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Agricultural cooperative policy issues concerning earnings distribution under conditions of net earnings and losses

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by

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CHAPTER 1. INTRODUCTION

Current Situation

The present economic situation has placed a great deal of financial stress on the agricultural sector. Bumper crops over the past few years have given rise to huge surpluses and low prices. The cost of production for some crops has not fallen, and there has been financial stress on some farmers. To maintain viable operations, farmers need adequate cash flow to meet their day-to-day expenses. This is true for beginning farmers in particular. Many have financed their operations by using large amounts of long term debt. Borrowing funds has become very expensive. Real interest rates have increased steadily over the past several years and require cash. Taxes also compete with other uses of funds that farmers have available for investments, debt service and current expenses.

Agribusiness firms are experiencing similar problems. Many farm input and supply cooperatives have felt a severe income squeeze. The equity financing in a cooperative is provided by the farmer-members. Hence, the cooperative must compete with other capital needs in the members' farm operations. There is an opportunity cost for farmers when they invest in their cooperative. Yet, if a cooperative is not given adequate capital it will not be able to continue to serve the functions that it was established to accomplish.

Cooperatives were implemented by farmers to provide collective power they lack individually. Cooperatives also provide inputs at a competitive price, a product marketing mechanism, and other services.

By law, a cooperative is defined as a business that operates at cost [33]. However, it is acceptable (and even necessary in many cases) to have net earnings at the end of the accounting period. It would be nearly impossible for cooperatives to do business on a buy-sell basis and net out receipts exactly equal to cost. Perfect information is not available to establish prices in order to accomplish this.

Therefore, cooperatives may distribute these earnings to members in the form of refunds without taxation if the distribution is based on patronage. However, if nonmember business is done, the cooperative must keep (as unallocated capital surplus) the portion of the earnings that are nonmember sourced. Corporate taxes must be paid on the nonmember sourced portion of the business done. This ruling does not apply if a cooperative can establish that only member business was transacted during the period.

The member-sourced portion of earnings may be distributed to members in the form of equity in the cooperative or as cash. According to generally accepted cooperative principles, the distribution of earnings to each member is based on member patronage of the cooperative in that year. There is generally

a limit on returns to financial investment by the member. The proportion of cash and equity certificate is left to the discretion of the board of directors. The board is constrained in its distribution decisions by the financial needs of the cooperative and the desire to satisfy their members.

The manner in which earnings are distributed varies among cooperatives. By law, at least 20 percent of the distribution must be in cash if the cooperative is distributing qualified written notices of allocation. The cash portion (in theory) is issued to defray the income tax liabilities of members on the distribution. It is up to the board to determine whether they want to increase the cash portion to greater than 20 percent.

As a second option, the board may choose to distribute nonqualified written notices of allocation instead of qualified notices and cash. If this option is taken, no cash portion is required. However, the cooperative must pay corporate taxes due. A third option (in some states) allows the cooperative to retain the earnings as unallocated capital surplus and pay corporate taxes due.

Problem - Earnings Distribution

The distribution of earnings by cooperatives to their members has become a controversial subject among members,

lenders, and management. Among members, a potential conflict may arise because all members are not in the same tax bracket. As a result, the method used to distribute earnings may affect the members in lower tax brackets differently than members in the upper tax brackets. The members in marginal tax brackets above 35 percent usually do not receive a cash patronage large enough to defray the tax liability on their distribution, while members in marginal tax brackets below 35 percent often have positive net cash flow from their distribution.

Between management and members there can also be conflicting interests. Managers are concerned about earnings and are often pressured to show "healthy" net earnings. But large net earnings can mean that members are paying higher prices than necessary for supplies, or members are receiving less for their products. Even when prices are competitive, managers may be wary of rapid depreciation and how resultant lower earnings may be interpreted by members. Managers are much more aware of the financial needs of the cooperative than many members. Consequently, managers may see a need to retain larger amounts of equity to maintain operations and to grow. Members, on the other hand, may want as much of the distribution as possible in cash to put into their own operations and offset negative cash flow impacts from taxes.

Another conflict arises between the cooperative (manager and members) and lending institutions. Lenders want to be assured that the cooperative can meet interest expenses and repay loans over the long run. To the cooperative, this means that they must have growth in equities and maintain large amounts of working capital. But at the same time, the cooperative would like to retire equities. This requires working capital which could otherwise be used to retire debt.

These potential conflicts can be resolved properly only if all parties fully understand the consequences to each party of the alternative solutions. The method a cooperative selects to distribute earnings is ultimately left to the discretion of the board of directors, who often find themselves pulled in three directions.

First, they need to ensure that the cooperative has adequate debt and equity capital to maintain the present functions and to allow for future growth. Second, they want to distribute the earnings in a manner that will place members in all tax brackets in a position where their cash distribution is large enough to cover the accompanying tax liability on the noncash equity distribution. Third, they want to maintain member equity (ownership) in the cooperative in proportion to the current patronage of the members. Pursuit of these three objectives under the condition of net operating income and losses at the local cooperative level will be the

focus of this study. It is the overall objective of this study to examine these earnings distribution issues and how members would be affected.

Literature review

The dilemma faced by the board of directors today is in part a result of an historical problem of cooperatives. Over the years, there has been some confusion and differing opinion about the primary objective of a cooperative [40, 32, 45]. Differing opinions have been advanced by managers, board presidents, farmers, and agricultural economists. A survey by McCabe in 1966 asked managers and board presidents to rank different objectives of cooperatives in order of importance. The primary goal for both groups was the desire to achieve a 'satisfactory' net savings. Most important, the study revealed a wide difference of opinion among the managers and board presidents concerning the importance of maximizing member net income. As a whole, the board presidents ranked it third in importance while managers ranked it eleventh among the 12 alternative objectives presented in the survey.

Ladd has compiled a review of economic literature in which he has addressed the issue [40]. Economists have defined a cooperative as an economic entity whose owners are its users. The members organize, own, and control the entity, and it is operated for their mutual benefit [48]. According

to Ladd, the cooperative should pursue a course that will maximize net member benefits. This should be the primary objective of a cooperative [40]. Ladd sites support for this argument in the works of McCabe, Schaars, Bar, Powell, Nourse, Koller, and Robotka [40].

The goal of individual members of a farmer owned cooperative is to maximize profits in their own farm operations. The individuals have joined together in order to augment their farm based profit-maximizing strategies. The cooperative is not independent of its members and it does not "pursue its own economic career" [48 p.104]. Therefore, the goal of a cooperative should be to maximize the total profits of its members [40].

Ladd states that the goal of maximizing cooperative net savings is not going to achieve maximum profits for members because net savings are frequently only a small part of the members' income. The portion of net savings that they receive as a patronage refund is directly related to the prices they pay for inputs and the prices they receive for their products. The major portion of their income and expenses are a result of these prices not the earnings of the cooperative.

Robotka describes the prices as only "tentative settlements" subject to an adjustment to a cost basis after final accounting takes place at the cooperative for the relevant patronage period (usually a year). The patronage refund is a

device designed to adjust the "tentative settlement" to a cost basis.

If the cooperative's goal is to maximize net savings, it is only increasing the adjustment that needs to be made at the end of the accounting period. Hence, maximization of net savings is not necessarily consistent with maximization of net member benefits. Nonetheless, pricing strategy is relevant to members since many of them are concerned about cash flow on a day-to-day basis rather than receiving a lump sum of cash once a year.

Based on these findings, the managers and board of directors should examine their pricing strategy, financial structure, and investment decisions in light of the objective of maximizing net member benefits, not of achieving a maximum net savings. The scope of this study was limited to the enhancement of net member benefits given an existing pricing and investment strategy for the cooperative.

Objectives

The purpose of this study was to analyze the alternative methods of calculating and distributing earnings (losses) that are available to cooperatives today. A major criterion (in addition to the impacts of earnings distribution on the cooperative) will be net member benefits. The specific objectives are as follows:

1) To examine the effects on taxable income of implementing the accelerated cost recovery system (ACRS), a primary feature of the Economic Recovery Tax Act of 1981 (ERTA), as opposed to using the straight-line methods which are allowable under ERTA [62].

2) To determine the total tax requirements for both the cooperative and its members and to determine cash flow implications to the cooperative and to its members (by selected tax brackets) under the rapid-ACRS and straight-line depreciation (ACRS-SL) methods if:

a) patronage is allocated in the form of cash and qualified written notices of allocation to members.

b) all of the patronage refunds are allocated to members in the form of nonqualified written notices of allocation.

