10,036	-4,358
C	4,649	-3,206	3,390	1,611
D	44,281	21,688	15,631	27,200
E	4,563	1,221	2,151	2,645
F	65,582	-98,474	66,051	11,053

available for distribution was found to be quite variable within the regional cooperatives examined.

Earnings distribution

The methods that the federated regional cooperatives used to distribute earnings were interesting. With six federated cooperatives and three years of data, 18 individual observations of net savings distribution were examined. The normal procedure for the cooperative with positive net savings was to distribute a major portion (70-90%) of these earnings as qualified allocated patronage refunds with 35-50% of the qualified allocation as cash. The remaining net savings (10-30%) were distributed to unallocated retained earnings.

When losses occurred, the distribution of net savings was different and influences the distribution of savings in subsequent years. Five instances of loss occurred among four of the six federated cooperatives. In three of the cases, the cooperatives held the loss by distributing it as unallocated retained earnings. The following year these same three cooperatives held all or most of the positive net savings. Thus, the retention of the savings acted to replenish the unallocated retains

account that was depleted by holding the prior years loss.

In the other two loss instances, the cooperative pursued a strategy of partially passing and holding the loss in a proportion of approximately 60/40 percent. This cooperative along with another cooperative continued to pass positive amounts to members as equity and/or cash even though losses occurred. These positive distributions probably occurred because some departments did not sustain a loss and savings were not netted with those that did run a loss. It is also possible that the positive distributions occurred to avoid bad member relations that passed losses may cause. The latter practice may put an additional financial stress on the cooperative.

One federated cooperative distributed nonqualified allocated equity in 1982 and 1983 and retired some as well in 1983. The nonqualifieds were used as a minor portion of the total allocations and none of the loss instances occurred in this cooperative. Whether the allocation was intended as experimental or as part of a plan, the observation provides evidence that some regional cooperatives use nonqualifieds and may consider the possibility of handling a loss through nonqualifieds.

Local Cooperative Analysis

The local cooperative sample consisted of over 600 local cooperatives from ten Midwestern states. The data for each cooperative sampled consisted of balance sheet and operating statement variables obtained from 1984 and 1982 records (and in some cases 1980). The 1984 data were the most recent audited statements available as of December

1984. Due to fall closing dates and the fact that final audit reports are sometimes not available for three months after the cooperative's fiscal year ends, the data of some cooperatives were 1983 data. These statements contained the type of financial information normally made available to members at the cooperatives' annual meetings and made publicly available.

The analysis of the local cooperative sample was conducted in two steps. First, the whole sample was examined for earnings variability to show the increased incidence of losses. Second, a subset of the local cooperative sample was examined to show distribution methods currently being used. As a summary, the results presented were compared with the results of an earlier study to show how earnings distribution has been influenced by the increased size and frequency of losses.

Earnings variability

In a discussion of variability, upside and downside variability are usually considered. However, with net savings of a competitive cooperative there usually is not too much concern about the upside variability. The cooperative is not concerned because it is competitive and its members are not concerned. The members are not concerned because the net savings normally are allocated to them. Thus, the focus of the concern will be on the size and frequency of downside earnings, negative savings (net and local). Local savings was defined as the earnings derived from operations of the local cooperative. Net savings was defined as the combined local savings and regional patronage refunds received.

Negative savings as a net or local figure were easily visible in the

sample. Tables 2.2a and 2.2b present the frequencies and averages of the net and local losses for each of the two years. In 1984, 172 (or 28%) of the 619 cooperatives sampled suffered negative net savings and 217 (or 35%) of them suffered negative local savings. In 1982, only 101 of the 617 cooperatives sampled suffered negative net savings and 191 suffered negative local savings. Thus, from 1982 to 1984 the relative frequency of net losses and local losses increased by 70% and 14%, respectively. The large relative increase in the frequency of net losses could be the result of lower regional patronage and/or larger local losses. The 10% increase in the average local loss was accompanied by an 18% increase in

Table 2.2a Averages of 1982 net and local savings for a sample of local cooperatives from 10 Midwestern states

	#	%	Average $	
Net Savings:				
Overall	617	100	158,345	(includes two with
Positive	514	83	211,782	zero net savings)
Negative	101	16	-110,465	
Local Savings:				
Overall	616	100	86,281	
Positive	425	69	177,604	
Negative	191	31	-116,926	

Table 2.2b Averages of 1984 net and local savings for a sample of local cooperatives from 10 Midwestern states

	#	%	Average $	
Net Savings:				
Overall	619	100	102,216	(includes two with
Positive	445	72	192,630	zero net savings)
Negative	172	28	-130,515	
Local Savings:				
Overall	619	100	73,336	
Positive	402	65	182,152	
Negative	217	35	-128,250	

the average net loss which implies a result of a combination of larger local losses and smaller regional patronage refunds to net against them.

As further evidence of how the size and frequency of cooperative losses have changed over the decade it was useful to obtain earlier data. Three of the ten Midwestern states had such data available. The results of the analysis are in Tables 2.3a, 2.3b, and 2.3c follow.

Again net and local losses were easily visible. Negative net savings occurred in 2% of the 1980 cooperatives sampled, 17% of the 1982 cooperatives sampled, and 29% of the 1984 cooperatives sampled. However, this increasing trend was not seen in either the absolute size of the cooperatives' net losses or the frequency of negative local savings. But the average net loss and the frequency of local losses did increase overall from the 1980 data to the 1984 data. Negative local savings did show an increasing trend in the size of the loss from -$124,233 in 1980 to -$137,722 in 1982 to -$157,419 in 1984. The average regional patronage refunds for the three state data decreased from $137,078 in 1980 to $73,115 in 1982 to $27,479 in 1984. Thus, the trends found in the 10 state data were confirmed in the three state data. The more frequent net losses over the four year period appears to have been due to larger local losses coupled with smaller regional patronage refunds.

Earnings distribution

To analyze the distribution of net savings, a subsample of the ten state sample was used. The analysis was performed on a subsample due to two factors. First, the data were coded for the purpose of another project. The correct variables to derive net savings allocation were not

Table 2.3a Averages and statistical measures of 1980 net and local savings for a local cooperative sample from 3 Midwestern states

	#	%	Average $	Standard Deviation $	Minimum $	Maximum $
Net Savings:						
Overall	241	100	305,571	332,327	-320,333	3,302,761
Positive	236	98	314,906	329,190	5,184	3,302,761
Negative	5	2	-135,066	110,115	-320,333	-29,573
Local Savings:						
Overall	241	100	170,200	245,052	-710,673	1,717,543
Positive	213	88	208,905	228,516	1,215	1,717,543
Negative	28	12	-124,233	148,477	-710,673	-9,379

Table 2.3b Averages and statistical measures of 1982 net and local savings for a local cooperative sample from 3 Midwestern states

	#	%	Average $	Standard Deviation $	Minimum $	Maximum $
Net Savings:						
Overall	241	100	135,738	229,993	-985,224	1,410,279
Positive	201	83	187,259	200,640	270	1,410,279
Negative	40	17	-123,155	191,443	-985,224	-1,405
Local Savings:						
Overall	241	100	63,836	235,230	-1,121,984	1,288,076
Positive	165	68	156,675	187,569	1,583	1,288,076
Negative	76	32	-137,722	200,012	-1,121,984	-596

Table 2.3c Averages and statistical measures of 1984 net and local savings for a local cooperative sample from 3 Midwestern states

	#	%	Average $	Standard Deviation $	Minimum $	Maximum $
Net Savings:						
Overall	242	100	115,249	300,274	-1,138,647	2,656,547
Positive	183	76	200,509	273,573	1,641	2,656,547
Negative	59	24	-149,202	213,834	-1,138,647	-2,524
Local Savings:						
Overall	242	100	88,110	301,943	-1,183,218	2,541,613
Positive	172	71	188,035	268,105	521	2,541,613
Negative	70	29	-157,419	232,913	-1,183,218	-5,124

coded in the data and thus computer derivation was not possible. Second, there was not enough time or resources available to manually calculate the allocation methods of all 619 cooperatives in a consistent manner. The 126 Iowa cooperatives were chosen to represent the sample because of its consistency with the frequencies and averages just presented. The Iowa frequencies and averages for the different types of net savings are shown below in Tables 2.4a, 2.4b, and 2.4c.

To derive the distribution methods, net savings were compared to the changes in unallocated retains and allocated equity accounts and to the levels of cash patronage, taxes, and equity retirement as uses of funds. In most cases, the distribution methods could be approximated with a high degree of accuracy due to the fact that the balance sheet represents an identity. Fourteen of the 126 cooperatives had distribution procedures that were more difficult to determine with certainty because net savings did not match the increases and/or decreases in the balance sheet. Usually, this was due to abnormal amounts of tax paid or not paid and losses occurring in the previous year. Since the cases did not involve cash patronage, the net savings were assumed to be handled via unallocated retained earnings and were included in the analysis. However, one cooperative's procedure was ambiguous altogether and was excluded from the results below.

Of the 125 cooperatives, 28 (or 22%) of them sustained losses. Twenty-seven of these cooperatives held the whole loss by distributing it to unallocated retained earnings. The other cooperative distributed just over 50% of the loss to its members and held the remainder via

Table 2.4a Averages and statistical measures of 1980 net and local savings for the local cooperative sample from Iowa

	#	%	Average $	Standard Deviation $	Minimum $	Maximum $
Net Savings:						
Overall	126	100	333,694	298,494	-320,333	1,274,757
Positive	121	96	353,064	287,877	5,184	1,274,757
Negative	5	4	-135,065	110,115	-320,333	-29,573
Local Savings:						
Overall	126	100	167,289	265,080	-710,673	1,274,757
Positive	103	82	236,505	232,847	1,215	1,274,757
Negative	23	18	-142,678	158,103	-710,673	-9,379

Table 2.4b Averages and statistical measures of 1982 net and local savings for the local cooperative sample from Iowa

	#	%	Average $	Standard Deviation $	Minimum $	Maximum $
Net Savings:						
Overall	126	100	133,661	232,665	-985,224	1,131,359
Positive	101	80	201,152	186,000	270	1,131,359
Negative	25	20	-139,003	202,934	-985,224	-6,060
Local Savings:						
Overall	126	100	46,591	241,041	-1,121,984	994,947
Positive	78	62	167,221	178,899	1,583	994,947
Negative	48	38	-149,434	196,715	-1,121,984	-596

Table 2.4c Averages and statistical measures of 1984 net and local savings for the local cooperative sample from Iowa

	#	%	Average $	Standard Deviation $	Minimum $	Maximum $
Net Savings:						
Overall	126	100	92,561	252,867	-1,138,647	848,506
Positive	97	77	180,247	168,652	3,174	848,506
Negative	29	23	-200,735	268,705	-1,138,647	-2,524
Local Savings:						
Overall	126	100	58,885	265,068	-1,183,218	770,153
Positive	88	70	169,228	162,446	3,999	770,153
Negative	38	30	-196,645	281,604	-1,183,218	-5,124

unallocated retained earnings. None of the cooperatives suffering losses totally passed the loss to its members.

The remaining 97 cooperatives had positive net savings to distribute. Thirty-one of these cooperatives (or 25% of the sample) still distributed net savings to unallocated retained earnings and the federal income tax liabilities due on such a distribution. In some cases, such a distribution followed a year in which a loss had been sustained. In other cases, the net savings were so small that it was questionable whether or not the effort and expense required to distribute it to the members was justified.

The other 66 cooperatives (53% of the sample) having positive net savings distributed their savings in a combination of unallocated retains and qualified allocated equities. The average distribution to unallocated retains was 32% but the range extended from 5% to 75%. The average distribution to allocated equity was 68%. These 66 cooperatives were required to pay at least 20% of any qualified allocation as cash. Forty-six of the cooperatives paid this minimum level. The other 20 cooperatives had cash patronage payout that averaged 36% with some as high as 100%. The average cash patronage of the 66 cooperatives was 25% and of the 97 cooperatives with positive net savings (including the 31 cooperatives paying no cash patronage), only 17%.

None of the Iowa cooperatives distributed net savings through the use of nonqualified allocated equity.

Summary

As a summary it would be useful to compare the results of the analysis given here with the 1976 results given by Griffen et al. (8). Difficulties arose in directly comparing the two sets of results due to the methods of analysis. Griffen's analysis was conducted on 1976 data for 5,795 cooperatives. The differences in the number of observations (5795 compared to 619) and the types of cooperatives (due to products marketed in various geographic locations) were difficult to avoid considering the scope of this (Brase's) study. Despite these difficulties the two sets of results were used to reinforce the results found in the 1980/1982/1984 comparison just discussed. In some cases, Griffen's analysis provided data from the three Farm Credit districts of the Upper Midwest (headquartered in St. Paul, Omaha, and St. Louis). The results of such data were more comparable but were not much different from the whole sample.

Of the 5,795 cooperatives in Griffen's analysis, 560 of them (or 9.7%) had sustained net operating losses. The three Farm Credit districts accounted for 2,894 of the cooperatives and 221 of the losses (a 7.6% frequency of loss occurrence). The 1984 local cooperative sample discussed earlier had 217 of 619 cooperatives (or 35%) suffering negative local savings and 172 of 619 cooperatives (28%) suffering negative net savings. The average negative net savings of these 172 cooperatives was -$130,515. Griffen's analysis had an average net operating loss of -$95,893. Table 2.5 below compares the averages and frequencies of the two studies for the three types of earnings. It indicates that the

Table 2.5 Comparison of averages and frequencies for various types of earnings

	1984 analysis			1976 analysis by Griffen		
	#	%	Weighted Average $	#	%	Average $
Total Earnings	619	100	102,216	5,687	100	324,300
Positive Earnings	445	72	192,630	5,127	90	370,200
Negative Earnings	172	28	-130,515	560	10	-95,893
Zero Earnings	2			108		

Note: Earnings refers to net savings and net operating for 1984 analysis and Griffen's analysis, respectively.

frequencies and sizes of losses have increased.

Griffen's analysis found the equity make up as shown in column one of Table 2.6. Column two contains Griffen's figures adjusted to match the definitions of equity components used in breaking out the Iowa sample proportions. Iowa's average equity make up is shown in column three. Table 2.6 shows the increased frequency and magnitude of unallocated retains and purchased equity. It seems to suggest precautionary distributions.

Table 2.6 Comparison of average proportions of equity components

	Griffen's Analysis		Iowa 1984 analysis	
	Original (%)	Adjusted (%)	(%)	
Common stock	16.3			
Membership Cert.	.4	16.7	21.1	Purchased Equity
Preferred stock	18.1			
Cert. of Equity	50.1	68.2	51.1	Allocated Equity
Unallocated	15.1	15.1	26.9	Unallocated Ret.

The average methods of distribution or allocation of earnings are shown in Table 2.7 for both Griffen's 1976 analysis and the Iowa 1984 analysis. The breakdown of the loss allocation does not change for Griffen's analysis when only considering the cooperatives from the three Farm Credit districts of the Upper Midwest. However, these data showed that 80% of the cooperatives having a loss distributed that loss through unallocated retained earnings. If the results of these two projects can be directly compared, then the strategies of net savings distribution have changed from 1976.

Table 2.7 Comparison of average methods of earnings distribution under net savings and net loss

	Net Savings		Net Loss	
	Griffen	Iowa	Griffen	Iowa
Methods	%	%	%	%
Patr. Ref. - Cash	39	8	17	
- Noncash	44	38	29	2
Dividends	2			
Unallocated Retains	8	54	54	98
Income Taxes	6			

Notes: 1) Iowa's averages under net savings includes the 31 cooperatives which distributed 100% unallocated retains. Without these, the average distribution to unallocated retains is 32%.

2) Iowa's proportion of earnings distributed as unallocated retains includes the taxes paid on them.

3) Griffen's loss allocations include accounts receivable deductions and direct billings for cooperatives using these practices.

4) Iowa's distributions were approximations. There were no explicit data especially on accounts receivable deductions or direct billings since these practices are not usually used in Iowa cooperatives.

Conclusions

The frequencies and sizes of ordinary net losses and the strategies of earnings distribution for both the local and federated cooperatives were documented. Earnings variability was examined to show the frequency and size of losses occurring. It can be concluded that the probability of the cooperative sustaining a loss have become greater. Earnings distribution was examined to determine the methods that cooperatives have used. A trend toward more cautious distributions was found, but few cases where losses were passed to members were found. Cooperative boards may not fully understand the alternative methods of allocation and their ramification on the cooperative and its members. Added information and analysis may be needed to determine which is best for the cooperative and its members.

The results of the local and federated cooperative analysis are listed below.

1) The frequency of losses have increased during the first half of the 1980s.

2) Fundamental problems at the local level were apparent in 1982 but were covered up in some cases by the regionals' distributions.

3) The average size of net losses has increased. At the local level this was due to larger local operating losses and lower regional patronage refunds to cover them.

4) The cooperatives' equity components show an increasing proportional share of equity held as unallocated retains.

5) In general, the presence of increased losses has spurred

cooperative boards to be more precautionary in the distribution of savings. The distribution of losses has been handled via unallocated retains without evidence that boards seriously considered other alternatives.

CHAPTER 3. ALTERNATIVES FOR ALLOCATION OF COOPERATIVE LOSSES TO PATRONS

This chapter is focused on alternative loss allocation (distribution) methods. After a brief discussion of legal loss distribution methods a quantitative comparison is presented using a cooperative accounting simulation model. The computer model allows analysis on the financial impacts that certain distribution methods have on the cooperative and its members.

Legal Methods of Loss Allocation

Four general methods of allocation for distributing positive earnings are recognized by cooperative statutes and the Internal Revenue Service (IRS). These same general methods can be extended to allocate losses or negative net savings. When a loss occurs it may be handled via 1) direct billing, 2) reductions in allocated equity (qualified and/or nonqualified), and 3) reductions in unallocated retained earnings. To a limited degree an additional method, 4), of carrying the loss forward to be offset by subsequent years savings also exists. Each of these allocation methods are briefly discussed below.

Direct billing

A direct billing can be handled in two ways. First, the loss could be charged as a direct assessment to the members. This is the opposite or reverse of a positive cash patronage allocation. Instead of a check

issued from the cooperative to the patron the cooperative would send a bill (direct assessment) to each of the members based on patronage. Alternatively, the loss may be transferred to an account receivable and carried as a patron liability to the cooperative into the next period. This method assumes that (1) the member will continue to conduct business with the cooperative and (2) positive net savings distributed to the patrons from future business will offset the current loss.

Charging a direct assessment passes the loss to members but requires an outlay of funds by the member. The direct assessment has tax consequences similar to other means of passing losses. When the loss is passed to a member, it may be used to reduce the level of ordinary income which is subject to federal income tax and FICA. Since the member can carry the loss backward three years or forward fifteen years, it may be used to offset income in past or future years (9). If the patron has taxable income in the present year, has had in past years, and/or will have in future years, then the member will benefit from the cooperative passing the loss. However, the outlay of cash will cause a negative net cashflow to the member. Since the outlay of cash will be greater than the tax benefit of the passed loss, patrons may not find this acceptable.

In general, it is risky for the cooperative to assess members a portion of the loss and demand cash payment when the patron has the alternative of dealing with a firm not assessing for a loss. When the cooperative represents the only viable source of goods or marketing services, such assessments may be more practical.

Transferring the loss to an account receivable is somewhat more

acceptable but is not without risk. If the member discontinues doing business with the cooperative in the next period, the cooperative has no way to offset the patron's share of the losses. Since the cooperative may not be able to recover losses from terminated members, it would be forced to recoup the loss through unallocated retained earnings.

Neither of these are viable methods for distributing losses when other cooperatives offer more desirable alternatives. The existence of viable alternatives may cause patrons to desert a cooperative allocating direct billings and thereby make the probability of losses in the next period more likely.

Allocated equity (qualified and nonqualified)

The cooperative may also handle the loss via allocated equity. Each individual member's allocated equity accounts (either qualified or nonqualified) may be reduced. The reduction in each patron's equity account would be equivalent to the share of the loss generated by that member's business with the cooperative. In this case, the members would treat the loss allocation as an ordinary loss just as positive net savings are treated as ordinary income when they are received as allocated equity. The interpretation of IRS rulings upholds this method; "net losses from overall operations ... should be assessed against patrons as a 'negative patronage dividend'..." (1, p. 399).

In contrast to the accounts receivable method, passing the loss to the members by equity reduction allows the cooperative to recognize the loss without waiting until the next accounting period. It also reduces the portion of the cooperative's equity base it must retire in the

future. Cooperatives already experiencing difficulty retiring equities are placed in a position where an already burdensome equity retirement liability is reduced (11).

Members are affected differently depending on whether the loss allocation is passed through by reducing qualified equity accounts or nonqualified equity accounts. Since the members have paid taxes on the qualified allocations, they may reduce their taxable ordinary income by the amount of loss received if the loss is passed in qualified form.

In the case of nonqualified allocations, the cooperative has paid the income tax. Thus, the cooperative would receive the tax deduction. Since the cooperative has no taxable income in the year the loss is sustained and if the cooperative is unable to carry the tax deduction forward, then the tax deduction becomes a deadweight loss.

Unallocated retains

The most common method for cooperatives to handle a loss is by the reduction in unallocated retains. The cooperative holds or absorbs the loss by reducing unallocated retained earnings from prior years. If the loss is handled in this fashion, the member's allocated accounts are not directly affected although total member equity decreases. The cooperative still is responsible for retiring the remaining allocated equity.

This method of handling losses is used by cooperatives because it is uncomplicated and avoids potentially bad member relations. Holding the loss in the cooperative does not require changes in allocated equity accounts. Members experience no visible tax or equity consequences. The

cooperative is not required to send notices. Many boards and managers believe when members are not directly affected by the loss they are less likely to switch cooperatives than would be the case when the loss is received as negative patronage.

However, the need to consider alternative methods of handling losses has arisen. It is increasingly difficult for cooperatives to hold losses that are large, frequent, and occurring at all levels in the cooperative system (Chapter two, p. 26).