3) To document short run impacts of distributing a net operating loss and the effects on both the financial structure of a cooperative and the net cash flow to its members (by tax brackets).

4) To examine the impact of selected earnings distribution policies on the ability to retire qualified allocated equities.

5) To evaluate the overall economic implications associated with the different methods of distributing earnings analyzed.

Procedure of the study

Chapter 2 is a discussion of the analytical framework used in this study. It includes a description of the case cooperatives used in the analysis. A description of the simulation models and the procedure that was used to set up the alternative tests are also presented.

The focus of Chapters 3 and 4 is centered on the distribution of earnings to members with the emphasis on net member benefits. The base data used for the 10 year projection are given. In Chapter 3, the two primary methods of calculating taxable income are presented: (1) rapid-ACRS; and (2) straight-line depreciation as allowed under ERTA (ACRS-SL). In Chapter 4, the allocation of net earnings using qualified and nonqualified equities is examined. Analyses using the methods then follow in both chapters with emphasis on the following items: (1) differences in taxes paid by members, the cooperative itself and the total taxes paid by both the members and the cooperative; (2) differences in working capital for the cooperative; and (3) differences in member net cash flow and noncash equity distributions (by tax bracket).

Chapter 5 is an analysis of alternative means that may be employed by local cooperatives for handling net operating losses. Three alternatives for handling losses sourced at either the regional cooperative level or the local cooperative

level are examined. Its focus is primarily on the after-tax cash flow position of the members that resulted from distributing the losses using the three methods and the financial position of the cooperative.

Chapter 6 is a summary of the study. Conclusions from the study and their implications on cooperatives and members are given. Recommendations for further research follow.

CHAPTER 2. METHODOLOGY

Introduction

The purposes of this chapter are to provide methodological background, to present the simulation model used and to outline the assumptions made. Selected terms which are unique to cooperatives and to this study are defined in Appendix A along with definitions for key terms used in the analysis.

The Role of the Model

A cooperative financial simulation model was used to analyze earnings distribution patterns. The model used actual cooperative financial statements as input and generated projected financial statements for the future. The structure of the model allowed the selection and simulation of different financial strategies with respect to depreciation, earnings distribution, equity retirement and fixed asset acquisition. Starting with the current financial position of the cooperative the model was used to generate statements for ten years into the future. Hence, the model allowed examination of simulated changes that occurred in cooperative cash flow, cooperative tax liability, member cash flow, member tax liability and other variables.

Throughout the study, variables that were not the major focus of the study were held constant in the projections. Pricing strategy and investment decisions of the cooperatives

were held constant at levels that the management predicted for the next 10 years. The variables in the study were therefore limited to the following: (1) depreciation; (2) distribution of earnings; and (3) distribution of losses.

The variables were evaluated based on the following criteria:

1) Working capital - Building working capital is important to a cooperative's financial well-being. Working capital is the result of all the financial transactions that occur in a cooperative. Uses of working capital in a cooperative are primarily interest expense, cash patronage, federal and state taxes and equity retirement. If a cooperative does not maintain an adequate amount of working capital, it will need to borrow additional funds. Lenders are frequently concerned if working capital becomes very low or negative.

2) Total member and corporate tax liability - Since the cooperative is an extension of the farm business, the taxes that members must pay on their distribution is a concern as is the tax liability at the cooperative level. Different methods of distributing earnings result in shifting the incidence of the tax between the cooperative and the members. In the study, the total of the two tax liabilities was examined in order to determine when the taxes were minimized.

3) Equities - Growth in equities is important for a cooperative. Equity is needed to maintain and expand

operations. When equity is not available, cooperatives need to borrow funds. The balance between debt and equity is important to lenders since the debt to equity ratio is an indication of the solvency of a cooperative. The ability of the cooperative to borrow added funds may hinge on its ability to generate added equity.

4) Capital surplus - Capital surplus is maintained to reduce pressure on the cooperative to provide funds to meet unexpected financial demands. In particular, capital surplus can be used to facilitate equity redemption and shorten revolving periods. Lenders view capital surplus as a more prominent form of equity since it need not be revolved.

5) Net cash flow - Net cash flow is examined because it is an indication of fairness to members. Cooperatives have members in all tax brackets, therefore, distribution policies should be as fair and acceptable to all members as possible. The level of cash patronage is often not high enough to cover the tax liability of the equity distribution for members in the upper tax brackets. Therefore, they are left with negative net cash flow while members in lower tax brackets enjoy positive net cash flow from the cooperative. Beyond the question of fairness, a negative cash flow may discourage the large volume producer from patronizing the cooperative.

Depreciation expense calculation

The model was programmed in accordance with the present tax laws concerning depreciation. Two acceptable methods for a cooperative to depreciate fixed assets according to the ERTA 1981 are Rapid-ACRS and ACRS straight-line (ACRS-SL).

Rapid-ACRS is a system for recovering the cost of property over periods that are generally much shorter than the useful life of the property. In this way, it is similar to other methods that have been used in the past. For example, sum of years digits and double declining balance depreciation had been used prior to ERTA 1981 to recover cash flow from depreciation more rapidly.

Rapid-ACRS was computed in the following way. The amount that was to be recovered under ACRS was the basis of the property as determined for the purposes of computing gain or loss. That is, it was unadjusted for depreciation, amortization or depletion. A judgement was then made as to the class of property to which the asset belonged. To calculate the ACRS allowance for an asset, the basis of the asset was multiplied by the appropriate recovery percentage as provided in the tax code for each year that the property was in service [62].

All additions to fixed assets in the study were considered to be section 1245 recovery property placed in service after 1980. Section 1245 property includes in particular,

special purpose storage facilities of the type that are used by cooperatives for storing grain. It generally includes all recovery property that is eligible for investment tax credit except for certain categories of 15-year real property [34]. The cost (basis) of ACRS property is generally recoverable in 3, 5, 10 or 15 years. Most qualifying section 1245 personal property is classified as 5-year property [62]. Hence, the assumption was made that most additions to fixed assets would be eligible for ITC and would be depreciable as 5-year recovery property under the ACRS system.

Computer simulations that used rapid-ACRS to calculate net earnings were referred to as TAX. This designation was chosen to imply that earnings were calculated using the most rapid depreciation allowed in the tax code.

Some taxpayers may prefer a slower recovery method; therefore, they may elect a straight-line recovery method. The periods for various classes of property may be chosen in accordance with the time periods shown in Table 2.1.[1]

Except for 15-year property, a taxpayer may not select to place different items in a property class under different depreciation schedules in any given year. An election to use

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[1]It should be noted that the ACRS-SL for many properties are shorter than useful life periods prescribed in Generally Accepted Accounting Principles.

Table 2.1 Recovery periods by property class[a]

3-year property	3, 5, or 12 years
5-year property	5, 12, or 25 years
10-year property	10, 25, or 35 years
15-year real property	15, 35, or 45 years
15-year public utility property	15, 35, or 45 years

[a]Source: [62].

either rapid-ACRS or ACRS-SL must apply to all property of the same class placed in service in the same year. For property other than 15-year property, the half-year convention applies [62]. The half-year convention was used in the model when the cooperative financial statements were simulated using the straight-line method. All computer runs that calculated net earnings by using ACRS-SL were referred to as COMPANY. This designation was used to imply that earnings were calculated using the slower straight-line ACRS depreciation.

Depreciation on existing fixed assets was calculated based on the percent of existing assets that had been taken as depreciation expense in the most recent year end audit. As fixed assets were added during the projection period, they were kept in separate groups. Each group was depreciated individually according to their classification as 3-year, 5-year, 10-year or 15-year property. Total depreciation was a sum of the ACRS-SL or rapid depreciation calculated for each asset or classification plus the depreciation expense

generated by the assets existing prior to the first projection year.

Social security tax calculation

Most members are required to pay social security taxes on their cooperative earnings allocation as self-employed persons.[2] It was assumed that the tax was paid by all members receiving patronage in the lower tax brackets. The self-employment tax was calculated at a flat rate up to a specified maximum income. Members who earned the maximum income base or above from self-employment are not required to pay additional social security taxes from their allocation. Hence, members whose tax bracket showed that their income level was above the maximum income base were not assumed to have a self-employment tax liability. Table 2.2 gives the self-employment tax rates as calculated in the model. Table 2.3 gives the maximum wage bases for the tax on self-employment income as programmed in the model.

The model was programmed to charge social security (self-employment tax) only on the portion of distributions made to patrons with marginal tax brackets below the maximum income base. The rates shown in Table 2.2 and the maximum incomes shown in Table 2.3 were used for all projections except those involving operating losses.

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[2]Landlords not self-employed are a notable exception.

Table 2.2 The percent tax on self-employment income tax[a]

Year	Tax rate on net farm income
1982-84	9.35
1985	9.90
1986	10.00

[a]Source: [34].

Table 2.3 Maximum income base on self-employment income tax[a]

Year	Wage base	Maximum tax
1982	32,400	3,029
1983	35,700	3,338
1984	37,800	3,534
1985	40,200	3,979
1986	42,300	4,230
1987	44,700	4,470

[a]Source: [35].

Investment tax credit

The model also included investment tax credit provisions (ITC) as described under the Tax Equity and Fiscal Responsibility Act of 1982 (TEFRA-1982). TEFRA-1982 requires the reduction of the basis of assets by 50 percent of the amount of both regular, energy and certified historic structure investment tax credit. The result of this is that assets are no longer fully depreciable [20].

Excess investment tax credit not used by the cooperative was passed to members. According to current interpretations of the tax law, available ITC must be used to defray tax liabilities within the cooperative first. Thus, the cooperative must use as much of the ITC as possible to pay corporate taxes. After the first $25,000 of ITC the cooperative can only apply 85 percent of the remainder toward taxes. The model was programmed to pass the remainder on to the members. A cooperative is not allowed to carry-forward or carry-backward any unused ITC. Thus, all ITC was assumed to be either used by the cooperative or passed to members in the year earned.

Treatment of allocated equities and dividends

A qualified allocation was defined in the model as a patronage refund that the cooperative can deduct from its taxable income and which the member agrees to add to his/her taxable income as if received in cash. At least 20 percent of a qualified patronage refund allocation must be paid to the member in cash. The thought behind this cash allocation is that the member will have cash flow to meet the tax liability.

A nonqualified allocation was defined as a noncash patronage refund allocation where the patron received a written notice that the refund had been issued by the board.

This kind of allocation was included in the taxable income of the cooperative. When a nonqualified allocation is redeemed in cash, the cooperative may deduct the allocation from its taxable income. Upon receipt of the cash from the redemption, the member must recognize the amount received and add it into his taxable income. The analysis did not include redemption of nonqualified allocated equity.

Dividends were paid to members on preferred stock. The model only allowed the operator to submit a before-tax dividend rate, despite the fact that dividends are paid on an after-tax basis. In the simulation of qualified distributions, the before and after-tax dividend rates are generally the same. Because the cooperative pays only a minimum amount of taxes (if any) when qualified allocations are distributed, differences were extremely small.

A problem arose when nonqualified allocations were made. Since the cooperative generally pays a larger amount of taxes, the after-tax dividend rate was usually smaller than the before-tax rate. The end result was that in qualified and nonqualified runs the amount of dividends paid was slightly different. However, comparisons over the ten year projection

period indicated that the absolute amount of these differences were small and did not materially affect the results.[3]

Member tax bracket distributions

Cooperative members have a wide variety of income levels. This creates a problem in analyzing tax impacts of earnings passed to members. An attempt was made to simulate several possible membership distributions on the basis of the highest marginal income tax brackets. Table 2.4 shows the five statistical income tax bracket scenarios that were assumed in this study. Scenario 1 was a quasi-normal distribution of members such that the average tax bracket of the membership was centered around the 20 percent tax bracket. Marginal member tax brackets range from 11 to 50 percent by increments of three percent. In scenario 1, three percent of the memberships were assumed to fall in the 11 percent bracket, 10 percent were assumed to fall into the 14 percent tax bracket, and so on. Scenario 2 was centered around the 25 percent marginal tax bracket, scenario 3 was centered around the 30 percent marginal tax bracket, scenario 4 was centered around the 35

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[3]The Indiana cooperative paid dividends but also retired preferred stock. After the seventh year, all the preferred stock had been retired. The total difference in dividends paid over the 10 years between the qualified TAX and nonqualified TAX runs was $18,755 and the difference between the COMPANY runs was $22,222. The eastern poultry cooperative also paid dividends. The difference in the TAX runs was $59,625 and the difference in the COMPANY runs was $77,836. In all cases the difference was less than one percent of total working capital.

Table 2.4 Federal tax liability scenarios

Scenario	Average tax liability	Incremental tax brackets														Total membership
		11%	14%	17%	20%	23%	26%	29%	32%	35%	38%	41%	44%	47%	50%	
1	20%	3%	10%	14%	30%	14%	11%	5%	4%	2%	2%	2%	1%	1%	1%	100%
2	25%	2%	3%	5%	8%	14%	30%	14%	8%	5%	3%	3%	2%	2%	1%	100%
3	30%	1%	3%	3%	5%	8%	14%	30%	14%	8%	5%	3%	3%	2%	1%	100%
4	35%	1%	2%	2%	3%	3%	5%	8%	14%	30%	14%	8%	5%	3%	2%	100%
5	40%	1%	1%	1%	2%	2%	2%	4%	5%	11%	14%	30%	14%	10%	3%	100%

percent marginal tax bracket, and scenario 5 was centered around the 40 percent marginal tax bracket.

Total net earnings in period t in the cooperative was defined as operating income less operating expenses plus regional patronage.

$$NE_t = (OI_t - OE_t) + RP_t.$$

t = period,

NE_t = Net earnings,

OI_t = Operating income,

OE_t = Operating expenses, and

RP_t = Regional patronage received.

Working capital in period t was defined as the working capital from the previous period plus net earnings in period t less regional patronage plus depreciation expense plus regional participation in equity retirement plus sales of assets plus term notes from the bank plus net replacement of allocated equities, less payment on term notes less cash patronage less state and federal corporate taxes less additions to fixed assets less settlement of estates less equity retirement.

$$WC_t = WC_{t-1} + [NE_t - RP_t + DE_t] + RER_t + SA_t + TN_t + NR_t - PTN_t - CP_t - T_t - AF_t - E_t - ER_t.$$

t = period,

WC_t = Working capital in period t,

WC_{t-1} = Working capital in period t-1,

NE_t = Net earnings,

RP_t = Regional patronage,

DE_t = Depreciation expense,

RER_t = Regional participation in equity retirement,

SA_t = Sale on fixed assets,

TN = Term notes,

NR_t = Net replacement of allocated equities,[4]

PTN_t = Payment on term note,

CP_t = Cash patronage,

T_t = State and federal taxes,

AF_t = Additions to fixed assets,

E_t = Settlement of estates, and

ER_t = Equity retirement.

Net cash flow to members in period t was defined as the ITC plus cash patronage minus the tax liability of the total patronage plus dividends less the tax liability of the dividends.

$$NCF_t = ITC_t + c_t - P_t(t_p + s_t) + D_t[1-(t_p + s_t)].$$

t = period,

NCF_t = Net cash flow,

ITC_t = Investment tax credit,

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[4]Net replacement of allocated equities was used as a balancing account in the model. The model assumed that differences in the retirement of estates and the reduction in allocated equities was accounted for by increases in various equity accounts.

c_t = Cash patronage,

P_t = Total patronage,

t_p = Personal marginal tax rate,

D_t = Dividends, and

s_t = Social security tax rate.

Total member and cooperative tax liability when qualified allocations were distributed in period t was defined as the total tax liability on the qualified allocation to members for both federal and social security taxes plus the tax liability on members dividends plus the tax liability on the additions to capital surplus less ITC.

$$TT_{Q_t} = TQ_t\ (t_p + s_t) + D_t(t_p + s_t) + CS_t(t_c) - ITC_{c_t}.$$

Total member and cooperative tax liability, when nonqualified allocations were distributed in period t, was defined as the total tax liability to the cooperative on the net earnings plus the member tax liability on dividends less ITC used by the cooperative to offset taxes.

$$TT_{NQ_t} = (NE)\ (t_c) + D(t_p + s_t) - ITC_{c_t}.$$

TT_{Q_t} = Total member and cooperative tax liability on a qualified allocation,

TT_{NQ_t} = Total member and cooperative tax liability, on a nonqualified allocation,

TQ_t = Total qualified allocation,

D_t = Dividends,

CS_t = Additions to capital surplus,

NE_t = Net earnings,

t_p = Personal marginal tax rate,

t_c = Corporate federal tax rate,

s_t = Social security tax rate, and

ITC_{c_t} = Investment tax credit used by the cooperative.