Carrying the loss

The last method of handling a loss is the possibility of carrying the loss forward. The loss would be carried forward to offset future net savings. This method is technically limited to nonmember business by the Internal Revenue Code (14). Since a majority of the cooperative's business must be conducted by members in order for the cooperative to maintain its exempt status, then carrying the loss does not offer a good alternative for exempt cooperatives to handle large losses derived mostly from member business. However, note that the members are able to carry a loss forward or back. This allows the assumption that the member, if passed a loss, will be in a better position to use the whole loss to reduce tax liability.

Practical alternatives for Midwest cooperatives

The legal methods of handling losses just described are not all practical for Midwest cooperatives in a federated system. Member-sourced business restricts the cooperative from using the carry forward method. Thus, the cooperative may either hold the loss within the cooperative by

reducing unallocated retains or pass the loss to members by directly billing members and/or reducing members allocated equity. In the Midwest, direct billing of the loss in not a viable alternative. A patron may readily take his/her business elsewhere. The practice of passing the loss through nonqualified allocated equity is impractical due to the possible loss of the tax deduction that nonqualified redemptions are allowed. For these reasons, the most practical methods are 1) reducing unallocated retained earnings and 2) reducing qualified allocated equity.

The reduction of unallocated retained earnings (referred to as holding the loss) has been expedient and economical when losses were small and infrequent. Alternative methods of handling losses must be considered since the losses now occurring are larger, more frequent, and more difficult to handle with the depleted unallocated retains account. Cooperative boards must identify the most favorable method of distributing losses. Solutions that damage the cooperative and its members as little as possible are most desirable. Therefore, an analysis comparing financial and tax consequences of holding the loss with passing the loss (reduction of qualified allocated equity) was conducted. The analysis, using actual cooperative data, was constructed to show the advantages and disadvantages of each.

Quantitative Comparison

The discussion of legal loss distribution methods presented several alternatives a cooperative (local or regional) may use when it sustains a loss. The quantitative comparison examined two of these methods of allocation - passing and holding. The analysis includes not only cases where net losses occurred but also cases where positive earnings contained hidden losses. Hidden losses occurred when the local cooperative distributed net savings derived from either the positive regional patronage greater than the local loss or the local savings (gain) greater than the negative regional patronage. In order to make the comparison complete, it was necessary to analyze the various combinations of local savings and regional patronage that might occur. The combinations examined depended on the relative magnitude of the local and regional earnings (when they differed in sign) and the regional's distribution method. Figure 3.1 presents a schematic diagram showing the distinct regional-local earnings combinations based on these factors.

To conduct a quantitative comparison between the distribution methods of holding or passing "losses" (including hidden losses), a cooperative accounting simulation model (CASM) and data from eight Iowa cooperatives were used. CASM was used to project operating statements, balance sheets, sources and uses statements, and the financial impact the distribution method had on member net cash flows (4). Three years of financial data for each of the eight Iowa cooperatives were used to validate the projected statements from CASM. In all cases, projections

A. Regional Loss Passed	B. Regional Earnings Held (gain or loss)	C. Regional Gain Passed
1. Greater than Local gain -held (UR) -passed (Q)	1. Local loss -held (UR) -passed (Q)	1. Greater than Local loss -held (UR) -passed (Q 20%) (Q 50%) (NQ)
2. Less than Local gain -held (UR) -passed (Q 20%) (Q 50%) (NQ)	2. Local gain -held (UR) -passed (Q 20%) (Q 50%) (NQ)	2. Less than Local loss -held (UR) -passed (Q)
3. Plus a Local loss -held (UR) -passed (Q)		3. Plus a Local gain

UR - Unallocated Retained Earnings
Q - Qualified Allocated Equity
The percent that follows when positive earnings are distributed refers to the percent cash that was paid. Distributions of negative earnings do not require cash patronage refunds.
NQ - Nonqualified Allocated Equity

Figure 3.1 Schematic diagram showing various earnings distribution methods under the possible regional and local cooperatives' earnings combinations

approximately duplicated the actual data in the audited statement.

Selected operating statement factors for the third year were altered so that various levels of local earnings and regional patronage (the local cooperatives share of regional earnings) were generated. The distribution methods for these earnings were then varied holding all other variables constant to isolate the pure effect of the gain or loss distribution on the cooperative and its members. Regional or local earnings equal to zero created no unique situations. The nonzero earnings were distributed as in the situations in Figure 3.1 but as a relatively smaller or larger distribution. The case of zero net savings arising from zero regional and zero local earnings assumed away the problem altogether and therefore were not included in the analysis.

Twenty projections were used in the quantitative comparison. The 20 projections allowed comparisons of the effects of the regional cooperative holding or passing its earnings (holding the local's distribution method constant). Within this regional analysis the effect of the local cooperative holding or passing its loss may also be compared (holding the regional's distribution method constant). The eight Iowa cooperatives were deliberately selected to represent different levels of earnings and different financial conditions.

The cooperatives were chosen to represent three classifications: "financially sound" cooperatives, "high regional investment" cooperatives, and "financially troubled" cooperatives. These classifications were selected to gain information on how net savings and loss distribution methods might affect cooperatives of different size and

financial health. Appendix A contains the specific criteria used to classify the cooperatives.

Cooperatives one and two were chosen as financially sound because they had not sustained losses in any of the three years analyzed, their debt-to-equity (local and total) ratios were low, and both had relatively strong working capital positions. Cooperatives three, four, and five were chosen as high regional investment cooperatives because their investment-to-total-asset ratios and term-debt-to-local-equity ratios were high. Cooperatives six, seven, and eight were chosen as financially troubled because their earnings had gradually deteriorated from positive net savings to negative net savings.

Both the regional and the local comparisons examined the financial impacts the different distribution methods had on each of the eight local cooperatives. The financial variables examined were the local cooperative's total member equity, total assets, working capital, and member net cash flows. The values of these variables are presented in the tables as referenced in the text. It is important to note here that allocated equity included both qualifieds and nonqualifieds only when the cooperative currently distributed some portion of its positive net savings in the form of nonqualifieds. If another method was used or if a loss occurred allocated equity represented qualified equity only.

Also important to note is that member net cash flows are dependent on the members' tax brackets. The computer model (CASM) used in the analysis calculates member net cash flows under five scenarios. Each scenario has

a different average tax bracket based on the member distribution within the tax brackets which range from 11% to 50%. Appendix B contains the assumptions used to determine member net cash flows for each scenario.

Comparison of regional's distribution methods

Comparisons of the regional holding or passing its net savings were analyzed for when the regional had a loss and for when it had a gain. Figure 3.1, shown earlier, presents the twenty projections used for comparison. When the regional had a loss (column A of Figure 3.1), three situations were applicable for the study of loss allocation. When the regional had savings (a gain) (column C), only two situations were applicable. Each of these five situations is represented by a decision tree and tables for the eight cooperatives. The tables may be traced through the decision tree. The decision tree outcomes (as numbered on the right side of each figure) for each situation correspond to the order of the columns for that situation's set of eight tables. Cooperative eight was used in each situation to express the relationships of the financial impacts for when the regional passed its net savings compared to when the regional held its net savings.

Regional has a loss If the regional has a loss, it may be greater or less than local savings and local savings may be either positive or negative. Thus, three unique situations were examined to compare regional loss distribution methods. They are:

1) negative regional patronage refund greater than the local gain,
2) negative regional patronage refund less than the local gain, and
3) negative regional patronage refund plus a local loss.

Tables 3.1._, 3.2._, and 3.3._ present the data for the three situations, respectively. The blanks refer to the eight cooperatives (1-8) used in the comparison analysis.

Regional loss situation one The situation where the regional may distribute negative patronage greater than the local's positive local savings can result in the local cooperative distributing either negative or positive net savings. The actual size and sign of the local's allocation depends on whether the regional passes or holds its loss. If the regional held its loss the local distributed savings. If the regional passed its loss the local distributed a loss. Figure 3.2 depicts the decision tree for this situation.

The six outcomes on the decision tree correspond to the six columns in each of Tables 3.1.1 - 3.1.8. Columns one through four present the values for where the regional held its loss and columns five and six present the values for where the regional passed its loss. Comparing similar local distribution methods (column one with five and columns two through four with six), the following relationships were found to exist between the regional's distribution methods.

If the regional passed negative patronage refunds greater than the local's positive local savings, then the local distributed negative net savings. Cooperative eight in Table 3.1.8 had negative net savings of -$594,967 when the regional passed its loss. Under such a situation, the local cooperative had lower member equity and total assets, higher working capital, and higher member net cash flows than if the regional held its loss. Had the loss been held the local cooperative could have

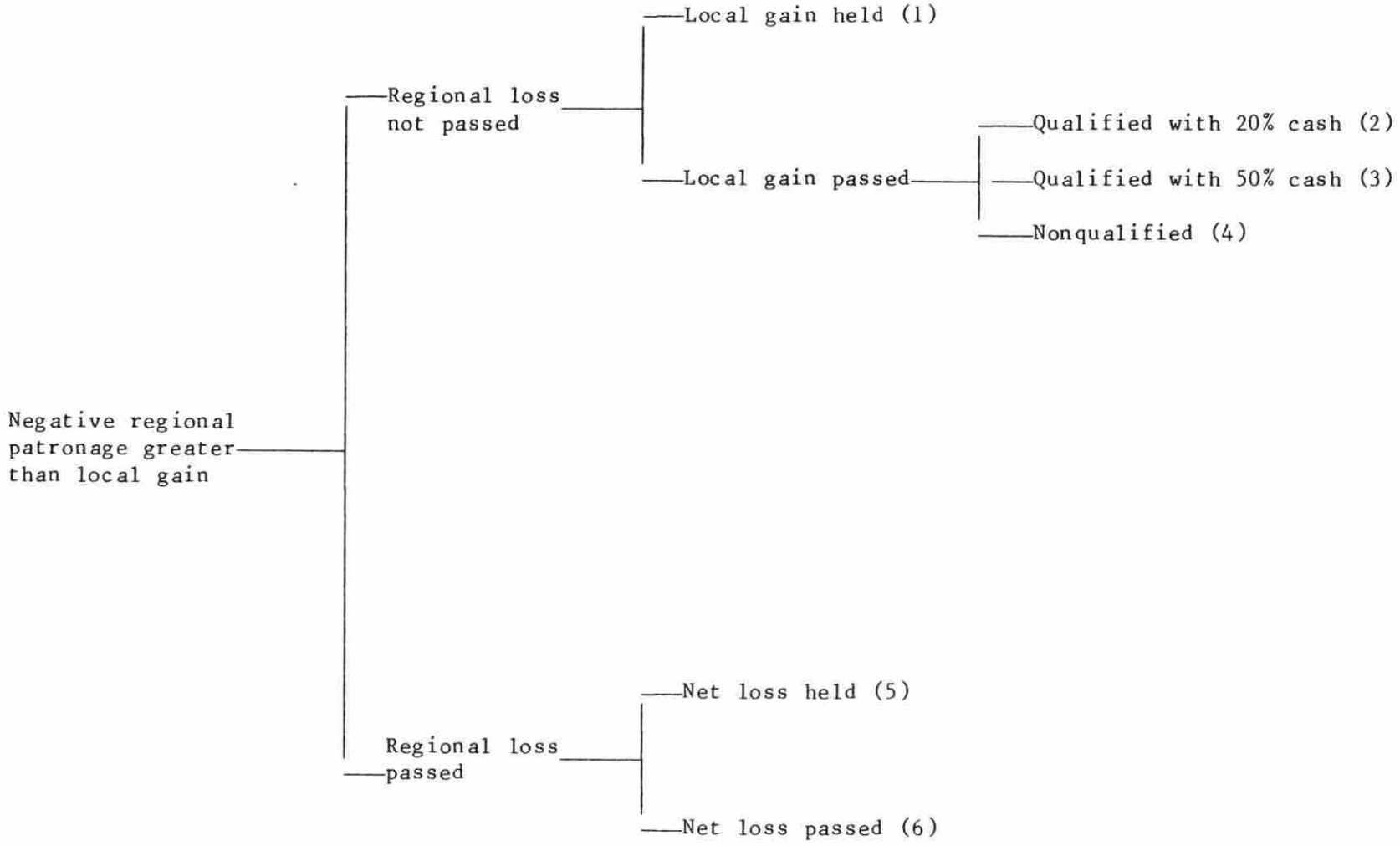


Figure 3.2 Earnings distribution outcomes derived from the alternative decision(s) on the distribution method under the assumption the regional's loss allocation is greater than the local savings (gain) generated

Table 3.1.1 Allocatable local share of regional loss is greater than the local gain

	Regional loss not passed				Regional loss passed	
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds	Local holds loss	Local passes loss
Local Cooperatives:						
Total Member Equity	1,198,820	1,215,838	1,179,171	1,198,820	993,158	993,158
Allocated Equity	823,802	933,077	896,410	916,060	823,801	710,396
Unallocated Retains	330,975	238,718	238,718	238,718	125,312	238,718
Investments	279,827	279,827	279,827	279,827	29,827	29,827
Total Assets	1,518,156	1,535,383	1,498,716	1,518,156	1,312,750	1,312,591
Working Capital	435,908	452,926	416,259	435,908	480,245	480,245
State & Federal Tax	44,594	48	48	44,594	0	160
Cash Patronage Paid	0	27,319	63,986	0	0	0
Reg Noncash Refund	0	0	0	0	-250,000	-250,000
Local Savings	137,388	137,388	137,388	137,388	137,388	137,388
Regional Patronage	0	0	0	0	-250,000	-250,000
Net Savings	137,388	137,388	137,388	137,388	-112,612	-112,612
Member Net Cash Flow: Average Tax Bracket						
= 20%	369	-10,362	26,305	369	4,970	35,727
= 25%	348	-15,726	20,941	348	4,939	40,131
= 30%	339	-18,005	18,662	339	4,926	42,002
= 35%	336	-18,966	17,701	336	4,920	42,791
= 40%	321	-22,660	14,007	321	4,899	45,825

Table 3.1.2 Allocatable local share of regional loss greater than the local gain

	Regional loss not passed				Regional loss passed	
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds	Local holds loss	Local passes loss
Local Cooperatives:						
Total Member Equity	4,263,540	4,368,044	4,250,310	4,263,540	3,757,321	3,757,322
Allocated Equity	2,971,075	3,328,183	3,210,449	3,223,679	2,971,074	2,717,461
Unallocated Retains	1,231,905	979,301	979,301	979,301	725,687	979,301
Investments	1,390,425	1,390,425	1,390,425	1,390,425	690,425	690,425
Total Assets	5,769,615	5,874,119	5,756,385	5,769,615	5,263,396	5,263,397
Working Capital	898,333	1,002,837	885,103	898,333	1,092,114	1,092,115
State & Federal Tax	193,781	0	0	193,781	0	0
Cash Patronage Paid	0	89,277	207,011	0	0	0
Reg Noncash Refund	0	0	0	0	-700,000	-700,000
Local Savings	446,386	446,386	446,386	446,386	446,386	446,386
Regional Patronage	0	0	0	0	-700,000	-700,000
Net Savings	446,386	446,386	446,386	446,386	-253,614	-253,614
Member Net Cashflow: Average Tax Bracket						
= 20%	0	-33,450	84,284	0	16,182	95,102
= 25%	0	-50,883	66,850	0	16,182	105,007
= 30%	0	-58,289	59,445	0	16,182	109,215
= 35%	0	-61,414	56,320	0	16,182	110,990
= 40%	0	-73,421	44,312	0	16,182	117,812

Table 3.1.3 Allocatable local share of regional loss greater than the local gain

	Regional loss not passed				Regional loss passed	
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds	Local holds loss	Local passes loss
Local Cooperatives:						
Total Member Equity	3,699,194	3,717,065	3,679,865	3,699,195	3,049,511	3,049,511
Allocated Equity	2,177,831	2,307,615	2,270,415	2,289,744	2,177,830	1,640,062
Unallocated Retains	644,272	532,359	532,359	532,359	-5,410	532,359
Investments	2,361,453	2,361,453	2,361,453	2,361,453	1,661,453	1,661,453
Total Assets	8,197,860	8,215,731	8,178,531	8,197,861	7,548,177	7,548,177
Working Capital	785,624	803,495	766,295	785,625	835,941	835,942
State & Federal Tax	50,318	0	0	50,318	0	0
Cash Patronage Paid	0	32,446	69,646	0	0	0
Reg Noncash Refund	0	0	0	0	-700,000	-700,000
Local Savings	162,231	162,231	162,231	162,231	162,231	162,231
Regional Patronage	0	0	0	0	-700,000	-700,000
Net Savings	162,231	162,231	162,231	162,231	-537,769	-537,769
Member Net Cashflow:						
Average Tax Bracket						
= 20%	0	-6,569	30,632	0	11,469	178,814
= 25%	0	-12,904	24,296	0	11,469	199,817
= 30%	0	-15,596	21,604	0	11,469	208,738
= 35%	0	-16,731	20,469	0	11,469	212,503
= 40%	0	-21,095	16,105	0	11,469	226,969

Table 3.1.4 Allocatable local share of regional loss greater than the local gain

	Regional loss not passed				Regional loss passed	
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds	Local holds loss	Local passes loss
Local Cooperatives:						
Total Member Equity	2,451,491	2,449,723	2,432,619	2,451,490	1,766,342	1,766,343
Allocated Equity	1,231,221	1,297,699	1,280,595	1,299,466	1,231,220	614,319
Unallocated Retains	846,547	778,302	778,302	778,302	161,400	778,302
Investments	1,329,109	1,329,109	1,329,109	1,329,109	629,109	629,109
Total Assets	4,295,252	4,293,477	4,276,379	4,295,251	3,610,103	3,610,104
Working Capital	676,195	674,427	657,323	676,194	691,046	691,047
State & Federal Tax	14,853	0	0	14,853	0	0
Cash Patronage Paid	0	16,626	33,724	0	0	0
Reg Noncash Refund	0	0	0	0	-700,000	-700,000
Local Savings	83,098	83,098	83,098	83,098	83,098	83,098
Regional Patronage	0	0	0	0	-700,000	-700,000
Net Savings	83,098	83,098	83,098	83,098	-616,902	-616,902
Member Net Cashflow:						
Average Tax Bracket						
= 20%	0	-1,414	15,690	0	7,825	199,795
= 25%	0	-4,659	12,445	0	7,825	223,888
= 30%	0	-6,038	11,066	0	7,825	234,123
= 35%	0	-6,620	10,485	0	7,825	238,441
= 40%	0	-8,855	8,249	0	7,825	255,036

Table 3.1.5 Allocatable local share of regional loss greater than the local gain

	Regional loss not passed				Regional loss passed	
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds	Local holds loss	Local passes loss
Local Cooperatives:						
Total Member Equity	14,325,378	14,388,463	14,314,639	14,325,379	13,797,820	13,797,820
Allocated Equity	6,419,528	6,856,952	6,783,128	6,793,869	6,419,528	6,266,309
Unallocated Retains	5,439,487	5,065,148	5,065,148	5,065,148	4,911,929	5,065,148
Investments	5,946,078	5,946,078	5,946,078	5,946,078	5,246,078	5,246,078
Total Assets	30,873,456	30,936,548	30,862,734	30,873,456	30,345,904	30,345,904
Working Capital	4,822,960	4,886,048	4,812,224	4,822,960	4,995,408	4,995,408
State & Federal Tax	172,440	0	0	172,440	0	0
Cash Patronage Paid	0	109,356	183,180	0	0	0
Reg Noncash Refund	0	0	0	0	-700,000	-700,000
Local Savings	546,781	546,781	546,781	546,781	546,781	546,781
Regional Patronage	0	0	0	0	-700,000	-700,000
Net Savings	546,781	546,781	546,781	546,781	-153,219	-153,219
Member Net Cashflow:						
Average Tax Bracket						
= 20%	11,508	40,924	114,748	11,508	101,717	149,397
= 25%	11,508	19,569	93,393	11,508	101,718	155,381
= 30%	11,508	10,498	84,322	11,508	101,718	157,923
= 35%	11,508	6,671	80,495	11,508	101,718	158,995
= 40%	11,508	-8,037	65,787	11,508	101,718	163,117

Table 3.1.6 Allocatable local share of regional loss greater than the local gain

	Regional loss not passed				Regional's loss passed	
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds	Local holds loss	Local passes loss
Local Cooperatives:						
Total Member Equity	1,550,311	1,582,315	1,531,542	1,550,311	922,757	922,757
Allocated Equity	757,655	919,422	868,649	887,418	757,655	259,864
Unallocated Retains	685,277	555,514	555,514	555,514	57,723	555,514
Investments	1,023,660	1,023,660	1,023,660	1,023,660	323,660	323,660
Total Assets	3,055,738	3,087,741	3,036,968	3,055,738	2,428,184	2,428,184
Working Capital	548,427	580,431	529,658	548,427	620,873	620,873
State & Federal Tax	72,446	0	0	72,446	0	0
Cash Patronage Paid	0	40,442	91,215	0	0	0
Reg Noncash Refund	0	0	0	0	-700,000	-700,000
Local Savings	202,209	202,209	202,209	202,209	202,209	202,209
Regional Patronage	0	0	0	0	-700,000	-700,000
Net Savings	202,209	202,209	202,209	202,209	-497,791	-497,791
Member Net Cashflow: Average Tax Bracket						
= 20%	0	-12,593	38,180	0	9,889	164,794
= 25%	0	-20,490	30,233	0	9,889	184,235
= 30%	0	-23,845	26,928	0	9,889	192,494
= 35%	0	-25,261	25,513	0	9,889	195,978
= 40%	0	-30,700	20,074	0	9,889	209,369

Table 3.1.7 Allocatable local share of regional loss greater than the local gain

	Regional loss not passed				Regional loss passed	
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds	Local holds loss	Local passes loss
Local Cooperatives:						
Total Member Equity	2,793,455	2,819,700	2,774,331	2,793,455	2,155,081	2,155,081
Allocated Equity	1,652,014	1,884,357	1,748,168	1,858,112	1,742,834	1,219,738
Unallocated Retains	1,050,621	935,343	935,343	935,343	412,247	935,343
Investments	1,478,534	1,478,534	1,478,534	1,478,534	778,534	778,534
Total Assets	6,427,369	6,453,613	6,408,245	6,427,369	5,788,995	5,788,995
Working Capital	856,149	882,394	837,025	856,149	917,775	917,775
State & Federal Tax	61,626	0	0	61,626	0	0
Cash Patronage Paid	0	35,381	80,749	0	0	0
Reg Noncash Refund	0	0	0	0	-700,000	-700,000
Local Savings	176,904	176,904	176,904	176,904	176,904	176,904
Regional Patronage	0	0	0	0	-700,000	-700,000
Net Savings	176,904	176,904	176,904	176,904	-523,096	-523,096
Member Net Cashflow:						
Average Tax Bracket						
= 20%	0	-11,966	33,402	0	7,703	170,482
= 25%	0	-18,875	26,493	0	7,703	190,911
= 30%	0	-21,810	23,558	0	7,703	199,590
= 35%	0	-23,048	22,320	0	7,703	203,251
= 40%	0	-27,807	17,561	0	7,703	217,323

Table 3.1.8 Allocatable local share of regional loss greater than the local gain

	Regional loss not passed				Regional loss passed	
	Local holds gain	Local passes gain via: Qualifieds (20% cash)	Qualifieds (50% Cash)	Nonqualifieds	Local holds loss	Local passes loss
Local Cooperatives:						
Total Member Equity	2,458,049	2,454,094	2,438,098	2,458,049	1,775,100	1,775,101
Allocated Equity	1,400,476	1,484,502	1,468,506	1,488,457	1,400,475	805,509
Unallocated Retains	623,046	535,065	535,065	535,065	-59,902	535,065
Investments	875,603	875,603	875,603	875,603	175,603	175,603
Total Assets	4,281,346	4,277,390	4,261,394	4,281,346	3,598,397	3,598,398
Working Capital	530,083	526,128	510,132	530,083	547,134	547,135
State & Federal Tax	17,052	0	0	17,052	0	0
Cash Patronage Paid	0	21,007	37,003	0	0	0
Reg Noncash Refund	0	0	0	0	-700,000	-700,000
Local Savings	105,033	105,033	105,033	105,033	105,033	105,033
Regional Patronage	0	0	0	0	-700,000	-700,000
Net Savings	105,033	105,033	105,033	105,033	-594,967	-594,967
Member Net Cashflow:						
Average Tax Bracket						
= 20%	0	3,836	19,831	0	15,514	200,658
= 25%	0	-267	15,729	0	15,514	223,894
= 30%	0	-2,009	13,987	0	15,514	233,765
= 35%	0	-2,744	13,252	0	15,514	237,930
= 40%	0	-5,570	10,426	0	15,514	253,934

distributed positive net savings of $105,033.