Values (working capital, net cash flow, total taxes) have been compounded throughout the study in order to compare the time-value benefits which result from using different methods of distributing earnings.

The Case Cooperatives

Unqualified opinion audits for 1980 and 1981 from four cooperatives supplied the base data for the simulation analysis. The cooperatives studied include: (1) a small local cooperative in western Nebraska; (2) a local cooperative in central Iowa; (3) a local cooperative in Indiana; and (4) a large marketing and processing cooperative in the eastern U.S. Each was selected to represent a different type of cooperative. It was considered desirable to determine how (and whether) different methods used to distribute earnings to members would affect cooperatives of different types, locations and sizes.

The small cooperative in Nebraska was primarily involved in handling wheat. In 1980, nearly 100 percent of the total sales was from wheat and other minor small grains. Net local

savings in 1980 was $74,733. The cooperative had $773,241 in total assets with a current ratio of 3.19 to 1 and $7,943 in working capital.

The medium-sized local grain and supply cooperative in Iowa was also primarily a grain cooperative. The grain department accounted for almost 81 percent of total sales in 1980. The major grain marketed through the cooperative was corn. Its current ratio in 1980 was substantially lower than the Nebraska small grain cooperative at 1.19 to 1. Working capital was $380,736 and combined net local savings and regional patronage refunds for distribution was $405,397.

The large local cooperative in Indiana was involved in both supplies and grain marketing. However, its sales from farm supplies accounted for almost 60 percent of total sales. In view of the fact that grain marketing activity generates larger dollar sales than supplies, its primary activity was clearly supplies. In 1980, the cooperative generated total earnings for distribution amounting to $471,265. The cooperative had $1,984,107 in working capital with a current ratio of 1.87 to 1.

The eastern marketing and processing cooperative was primarily involved in feed manufacturing and in processing and marketing poultry products. In 1980, sales from poultry marketing were $78,834,197. Local earnings for 1980 were $655,570. The cooperative had $10,057,566 in working capital

and their current ratio was strong at 3.04. Comparative data for the cooperatives are in Table 2.5.

Data were taken from the actual balance sheets, operating statements, statements of member equities and other supplemental data schedules provided by the audits and by the management of the case cooperatives. All of the data entered after the base data were projection alternatives for the cooperatives. In this study, the projections were based on changes in either the balance sheet or the operating statement. For example, in the second year it could be projected that grain volume would fall by one percent because of expected market conditions.

The results obtained from submitting new projection alternatives for the next period were shown on a computer print-out. The data are given in the following order: (1) operating statement; (2) balance sheet; (3) statement of changes in working capital; (4) changes in components of working capital; (5) investment tax credit section; (6) cash and noncash distribution of member equity; (7) financial impact on members by incremental tax rate in tabular form; (8) distribution of farmer, federal, social security and total tax liability given five scenarios, in table form; and (9) corporate federal and state taxes due.

Table 2.5 Comparative data: 1980[a]

	Nebraska grain	Iowa marketing and supply	Indiana supply	Eastern poultry marketing
Current assets	283,967	2,420,156	4,274,857	14,982,875
Fixed assets	392,376	1,269,594	1,688,662	8,677,200
Total assets	773,241	4,604,544	8,166,460	24,709,474
Current liabilities	88,955	2,039,420	2,290,749	4,925,309
Long term liabilities	146,250	602,007	727,819	4,067,748
Total liabilities	135,205	2,641,427	3,018,569	8,993,057
Qualified equities	143,138[b]	1,450,451	4,005,046	15,262,742
Unallocated capital surplus	70,730	313,736	784,629	0
Total equities	773,241	1,963,114	5,147,891	24,709,474
Current ratio CA/CL	3.19	1.19	1.87	3.04
Debt/equity ratio[c]	.27	.30	.14	.26
Working capital	195,012	380,736	1,984,107	10,057,566
Local savings	69,124	254,335	353,660	655,570
Regional patronage	5,609	115,062	117,604	---
Net savings (combined)	74,733	405,397	471,265	655,570

[a]Source: Audits 1980.

[b]In 1981 they transferred $244,500 common stock to qualified equities.

[c]Total long-term liability/member equity.

Summary

This chapter outlined the model and described the cooperative goal of maximizing net member benefits. It was intended to establish a framework to provide background information on the four useful purposes for this study:

1) the examination of the impacts on earnings of the new depreciation laws;

2) the comparison of different methods of distributing earnings in light of the current tax law and legal decisions;

3) the evaluation and prediction of the impact at the local cooperative level and on local cooperative members of three methods of treating net operating losses; and

4) the provision of information and the clarification of important issues confronting the financial decision-makers at the local cooperative level.

CHAPTER 3. DEPRECIATION

Introduction

This chapter shows the results of using rapid-ACRS (TAX) and ACRS-SL (COMPANY) to calculate net earnings. The implications that each method has on maximizing net cash flow to members are also discussed.

Methods of Calculating and Distributing Earnings

Three of the four cooperatives were used for this portion of the study. The base data for Indiana, Iowa, and the eastern marketing and processing cooperative are shown in the following section. Eight primary situations were examined for all the cooperatives. Four secondary situations were included to examine the effects on earnings distribution if Book-to-tax (Book-to-tax is explained on the following page) statements were used. The last set of situations examined the impacts when qualified equities were retired. The situations were as follows:

SITUATION 1. The cooperative allocated qualified equities and paid 30 percent in cash patronage to the members. The earnings were calculated on a COMPANY basis and there was no equity retired.

SITUATION 2. Situation 2 is the same as situation 1 except that earnings were calculated on a TAX basis.

SITUATION 3. The cooperative allocated qualified equities and paid 40 percent cash patronage to the members. The earnings were calculated on a COMPANY basis and no equity was retired.

SITUATION 4. Situation 4 is the same as situation 3 except that earnings were calculated on a TAX basis.

SITUATION 5. The cooperative allocated qualified equities and paid 45 percent in cash patronage to their members. The earnings were calculated on a COMPANY basis and no equity was retired.

SITUATION 6. Situation 6 is the same as situation 5 except that earnings were calculated on a TAX basis.

SITUATION 7. The cooperative allocated nonqualified equities and paid no cash patronage to the members. The earnings were calculated on a COMPANY basis and there was no equity retired.

SITUATION 8. Situation 8 is the same as situation 7 except that earnings were calculated on a TAX basis.

The second set of situations were the same as situations 1, 3, 5, and 7 except that the Book-to-Tax (BTT) system of accounting was used. The function of BTT accounting in this study was the reconciliation of the balance sheets when taxes were calculated on rapid depreciation earnings and earnings were distributed on book depreciation. The BTT system allows the cooperative to reconcile net earnings calculated for tax

purposes by using rapid-ACRS, while earnings calculated for distribution are calculated by using ACRS-SL. The difference between the TAX depreciation expense and the COMPANY depreciation expense was recorded in the equity section of the balance sheet in an ACRS reserve account.

In the early years of the life of an asset, the ACRS reserve account accumulated a large negative balance due to deferred taxes. The account was offset by a corresponding increase in allocated equities and capital surplus. The ratio used was 90 percent to allocated equity and 10 percent to unallocated capital surplus. After the accelerated depreciation period, the ACRS reserve account decreased in absolute value slowly. In the early years, the amount of extra permanent equity that was generated was substantial. Iowa and Indiana were used for these runs.

The last set of situations only involved the Iowa cooperative. Situations 2, 6, and 8 were simulated again. In these simulations, the assumption was made that there was retirement of qualified allocated equity from previous years. Equity was retired based on four percent of the total pool of qualified allocated equities each year.