Member equity was lower in the comparsion due to the distribution of negative net savings when the regional passed its loss compared to the distribution of positive net savings when the regional held its loss. Member equity was $1,775,100 when the regional passed its loss regardless of the local cooperatives distribution method. Member equity ranged from $2,438,098 to $2,458,049 when the regional held its loss. The range was due to the different distribution methods the local cooperative could use to distribute the positive net savings.

The difference in member equity when the regional passed or held its loss was due to a combination of two factors. First, member equity was smaller when the regional passed its loss because the negative net savings decrease equity whether unallocated or allocated. Second, member equity was smaller because when the regional held its loss the positive net savings increased equity net payments for taxes or cash patronage.

The total asset account was also lower in the comparison because of the impacts the negative net savings had compared to the positive net savings. Whether the local cooperative held its savings or passed them, total assets were $3,598,397. This was less than the almost $4,300,000 of total assets that the local cooperative had when the regional held its loss. The difference was due primarily to the reduction in regional investments, but taxes or cash patronage paid out when the regional loss was held partially offset the effect. The total asset account was smaller when the regional passed its loss because the regional's

allocation decreased the investments account. However, state and federal taxes or cash patronage paid by the local cooperative on its earnings distribution reduced the margin of difference because the payments reduced the working capital when the regional held its loss.

Working capital in local cooperative eight was higher when the regional passed its loss. Working capital was $547,135 when the regional passed its loss versus values between $510,132 and $530,083 (depending on the local's distribution method) when the regional loss was not passed. This occurred because the local cooperative had no cash expenditures reducing working capital for taxes or cash patronage when it had negative net savings. When the regional held its loss, the local cooperative had positive net savings and paid taxes and/or cash patronage depending on how it chose to distribute the savings.

Member net cash flows were higher when the regional passed its loss no matter what distribution method the local cooperative used. If the local cooperative held its net savings as unallocated retains, member net cash flows were $15,514 when the regional passed its loss and $0 when the regional held its loss. This difference arose due to the use of investment tax credits (ITCs). When the regional held its loss, ITCs were required to cover the taxes due on the unallocated retains distribution. When the regional passed its loss, ITCs were not needed to cover taxes on the local cooperative's negative distributions and could be passed to members.

If the local cooperative allocated its net savings, member net cash flows were over $200,000 when the regional passed its loss and were less

than $20,000 when the regional held its loss. This difference arose due to the member's tax liability on the qualified allocations. When the regional held its loss, members were required to pay taxes on positive qualified allocations. When the regional passed its loss, members received a tax deduction from the negative qualified allocations. If nonqualified allocated equity was used when the regional held the loss, member net cash flows were the same as if the local had held the net savings via unallocated retains.

Although this net cash flow relationship occurred for all eight cooperatives, it might not necessarily hold in all cases. If the local paid larger portions of their positive earnings as cash with large distributions then the resulting positive net cash flow may be greater then the net cash flows resulting from losses creating deductions to taxable income. For example, the member net cash flows of Table 3.1.2 are larger for the regional passing its loss and the local passing the net loss. But if the negative regional patronage refund had only been -$500,000, the net cash flows in scenario one would be almost $33,000 and in scenario five almost $38,000.

These cash flows are less than the net cash flows received when the regional held the loss and the local passed its gain via qualifieds with a 50% cash payout. Although members may receive a higher positive net cash flow, the working capital position of the cooperative would decay further from paying the high level of cash patronage.

The situation where the regional passed negative patronage greater than the local gain caused local cooperative eight to have smaller levels

of total equity and total assets, larger levels of working capital, and larger member net cash flows compared to the regional holding its loss. This was true for all eight of the cooperatives analyzed. The larger member net cash flows shown in these eight cases would not necessarily hold if higher cash payouts were made or smaller losses were experienced. Boards would have to consider these magnitudes in each situation.

Regional loss situation two The situation where the regional distributed negative patronage refunds less than the local's positive savings resulted in the local cooperative distributing positive earnings regardless of whether the regional passed or held its loss. If the regional passed its loss, the local's positive distribution was reduced. Figure 3.3 depicts the decision tree for this situation.

The eight outcomes on the decision tree correspond to the eight columns in each of Tables 3.2.1 - 3.2.8. Columns one through four present the values when the regional held its loss and columns five through eight present the values when the regional passed its loss. Comparing similar local distribution methods (column one with five, column two with six, column three with seven, and column four with eight) the following relationships were found to exist between the regional's distribution methods.

If the regional passed negative patronage refunds less than the local's positive savings, the local distributes positive net savings (but at a reduced level from positive local savings). Cooperative eight in Table 3.2.8 had net savings of $77,010 when the regional passed its loss. Under such a situation, local cooperative eight had lower member equity

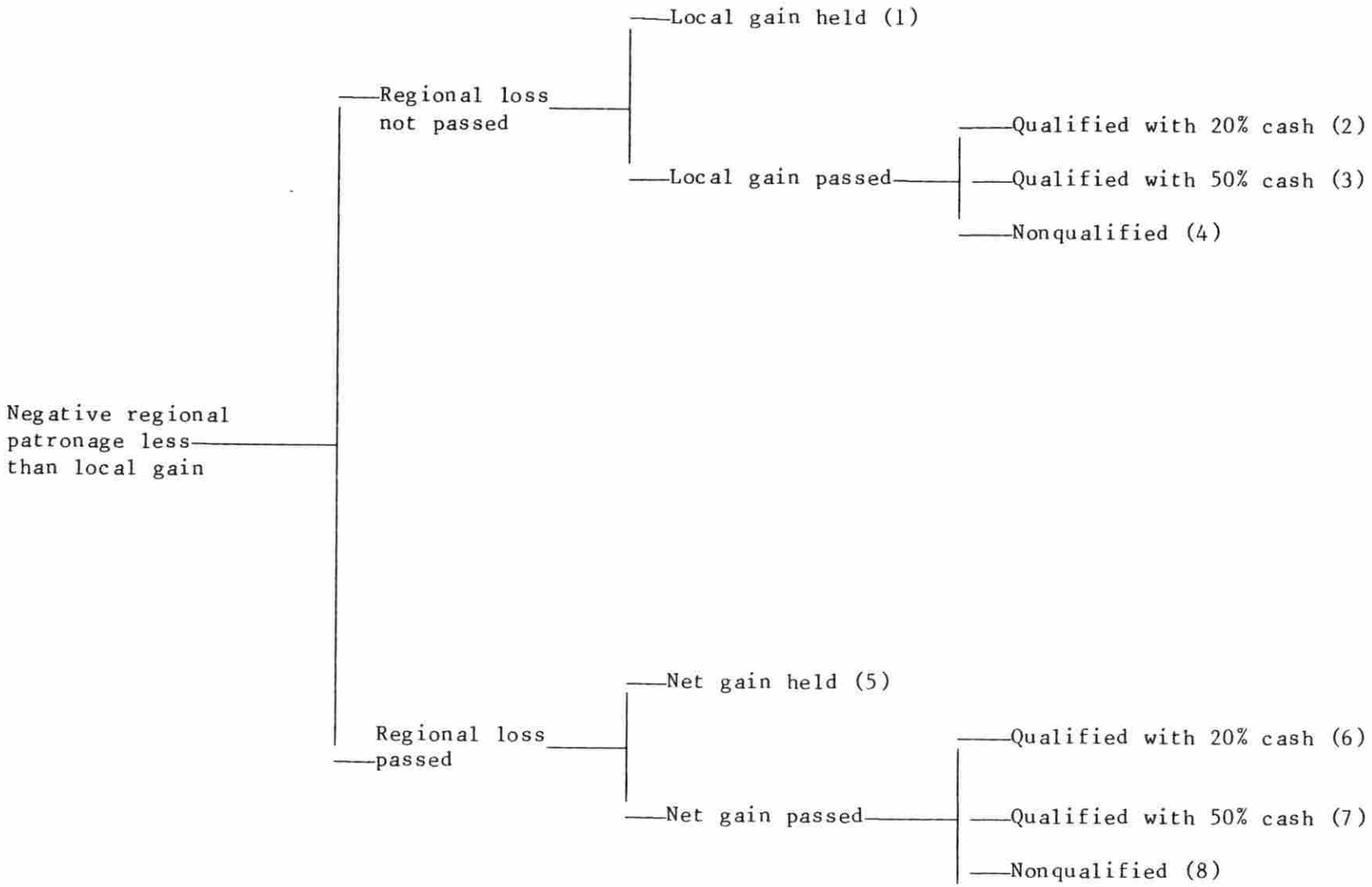


Figure 3.3 Earnings distribution outcomes derived from the alternative decision(s) on the distribution method under the assumption the regional's loss allocated is less than the local savings (gain) generated

Table 3.2.1 Allocatable local share of regional loss less than local gain

	Local holds gain	Regional's loss not passed Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:				
Total Member Equity	1,198,820	1,215,838	1,179,171	1,198,820
Allocated Equity	823,802	933,077	896,410	916,060
Unallocated Retains	330,975	238,718	238,718	238,718
Investments	279,827	279,827	279,827	279,827
Total Assets	1,518,156	1,535,383	1,498,716	1,518,156
Working Capital	435,908	452,926	416,259	435,908
State & Federal Tax	44,594	48	48	44,594
Cash Patronage Paid	0	27,319	63,986	0
Reg Noncash Refunds	0	0	0	0
Local Savings	137,388	137,388	137,388	137,388
Regional Patronage	0	0	0	0
Net Savings	137,388	137,388	137,388	137,388
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	369	-10,362	26,305	369
= 25%	348	-15,726	20,941	348
= 30%	339	-18,005	18,662	339
= 35%	336	-18,966	17,701	336
= 40%	321	-22,660	14,007	321

Local holds gain	Regional loss passed Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
1,196,026	1,211,249	1,176,303	1,196,026
823,802	928,488	893,542	933,265
328,181	238,718	238,718	238,718
274,091	274,091	274,091	274,091
1,515,368	1,530,794	1,495,848	1,515,368
438,850	454,073	419,127	438,850
41,646	48	48	41,646
0	26,172	61,118	0
-5,736	-5,736	-5,736	-5,736
137,388	137,388	137,388	137,388
-5,736	-5,736	-5,736	-5,736
131,652	131,652	131,652	131,652
374	-9,724	25,222	374
352	-14,864	20,082	352
343	-17,048	17,899	343
340	-17,969	16,977	340
325	-21,509	13,437	325

Table 3.2.2 Allocatable local share of regional loss less than local gain

	Regional loss not passed			
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:				
Total Member Equity	4,263,540	4,368,044	4,250,310	4,263,540
Allocated Equity	2,971,075	3,328,183	3,210,449	3,223,679
Unallocated Retains	1,231,905	979,301	979,301	979,301
Investments	1,390,425	1,390,425	1,390,425	1,390,425
Total Assets	5,769,615	5,874,119	5,756,385	5,769,615
Working Capital	898,333	1,002,837	885,103	898,333
State & Federal Tax	193,781	0	0	193,781
Cash Patronage Paid	0	89,277	207,011	0
Reg Noncash Refunds	0	0	0	0
Local Savings	446,386	446,386	446,386	446,386
Regional Patronage	0	0	0	0
Net Savings	446,386	446,386	446,386	446,386
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	0	-33,450	84,284	0
= 25%	0	-50,883	66,850	0
= 30%	0	-58,289	59,445	0
= 35%	0	-61,414	56,320	0
= 40%	0	-73,421	44,312	0

Local holds gain	Regional loss passed Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
4,252,086	4,348,762	4,238,259	4,252,086
2,971,075	3,308,901	3,198,398	3,212,226
1,220,451	979,301	979,301	979,301
1,366,322	1,366,322	1,366,322	1,366,322
5,758,161	5,854,836	5,744,333	5,758,161
910,982	1,007,658	897,155	910,982
181,132	0	0	181,132
0	84,457	194,960	0
-24,103	-24,103	-24,103	-24,103
446,386	446,386	446,386	446,386
-24,103	-24,103	-24,103	-24,103
422,283	422,283	422,283	422,283
0	-30,770	79,733	0
0	-47,262	63,240	0
0	-54,268	56,235	0
0	-57,224	53,279	0
0	-68,583	41,920	0

Table 3.2.3 Allocatable local share of regional loss less than local gain

	Regional loss not passed			
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:				
Total Member Equity	3,699,194	3,717,065	3,679,865	3,699,195
Allocated Equity	2,177,831	2,307,615	2,270,415	2,289,744
Unallocated Retains	644,272	532,359	532,359	532,359
Investments	2,361,453	2,361,453	2,361,453	2,361,453
Total Assets	8,197,860	8,215,731	8,178,531	8,197,861
Working Capital	785,624	803,495	766,295	785,625
State & Federal Tax	50,318	0	0	50,318
Cash Patronage Paid	0	32,446	69,646	0
Reg Noncash Refunds	0	0	0	0
Local Savings	162,231	162,231	162,231	162,231
Regional Patronage	0	0	0	0
Net Savings	162,231	162,231	162,231	162,231
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	0	-6,569	30,632	0
= 25%	0	-12,904	24,296	0
= 30%	0	-15,596	21,604	0
= 35%	0	-16,731	20,469	0
= 40%	0	-21,095	16,105	0

Local holds gain	Regional loss passed Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
3,653,014	3,645,869	3,635,368	3,653,014
2,177,831	2,236,419	2,225,918	2,243,564
598,092	532,359	532,359	532,359
2,272,458	2,272,458	2,272,458	2,272,458
8,151,680	8,144,535	8,134,033	8,151,680
828,439	821,294	810,793	828,439
7,503	0	0	7,503
0	14,647	25,149	0
-88,995	-88,995	-88,995	-88,995
162,231	162,231	162,231	162,231
-88,995	-88,995	-88,995	-88,995
73,236	73,236	73,236	73,236
0	3,326	13,828	0
0	466	10,968	0
0	-749	9,753	0
0	-1,262	9,240	0
0	-3,232	7,270	0

Table 3.2.4 Allocatable local share of regional loss less than local gain

	Regional loss not passed			
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:				
Total Member Equity	2,451,491	2,449,723	2,432,619	2,451,490
Allocated Equity	1,231,221	1,297,699	1,280,595	1,299,466
Unallocated Retains	846,547	778,302	778,302	778,302
Investments	1,329,109	1,329,109	1,329,109	1,329,109
Total Assets	4,295,252	4,293,477	4,276,379	4,295,251
Working Capital	676,195	674,427	657,323	676,194
State & Federal Tax	14,853	0	0	14,853
Cash Patronage Paid	0	16,626	33,724	0
Reg Noncash Refunds	0	0	0	0
Local Savings	83,098	83,098	83,098	83,098
Regional Patronage	0	0	0	0
Net Savings	83,098	83,098	83,098	83,098
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	0	-1,414	15,690	0
= 25%	0	-4,659	12,445	0
= 30%	0	-6,038	11,066	0
= 35%	0	-6,620	10,485	0
= 40%	0	-8,855	8,249	0

Local holds gain	Regional loss passed Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
2,430,829	2,424,187	2,416,659	2,430,828
1,231,221	1,272,163	1,264,635	1,278,805
825,886	778,302	778,302	778,302
1,297,189	1,297,189	1,297,189	1,297,189
4,274,590	4,267,947	4,260,419	4,274,589
687,453	680,811	673,283	687,452
3,594	0	0	3,594
0	10,236	17,764	0
-31,920	-31,920	-31,920	-31,920
83,098	83,098	83,098	83,098
-31,920	-31,920	-31,920	-31,920
51,178	51,178	51,178	51,178
10	2,135	9,663	10
10	136	7,665	10
10	-713	6,816	10
10	-1,071	6,547	10
10	-2,448	5,081	10

Table 3.2.5 Allocatable local share of regional loss less than local gain

	Regional loss not passed			
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:				
Total Member Equity	14,325,378	14,388,463	14,314,639	14,325,379
Allocated Equity	6,419,528	6,856,952	6,783,128	6,793,869
Unallocated Retains	5,439,487	5,065,148	5,065,148	5,065,148
Investments	5,946,078	5,946,078	5,946,078	5,946,078
Total Assets	30,873,456	30,936,548	30,862,734	30,873,456
Working Capital	4,822,960	4,886,048	4,812,224	4,822,960
State & Federal Tax	172,440	0	0	172,440
Cash Patronage Paid	0	109,356	183,180	0
Reg Noncash Refunds	0	0	0	0
Local Savings	546,781	546,781	546,781	546,781
Regional Patronage	0	0	0	0
Net Savings	546,781	546,781	546,781	546,781
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	11,508	40,924	114,748	11,508
= 25%	11,508	19,569	93,393	11,508
= 30%	11,508	10,498	84,322	11,508
= 35%	11,508	6,671	80,495	11,508
= 40%	11,508	-8,037	65,787	11,508

Local holds gain	Regional loss passed Local passes Qualifieds (20% Cash)	gain via: Qualifieds (50% Cash)	Nonqualifieds
14,213,073	14,199,398	14,196,473	14,213,074
6,419,528	6,667,887	6,664,962	6,681,564
5,327,182	5,065,148	5,065,148	5,065,148
5,709,746	5,709,746	5,709,746	5,709,746
30,761,152	30,747,478	30,744,554	30,761,152
4,946,992	4,933,312	4,930,400	4,946,992
48,413	0	0	48,413
0	62,090	65,014	0
-236,332	-236,332	-236,332	-236,332
546,781	546,781	546,781	546,781
-236,332	-236,332	-236,332	-236,332
310,449	310,449	310,449	310,449
11,508	67,200	70,125	11,508
11,508	55,076	58,000	11,508
11,508	49,926	52,850	11,508
11,508	47,752	50,677	11,508
11,508	39,401	42,326	11,508

Table 3.2.6 Allocatable local share of regional loss less than local gain

	Regional loss not passed			
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:				
Total Member Equity	1,550,311	1,582,315	1,531,542	1,550,311
Allocated Equity	757,655	919,422	868,649	887,418
Unallocated Retains	685,277	555,514	555,514	555,514
Investments	1,023,660	1,023,660	1,023,660	1,023,660
Total Assets	3,055,738	3,087,741	3,036,968	3,055,738
Working Capital	548,427	580,431	529,658	548,427
State & Federal Tax	72,446	0	0	72,446
Cash Patronage Paid	0	40,442	91,215	0
Reg Noncash Refunds	0	0	0	0
Local Savings	202,209	202,209	202,209	202,209
Regional Patronage	0	0	0	0
Net Savings	202,209	202,209	202,209	202,209
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	0	-12,593	38,180	0
= 25%	0	-20,490	30,283	0
= 30%	0	-23,845	26,928	0
= 35%	0	-25,261	25,513	0
= 40%	0	-30,700	20,074	0

Local holds gain	Regional loss passed Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
1,504,397	1,506,785	1,484,335	1,504,397
757,655	843,892	821,422	841,504
639,363	555,514	555,514	555,514
929,247	929,247	929,247	929,247
3,009,824	3,012,211	2,989,761	3,009,824
596,926	599,314	576,864	596,926
23,947	0	0	23,947
0	21,559	44,009	0
-94,413	-94,413	-94,413	-94,413
202,209	202,209	202,209	202,209
-94,413	-94,413	-94,413	-94,413
107,796	107,796	107,796	107,796
0	-2,096	20,354	0
0	-6,306	16,144	0
0	-8,094	14,356	0
0	-8,849	13,601	0
0	-11,748	10,701	0

Table 3.2.7 Allocatable local share of regional loss less than local gain

	Regional loss not passed			
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:				
Total Member Equity	2,793,455	2,819,700	2,774,331	2,793,455
Allocated Equity	1,652,014	1,884,357	1,748,168	1,858,112
Unallocated Retains	1,050,621	935,343	935,343	935,343
Investments	1,478,534	1,478,534	1,478,534	1,478,534
Total Assets	6,427,369	6,453,613	6,408,245	6,427,369
Working Capital	856,149	882,394	837,025	856,149
State & Federal Tax	61,626	0	0	61,626
Cash Patronage Paid	0	35,381	80,749	0
Reg Noncash Refunds	0	0	0	0
Local Savings	176,904	176,904	176,904	176,904
Regional Patronage	0	0	0	0
Net Savings	176,904	176,904	176,904	176,904
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	0	-11,966	33,402	0
= 25%	0	-18,875	26,493	0
= 30%	0	-21,810	23,558	0
= 35%	0	-23,048	22,320	0
= 40%	0	-27,807	17,561	0

Local holds gain	Regional loss passed Local passes Qualifieds (20% Cash)	gain via: Qualifieds (50% Cash)	Nonqualifieds
2,757,612	2,761,114	2,737,715	2,757,612
1,742,833	1,825,771	1,802,372	1,822,269
1,014,779	935,343	935,343	935,343
1,405,302	1,405,302	1,405,302	1,405,302
6,391,526	6,395,028	6,371,629	6,391,526
893,538	897,040	873,641	893,538
24,236	0	0	24,236
0	20,734	44,133	0
-73,232	-73,232	-73,232	-73,232
176,904	176,904	176,904	176,904
-73,232	-73,232	-73,232	-73,232
103,672	103,672	103,672	103,672
0	-3,824	19,574	0
0	-7,873	15,526	0
0	-9,593	13,806	0
0	-10,319	13,080	0
0	-13,107	10,291	0

Table 3.2.8 Allocatable local share of regional loss less than local gain

	Regional loss not passed			
	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:				
Total Member Equity	2,458,049	2,454,094	2,438,098	2,458,049
Allocated Equity	1,400,476	1,484,502	1,468,506	1,488,457
Unallocated Retains	623,046	535,065	535,065	535,065
Investments	875,603	875,603	875,603	875,603
Total Assets	4,281,346	4,277,390	4,261,394	4,281,346
Working Capital	530,083	526,128	510,132	530,083
State & Federal Tax	17,052	0	0	17,052
Cash Patronage Paid	0	21,007	37,003	0
Reg Noncash Refunds	0	0	0	0
Local Savings	105,033	105,033	105,033	105,033
Regional Patronage	0	0	0	0
Net Savings	105,033	105,033	105,033	105,033
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	0	3,836	19,831	0
= 25%	0	-267	15,729	0
= 30%	0	-2,009	13,987	0
= 35%	0	-2,744	13,252	0
= 40%	0	-5,570	10,426	0

Local holds gain	Regional loss passed Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
2,441,417	2,431,676	2,424,086	2,441,417
1,400,476	1,462,084	1,454,494	1,471,825
606,414	535,065	535,065	535,065
847,580	847,850	847,580	847,580
4,264,714	4,254,972	4,247,383	4,264,714
541,474	531,733	524,143	541,474
5,661	0	0	5,661
0	15,402	22,991	0
-28,023	-28,023	-28,023	-28,023
105,033	105,033	105,033	105,033
-28,023	-28,023	-28,023	-28,023
77,010	77,010	77,010	77,010
859	6,951	14,540	859
859	3,944	11,533	859
859	2,666	10,255	859
859	2,127	9,716	859
859	55	7,644	859

and total assets, higher working capital, and higher or lower member net cash flows (depending on local's distribution method) than if the regional had held its loss. Failure of the regional to pass the loss would have caused the local cooperative to distribute net savings of $105,033.

Member equity was lower when the regional passed its loss due to the smaller net savings. The magnitude of the difference in member equity depended on the local cooperative's distribution method. If the local cooperative held the net savings, member equity was $2,441,417 when the regional passed its loss. This was lower than the $2,458,049 of equity that the local cooperative had when the regional held its loss. The difference was due to the amount of net savings (net of taxes) that the cooperative distributed to unallocated retains. If the local cooperative passed the net savings, this same relationship held. Member equity was smaller (when the regional passed its loss) by the difference in the amount of net savings (net of taxes and/or cash patronage) that the cooperative distributed as qualified and/or nonqualified equity.

The total asset account was also lower when the regional passed its loss. This result was due to the smaller earnings and reduction in investments. Again the absolute level of the difference depended on the local cooperative's distribution method. If the local cooperative held the net savings, the total asset account was $4,264,714 when the regional passed its loss and $4,281,346 when the regional held its loss. The difference was due mainly to the decrease in the investments account and was partially offset by the smaller use of working capital funds for

taxes.

If the local cooperative passed the net savings to members, the same relationship held. The total asset account was smaller when the regional passed its loss by the amount the negative regional patronage decreased the investment account net the amount it reduced working capital funds required to pay taxes or cash patronage (due to smaller earnings).

Working capital of the local cooperative, as implied above, was higher when the regional passed its loss. This occurred because the cooperative used less working capital for taxes or cash patronage when the regional's loss allocation reduced local savings and the local's distribution method was held constant. For example, if local cooperative eight passed its net savings of $77,010 (after recognizing the regional's loss allocation) using qualified allocated equity at a 50% cash patronage payout, the requirements from working capital funds were $22,991. When the regional held its loss, net savings of $105,033 required $37,003 of working capital to achieve the 50% cash payout. Note that ITCs were used to replace cash patronage dollars above the 20% minimum required on qualified allocations. ITCs may be used in this way up to the amount of ITCs available ($15,514 within cooperative eight) when no taxation at the cooperative level occurred.

Member net cash flows were higher or lower for cooperative eight (assuming the regional passed its loss) depending on the distribution method selected by the local. If the local cooperative distributed its net savings via unallocated retains, qualified equity with 20% cash payout or nonqualified equity, the member net cash flows were higher when

the regional passed its loss. If the local cooperative distributed its net savings via qualified equity with 50% cash, the member net cash flows were lower when the regional passed its loss.

In the cases for unallocated retains and nonqualified distributions, the local cooperative was required by law to apply available ITCs to pay the taxes due on these distributions. Where all the ITCs were used this way member net cash flows were zero. When the regional passed its loss net savings were reduced and as a consequence a smaller fractiion of ITCs were required to offset tax on local distributions to unallocated retains or nonqualifieds. Member net cash flows were therefore greater than zero by the portion of ITCs no longer needed to cover the reduced tax liability.

In the cases for qualified equity, the impact of the regional's distribution method depended on the level of cash patronage paid. At a low cash payout (20%), the negative regional patronage passed decreased the distribution which decreased the negative net cash flow. This was advantageous to the members. At a high cash payout (50%), the decreased distribution caused a decreased positive net cash flow, which was disadvantageous to the members. It should be noted that the local cooperative itself had a better working capital position at the lower cash payout.

The situation where the regional passed negative patronage less than the local's positive local savings caused local cooperative eight to have smaller levels of member equity and total assets, larger levels of working capital, and member net cash flows that varied depending on the

local's distribution method as compared to the alternative where the regional held its loss. These relationships were true for all eight of the cooperatives analyzed.

Regional loss situation three The situation where both the regional and the local cooperative sustained losses resulted in the local distributing negative net savings regardless of whether the regional passed or held its loss. If the regional passed its loss, the local's negative distribution was increased. Figure 3.4 depicts the decision tree for this situation.

The four outcomes on the decision tree correspond to the four columns in each of Tables 3.3.1 - 3.3.8. Columns one and two present the values when the regional held its loss and columns three and four present the values when the regional passed its loss. Comparing similar local distribution methods (column one with three and column two with four) the following relationships were found to exist between the regional's distribution methods.

If the regional passed negative patronage and the local sustained a loss also, the local distributed negative net savings of higher absolute value than the existing negative local savings. Cooperative eight in Table 3.3.8 had negative net savings of -$95,282 when the regional passed its loss. Under such a situation, the local cooperative had lower member equity and total assets, equal working capital, and equal or higher member net cash flows than when the regional held its loss. If the regional loss was held, the local cooperative distributed negative net savings of -$67,259.

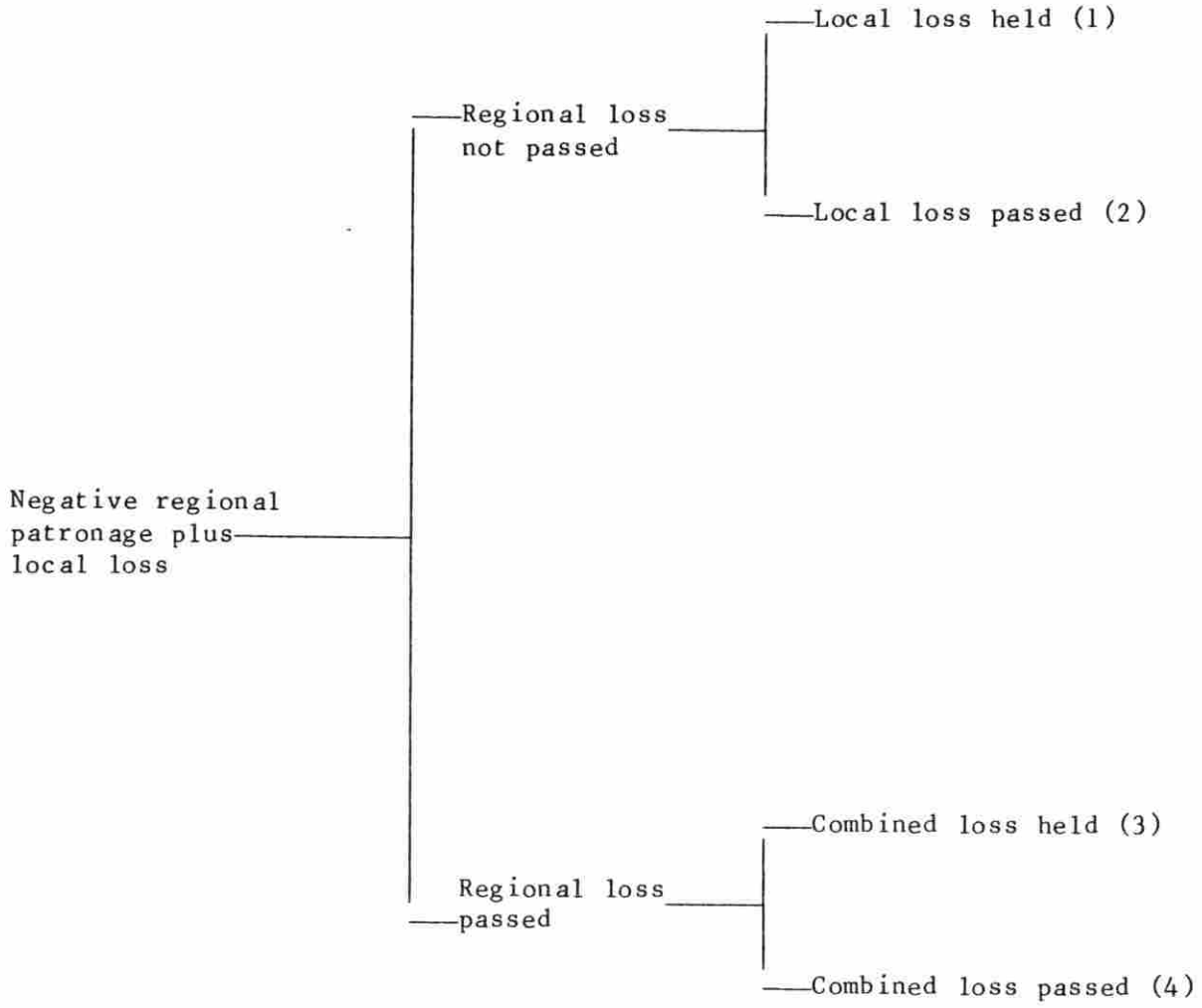


Figure 3.4 Earnings distribution outcomes derived from the alternative decision(s) on the distribution method under the assumption the regional's loss allocation accompanies the local loss generated

Table 3.3.1 Allocatable local share of regional loss with a local loss

	Regional loss not passed		Regional loss passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	1,077,665	1,077,665	1,071,929	1,071,929
Allocated Equity	823,802	794,904	823,802	789,168
Unallocated Retains	209,820	238,718	204,084	238,718
Investments	279,827	279,827	274,091	274,091
Total Assets	1,397,258	1,397,099	1,391,522	1,391,363
Working Capital	314,753	314,753	314,753	314,753
State & Federal Tax	0	160	0	160
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	-5,736	-5,736
Local Savings	-28,104	-28,104	-28,104	-28,104
Regional Patronage	0	0	-5,736	-5,736
Net Savings	-28,104	-28,104	-33,840	-33,840
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	4,970	9,429	4,971	11,214
= 25%	4,939	10,533	4,939	12,542
= 30%	4,925	11,002	4,925	13,106
= 35%	4,920	11,200	4,920	13,344
= 40%	4,899	11,960	4,899	14,259

Table 3.3.2 Allocatable local share of regional loss with a local loss

	Regional loss not passed		Regional loss passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	3,873,852	3,873,852	3,849,749	3,849,749
Allocated Equity	2,971,075	2,833,991	2,971,075	2,809,888
Unallocated Retains	842,217	979,301	818,114	979,301
Investments	1,390,425	1,390,425	1,366,322	1,366,322
Total Assets	5,379,927	5,379,927	5,355,824	5,355,824
Working Capital	508,645	508,645	508,645	508,645
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refund	0	0	-24,103	-24,103
Local Savings	-137,084	-137,084	-137,084	-137,084
Regional Patronage	0	0	-24,103	-24,103
Net Savings	-137,084	-137,084	-161,187	-161,187
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	16,182	58,840	16,182	66,341
= 25%	16,182	64,194	16,182	72,636
= 30%	16,182	66,468	16,182	75,310
= 35%	16,182	67,428	16,182	76,438
= 40%	16,182	71,115	16,182	80,774

Table 3.3.3 Allocatable local share of regional loss with a local loss

	Regional loss not passed		Regional loss passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	3,085,301	3,085,302	2,996,306	2,996,307
Allocated Equity	2,177,830	1,675,852	2,177,830	1,586,857
Unallocated Retains	30,380	532,359	-58,615	532,359
Investments	2,361,453	2,361,453	2,272,458	2,272,458
Total Assets	7,583,967	7,583,968	7,494,972	7,494,973
Working Capital	171,731	171,732	171,731	171,732
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	-88,995	-88,995
Local Savings	-501,979	-501,979	-501,979	-501,979
Regional Patronage	0	0	-88,995	-88,995
Net Savings	-501,979	-501,979	-590,974	-590,974
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	11,469	167,677	11,469	195,371
= 25%	11,469	187,282	11,469	218,451
= 30%	11,469	195,610	11,469	228,256
= 35%	11,469	199,123	11,469	232,393
= 40%	11,469	212,627	11,469	248,290

Table 3.3.4 Allocatable local share of regional loss with a local loss

	Regional loss not passed		Regional loss passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	2,261,992	2,261,992	2,230,072	2,230,072
Allocated Equity	1,231,221	1,109,968	1,231,221	1,078,048
Unallocated Retains	657,049	778,302	625,129	778,302
Investments	1,329,109	1,329,109	1,297,189	1,297,189
Total Assets	4,105,753	4,105,753	4,073,833	4,073,833
Working Capital	486,696	486,696	486,696	486,696
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	-31,920	-31,920
Local Savings	-121,253	-121,253	-121,253	-121,253
Regional Patronage	0	0	-31,920	-31,920
Net Savings	-121,253	-121,253	-153,173	-153,173
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	7,825	45,557	7,825	55,490
= 25%	7,825	50,293	7,825	61,472
= 30%	7,825	52,304	7,825	64,014
= 35%	7,825	53,153	7,825	65,086
= 40%	7,825	56,415	7,825	69,206

Table 3.3.5 Allocatable local share of regional loss with a local loss

	Regional loss not passed		Regional loss passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	12,231,444	12,231,444	11,995,112	11,995,112
Allocated Equity	6,419,527	4,699,933	6,419,527	4,463,601
Unallocated Retains	3,345,554	5,065,148	3,109,222	5,065,148
Investments	5,946,078	5,946,078	5,709,746	5,709,746
Total Assets	28,779,520	28,779,520	28,543,200	28,543,200
Working Capital	2,729,024	2,729,024	2,729,040	2,729,040
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	-236,332	-236,332
Local Savings	-1,719,595	-1,719,595	-1,719,595	-1,719,595
Regional Patronage	0	0	-236,332	-236,332
Net Savings	-1,955,927	-1,955,927	-1,719,595	-1,719,595
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	101,718	636,829	101,718	710,372
= 25%	101,718	703,988	101,718	786,761
= 30%	101,718	732,516	101,718	819,210
= 35%	101,718	744,553	101,718	832,901
= 40%	101,718	790,810	101,718	885,516

Table 3.3.6 Allocatable local share of regional loss with a local loss

	Regional loss not passed		Regional loss passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	1,081,163	1,081,163	986,750	986,750
Allocated Equity	757,655	418,270	757,655	323,857
Unallocated Retains	216,129	555,514	121,716	555,514
Investments	1,023,660	1,023,660	929,247	929,247
Total Assets	2,586,590	2,586,590	2,492,177	2,492,177
Working Capital	79,279	79,279	79,279	79,279
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	-94,413	-94,413
Local Savings	-339,385	-339,385	-339,385	-339,385
Regional Patronage	0	0	-94,413	-94,413
Net Savings	-339,385	-339,385	-433,798	-433,798
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	9,889	115,500	9,889	144,880
= 25%	9,889	128,755	9,889	161,822
= 30%	9,889	134,386	9,889	169,019
= 35%	9,889	136,761	9,889	172,056
= 40%	9,889	145,891	9,889	183,725

Table 3.3.7 Allocatable local share of regional loss with a local loss

	Regional loss not passed		Regional loss passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	2,098,091	2,098,092	2,024,859	2,024,859
Allocated Equity	1,652,013	1,162,749	1,742,833	1,089,517
Unallocated Retains	355,258	935,343	282,026	935,343
Investments	1,478,534	1,478,534	1,405,302	1,405,302
Total Assets	5,732,005	5,732,006	5,658,773	5,658,773
Working Capital	160,786	160,786	160,786	160,786
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	-73,232	-73,232
Local Savings	-580,085	-580,085	-580,085	-580,085
Regional Patronage	0	0	-73,232	-73,232
Net Savings	-580,085	-580,085	-653,317	-653,317
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	7,703	188,216	7,703	211,005
= 25%	7,703	210,871	7,703	236,520
= 30%	7,703	220,495	7,703	247,359
= 35%	7,703	224,556	7,703	251,932
= 40%	7,703	240,160	7,703	269,506

Table 3.3.8 Allocatable local share of regional loss with a local loss

	Regional loss not passed		Regional loss passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	2,302,809	2,302,809	2,274,786	2,274,786
Allocated Equity	1,400,476	1,333,217	1,400,476	1,305,194
Unallocated Retains	467,806	535,065	439,783	535,065
Investments	875,603	875,603	847,580	847,580
Total Assets	4,126,106	4,126,106	4,098,083	4,098,083
Working Capital	374,843	374,843	374,843	374,843
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	-28,023	-28,023
Local Savings	-67,259	-67,259	-67,259	-67,259
Regional Patronage	0	0	-28,023	-28,023
Net Savings	-67,259	-67,259	-95,282	-95,282
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	15,514	36,444	15,514	45,164
= 25%	15,514	39,070	15,514	48,885
= 30%	15,514	40,186	15,514	50,466
= 35%	15,514	40,657	15,514	51,133
= 40%	15,514	42,466	15,514	53,696

Member equity was lower when the regional passed its loss and was identical between local distribution methods. Member equity was $2,274,786 when the regional passed its loss versus $2,302,809 when the regional held its loss. If the local cooperative held the negative net savings by reducing unallocated retains, member equity was lower due to the larger negative distribution that decreased that account. If the local cooperative passed its negative net savings, member equity was lower due to the larger negative distribution that decreased allocated equity.

The total asset account was lower when the regional passed its loss and was identical between local distribution methods. Total assets were $4,098,083 when the regional passed its loss and were $4,126,106 when the regional held its loss. Whether the local cooperative held or passed its net savings, the total assets account was lower by the amount of the negative regional allocation that decreased the investment account.

Working capital of cooperative eight was unaffected by the regional decision to pass or hold its loss whether the local passed the loss or held it by reducing unallocated retains. Working capital was $374,843 for each of the four outcomes of this situation.

Member net cash flows were equal or higher (when the regional passed its loss) for cooperative eight depending on the distribution method selected by the local. If the local cooperative held its negative net savings, the member net cash flows were equal at a value of $15,514 whether the regional held or passed its loss. This was due to the $15,514 of ITCs passed to members. If the local cooperative passed its

negative net savings, the member net cash flows were higher when the regional passed its loss. This was due to the extra tax deduction from the increased negative distribution the local passed when the regional loss was included.

The situation where the regional passed negative savings in addition to the local's negative local savings caused cooperative eight to have smaller levels of member equity and total assets, equal levels of working capital, and equal or higher member net cash flows as compared to the alternative where the regional held its loss. These relationships held for all eight of the cooperatives analyzed.

Summary of regional loss situations The relationships presented for each of the three regional loss situations were generally consistent. All three situations showed smaller levels of member equity and total assets when the regional passed its loss. Working capital was higher (situations one and two) or unaffected (situation three) when the regional passed its loss compared to when the regional losses were held. The impact of the regional's distribution on member net cash flows was ambiguous depending on the local cooperative's distribution method. These general relationships when the regional sustained a loss were consistent regardless of the variability in net savings among the eight cooperatives or in the differences in the balance sheets among the three classifications.