Base data - Indiana

The gross margin in the supply department for the base year was 14.71¢ (Table 3.1). For the 10 projection years, the

Table 3.1 Base data - Indiana cooperative

	Supplies		Marketing		$ Gross margins	
Year	Sales volume	GM/ unit	Sales volume	GM/ unit	Supplies	Marketing
1	18,026,992	.139	13,049,051	.018	2,505,751	234,883
2	18,207,248	.140	13,179,532	.019	2,549,014	250,411
3	18,389,296	.140	13,311,317	.019	2,574,501	252,915
4	18,573,168	.141	13,444,420	.020	2,618,816	268,888
5	18,758,880	.141	13,578,854	.020	2,645,001	271,577
6	18,946,448	.142	13,714,632	.021	2,690,394	288,007
7	19,135,888	.139	13,851,768	.019	2,659,888	263,184
8	19,327,232	.140	13,990,275	.021	2,705,812	293,796
9	19,520,480	.141	14,130,167	.022	2,752,387	310,864
10	19,715,664	.140	14,271,458	.021	2,760,192	299,701

gross margin was held fairly constant; minor fluctuations in margins were allowed in a range from 13.93¢ to 14.2¢. In the grain marketing department, the base year gross margin was set at 1.76 percent of grain sales. Over the projection years it was increased slightly with moderate fluctuations. The 1991 projection was 2.1 percent. The volume of products marketed was down 7.88 percent in the base year; then it increased by 12.27 percent in the first projection year with one percent increases each year thereafter. The pattern reflected the decrease in the volume of grain on the market late last year and the expectation of the manager for volume in the future.

Other income accounts were projected to grow throughout the 10 years. Grinding and grain processing were increased by two percent each year. The service income increased by one percent each year. The expense accounts, salaries, other expenses, and fixed expense all increased two percent each year to reflect expected inflation. Regional patronage was varied from a low of $50,000 in the eighth period to a high of $155,000 in the sixth period with the remaining years falling between these extremes. The cash portion from the regional cooperative was held constant at 30 percent for the 10 years projected.

In the third and fourth periods, there were additions to fixed assets (including the normal replacement of fixed assets) in the amounts $365,000 and $450,000 respectively. In

the other years, normal replacement ranged from $200,000 to $320,000. ACRS-SL depreciation was calculated on a 10 year life for all fixed assets. Using rapid-ACRS, a five year life was selected. In the first five years, none of the assets were financed using debt but in the last five years debt was used to finance from 60 to 78 percent of the additions to fixed assets.

Base data - Iowa

The gross margins for corn in the base year was 8.84¢ (Table 3.2). It was projected to fall to 8.5¢ in the second year and then rise steadily to 9.2¢ in the last year. The gross margins on beans was set at 11.46¢ in the base year and was increased steadily to 13.8¢ in the tenth year.

In the supply department, the gross margins on fertilizer was 16.48¢ in the base year and climbed to 18.0¢ in the last projection year. The projected volume of corn marketed in the base year and the fifth year was down 19.92 and 15.0 percent, respectively. In the sixth year, volume was projected to increase by 16 percent and in every other year volume was increased by one percent.

The volume of beans marketed reflected the same pattern, down by 2.09 percent in the base year and down 10 percent in the fifth year. The sixth year volume was increased by 11

Table 3.2 Base data - Iowa cooperative

	Corn			Beans			Fertilizer			Dollar gross margin		
Year	Sales volume	GM/ unit	Vol. (rel.)	Sales volume	GM/ unit	Vol. (rel.)	Sales volume	GM/ unit	Vol. (rel.)	Corn	Beans	Fert.
1982	2,123,125	.085	1.0%	685,749	.120	1.0%	1,542,470	.170	0%	180,466	82,290	262,220
1983	2,144,354	.086	1.0	692,606	.122	1.0	1,542,470	.172	0	184,414	84,498	265,305
1984	2,165,795	.086	1.0	699,532	.124	1.0	1,542,470	.174	0	186,258	86,742	268,390
1985	1,840,925	.087	(15.0)	629,578	.126	(10.0)	1,542,470	.172	0	160,160	79,327	265,305
1986	2,135,472	.087	16.0	698,832	.128	1.0	1,527,045	.170	(1.0)	185,786	89,450	259,598
1987	2,156,825	.088	1.0	705,819	.130	1.0	1,557,585	.172	2.0	189,801	91,757	267,905
1988	2,178,391	.089	1.0	712,877	.132	1.0	1,573,159	.174	1.0	193,877	94,100	273,730
1989	2,200,173	.090	1.0	720,005	.134	1.0	1,588,889	.176	1.0	198,016	96,481	279,644
1990	2,222,173	.091	1.0	727,205	.136	1.0	1,604,776	.178	1.0	202,218	98,900	285,650
1991	2,244,393	.092	1.0	734,476	.138	1.0	1,620,822	.180	1.0	206,484	101,358	291,748

percent and in every other year volume was increased by one percent.

The volume of fertilizer sold showed little fluctuation over the 10 years. The three years of lower volumes were to simulate a few recent bad years that the Iowa cooperative had encountered during the past decade as a direct result of weather variability. Other income accounts were projected to remain relatively stable for the 10 years except for storage. It was projected to follow the same pattern as the volume of corn and beans. In the base year and in the fifth year, the volume fell by 16.15 and 15 percent, respectively. The expense accounts were projected to increase by five percent each year.

The regional patronage that the Iowa cooperative was projected to receive from its patronage with several regional cooperatives fell in a range between $60,000 and $225,000. The percent of the patronage that was paid in cash was held constant at 35 percent.

Additions to fixed assets were greatest in the second year at $525,000. In the other years it fell in a range from $25,000 to $30,000 for normal fixed asset replacements. The cooperative financed almost all of the additions to fixed assets by using debt.

Base data - eastern marketing and processing cooperative

The gross margins on processing and marketing activities in the base year was 7.67¢ per dollar of volume (Table 3.3). The gross margins were projected to increase over the 10 years with a decline in the seventh and tenth years. The volume of poultry for market was projected to rise three percent each year except in the eighth year when volume was projected to fall by 10 percent.

Other income accounts were projected to grow at a rate of two percent per year. The expense accounts were allowed to increase by four percent each year. The regional patronage that the cooperative received ranged from $250,000 in year three to $75,000 in year eight. The cash portion of patronage from the regional was projected to be 30 percent each year.

The eastern cooperative was projected to make heavy investment in fixed assets over the entire 10-year period. The high was $3,000,000 of additions to fixed assets in year seven. In the other years, the investments were never less than $2,000,000. The cooperative primarily financed the additional fixed asset investments through debt.

Comparison of Rapid-ACRS and ACRS-SL Depreciation

As cooperatives grow, net fixed assets enter in cooperative balance sheets when they are purchased. As the assets

Table 3.3 Base data - Eastern cooperative

	Poultry marketing		
Year	Sales volume ($)	GM/ unit ($)	$ Gross margins ($)
1	79,622,464	.08	6,369,795
2	81,214,864	.10	8,121,483
3	83,839,120	.11	9,112,299
4	85,324,256	.12	10,238,906
5	87,883,952	.13	11,424,913
6	90,520,432	.14	12,672,859
7	92,236,016	.105	9,789,777
8	83,912,400	.15	12,586,857
9	92,303,584	.14	12,922,500
10	95,072,656	.135	12,834,807

are used, they begin to lose value. Traditionally fixed assets have been valued and depreciated according to their useful life. U.S. tax codes allowed the use of more rapid methods such as double declining balance and sum of years digits. Since the passage of the Economic Recovery Tax Act of 1981, assets can be depreciated even more quickly.

The ERTA-1981 depreciation schedules allow for faster recovery of fixed asset costs through depreciation than previous methods of accumulating depreciation. Cooperatives (under ERTA) may choose to use the rapid accelerated cost recovery system (ACRS) or they can use a specified straight line method of recovery system (ACRS-SL). Both the ACRS and the straight-line methods allowable under ERTA offer a faster recovery system than the straight-line methods permitted in the past under the old Asset Depreciation Range guide lines.

The system a cooperative chooses to use in depreciating its assets will affect the operating statement. In some cooperatives, depreciation expense is a large portion of total expenses. Net earnings fluctuate depending on the magnitude of depreciation expense. This occurs because net earnings are calculated by subtracting total operating expenses from total operating income.

Depreciation is a noncash expense. Thus, cash does not flow from the cooperative as a direct result of depreciation expense. It is a valid expense because existing assets are

declining in value (due to their use in the operation of the cooperative). Nonetheless, there is no check written for depreciation expense. Therefore, rapid depreciation will reduce taxable income in early years but it will not reduce cash flow, all else equal. In later years, (without additional investment) taxes will increase and cash will flow from the firm as a result.