Regional has a gain If the regional has positive savings (a gain), the positive regional patronage may be greater or less than the absolute level of local savings which may be positive or negative.

Although three unique situations were possible only the first two were examined. The third situation (column C situation 3 of Figure 3.1) of a regional gain and a local gain contained no losses and was not considered relevent to a study concerning loss allocation. The two situations examined to compare the regional passing its gain versus holding its gain are:

1) positive regional patronage refund less than the local loss and

2) positive regional patronage refund greater than the local loss.

Tables 3.4._ and 3.5._ present the data for the two situations, respectively. Again the blanks refer to the cooperatives (1-8) used in the comparison.

Regional gain situation one The situation where the regional distributed positive patronage refunds less than the local's loss resulted in the local cooperative distributing negative net savings regardless of whether the regional passed or held its savings (gain). If the regional passed its savings, the local's negative distribution was reduced. Figure 3.5 depicts the decision tree for this situation.

The four outcomes on the decision tree correspond to the four columns in each of Tables 3.4.1 -3.4.8. Columns one and two present the values when the regional held its gain and columns three and four present the values when the regional passed its gain. Comparing similar local distribution methods (column one with three and column two with four) the following relationships were found to exist between the regional's distribution methods.

If the regional passed a positive refund less than the local's

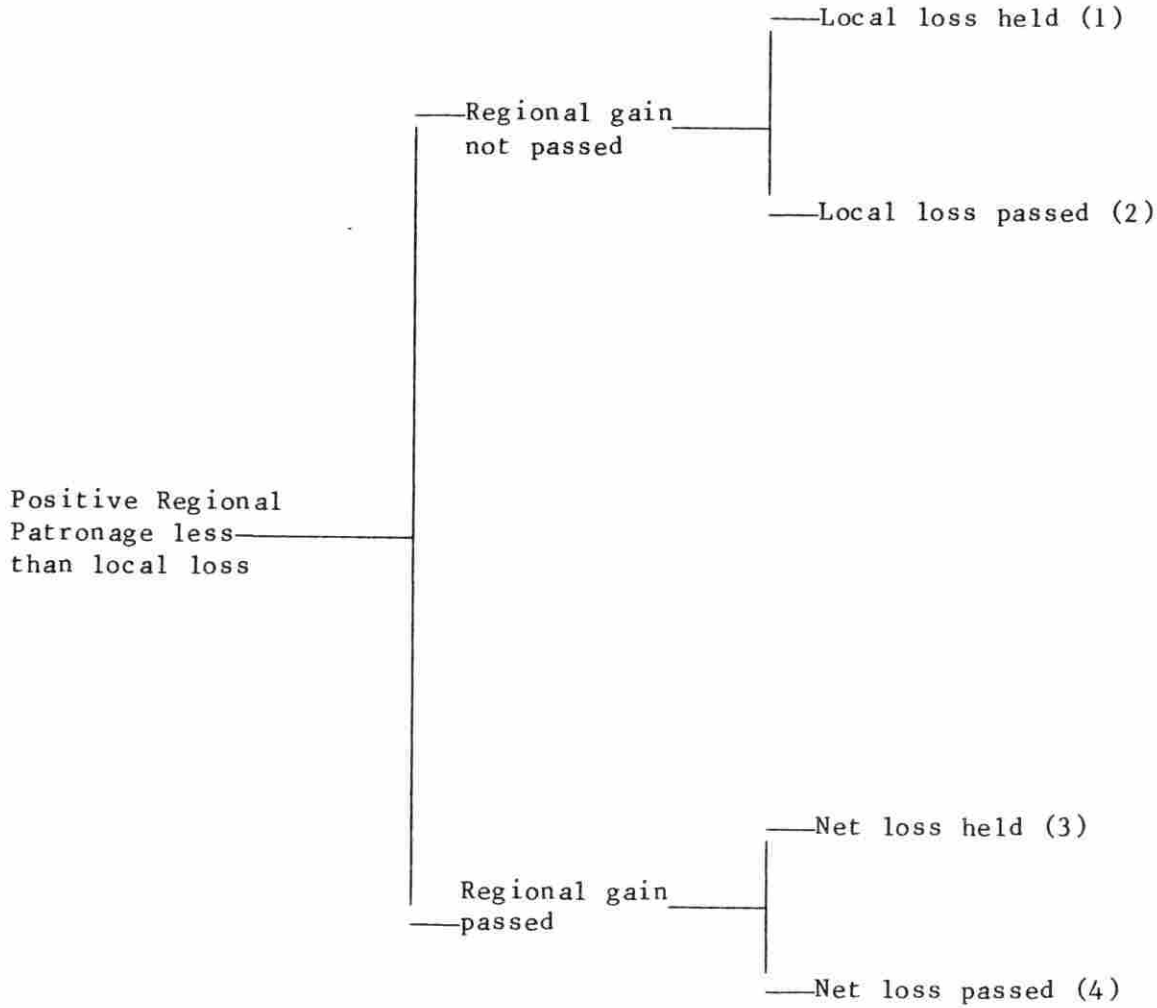


Figure 3.5 Earnings distribution outcomes derived from alternative decision(s) on the distribution method under the assumption the regional's gain allocated is less than the local loss generated

Table 3.4.1 Allocatable local share of regional gain less than local loss

	Regional gain not passed		Regional gain passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	1,077,665	1,077,665	1,083,401	1,083,401
Allocated Equity	823,802	794,904	823,802	800,640
Unallocated Retains	209,820	238,718	215,556	238,718
Investments	279,827	279,827	284,329	284,329
Total Assets	1,397,258	1,397,099	1,402,994	1,402,835
Working Capital	314,753	314,753	315,987	315,987
State & Federal Tax	0	160	0	160
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	4,502	4,502
Local Savings	-28,104	-28,104	-28,104	-28,104
Regional Patronage	0	0	5,736	5,736
Net Savings	-28,104	-28,104	-22,368	-22,368
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	4,970	9,429	4,970	7,644
= 25%	4,939	10,533	4,939	8,524
= 30%	4,925	11,002	4,925	8,898
= 35%	4,920	11,200	4,920	9,055
= 40%	4,899	11,960	4,899	9,661

Table 3.4.2 Allocatable local share of regional gain less than local loss

	Regional gain not passed		Regional gain passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	3,873,852	3,873,852	3,897,955	3,897,955
Allocated Equity	2,971,075	2,833,991	2,971,075	2,858,094
Unallocated Retains	842,217	979,301	866,320	979,301
Investments	1,390,425	1,390,425	1,404,665	1,404,665
Total Assets	5,379,927	5,379,927	5,404,030	5,404,030
Working Capital	508,645	508,645	518,508	518,508
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	14,240	14,240
Local Savings	-137,084	-137,084	-137,084	-137,084
Regional Patronage	0	0	24,103	24,103
Net Savings	-137,084	-137,084	-112,981	-112,981
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	16,182	58,840	16,182	51,340
= 25%	16,182	64,194	16,182	55,752
= 30%	16,182	66,468	16,182	57,626
= 35%	16,182	67,428	16,182	58,417
= 40%	16,182	71,115	16,182	61,457

Table 3.4.3 Allocatable local share of regional gain less than local loss

	Regional gain not passed		Regional gain passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	3,085,301	3,085,302	3,174,297	3,174,297
Allocated Equity	2,177,830	1,675,852	2,177,831	1,764,847
Unallocated Retains	30,380	532,359	119,375	532,359
Investments	2,361,453	2,361,453	2,408,673	2,408,673
Total Assets	7,583,967	7,583,968	7,672,963	7,672,963
Working Capital	171,731	171,732	213,507	213,507
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	47,221	47,221
Local Savings	-501,979	-501,979	-501,979	-501,979
Regional Patronage	0	0	88,995	88,995
Net Savings	-501,979	-501,979	-412,984	-412,984
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	11,469	167,677	11,469	139,983
= 25%	11,469	187,282	11,469	156,112
= 30%	11,469	195,610	11,469	162,964
= 35%	11,469	199,123	11,469	165,855
= 40%	11,469	212,627	11,469	176,964

Table 3.4.4 Allocatable local share of regional gain less then local loss

	Regional gain not passed		Regional gain passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	2,261,992	2,261,992	2,293,912	2,293,912
Allocated Equity	1,231,221	1,109,968	1,231,221	1,141,888
Unallocated Retains	657,049	778,302	688,969	778,302
Investments	1,329,109	1,329,109	1,346,032	1,346,032
Total Assets	4,105,753	4,105,753	4,137,673	4,137,673
Working Capital	486,696	486,696	501,693	501,693
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	16,924	16,924
Local Savings	-121,253	-121,253	-121,253	-121,253
Regional Patronage	0	0	31,920	31,920
Net Savings	-121,253	-121,253	-89,333	-89,333
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	7,825	45,557	7,825	35,624
= 25%	7,825	50,293	7,825	39,113
= 30%	7,825	52,304	7,825	40,595
= 35%	7,825	53,153	7,825	41,221
= 40%	7,825	56,415	7,825	43,624

Table 3.4.5 Allocatable local share of regional gain less than local loss

	Regional gain not passed		Regional gain passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	12,231,444	12,231,444	12,467,776	12,467,776
Allocated Equity	6,419,527	4,699,933	6,419,527	4,936,265
Unallocated Retains	3,345,554	5,065,148	3,581,886	5,065,148
Investments	5,946,078	5,946,078	6,135,143	6,135,143
Total Assets	28,779,520	28,779,520	29,015,856	29,015,856
Working Capital	2,729,024	2,729,024	2,776,288	2,776,288
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	189,066	189,066
Local Savings	-1,719,595	-1,719,595	-1,719,595	-1,719,595
Regional Patronage	0	0	236,332	236,332
Net Savings	-1,955,927	-1,955,927	-1,483,263	-1,483,263
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	101,718	636,829	101,718	563,286
= 25%	101,718	703,988	101,718	621,215
= 30%	101,718	732,516	101,718	645,822
= 35%	101,718	744,553	101,718	656,205
= 40%	101,718	790,810	101,718	696,105

Table 3.4.6 Allocatable local share of regional gain less than local loss

	Regional gain not passed		Regional gain passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	1,081,163	1,081,163	1,175,576	1,175,576
Allocated Equity	757,655	418,270	757,655	512,683
Unallocated Retains	216,129	555,514	301,542	555,514
Investments	1,023,660	1,023,660	1,042,543	1,042,543
Total Assets	2,586,590	2,586,590	2,681,003	2,681,003
Working Capital	79,279	79,279	154,809	154,809
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	18,883	18,883
Local Savings	-339,385	-339,385	-339,385	-339,385
Regional Patronage	0	0	94,413	94,413
Net Savings	-339,385	-339,385	-244,972	-244,972
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	9,889	115,500	9,889	86,121
= 25%	9,889	128,755	9,889	95,688
= 30%	9,889	134,386	9,889	99,752
= 35%	9,889	136,761	9,889	101,467
= 40%	9,889	145,891	9,889	108,057

Table 3.4.7 Allocatable local share of regional gain less than local loss

	Regional gain not passed		Regional gain passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	2,098,091	2,098,092	2,171,323	2,171,324
Allocated Equity	1,652,013	1,162,749	1,742,833	1,235,981
Unallocated Retains	355,258	935,343	428,490	935,343
Investments	1,478,534	1,478,534	1,548,104	1,548,104
Total Assets	5,732,005	5,732,006	5,805,237	5,805,238
Working Capital	160,786	160,786	164,447	164,448
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	69,570	69,570
Local Savings	-580,085	-580,085	-580,085	-580,085
Regional Patronage	0	0	73,232	73,232
Net Savings	-580,085	-580,085	-506,853	-506,853
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	7,703	188,216	7,703	165,427
= 25%	7,703	210,871	7,703	185,222
= 30%	7,703	220,495	7,703	193,631
= 35%	7,703	224,556	7,703	197,179
= 40%	7,703	240,160	7,703	210,814

Table 3.4.8 Allocatable local share of regional gain less than local loss

	Regional gain not passed		Regional gain passed	
	Local holds loss	Local passes loss	Local holds loss	Local passes loss
Local Cooperatives:				
Total Member Equity	2,302,809	2,302,809	2,330,832	2,330,832
Allocated Equity	1,400,476	1,333,217	1,400,476	1,361,240
Unallocated Retains	467,806	535,065	495,829	535,065
Investments	875,603	875,603	903,626	903,626
Total Assets	4,126,106	4,126,106	4,154,129	4,154,129
Working Capital	374,843	374,843	374,843	374,843
State & Federal Tax	0	0	0	0
Cash Patronage Paid	0	0	0	0
Reg Noncash Refunds	0	0	28,023	28,023
Local Savings	-67,259	-67,259	-67,259	-67,259
Regional Patronage	0	0	28,023	28,023
Net Savings	-67,259	-67,259	-39,236	-39,236
Member Net Cash Flow:				
Average Tax Bracket				
= 20%	15,514	36,444	15,514	27,723
= 25%	15,514	39,070	15,514	29,256
= 30%	15,514	40,186	15,514	29,907
= 35%	15,514	40,657	15,514	30,181
= 40%	15,514	42,466	15,514	31,237

negative local savings, the local distributed negative net savings (but at a reduced level from negative local savings). Cooperative eight in Table 3.4.8 had net savings of -$39,236 when the regional passed its savings. Under such a situation, the local cooperative had higher member equity and total assets, equal working capital, and equal or lower member net cash flows.

Member equity was higher when the regional passed its savings due to the smaller negative net savings. Member equity was $2,330,832 when the regional passed its savings and was $2,302,809 when the regional held its savings. These values of member equity occurred whether the local cooperative passed or held its negative net savings. If the local held its negative net savings, member equity was higher due to the reduced negative local distribution that decreased unallocated retains. If the local passed its negative net savings, member equity was higher due to the reduced magnitude of the local's negative distribution that decreased the allocated equity account.

The total asset account was also higher due to the reduced negative net savings the local distributed when the regional passed its savings. Total assets was $4,154,129 when the regional passed its savings and $4,126,106 when the regional held its savings. These values for total assets occurred whether the local cooperative passed or held its negative net savings. The total asset account was higher by the amount the positive regional patronage increased the investment account (the noncash portion) and increased the working capital account (the cash portion).

Working captial for cooperative eight was unaffected by the

regional's distribution method at $374,843. Cooperative eight, however, presents a unique case. The regional's positive allocation was all in the form of noncash which would be the case of a nonqualified allocation. If $1 of cash had been passed working capital would be higher and if qualifieds were used at least 20% must be in the form of cash. Thus in general, working capital will be higher when the regional passes its savings and will be increased by the amount of the cash portion the regional allocated. This held regardless of the local's distribution method because there were no taxes or cash patronage paid when negative net savings occurred. These are the usual sources of variation triggered by the local distribution method used.

Cooperative eight's member net cash flows were equal or lower when the regional passed its savings depending on the distribution method selected by the local. When the local cooperative held the negative net savings, member net cash flows were $15,514 (from ITCs passed) whether the regional held or passed its savings. If the local cooperative passed the negative net savings, member net cash flows were positive due to the reduction in tax liability created by the negative distributions, as well as the ITCs passed. When the regional passed its savings, member net cash flows were lower because the absolute levels of the negative distribution were reduced. This in turn reduced the effect on member's tax liability.

The situation where the regional passed positive patronage less than the local's negative local savings caused local cooperative eight to have higher levels of member equity and total assets, equal levels of working capital, and equal or lower member net cash flows. As found in the

working capital section and the other seven cooperatives, the situation usually caused higher levels of working capital so long as the regional's allocation was made partly in cash. The other relationships held for all eight of the cooperatives analyzed.

Regional gain situation two The situation where the regional distributed a positive refund greater than the local's loss resulted in the local cooperative distributing either positive or negative earnings. The sign of net savings passed depended on whether the regional passed or held its savings. If the regional passed its savings, the local distributed positive net savings. If the regional held its savings, the local distributed negative net savings. Figure 3.6 depicts the decision tree for this situation.

The six outcomes on the decision tree correspond to the six columns in each of Tables 3.5.1 - 3.5.8. Columns one and two present the values when the regional held its gain and columns three through six present the values when the regional passed its gain. Comparing similar local distribution methods (column one with three and column two with four through six) the following relationships were found to exist between the regional's distribution methods.

If the regional passed positive patronage greater than the local's negative local savings, then the local distributed positive net savings. Cooperative eight in Table 3.5.8 had net savings of $632,741 when the regional passed its savings. Under such a situation, local cooperative eight had higher member equity and total assets, higher or lower working capital accounts (depending on the distribution method

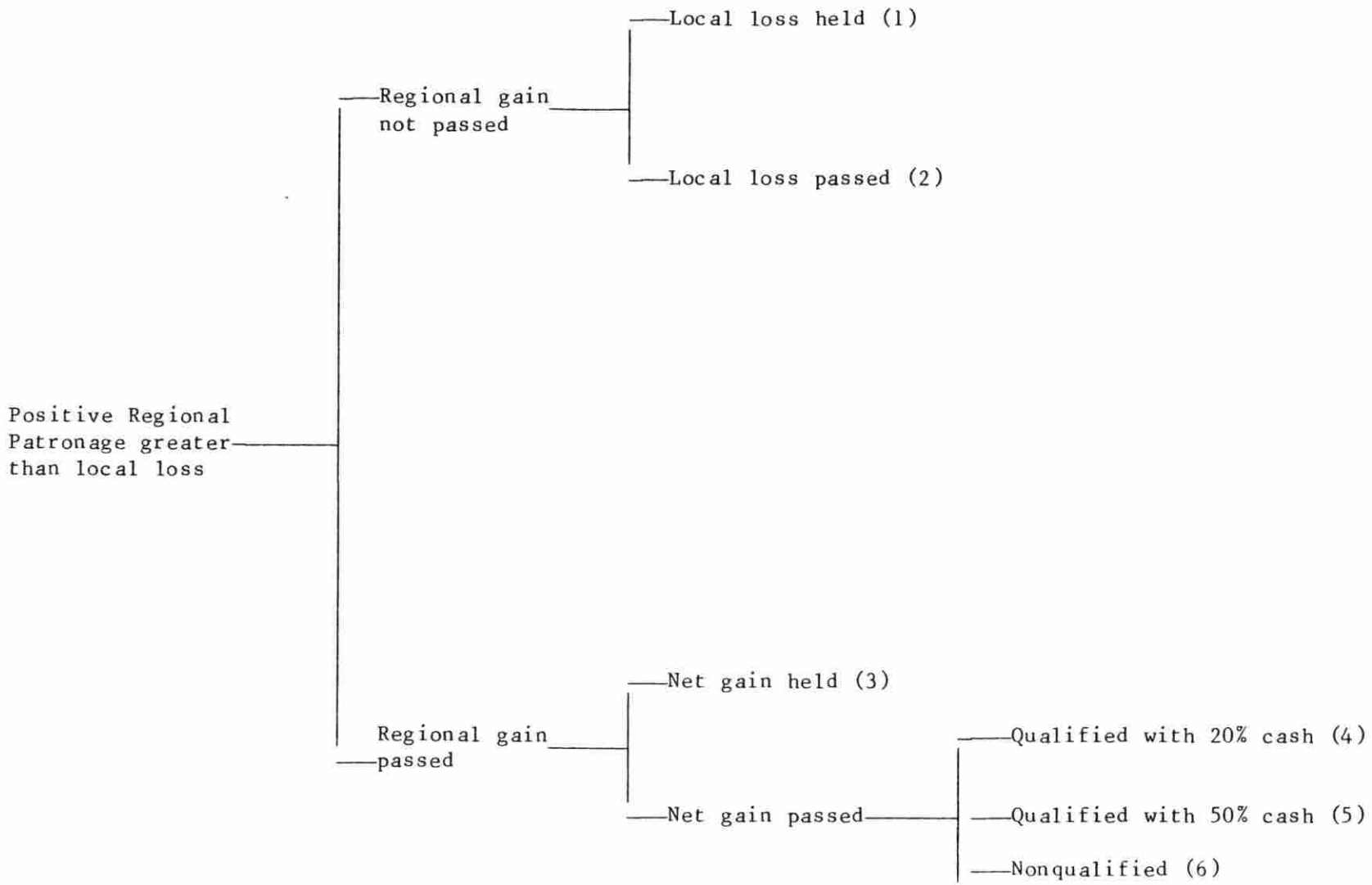


Figure 3.6 Earnings distribution outcomes derived from the alternative decision(s) on the distribution method under the assumption the regional's savings allocation is greater than the local loss generated

Table 3.5.1 Allocatable local share of regional gain greater than the local loss

	Regional gain not passed		Regional gain passed			
	Local holds loss	Local passes loss	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:						
Total Member Equity	1,077,665	1,077,665	1,454,160	1,643,444	1,446,425	1,454,160
Allocated Equity	823,802	794,904	823,802	1,360,683	1,163,664	1,171,399
Unallocated Retains	209,820	238,718	586,315	238,718	238,718	238,718
Investments	279,827	279,827	829,257	829,257	829,257	829,257
Total Assets	1,397,258	1,397,099	1,773,371	1,962,989	1,765,971	1,773,371
Working Capital	314,753	314,753	141,819	331,103	134,084	141,819
State & Federal Tax	0	160	323,888	48	48	323,888
Cash Patronage Paid	0	0	0	134,221	331,240	0
Reg Noncash Refund	0	0	549,430	549,430	549,430	549,430
Local Savings	-28,104	-28,104	-28,104	-28,104	-28,104	-28,104
Regional Patronage	0	0	700,000	700,000	700,000	700,000
Net Savings	-28,104	-28,104	671,896	671,896	671,896	671,896
Member Net Cash Flow: Average Tax Bracket						
= 20%	4,970	9,429	283	-69,791	127,228	283
= 25%	4,939	10,533	267	-96,030	100,989	267
= 30%	4,925	11,002	260	-107,176	89,843	260
= 35%	4,920	11,200	257	-111,879	85,140	257
= 40%	4,899	11,960	246	-129,952	67,067	246

Table 3.5.2 Allocatable local share of regional gain greater than the local loss

	Regional gain not passed		Regional gain passed			
	Local holds loss	Local passes loss	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:						
Total Member Equity	3,873,852	3,873,852	4,318,915	4,461,268	4,308,575	4,318,915
Allocated Equity	2,971,075	2,833,991	2,971,075	3,421,407	3,268,714	3,279,055
Unallocated Retains	842,217	979,301	1,287,280	979,301	979,301	979,301
Investments	1,390,425	1,390,425	1,803,984	1,803,984	1,803,984	1,803,984
Total Assets	5,379,927	5,379,927	5,824,990	5,967,343	5,814,650	5,824,990
Working Capital	508,645	508,645	540,149	682,502	529,809	540,149
State & Federal Tax	0	0	254,937	0	0	254,937
Cash Patronage Paid	0	0	0	112,583	265,276	0
Reg Noncash Refund	0	0	413,560	413,560	413,560	413,560
Local Savings	-137,084	-137,084	-137,084	-137,084	-137,084	-137,084
Regional Patronage	0	0	700,000	700,000	700,000	700,000
Net Savings	-137,084	-137,084	562,916	562,916	562,916	562,916
Member Net Cash Flow: Average Tax Bracket						
= 20%	16,182	58,840	0	-46,406	106,286	0
= 25%	16,182	64,194	0	-68,391	84,320	0
= 30%	16,182	66,468	0	-77,729	74,963	0
= 35%	16,182	67,428	0	-81,670	71,023	0
= 40%	16,182	71,115	0	-96,812	55,880	0

Table 3.5.3 Allocatable local share of regional gain greater than the local loss

	Regional gain not passed		Regional gain passed			
	Local holds loss	Local passes loss	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:						
Total Member Equity	3,085,301	3,085,302	3,716,588	3,745,697	3,697,760	3,716,589
Allocated Equity	2,177,830	1,675,852	2,177,831	2,336,247	2,288,310	2,307,138
Unallocated Retains	30,380	532,359	661,666	532,359	532,359	532,359
Investments	2,361,453	2,361,453	2,732,873	2,732,873	2,732,873	2,732,873
Total Assets	7,583,967	7,583,968	8,215,254	8,244,363	8,196,386	8,215,255
Working Capital	171,731	171,732	431,598	460,707	412,770	431,599
State & Federal Tax	0	0	68,714	0	0	68,714
Cash Patronage Paid	0	0	0	39,604	87,581	0
Reg Noncash Refund	0	0	371,240	371,240	371,240	371,240
Local Savings	-501,979	-501,979	-501,979	-501,979	-501,979	-501,979
Regional Patronage	0	0	700,000	700,000	700,000	700,000
Net Savings	-501,979	-501,979	198,021	198,021	198,021	198,021
Member Net Cash Flow:						
Average Tax Bracket						
= 20%	11,469	167,677	0	-10,548	37,389	0
= 25%	11,469	187,282	0	-18,282	29,656	0
= 30%	11,469	195,610	0	-21,567	26,371	0
= 35%	11,469	199,123	0	-22,953	24,984	0
= 40%	11,469	212,627	0	-28,280	19,658	0

Table 3.5.4 Allocatable local share of regional gain greater than the local loss

	Regional gain not passed		Regional gain passed			
	Local holds loss	Local passes loss	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:						
Total Member Equity	2,261,992	2,261,992	2,690,391	2,846,242	2,680,443	2,690,390
Allocated Equity	1,231,221	1,109,968	1,231,221	1,694,218	1,528,419	1,538,367
Unallocated Retains	657,049	778,302	1,085,447	778,302	778,302	778,302
Investments	1,329,109	1,329,109	1,700,249	1,700,249	1,700,249	1,700,249
Total Assets	4,105,753	4,105,753	4,534,152	4,690,003	4,524,204	4,534,151
Working Capital	486,696	486,696	543,955	699,806	534,007	543,954
State & Federal Tax	0	0	271,601	0	0	271,601
Cash Patronage Paid	0	0	0	115,749	281,548	0
Reg Noncash Refund	0	0	371,140	371,140	371,140	371,140
Local Savings	-121,253	-121,253	-121,253	-121,253	-121,253	-121,253
Regional Patronage	0	0	700,000	700,000	700,000	700,000
Net Savings	-121,253	-121,253	578,747	578,747	578,747	578,747
Member Net Cash Flow: Average Tax Bracket						
= 20%	7,825	45,557	0	-56,523	109,276	0
= 25%	7,825	50,293	0	-79,126	86,673	0
= 30%	7,825	52,304	0	-88,727	77,072	0
= 35%	7,825	53,153	0	-92,778	73,020	0
= 40%	7,825	56,415	0	-108,347	57,452	0

Table 3.5.5 Allocatable local share of regional gain greater than the local loss

	Regional gain not passed		Regional gain passed			
	Local holds loss	Local passes loss	Local holds gain	Local passes Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:						
Total Member Equity	12,231,444	12,231,444	14,198,796	14,175,363	14,175,363	14,198,797
Allocated Equity	6,419,527	4,699,933	6,419,528	6,643,852	6,643,852	6,667,287
Unallocated Retains	3,345,554	5,065,148	5,312,905	5,065,148	5,065,148	5,065,148
Investments	5,946,078	5,946,078	7,546,077	7,546,077	7,546,077	7,546,077
Total Assets	28,779,520	28,779,520	30,746,880	30,723,439	30,723,439	30,746,880
Working Capital	2,729,024	2,729,024	3,096,384	3,072,944	3,072,944	3,096,384
State & Federal Tax	0	0	32,646	0	0	32,646
Cash Patronage Paid	0	0	0	56,081	56,081	0
Reg Noncash Refunds	0	0	1,599,999	1,599,999	1,599,999	1,599,999
Local Savings	-1,719,595	-1,719,595	-1,719,595	-1,719,595	-1,719,595	-1,719,595
Regional Patronage	0	0	2,000,000	2,000,000	2,000,000	2,000,000
Net Savings	-1,955,927	-1,955,927	280,405	280,405	280,405	280,405
Member Net Cash Flow:						
Average Tax Bracket						
= 20%	101,718	636,829	11,508	70,541	70,540	11,508
= 25%	101,718	703,988	11,508	59,590	59,589	11,508
= 30%	101,718	732,516	11,508	54,938	54,937	11,508
= 35%	101,718	744,553	11,508	52,975	52,974	11,508
= 40%	101,718	790,810	11,508	45,432	45,431	11,508

Table 3.5.6 Allocatable local share of regional gain greater than the local loss

	Regional gain not passed		Regional's gain passed			
	Local holds loss	Local passes loss	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:						
Total Member Equity	1,081,163	1,081,163	1,626,102	1,709,039	1,610,744	1,626,101
Allocated Equity	757,655	418,270	757,655	1,046,147	947,852	963,209
Unallocated Retains	216,129	555,514	761,067	555,514	555,514	555,514
Investments	1,023,660	1,023,660	1,443,659	1,443,659	1,443,659	1,443,659
Total Assets	2,586,590	2,586,590	3,131,529	3,214,465	3,116,170	3,131,528
Working Capital	79,279	79,279	204,219	287,156	188,861	204,218
State & Federal Tax	0	0	155,061	0	0	155,061
Cash Patronage Paid	0	0	0	72,123	170,418	0
Reg Noncash Refunds	0	0	420,000	420,000	420,000	420,000
Local Savings	-339,385	-339,385	-339,385	-339,385	-339,385	-339,385
Regional Patronage	0	0	700,000	700,000	700,000	700,000
Net Savings	-339,385	-339,385	360,615	360,615	360,615	360,615
Member Net Cash Flow: Average Tax Bracket						
= 20%	9,889	115,500	0	-30,206	68,090	0
= 25%	9,889	128,755	0	-44,289	54,006	0
= 30%	9,889	134,386	0	-50,272	48,023	0
= 35%	9,889	136,761	0	-52,796	45,499	0
= 40%	9,889	145,891	0	-62,497	35,798	0

Table 3.5.7 Allocatable local share of regional gain greater than the local loss

	Regional gain not passed		Regional gain passed			
	Local holds loss	Local passes loss	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:						
Total Member Equity	2,098,091	2,098,092	2,765,758	2,774,109	2,745,837	2,765,758
Allocated Equity	1,652,013	1,162,749	1,652,014	1,747,946	1,719,674	1,739,595
Unallocated Retains	355,258	935,343	1,022,624	935,343	935,343	935,343
Investments	1,478,534	1,478,534	1,898,533	1,898,533	1,898,533	1,898,533
Total Assets	5,732,005	5,732,006	6,399,672	6,408,022	6,379,750	6,399,672
Working Capital	160,786	160,786	408,453	416,804	388,532	408,453
State & Federal Tax	0	0	32,334	0	0	32,334
Cash Patronage Paid	0	0	0	23,983	52,255	0
Reg Noncash Refunds	0	0	420,000	420,000	420,000	420,000
Local Savings	-580,085	-580,085	-580,085	-580,085	-580,085	-580,085
Regional Patronage	0	0	700,000	700,000	700,000	700,000
Net Savings	-580,085	-580,085	119,915	119,915	119,915	119,915
Member Net Cash Flow: Average Tax Bracket						
= 20%	7,703	188,216	0	-5,603	22,641	0
= 25%	7,703	210,871	0	-10,313	17,958	0
= 30%	7,703	220,495	0	-12,303	15,969	0
= 35%	7,703	224,556	0	-13,142	15,129	0
= 40%	7,703	240,160	0	-16,368	11,904	0

Table 3.5.8 Allocatable local share of regional gain greater than the local loss

	Regional gain not passed		Regional's gain passed			
	Local holds loss	Local passes loss	Local holds gain	Local passes gain via: Qualifieds (20% Cash)	Qualifieds (50% Cash)	Nonqualifieds
Local Cooperatives:						
Total Member Equity	2,302,809	2,302,809	2,710,560	2,876,260	2,701,952	2,710,560
Allocated Equity	1,400,476	1,333,217	1,400,476	1,906,668	1,732,360	1,740,968
Unallocated Retains	467,806	535,065	875,557	535,065	535,065	535,065
Investments	875,603	875,603	1,435,602	1,435,602	1,435,602	1,435,602
Total Assets	4,126,106	4,126,106	4,533,857	4,699,557	4,525,248	4,533,857
Working Capital	374,843	374,843	222,594	388,294	213,986	222,594
State & Federal Tax	0	0	292,249	0	0	292,249
Cash Patronage Paid	0	0	0	126,548	300,857	0
Reg Noncash Refunds	0	0	560,000	560,000	560,000	560,000
Local Savings	-67,259	-67,259	-67,259	-67,259	-67,259	-67,259
Regional Patronage	0	0	700,000	700,000	700,000	700,000
Net Savings	-67,259	-67,259	632,741	632,741	632,741	632,741
Member Net Cash Flow:						
Average Tax Bracket						
= 20%	15,514	36,444	0	-54,838	119,470	0
= 25%	15,514	39,070	0	-79,549	94,758	0
= 30%	15,514	40,186	0	-90,046	84,261	0
= 35%	15,514	40,657	0	-94,476	79,832	0
= 40%	15,514	42,466	0	-111,496	62,812	0

selected by the local), and higher or lower member net cash flows (again depending on the local's distribution method).

Member equity was higher when the regional passed positive savings due to the effect the positive net savings had versus the effect negative net savings had when the regional held its savings. If local cooperative eight held its net savings, member equity was $2,710,560 when the regional passed its savings but only $2,302,809 when the regional held its savings. Member equity was larger, in this case, due to the increase in unallocated retains (net of taxes) from the positive distribution as compared to the decrease in unallocated retains from the negative distribution (when the regional held its gain).

If the local cooperative passed its net savings, member equity fell in a range from $2,701,952 to $2,876,260 depending on the local's distribution method when the regional passed positive net savings. However, member equity was only $2,302,809 when the regional held its savings. Member equity was larger, in this case, due to the increase in allocated equity (net of cash patronage for qualified allocations and net of taxes for nonqualified allocations) from the positive distribution. It was smaller when the regional held its savings due to the decrease in allocated equity from the negative distribution.

The total asset account was also larger when the regional passed its savings. The effect of the positive net savings (when the regional passed its savings) created higher total assets than the negative net savings which occurred when the regional held its savings. If local cooperative eight held its net savings, the total asset account was

$4,533,857 assuming the regional passed its savings. This is compared with $4,126,106 of total assets assuming the regional held its savings. The difference was partly due to the increase in the investment account from the noncash portion of the regional patronage. The net effect on working capital between the payment of taxes and the cash portion received from the regional's allocation accounted for the remaining difference.

If the local passed its positive net savings created by the regional's positive allocation, the total asset account was again larger due to the effects of the investments and working capital accounts. The investment account increased total assets due to its increase from the noncash portion of regional's allocation. The cash portion of the regional's allocation increases total assets via the increase in working capital but net the payments of taxes and/or cash patronage paid. Using local cooperative eight's distribution of qualifieds at 50% cash as an example, the difference between $4,525,248 (when the regional passed its savings) and $4,126,106 (when the regional held its savings) may be explained. The noncash portion of the regional allocation was $560,000 and the cash portion was $140,000. No taxes were paid on qualified allocations but $300,857 were paid as cash refunds. Since the use of working capital funds for cash refunds was greater than the source of working capital funds (cash portion of regional allocation), the net effect ($160,857) decreased the increase in the investments account to a level of $399,143 rather than $560,000.

Working capital was larger or smaller when the regional passed its

savings depending on the distribution method selected by the local. The variables that affected working captial in these comparisons were 1) the cash portion of the regional's positive patronage and 2) the taxes and or cash patronage paid on the local's positive distributions.

When the regional held its savings, the local cooperative experienced neither of these effects on working capital. When the regional passed its savings, the local cooperative's working capital was affected by both. Cooperative eight's cash portion of the regional's allocation was $140,000 (assumes the regional passed its savings). This value was larger than cooperative eight's uses of working capital for taxes or cash patronage only when cooperative eight distributed its positive net savings as qualified allocations with 20% cash. This was the only case where working capital in cooperative eight was higher when the regional passed its savings compared to working capital when the regional held its savings The distribution methods employed by the local in other cases caused lower working capital.

Member net cash flows were higher or lower when the regional passed its savings. The result depended on the local's distribution methods. Each of the four distribution methods used by the local to distribute positive net savings when the regional passed positive patronage were compared to the corresponding distribution methods used by the local to distribute negative net savings when the regional held its savings.

When local cooperative eight held its positive net savings, member net cash flows were zero. When the local cooperative held its net savings, member net cash flows depended only on the ITCs available for

use by the members after corporate taxes were paid at the cooperative level. Since the regional passed its savings, cooperative eight was forced to use the ITCs to offset the income taxes required on the positive distribution. If the regional held its savings, the local tax liability was zero and the ITCs were passed to members. Thus, member net cash flows were lower when the regional passed its savings (zero compared to the ITCs being passed).

When local cooperative eight passed its positive net savings as qualified equity with 20% cash, member net cash flows were negative. This result occurred because the cash portion members received was insufficient to cover the taxes paid on the whole distribution. If the regional held its savings, members received a negative qualified distribution. This reduced their collective tax liability and caused positive net cash flows. Thus, member net cash flows were lower when the regional passed its savings than when the savings were held at the regional level.

When local cooperative eight passed its positive net savings as qualified equity with 50% cash, member net cash flows were positive but decreasing as the average tax bracket got higher. The cash portion members received was constant and the collective tax liability increased as the average tax bracket was assumed to increase. When the regional held its savings, members received negative qualified distribution which reduced their tax liability. The higher the average tax bracket the greater the reduction in tax liability. Since these net cash flows were smaller for all average tax brackets, cooperative eight's member net cash

flows were larger when the regional passed its savings.

When local cooperative eight passed its positive net savings as nonqualified equity, member net cash flows were zero. This result occurred because no cash distribution was paid to members and the cooperative used ITCs to pay its taxes on the distribution. When the regional held its savings, the member net cash flows were positive as described in the previous two paragraphs. Thus, member net cash flows were lower when the regional passed its savings.

The situation where the regional passed positive patronage less than the local's negative local savings caused cooperative eight to have higher levels of member equity and total assets. The results for working capital and member net cash flows depended on cooperative eight's distribution method. These relationships for member equity and total assets and the ambiguity of working capital and member net cash flow were found in all eight cooperatives analyzed.

Summary of regional gain situations The relationships presented for each of the two regional gain situations were generally consistent. Both situations showed larger levels of member equity and total assets when the regional passed its savings. Working capital was higher (situation one) or ambiguous (situation two) when the regional passed its savings. The ambiguity arose due to the proportion of regional's allocation that was paid as cash and to the local's distribution method. The impact of the regional's distribution on member net cash flow was also ambiguous depending on the local's distribution

method. These generel relationships were consistent for each of the eight cooperatives regardless of the variability in net savings among them or in the differences of their balance sheets.

Summary of regional comparison The five situations discussed in comparing the regional's distribution methods allowed identification of some definite effects to the local cooperative and its members but other effects were ambiguous. Member equity and total assets were increased when the regional passed its positive savings compared to when the regional held its positive savings. Member equity and total assets were decreased when the regional passed its negative savings compared to when the regional held its negative savings. Working capital was not smaller when the regional passed its earnings (savings or loss) except when the regional passed its savings with a low proportion as cash. Member net cash flows could not be consistently predicted based entirely on the regional's distribution decision. The relationship was dependent on the local's distribution decision and the size of allocation in addition to the regional decision. The implications of these relationships are outlined in Chapter 5. The next section examined the local's distribution methods for net loss situations keeping the regional's distribution method constant.

Comparison of local's distribution method

Finally, a comparison of the local's distribution methods were analyzed. Unlike the regional's comparisons, the local's comparisons involve strictly the distribution of losses. Four such situations occurred: 1) the local's negative regional refund was greater than

the local's gain (A.1. of Figure 3.1), 2) the local's negative regional refund was accompanied by a local loss (A.3.), 3) the regional held its earnings while the local sustained a loss (B.1.), and 4) the local's positive regional refund was less than the local's loss (C.2.). Each of these situations are contained within the tables used for the regional comparison. Columns five and six of Tables 3.1._, columns three and four of Tables 3.3._, columns one and two of Tables 3.4._, and columns three and four of Tables 3.4._ show the four situations for comparison, respectively.

In each situation for each cooperative, the members received a higher net cash flow if the local cooperative passed the loss rather than held it. This was again based on the assumption that the passed losses can be used by the members currently or carried forward or backward. The members benefited from the loss allocations without adversely affecting the financial position of the local cooperative. Working capital, total assets, and total member equity were the same whether the local passed or held the loss. These observations were consistent for all 32 comparisons. Again the implications were left to Chapter 5.

Conclusions

Both the regional and local comparisons of whether to pass or hold net savings when losses were involved expressed relationships from an accounting viewpoint. In general, the relationships were consistent for each of the eight cooperatives examined. However, due to the size of net savings and the cooperative's classification, some unique situations occurred which should be considered in the allocation of losses.

First, the allocation of losses may lead to negative accounts. Table 3.1.3 column five, Table 3.1.8 column five, and Table 3.3.3 column three are the only examples of the data containing negative accounts. All three resulted from the regional passing a relatively large loss and the local holding the net loss by reducing the unallocated retains account. The consequences of a negative unallocated retains account are not clear. The IRS may not allow such a situation and require the cooperative to pass the loss.

The possibility exists that when the loss is passed the loss allocation to the member may exceed the accumulated equity (member's investment) retained in past years. The quantitative analysis provides no such results for the producer member's investment since the analysis did not track individual producer member's balance sheets. However, the local cooperative presented in Table 3.1.1 shows its share of the regional loss as -$250,000. Tables 3.1.2 - 3.1.8 show the other local cooperative's share of their regional's loss as -$700,000 each. If the projections for the cooperative in Table 3.1.1 had been run with a regional refund of -$700,000, then the regional's loss allocation to its member (local cooperative one) exceeded the accumulated equity (local cooperative one's investment) retained in past years. Under such a situation, the following changes would have occurred in Table 3.1.1, columns one and two.

1) Net savings decreased from -$112,612 to -$562,612.

2) Working Capital was unaffected.

3) Investments decreased from $29,827 to -$420,173.

4) Unallocated retains (column one) or Allocated equity (column two) decreased $450,000 depending on the local's distribution method.

5) The total asset account decreased $450,000.

6) Member net cash flows were the same if the local held the net loss or were larger if the local passed the net loss.

The negative investments amount to an account receivable in which future years patronage would offset the negative value. The regional cooperative may be forced to recoup the loss through unallocated retains if the local would terminate its business with that regional as discussed earlier. This same circumstance exists for the local cooperative's members.

Second, the passing of losses may drive unallocated retains' proportion of member equity above the 50% level such that the cooperative may lose its exempt status. Table 3.1.6 column six and Table 3.3.6 columns two and four are the only examples from the data in which unallocated retains exceeded 50% of total member equity. This is contrary to provision 499.3 in the Iowa Code limiting the sized of unallocated retains to less than 50% of equity. It is not clear whether or not such "involuntary or unintended" moves to noncompliance with such a state statute would be accepted as a valid reason to exceed the limit. If not acceptable, then a mixture of distribution methods may be needed to handle losses.

A mixture of distribution methods may be a more common strategy in reality. For research purposes, the pure cases were used to define limits. Simulations of the impacts of a distribution methods were

simpler and more distinguishable without mixtures. The comparisons of the local's loss distribution methods showed that members received higher net cash flows when the local passed its loss. However, if passing the loss creates problems of collecting the loss or in trying to maintain compliance with state law, then the local cooperative may need to determine whether the loss allocation maximizes net member benefits in the long run.

Third, the use of investment tax credits played an important role in the member net cash flows. This can easily be seen by comparing Tables 3.1.5 - 3.5.5 with any of the other cooperatives corresponding tables. Cooperative five's $101,718 of ITCs allowed positive net cash flows to members where many of the other cooperatives' members received negative net cash flows. ITCs also help the cooperative by reducing the tax burden and substituting as cash patronage for levels paid over the 20% minimum. Since ITCs are lost by the cooperative if not used in the current year the cooperative system benefits by being able to pass these credits to their members. This is especially true in years losses occur.