Table 3.4 gives the dollar amount of additions to fixed assets in each year. The Indiana cooperative has a fairly constant investment stream with heavier investments in years three and four. The Iowa cooperative invested in an elevator in year two valued at $525,000. However, in the other nine years only small additions to assets (for normal replacement) were made. The eastern cooperative invested from $2-3,000,000 each year for growth and replacement.

The three investment streams were depreciated by using both rapid-ACRS (hereafter called TAX) and ACRS-SL (hereafter called COMPANY). The pattern of depreciation expense that resulted from the two methods can be seen in Figures 3.1 through 3.3.

It is evident from the graphs that the level of investments in fixed assets and the timing of investments had a significant impact on depreciation expense. The TAX line is above the COMPANY line in every year except 1991 for the Indiana cooperative (Figure 3.1). The investments were large

Table 3.4 Additions to fixed assets

Year	Indiana	Iowa	Eastern
1	200,000	55,000	2,000,000
2	220,000	525,000	2,000,000
3	365,000	25,000	2,000,000
4	450,000	30,000	2,500,000
5	320,000	25,000	2,500,000
6	250,000	30,000	2,500,000
7	225,000	25,000	3,000,000
8	200,000	30,000	2,500,000
9	275,000	25,000	2,000,000
10	250,000	30,000	2,000,000

Figure 3.1 Indiana Depreciation Expense

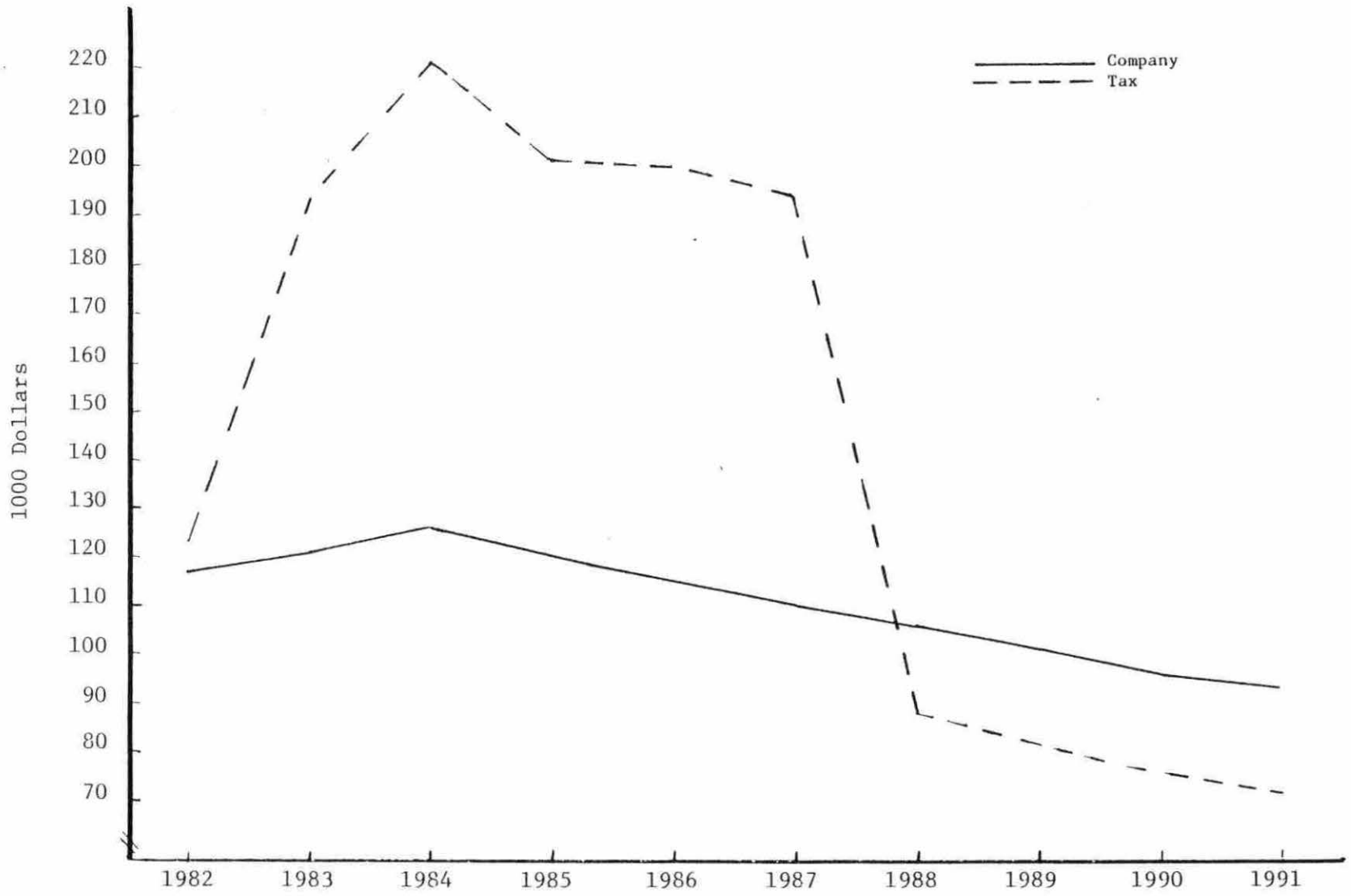

Figure 3.2 Iowa Depreciation Expense

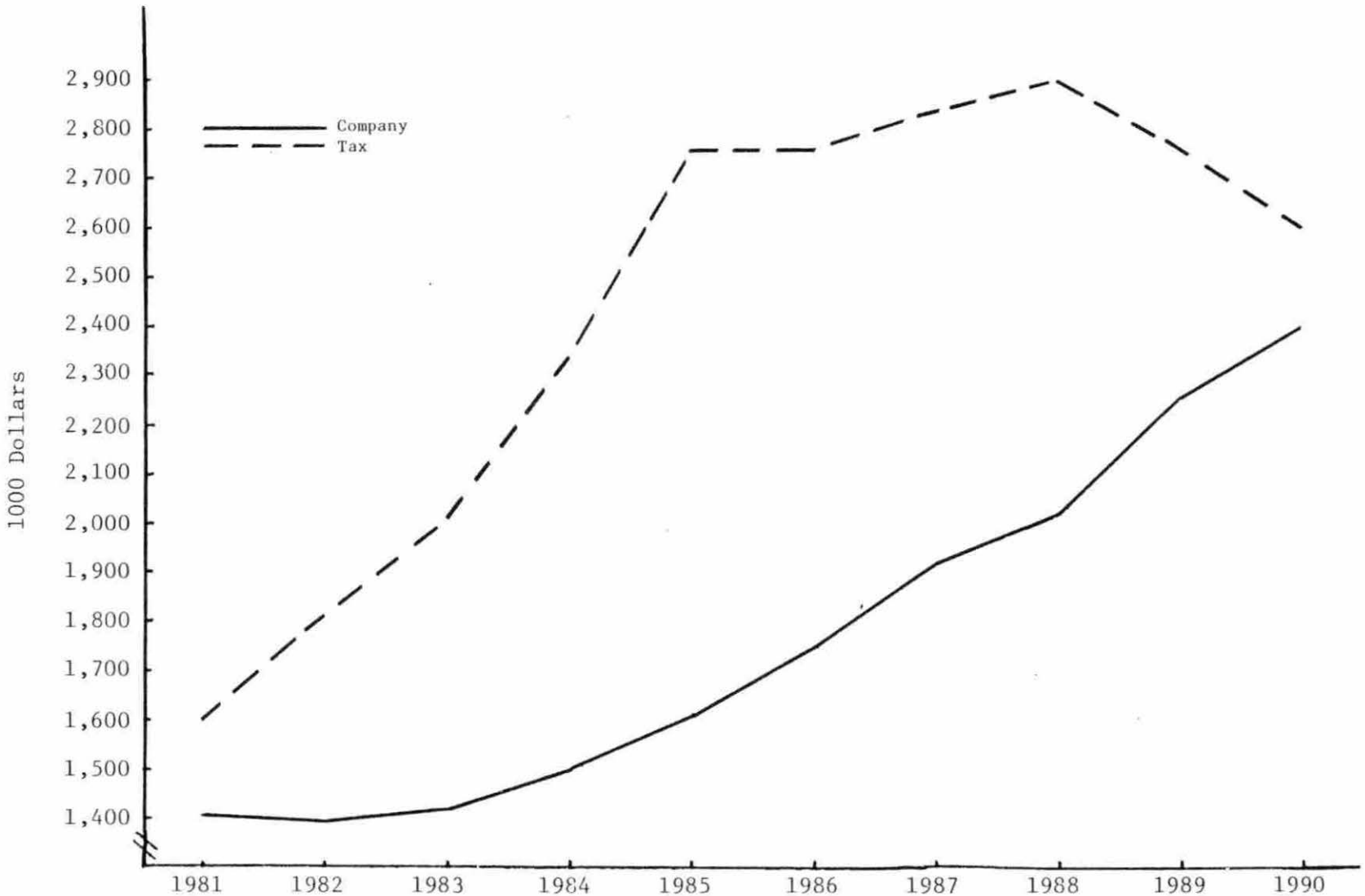

Figure 3.3 Eastern Depreciation Expense

enough in the earlier years to spread the benefit of increased depreciation expense over the later years.

For the Iowa cooperative, the TAX line fell below the COMPANY line in 1988 and thereafter (Figure 3.2). The elevator fixed assets were classified as 5-year property; therefore, after the fifth year the cost of the asset had been fully recovered. The investments in later years were not large enough to keep the TAX line above the COMPANY line. This result occurred partly because the COMPANY line was still reflecting the depreciation from the elevator investment, while the TAX line was reflecting the elevator as fully depreciated.

The eastern marketing cooperative's investments were consistently large enough to keep the TAX line above the COMPANY line for all 10 years (Figure 3.3). The cooperative was able to take advantage of the greater depreciation expense that resulted from using rapid-ACRS. Despite the early divergence between TAX and COMPANY, the lines tended to converge after 10 years of heavy investment and its cumulative affects on both depreciation schedules. The distance between the curves represents extra cash flow generated for the cooperative by rapid-ACRS depreciation when the TAX line is above the COMPANY line. The oposite is true when the COMPANY line is above the TAX line.

Figure 3.4 Indiana Net Earnings

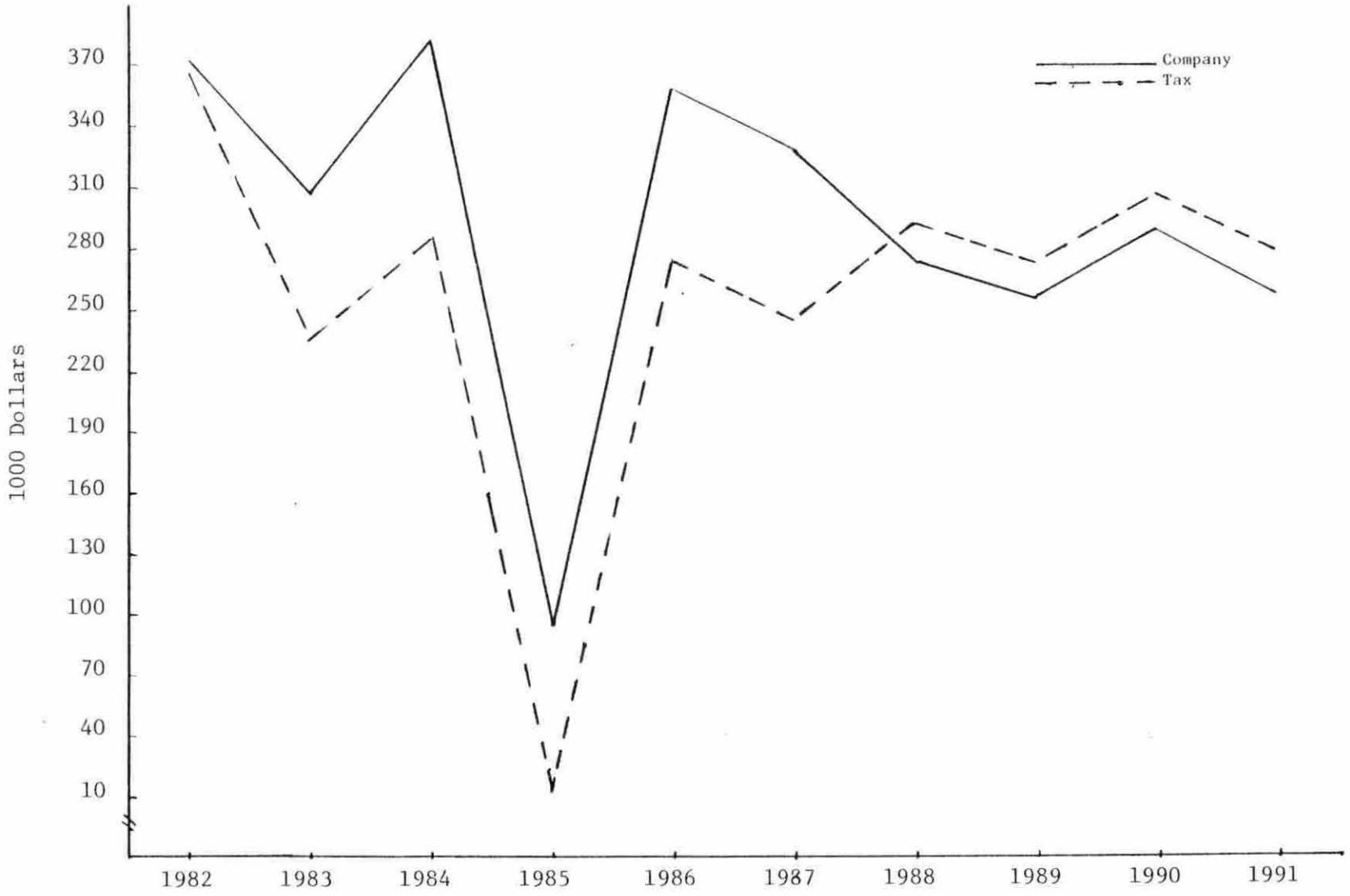

Figure 3.5 Iowa Net Earnings

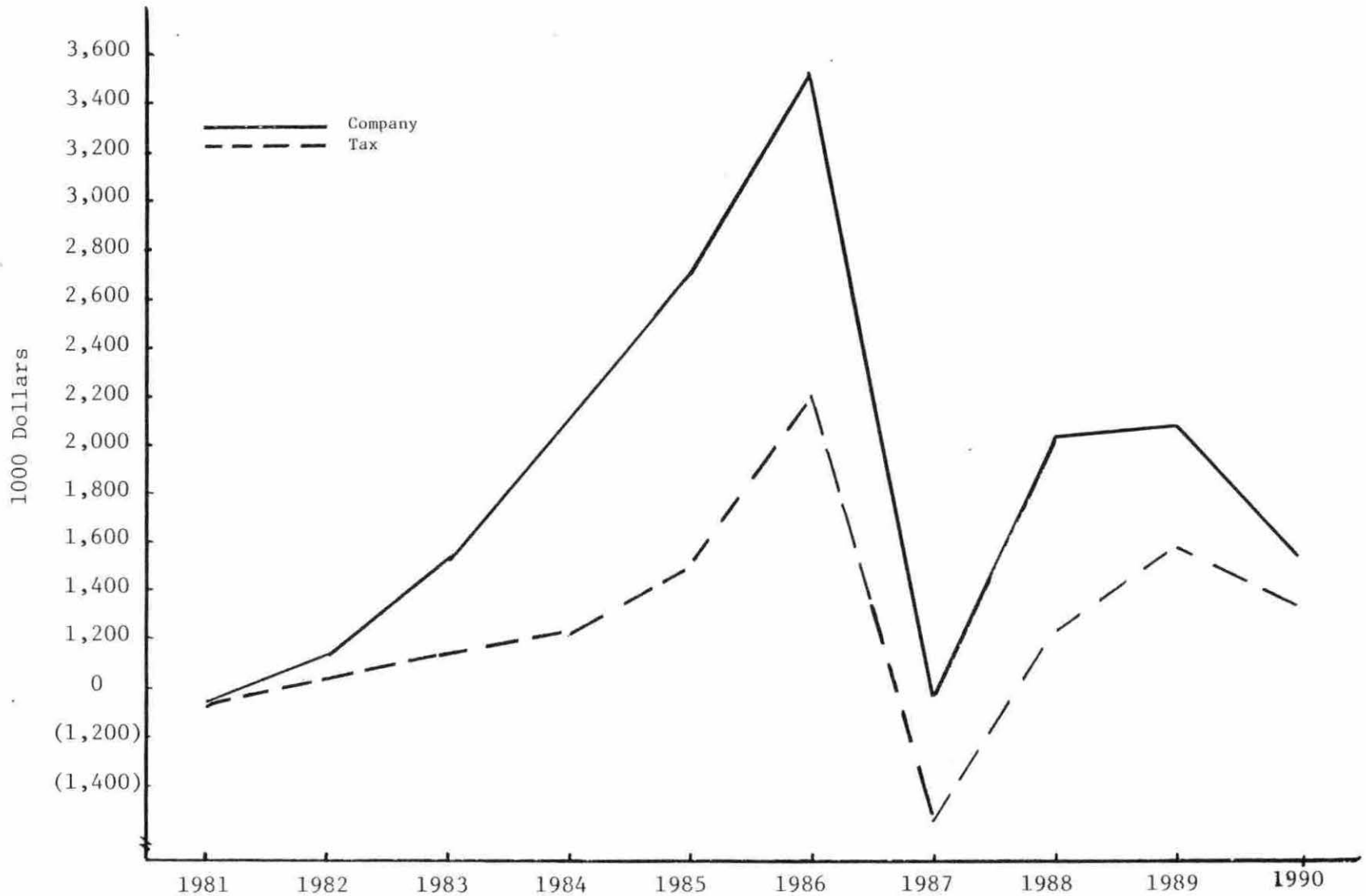

Figure 3.6 Eastern Net Earnings

Net earnings

Depreciation was an integral expense element in the operating statement, therefore the method used to calculate depreciation affected net earnings. Table 3.5 gives the net earnings for the three cooperatives using both rapid-ACRS (TAX) and ACRS-SL (COMPANY). During the years that depreciation under rapid-ACRS was taken, the earnings were artificially low. In Figures 3.4-3.5, the COMPANY line fell below the TAX line until the year 1988 in the Iowa cooperative and in year 1990 in the Indiana cooperative. At this point, the COMPANY earnings were less due to the continued straight-line depreciation and a reduction in the rapid-ACRS depreciation.

In the eastern cooperative, the earnings are always less by using rapid-ACRS than by using ACRS-SL (Figure 3.6). The distance between the TAX line and the COMPANY line represents differences in taxable income.

Working capital