Finally, the cooperatives use of dividends (on a small scale) did not affect the relationships presented. Tables 3.1.1 - 3.5.1 present the projections for cooperative one. These projections were run with the cooperative paying dividends whether or not the cooperative sustained negative net savings. Usually, the cooperative does not pay dividends when it sustains a loss but the relationships still hold if the cooperative does.

CHAPTER 4. INVESTMENT VALUATION

Valuation of the investment in a cooperative is an inexact procedure. However, it is likely that cooperative members subjectively perform such a valuation. In the federated structure (the relationship as described in Chapter 1) the local cooperative receives a share of the regional net savings in proportion to the business conducted with the regional. The noncash portion of this allocation is accumulated and carried on the asset side of the balance sheet (as Investments in other cooperatives) until redeemed or retired in the future.

The local cooperative's investment is typically valued at an amount equal to the noncash patronage received over the years less any amount retired. The net accumulations value the local cooperatives' equity held in the regional cooperative at any given moment. This section examines some of the characteristics of investments and some of the difficulties in valuing them.

Appropriate Characteristics of an Investment Valuation Method

Most valuation procedures for corporate stock or equity are based on earnings or net operating income. The earnings are capitalized using a weighted average cost of capital deriving the market value of the firm. It is inappropriate for the local cooperative to value its investment in the regional using regional net savings in such a fashion. The local cooperative's share of the regional's net savings is based on the patronage in that year, not on the size of the local's investment. Thus, a cooperative with a small investment and a large patronage would

overvalue its investment if it capitalized the earnings. By the same logic, a cooperative with low patronage and a high level of investment would undervalue its investment under a system that capitalizes earnings.

The local cooperative's psychological valuation of investments in the regional cooperative is to some extent based on the regional's yearly net savings. The local cooperative must also consider how the regional's net savings are distributed and what equity revolvement or retirement program the regional uses. Each of these affects the net incremental change in and discounted present value of investments in other cooperatives.

If the regional distributes a portion of its net savings as unallocated retained earnings, in theory the regional's ability to pay a higher cash portion, more promptly retire equity or its value upon liquidation should be enhanced. If the regional distributes a portion of its net savings as allocated equity, the local cooperative values only the noncash part of the allocation that remains as equity in the regional. The cash part moves directly into the local cooperative's equity category after taxes since it is paid currently. Any amount retired by the regional is returned to the local cooperative and reduces the value of the local cooperative's investment in the regional. The local cooperative can not sell its investment (nonmarketable equity) and little or no return is given on allocated equity. Thus, the local cooperative should (holding other variables constant) place a higher value on its investment the sooner it is retired recognizing the time value of money.

The above discussion can be briefly and concisely summarized in the

following functions and equations.

(1) V = f(NS, RT) where V = the value of the investment
NS = net savings
RT = the equity retired

Function (1) presents the value of the investment as a function of net savings and retirement. Holding net savings constant, the more equity the regional retires the lower the value of the investment. However, when holding retirement constant, an increase in net savings has different impacts on the value of investments depending on how they were distributed. Excluding the possibility of dividends, net savings may be distributed as allocated equity or as unallocated retains. Allocated equity may be distributed in noncash or cash form. Equation (2) presents this relationship.

(2) NS = (NC + C) + UR where NS = net savings
NC = the noncash portion of allocated equity
C = the cash portion
UR = unallocated retained earnings

Expressing equity retirement as a function h(X,T) of the dollars retired (X) and the length of the revolving fund (T), then function (1) can be reexpressed as in function (3).

(3) V = f (g(NC, C, UR), h(X, T))

Expressing the cash portion of allocated equity as a function of the noncash portion and using the implicit function rule, function (3) can be reduced to function (4) below.

(4) V = k(NC, UR, X, T)

The partial derivatives of this function are useful to observe and are shown below.

$$\frac{\partial V}{\partial NC} > 0 \qquad \frac{\partial V}{\partial UR} \gtreqless 0 \qquad \frac{\partial V}{\partial X} < 0 \qquad \frac{\partial V}{\partial T} < 0$$

The ambiguous sign of the second partial is due to the following problem. The more net savings distributed as unallocated retained earnings, the less net savings that can be distributed as the allocated noncash - thus, a negative partial derivative. At the same time, the more net savings distributed as unallocated retained earnings, perhaps the better the regional's ability to retire equity sooner - thus, a positive partial derivative. This assumes that the regional cooperative intends and achieves positive net savings while maintaining its competitiveness and other variables are constant.

Investments at Face Value

The current technique of investment valuation ignores the effects of net savings distributed as unallocated retained earnings and of the length of time taken to return retained allocated equity. The effects of these factors are not reflected on the local balance sheet when the regional cooperative does not pass its negative net savings to the local. In such a case, the regional's unallocated retained earnings are reduced. The local cooperative's investment at face value does not change even though total member equity has been reduced and the regional's ability to pay cash patronage and to redeem noncash patronage may be hampered.

The need for a more appropriate technique of investment valuation may be brought out with a comparison of the local's investment in the regional versus the producer's investment in the local. As mentioned, the local cooperative carries the full face value of its net accumulated noncash patronage with the regional as an asset account (investments).

The producer, before the 1980s, usually did not carry its net accumulated noncash patronage from the local cooperative as an asset. In so doing, the producer subjectively valued his/her investment as zero. What is the basis for these two extremes?

Ideally, the local cooperatives may put a higher valuation on their investment because they may expect the net accumulated noncash patronage to be returned sooner and more reliably than what producer members may expect. A shorter revolving period is important when considering inflation and opportunity cost. Since these equities do not collect interest, inflation decreases the real value of these equities the longer the retirement is postponed. Additionally, the funds could be used for other purposes bearing larger returns.

The difference in the valuation of investments by the local cooperative and producer member may be partially due to the accountants' role. Whatever the difference the importance of this comparison is brought out when considering what the debt load should be for each the producer and the local cooperative. Debt load is usually based on the earnings potential of total assets and existing claims against these assets. Since the local cooperative carries its investment in the regional as an asset, the local cooperative's debt load may have been partially based on its investment. If the producer does not carry its investment in the local as an asset, then the producer's debt load is most likely not based on its investment. Recently, due to the farm debt crisis, some lenders have placed liens on producer's intangible assets which include the producer's investments in the local. If the liens consider the investment at full face value, the producer member's

situation (like the local cooperatives) may have debt partially based on overvalued assets.

Figure 4.1 presents the chain of equity handed down from the interregional to the regional to the local cooperative. The regional's and local's investments may have been partially derived from the same interregional dollars of noncash patronage. If both the local and the regional cooperative have debt based on these dollars, then these dollars are probably over leveraged.

Interregional balance sheet

		Debt	10,000,000	
Other	20,000,000	Equity	10,000,000	D/E=1
TA	20,000,000	TL&E	20,000,000	

Regional balance sheet

Other	1,500,000	Debt	1,000,000	
Inv	500,000	Equity	1,000,000	D/E=1
TA	2,000,000	TL&E	2,000,000	D/E*=2

Local balance sheet

Other	375,000	Debt	250,000	
Inv	125,000	Equity	250,000	D/E=1
TA	500,000	TL&E	500,000	D/E*=2

Note: (1) E* is equity not offset by investments (total equity minus investments)
(2) All three balance sheets assumed the cooperative was financed with 50% debt and equity and investments were 25% of total assets.

Figure 4.1 Comparison of debt to equity ratios for total and local equity

When the regional cooperative suffers a loss and holds it (doesn't pass or "reveal" it), the regional cooperative is expressing an illusion of equity strength that the local cooperative used to support debt. The

inclusion of the full face value of the investment overstates the actual debt load the system may "safely" carry. Considering the substantial part of the local cooperative's equity tied up as investments in the regional makes the situation even more precarious.

The local cooperative's investment has become more important in relation to equity and assets. In 1980, the local cooperatives of the three Midwestern states sampled in Chapter 2 had investment to member equity and investment to total asset ratios averaging .370 and .189, respectively. In 1984, the ratio averages had increased to .425 and .229, respectively. Since average levels for equity and total assets increased between these two periods, the increase in the ratios were due to a relatively larger increase in investments. The data described are presented in Table 4.1. Table 4.2 presents the number of cooperatives having high investment to equity ratios. Comparing the two years, the number of cooperatives having over a 50% ratio increased from 13.7% to 23.7% of the sample.

Using the concept of local equity defined in Chapter 1 (local equity equals total equity less investments) and used in Figure 4.1, the importance of the appropriate debt load may be expressed. Term debt to equity (total) ratios for 1980 and 1984 were .340 and .280, respectively. These ratios value the investment at full face value. Assuming investments were not included or became worth nothing the term debt to local equity ratios were .674 and .469 for 1980 and 1984, respectively. Table 4.3 presents these values as well as the values of the ratios when investments were considered to be worth 80%, 60%, 40%, and 20% of their book value (full face value). Also included in Table 4.3 are the

Table 4.1 1980 and 1984 average investment and equity data for the three Midwestern states sampled in Chapter 2

	1980		1984	
	N	Averages	N	Averages
Investments to Total Assets	241	.189	242	.229
Investments to Member Equity	241	.370	242	.425
Investments ($)	241	621,065	242	808,466
Total Assets ($)	241	3,447,860	242	3,668,519
Total Member Equity ($)	241	1,687,220	242	2,003,372

Table 4.2 Number of cooperatives in three state sample with large investment to member equity ratios

	Total number of cooperatives with investment to member equity ratios greater than:					
	.5	.6	.7	.8	.9	1.0
In 1980: (n=241)	33	13	5	2	1	0
In 1984: (n=242)	55	35	17	14	9	7

Table 4.3 1980 and 1984 term debt to local equity ratios with various levels of investment used in defining local equity

	1980 averages (N = 230)		1984 averages (N = 226)	
	unadjusted	adjusted	unadjusted	adjusted
Term Debt to:				
(Equity - 100% Investments)	.674	.524	.469	.443
(Equity - 80% Investments)	.535	.446	.855	.359
(Equity - 60% Investments)	.462	.389	.800	.366
(Equity - 40% Investments)	.411	.355	.386	.296
(Equity - 20% Investments)	.372	.328	.319	.254
(Equity - 0% Investments)	.340	.305	.280	.234

Note: adjusted average is the mean of the observations within two standard deviations of the unadjusted mean

adjusted averages, since the value of the ratios became quite variable as the investment value approached the value of equity. Depending on the actual value of investments, the cooperative's term debt to equity ratio may be well above what was intended.

Adjustments to Valuation Method

For these reasons, the current valuation method needs to be adjusted to determine how good of an investment this noncash patronage refund really is. Such adjustments may give a real (not an illusory) picture of equity strength and cooperative value, may show the dependency of locals on regionals, and may show the cooperative's competitiveness. Such information would be helpful to the cooperative in determining optimal methods of earnings allocation and equity retirement to keep it competitive in the industry.

To avoid the current valuation problems, the valuation of the local's investment in the regional (or the producer's investment in the local) at face value must be adjusted to consider the timing of the retirement. Adapting the traditional investment valuation method to consider the time value of money, produces a more realistic, but yet practical, valuation technique.

The technique would discount current noncash allocations based on the length of the revolving fund. Such discounting methods were used by Fenwick, Tubbs, and Wilson in their cooperative finance policy and capital structure studies as discussed by Beierlein and Schrader (3). Such a valuation technique requires determining a cost of capital, but considers net savings, the noncash allocation, and the length of the equity revolving fund. The cost of capital may be thought of as an opportunity cost. The

opportunity cost should reflect the cost of not being able to use the investment dollars for some other purpose. Thus, the interest rates on debt and the cost to members on equity not retired should be considered.

The portion of net savings distributed as unallocated retained earnings may also be considered in this technique, both directly and indirectly. It is directly considered because it would result in smaller noncash accumulations and it is indirectly considered because it should reduce the length of the revolving fund cycle. For example, if the cooperative sustains a loss which it holds, then the member's should expect the cooperative's ability to redeem equities to be reduced and the revolving period to increase. The longer revolving period reduces the value of the investment under present value calculations.

This valuation procedure provides an alternative technique to value the member's investment in the cooperative. The technique could be used by the producer members or the local cooperative members to value their investments. Some differences in discount rates and lengths of revolving funds would be expected, but the technique should be consistent for all users. A valuation procedure based upon the length of the revolving cycle is not without its problems. Determination of the length of the revolving cycle in some cooperatives would be a difficult task when no consistent retirement program is established. This adjusted valuation technique is also no better in determining a value of investments till after the years distribution.

Summary

The current accounting practice for local cooperatives is to carry investments in other organizations at face value of the net accumulated

noncash patronage. This practice does not consider effects of unallocated retains, losses, and change in the value of assets held by the regional cooperative. Thus, the regional's ability to pay higher levels of cash, retire equity sooner, or increase asset productivity may be affected without the local cooperative's investment valuation showing it. Alternative means of valuation need to be derived to consider these factors but the characteristics of the cooperative system, such as nonmarketable equity, makes this difficult. A valuation procedure based upon the length of the revolving fund cycle may be a better alternative.

CHAPTER 5. SUMMARY AND CONCLUSIONS

This study examined losses for agricultural cooperatives in the North Central region by documenting their occurrence, analyzing their financial impacts to the cooperative and its members, and identifying their significance on investment valuation. The scope of the analysis covered regional and local losses including "hidden" losses that may not be obvious. Such hidden losses may result from either blending regional earnings with local earnings or holding losses within the regional or local cooperative.

Documentation of Losses and Means of Loss Distribution

Agricultural cooperative losses have become more frequent. The 600-plus local cooperatives sampled showed an increase in the frequency of negative net savings of twelve percentage points (28% from 16%) since 1982 and an increase of eighteen percentage points (28% from 10%) as compared to the 1976 study conducted by Griffen et al. (8). As shown in the federated cooperative analysis, regional and interregional cooperatives have sustained losses during the early 1980s also. None of the local cooperatives sampled received negative patronage refunds, but the size of the average regional patronage from all sources has decreased markedly, and in the case of some regionals, they have become nonexistent.

At the same time, agricultural cooperative losses have increased in size. The local cooperatives sampled showed an increase in the average size of negative net savings from -$110,500 to -$130,500 over

the last two years. Part of this has been from the decreased positive regional patronage refunds mentioned above. Another factor has been the decrease in the local savings in many cooperatives over this time period. Griffen's 1976 study compared to the analysis conducted on the 1984 data in this research showed that the average size of the net loss over this eight year period has increased by more than 35% from -$95,893 to -$130,515.

With losses occurring throughout the federated system, more attention has been focused on the legal means for loss distribution and effects of loss distribution on local cooperatives and their members. The cooperatives sampled (local, regional and interregional) generally distributed their loss by reducing unallocated retained earnings. The Iowa sample had average distributions to unallocated retained earnings of 98% when a net loss occurred and 54% when net savings occurred. Compared to Griffen's 1976 study, the usage of the unallocated reserve account for earnings distribution (savings as well as losses) has increased. This increase has shown up in the average equity makeup of the cooperative. Unallocated retained earnings have increased 11.8 percentage points to 26.9% of total equity over the eight year period analyzed.

Financial Impacts from the Distribution of Losses

The increased frequency and size of losses appears to have changed the nature of distribution of gains to a more precautionary one. The trend toward distributing more of net savings as unallocated retained earnings may have been adopted in order to build retains to allow

losses to be held rather than distributed. These decisions appear to have been made more for public relations and simplicity than as part of a planned strategy to maintain financially sound cooperatives and provide maximum member benefit. This study compared regional and local cooperatives' distribution methods of holding (not passing) the loss versus passing the loss to members through reductions in allocated equity.

The study examined the financial effects the distribution method had on the following financial aggregates in the local cooperative: total member equity, allocated equity, unallocated retained savings, investments, total assets, working capital, and member net cash flows. The analysis assumed 1) a federated cooperative system in which the regional patronage could be netted with the local's savings, 2) earnings composed of ordinary net savings (operating income) excluding extraordinary items, and 3) the cooperative's assumed objective was to maximize after tax net member benefits.

Conclusions of Quantitative Comparison

The results of the comparison between the regional passing or not passing its net savings are summarized in Table 5.1. The results for each of the financial aggregates are expressed as positive or negative. These signs relate the values when the regional passed its earnings or losses to the values for when the regional held its earnings or losses. The interpretation of the sign as desirable or undesirable depends on the financial aggregate and the specific conditions of the local's distribution.

Table 5.1 Effects on selected financial variables when Regional savings or losses are passed compared to results when Regional savings or losses are not passed

Variables	Regional loss allocated:						Regional savings allocated:			
	Greater than local savings		Less than local savings		With local loss		Less than local loss		Greater than local loss	
	Local Held	Local Passed	Local Held	Local Passed	Local Held	Local Passed	Local Held	Local Passed	Local Held	Local Passed
Local Cooperatives:										
Total Member Equity	-	-	-	-	-	-	+	+	+	+
Allocated Equity	0	-	0	-	0	-	0	+	0	+
Unallocated Retains	-	0	-	0	-	0	+	0	+	0
Investments	-	-	-	-	-	-	+	+	+	+
Total Assets	-	-	-	-	-	-	+	+	+	+
Working Capital	+	+	+	+	0	0	+	+	+,-	+,-
Member Net Cash Flow	+,0	+,-	0,+	-,+	0	+	0	-	-	+,-

These signs do not reflect the increase or decrease from the previous year.

(-) implies reduction compared to result when regional savings or loss not passed

(+) implies increase

(0) implies no change

Under the assumption that the regional passed a loss, the local cooperative's total assets were lower and member equity was lower, but working capital was not lower when compared to the situation where the regional held its loss.

The implied reduction of total assets may be desirable or undesirable depending on the type of assets reduced. Liquidity and productivity are two of the most important factors to consider. The negative effect of the regional passing its loss affected total assets through the investments in other organizations account. This is not a liquid asset, and future earnings do not depend upon its magnitude. Thus, the earnings potential of the local cooperative was left with no decrease specifically attributable to the regional's noncash loss allocations. Indeed, if the local cooperative has positive savings, the reduction of the investment account has the effect of increasing working capital. This may actually increase the cooperative's asset productivity by reducing an asset account that does not directly affect the level of return.

The other important factor considered when total assets were reduced was the cooperative's liquidity. The regional's loss allocation reduced the nonliquid investment account and increased the cooperative's liquidity by a lesser amount. The increased liquidity is desirable and may further be enhanced when the local cooperative's positive savings are allowed to be held as an asset without taxation. In this case, the regional's loss allocation reduced the cooperative's tax liability on its positive savings and allowed working capital to be used for other purposes.

The implied reduction of member equity may be desirable or undesirable in achieving the cooperative's objective, depending on the distribution method selected by the local cooperative. When the local cooperative passed its net savings to its members, the reduction was desirable. Reductions in member equity via allocated equity were desirable because the cooperative's future equity retirement liability was reduced. When the local had negative savings, the decreased allocated equity reduced the equity retirement liability directly without any loss in liquidity. Such a loss would have occurred when allocated equity was reduced by retirement. When the local had positive savings, the regional's loss allocation reduced taxable earnings and indirectly enhanced the cooperative's capability to retire equity in the future on a shorter revolving fund.

When the local cooperative held its net losses, the reduction was undesirable. The reduced member equity occurred through unallocated retained earnings. Thus, the equity retirement liability to local patrons was not reduced--allocated equity remained constant--and the cooperative's capability to retire equity was reduced. This may leave patrons' expectations for equity retirement based on an illusion of financial strength.

The implied increase or unchanged level of working capital were desirable effects of the regional passing a loss. Working capital was unaffected by a regional loss when a local loss occurred. Considering the decreased total assets and member equity (if local sustains losses), the constant level of working capital coupled with lower demand for

working capital for equity retirement and payment of estates is desirable.

Working capital increased when the local cooperative had positive savings. This was due to the conversion of nonliquid investments to liquid assets through reduced tax liability achieved by netting positive local savings with the negative regional patronage. Increased working capital is desirable since it can reduce the amount of seasonal borrowing required, allow for equity retirement, purchases of added fixed assets, and perhaps accelerated debt retirement.

Under the assumption that the regional passed a gain, the local cooperative's total assets were higher, member equity was higher, and working capital may have been higher or lower than the alternative that the regional held its savings. The increases in total assets and member equity were expected. The relevant factors in these situations were the effects of the regional's distribution method on working capital and local cooperative member net cash flows.

Only one case in the five local/regional earnings situations analyzed showed an implied reduction in working capital. This case occurred when the regional allocated positive savings that exceeded the local loss. The reduction occurred when the regional paid a low proportion of its positive allocation to the local as cash. This leads to the conclusion that negative cash flow effects on the local are of more concern when the regional passed positive savings with a low cash portion than when it passed negative savings.

The situation where the regional allocated savings less than the local loss and the local passed the net loss to its members was also

examined. The regional savings resulted in the local cooperative's members receiving a reduced net cash flow as compared to the case where the regional held its savings. It is significant that the regional can allocate its earnings (savings or losses) and affect producer members from a cash flow perspective. The local's distribution method, earnings size, ITCs available, and the local's share of the regional's allocation will be different for each cooperative, and each of these affect the net cash flow that producer members receive.

The results of the comparison between the local passing or holding its net loss were concise. The results indicate that there were no differences in the local cooperative's total assets, member equity, and working capital when the local passed its loss compared to when the local loss was held. Although there was no difference in these financial aggregates, the decision to pass or hold was nevertheless important.

Total member equity decreased whether the local cooperative passed or held its loss. However, if the local passed the loss, allocated equity was reduced. This reduced the local cooperative's equity retirement liability as discussed in the regional comparison's conclusions. Holding the loss may create a reduction in the cooperative's ability to retire equities in the future. Thus, the holding of a loss by the local may create an unjustified illusion of financial strength in the minds of patrons. Unrealistic expectations for revolving equity may follow this illusion.

Working capital in the local analysis increased or decreased, depending on the sign of the local savings. If local savings were

positive, working capital increased. If local savings were negative, working capital decreased. In general, for the latter to be true, the regional's cash portion of allocation had to be less than the negative distribution generated by the local.

An important result identified by the comparison between the local holding or passing its loss was the increased member cash flows when the cooperative passed its loss. Members received a tax deduction which could be used currently, carried forward, or carried back to offset taxable income, thereby reducing tax payments. This benefit assumed that the advantage of the tax deduction outweighs the discounted value of equity at retirement when the equity was revolved out in the future. The fact that holding a loss at the local level tends to extend revolving periods reinforces the likelihood that the current benefit will indeed outweigh the discounted value of future retirement (11 p. 201).

The member net cash flows in the regional comparison were not clear due to a number of factors. To determine the effect the regional's allocation on member net cash flows, it was necessary to consider both the magnitude and sign of the local's earnings and the distribution method employed. Although the effects were determined, they were not consistent in regard to the regional's allocation method. Member net cash flows were influenced by the regional passing its earnings but the cash flows may have been reduced, left unchanged or increased depending on the distribution method selected by the local and the impact the regional's allocation had on the size of the local's

distribution. Table 5.2 presents the effects of the regionals's allocation method on member net cash flows. The actual value of member net cash flow depends not only on the regional's allocation method, the local's allocation method, and the relative sizes of the local and regional earnings, but also on the level of ITCs available, and each individual patron's tax bracket.

Implications of Quantitative Analysis

The analysis of the regional and local financial relationships derived from the comparisons of passing losses versus holding them have implications for regional and cooperative boards.

1. First, the analysis shows that the federated cooperative system is indeed a system. This implies that a degree of coordination between local and regional distribution methods is necessary to achieve maximum member benefits for producers. Selection of the simplest and/or most inconspicuous means of handling a loss at either the regional or local levels (or both) may not best serve the members. Boards at both levels must be willing and able to examine the systemwide consequences of distribution on both the member and the cooperative corporation if the members are to be well served.
2. The analysis shows that negative allocations by the regional cooperative do not damage the local cooperative's liquidity, earning capacity, or survivability. This indicates that much of the perceived reluctance on the part of regionals to

Table 5.2 The effect of the regional patronage on member net cash flows given the local's distribution method

Local's Distribution Method:	Regional's allocation: increases local's positive distribution	Regional's allocation: increases local's negative distribution	Regional's allocation: decreases local's positive distribution	Regional's allocation: decreases local's negative distribution
1) Unallocated Retains or Nonqualifieds				
no ITCs:	no effect	no effect	no effect	no effect
with ITCs:	decr + NCF	no effect	incr + NCF	no effect
2) Qualifieds				
with low cash payout:	incr - NCF	incr + NCF	decr - NCF	decr + NCF
with high cash payout:	incr + NCF		decr + NCF	

incr = increase + = positive NCF = net cash flows
decr = decrease - = negative ITCs = investment tax credits

Assumes: Qualifieds with low cash payout results in negative cash flow per dollar distribution
Qualifieds with high cash payout results in positive cash flow per dollar distribution

Note: With qualified allocations negative distributions pay no cash and the member net cash flows are the same

acknowledge losses to member cooperatives is unfounded from the standpoint of finance.

3. The analysis demonstrated that local cooperative losses are not made more damaging by receipt of a negative regional patronage. The concern in regionals that effects on the local cooperative already generating a loss would be financially disastrous and worsen a bad situation is largely unfounded. While assets and equity are smaller, survivability is not reduced.
4. The analysis indicates that when the regional holds its loss, the local cooperative may be left with equity retirement problems and difficulties in settling estates due to lower liquidity at the local level than when the loss is passed.
5. The analysis (and Chapter 4) shows that when the regional holds its loss, the local cooperative may be left with overstated asset values in the investment account. This may show up in the form of reductions in measures of productivity of assets such as return on total assets if lower regional earnings follow. This may mislead members about the ability to generate cash flow in the local cooperative for equity retirement and the ability to take on added debt based on the overstated assets.
6. The analysis shows that the local cooperative should not automatically reject the option of passing its own locally generated losses to its members. The local cooperative

generally experiences no more serious adverse financial effects from passing the loss than holding it. The members may receive more benefit from larger positive net cash flows when the loss is incurred than from the discounted value of redemption over a longer revolving cycle. The local cooperative reduces its equity retirement liability while not reducing its retirement capability. This implies that the ability to settle estates would not be compromised.

Statutory, Institutional, Social, and Technical Considerations

The regional and the local comparisons expressed in these implications present the analysis from a financial viewpoint. From a practical viewpoint, additional legal, social, institutional and technical factors need to be considered.

1. The passing of losses may lead to negative patron accounts. These accounts may discourage future patronage of the cooperative by patrons holding them. This is a particularly serious danger if there is not a conscious educational program on the cash flow benefits and proper income tax filing procedures.
2. The passing of losses may drive the unallocated portion of total equity to over the 50% specified in some state cooperative statutes.
3. The passing of losses may be more time-consuming and costly from a bookkeeping point of view. This is particularly true

when the losses per member are relatively small. Passing losses under such circumstances may not be advisable.

4. The passing of losses may cause member relations problems. Without a careful explanation of the need to pass the loss, members may choose to conduct business elsewhere in the belief that there will be no loss of equity if they do so.
5. During the past three decades, a bonus system for management based on combined local and regional net savings has been institutionalized in many local cooperatives. This may cause some managers with positive local savings to avoid doing business with a regional cooperative that might pass a loss. The combination of the regional loss and the positive local savings would reduce the base of net savings used to calculate the bonus.

Analysis of Valuing Investments

This study also examined the impacts losses have on the current valuation technique members use to value their investments in cooperatives. When losses were retained by the cooperative, its members' valuation of investments have been unchanged even though the cooperative's ability to retire equities may have been reduced. If the loss had been passed, the members' investment would have been reduced, but the cooperative's ability to retire equities may have been maintained or improved. This disparity is not as well understood by either lenders or patrons as would be desirable.

Investments were shown to be an important aspect of the federated cooperative system. Local cooperatives' investments were about 20% of total assets and 40% of total equity. The loss of investments due to failure by the regional has major impacts on the equity of the local cooperative heavily invested in that regional. The definition and data concerning the local cooperative's "local" equity provided the insight into these effects.

Suggestions for Further Research

The research of this study shows the need for the boards of directors, managers, and members of cooperatives to be educated as to the effects of loss allocation alternatives. With better knowledge, the cooperative can better fulfill its objectives and serve its members. The following recommendations are suggested for further research in the area of agricultural cooperative losses.

Further statistical analysis on the data presented in Chapter 2 could be performed to examine the strength of association among balance sheet and operating statement values and operating losses. Such analysis would provide insights as to the characteristics commonly associated with financially sound or financially troubled cooperatives.

These characteristics found for financially troubled cooperatives could be used to run an analysis on the probability of survival. Survival would be the probability the cooperative remained solvent (with consideration given to the cash rate of return and liquidity

also) over the ten year projection. This long run analysis would compare the probability of survival for different equity combinations of qualified and nonqualified allocated equity.

Further research on cooperatives' board of directors, managers, and members experience and perception about loss allocation might also prove useful. A survey of members, managers, and boards may reveal sound or unfounded reasons for past decisions of passing or not passing losses. The analysis may also reveal the level of interaction between cooperative personnel and cooperative members in the education process.

Further analysis on the comparisons of the regional and local's loss allocation methods could be performed to examine if certain allocation methods are more favorable for cooperatives of certain asset, equity, or working capital size. Various sizes of these accounts would be analyzed as to the percentage change from various size losses and allocation methods.

Further study of the member net cash flows received from losses passed to determine the breakeven length of a revolving fund cycle under different levels of losses and discount rates. The effects of loss allocations on the equity retirement capability of the cooperative could also be researched. Using a working capital standard, the cooperative's ability to retire equity could be measured under different sizes of loss and origins of loss. The results from both of these studies would be beneficial for determining an appropriate valuation of investments.

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APPENDIX A. CRITERIA USED TO SELECT THE COOPERATIVES USED IN THE QUANTITATIVE COMPARISON

The local cooperatives were chosen to represent the three classifications listed below.

1) Financially sound
2) High regional investment
3) Financially troubled

Each of the cooperatives chosen were screened to eliminate the use of cooperatives that had extraordinary losses or gains and cooperatives that had a substantial part of their equity as nonqualified equity. The decision process in choosing the cooperatives for each classification are discussed below.

Financially sound cooperatives were chosen to examine the impacts losses had on "strong" cooperatives. The cooperatives labeled as financially sound (cooperatives one and two) were selected through three steps. The first step was to find the cooperatives that had 1983 ratios for term debt to local equity and term debt to total equity within the fourth quartile of the sample. This narrowed the sample to the cooperatives that did not rely heavily on its regional cooperative and did not have large levels of debt to pay back relative to equity. The second step was to delete any of the cooperatives that occurred local or net losses in any of the 1980-83 data. Of the remaining cooperatives (third step), relative strength in working capital designated the choice

of cooperatives to be used in the analysis.

High regional investment cooperatives were chosen to examine the impacts losses had on local cooperatives which relied heavily on the regional cooperative. The cooperatives labeled as high regional investment (cooperatives three, four and five) were selected through three steps. The first step was to find the cooperatives in the sample with high 1980 and 1983 ration values for investment to total assets. The second step was to find the cooperatives in the sample that had large 1980 and 1983 values for its investment account. The third step was to correlate the two lists and pick three representative firms.

Financially troubled cooperatives were chosen to examine the impacts losses had on "weak" cooperatives. The cooperatives labeled as financially troubled (cooperatives six, seven and eight) were selected through three steps. The first step was to find the cooperatives in the sample which sustained losses in 1983. Of these cooperatives (second step), the cooperatives were chosen that had positive local savings in 1980 and had negative local savings covered (totally or partially) by the regional's allocation in 1981, 1982 and/or 1983. The third step was to pick three cooperatives, one each with relatively low, medium, and high term debt to equity (local and total) ratios.

APPENDIX B: ASSUMPTIONS USED IN DETERMINING MEMBER NET CASH FLOWS

Member net cash flow refers to the cash flow of current earnings distribution to members. The cooperative accounting simulation model (CASM) used in the projections calculates member net cash flows via five individual scenarios. The calculation for each scenario is as follows:

Taxable Cash
+ ITCs passed to members
= Cash Flow
- Federal Taxes (= tax rate x taxable distribution)
- Social Security Taxes (= tax rate x taxable distribution)
= Net Cash Flow

Each scenario calculates total member net cash flows but under different assumption of what tax brackets the membership is distributed. Figures B.1 - B.5 show the different membership distributions for each scenario.

An important consideration in member net cash flows is the social security taxes. Social security tax rates used in CASM were:

Years	Rate
1983 and before	9.35%
1984	11.30%
1985	11.80%
1986 - 1987	12.30%
1988 - 1989	13.03%
1990 and after	15.30%

These rates applied for members with less than a 35% marginal income tax rate for years after 1982 and a 30% rate for years at or before 1982. Members with greater than or equal to marginal tax rate of 35% for years after 1982 and a 30% rate for years at or before 1982 had social security tax of zero from cooperative distributions.

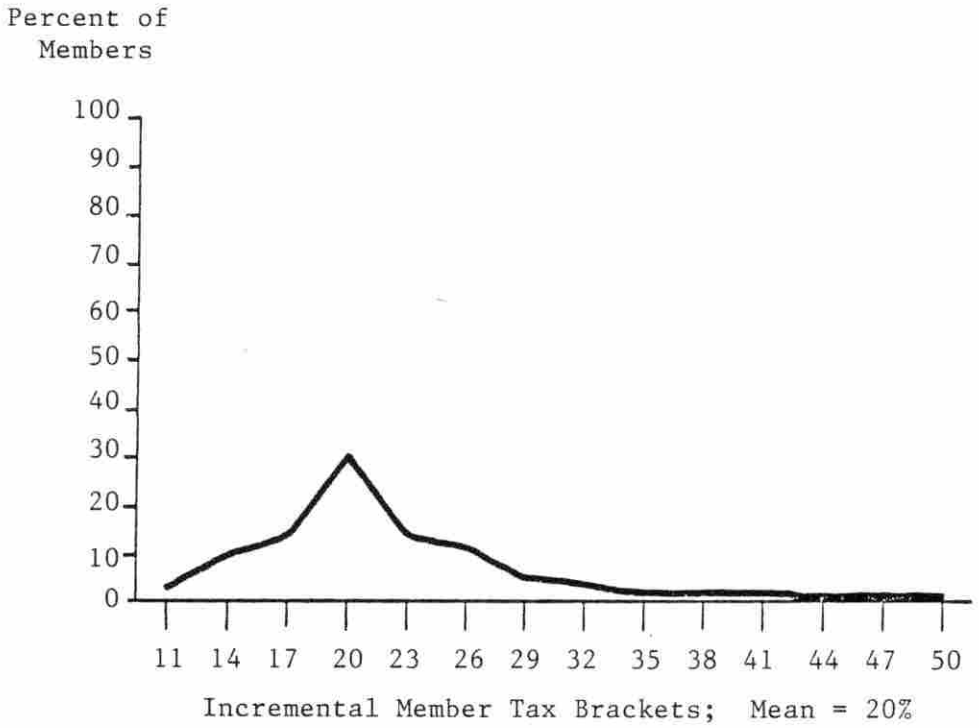

Figure B.1 Distribution of member tax brackets for scenario one

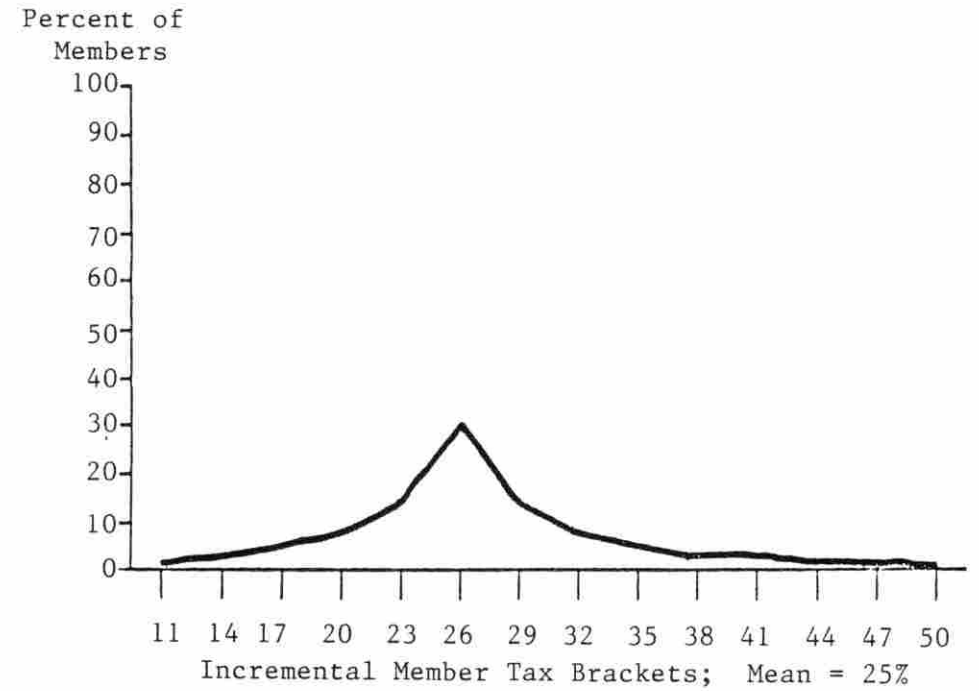

Figure B.2 Distribution of member tax brackets for scenario two

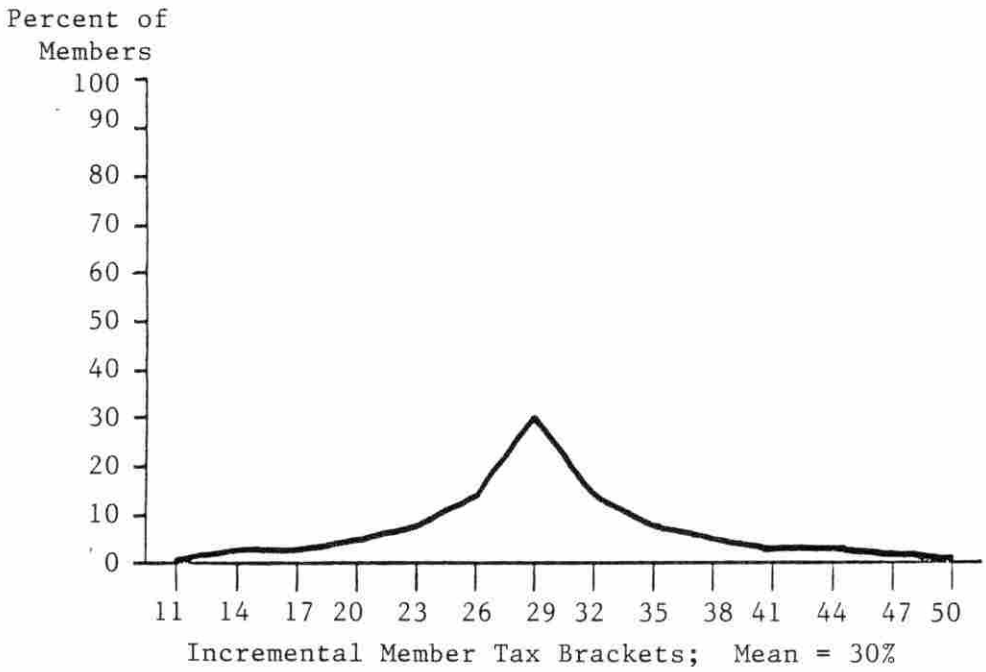

Figure B.3 Distribution of member tax brackets for scenario three

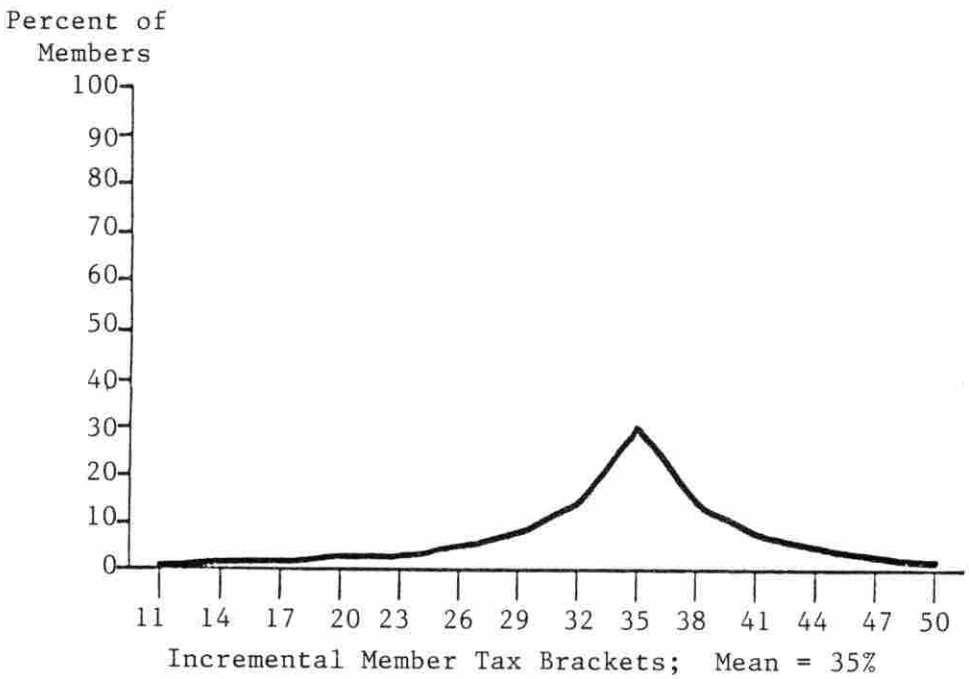

Figure B.4 Distribution of member tax brackets for scenario four

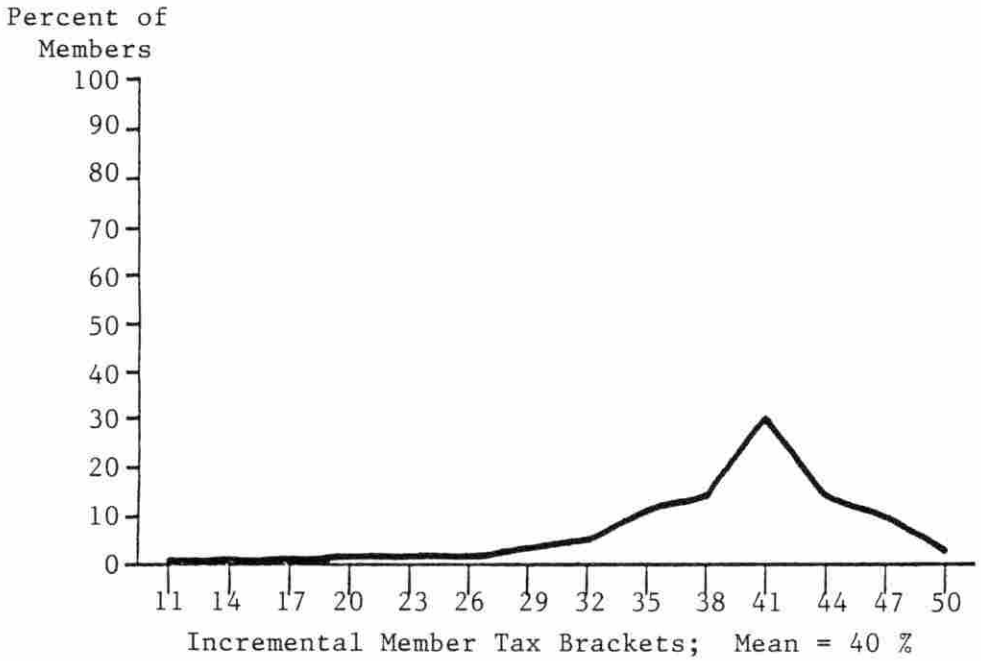

Figure B.5 Distribution of member tax brackets for scenario five