Adequate working capital is essential for financial health in a cooperative. Working capital is a key source of funds in the business. Many items compete for the use of funds. Loan payments and fixed assets usually take a large portion of available working capital. The quantity of funds can also be augmented through debt. However, with rapid-ACRS

Table 3.5 Net earnings

	Indiana		Iowa		Eastern	
Year	Tax	Company	Tax	Company	Tax	Company
1	318,456	337,456	364,686	372,150	(867,970)	(677,970)
2	373,864	417,564	236,883	308,241	457,256	875,256
3	404,540	485,195	285,910	380,970	905,383	1,532,383
4	240,661	368,911	12,788	95,641	1,235,221	2,118,720
5	270,006	433,738	274,080	359,641	1,557,087	2,706,586
6	230,225	379,612	246,022	329,635	2,512,345	3,524,095
7	129,558	258,141	293,133	274,717	(1,152,661)	(231,161)
8	296,783	373,448	274,878	256,550	1,235,390	2,028,640
9	393,354	408,032	309,650	290,081	1,560,402	2,063,904
10	346,790	324,703	279,316	257,799	1,325,520	1,534,523

there may be sufficient working capital generated to finance operations without resorting to increased debt load.

Since depreciation is a noncash expense, it is a source of working capital for the cooperative. Larger amounts of depreciation expense result in greater amounts of working capital. This allows the financing of new assets, retirement of equity and other uses of funds from operations.

Figures 3.7-3.15 show the working capital available to each cooperative over the 10 projection years. In all cases, the TAX lines were above the COMPANY lines and the gap between the two groups widened in later years. As the cooperative increased the cash portion of the qualified distribution (i.e. 40 to 45 percent), the gap also widened. This paradoxical result occurred because the cash portion was calculated based on the total distribution. The artificially rapid depreciation made the earnings much smaller in the TAX run than in the COMPANY run.

The difference between the TAX working capital and the COMPANY working capital over the 10 years implied that substantial benefit to the cooperative was possible with rapid-ACRS.

Although it is evident that the cooperative would have had larger amounts of working capital under rapid-ACRS depreciation, the true impact was understated. The model did

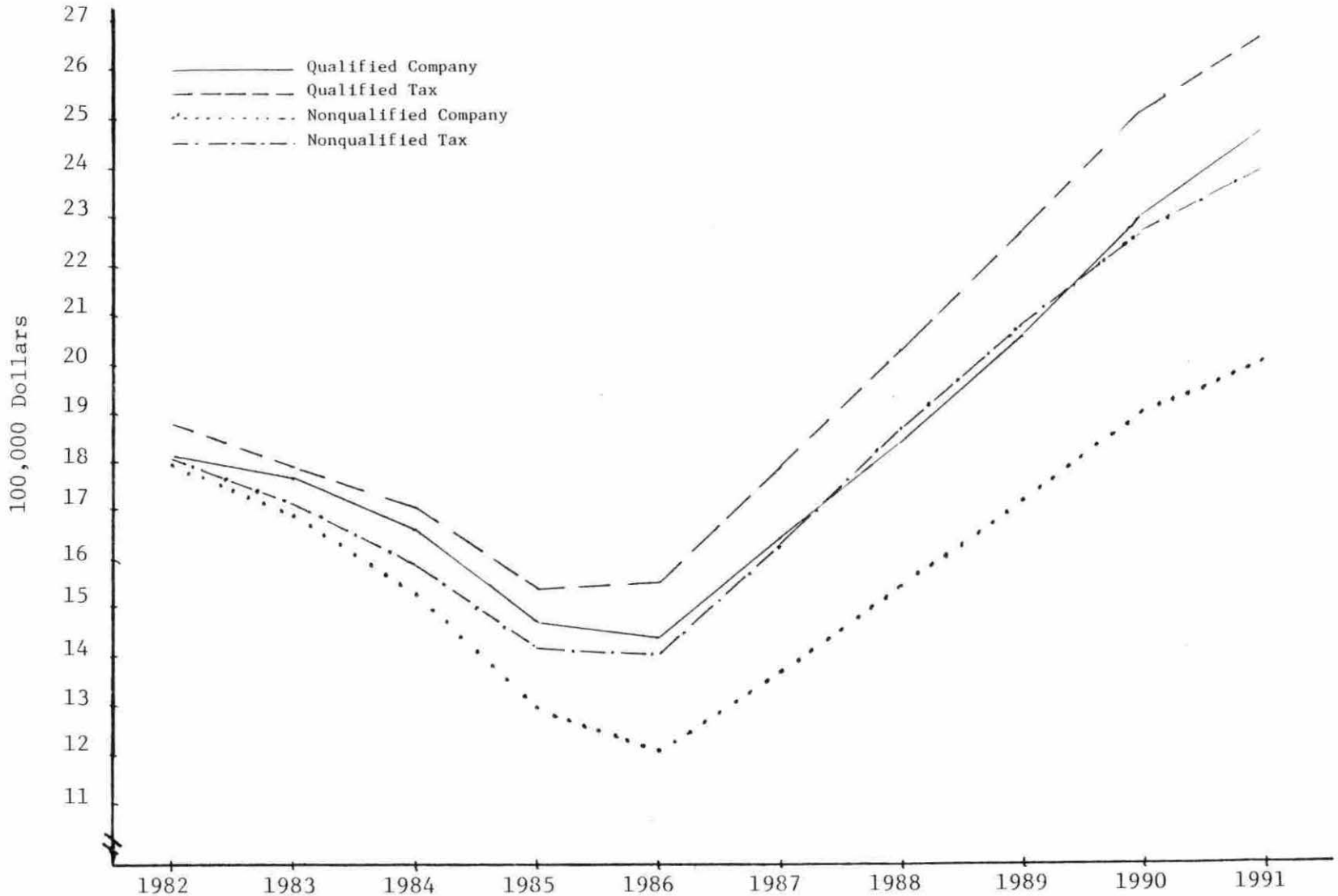

Figure 3.7 Indiana, Working Capital, 30% Cash Patronage

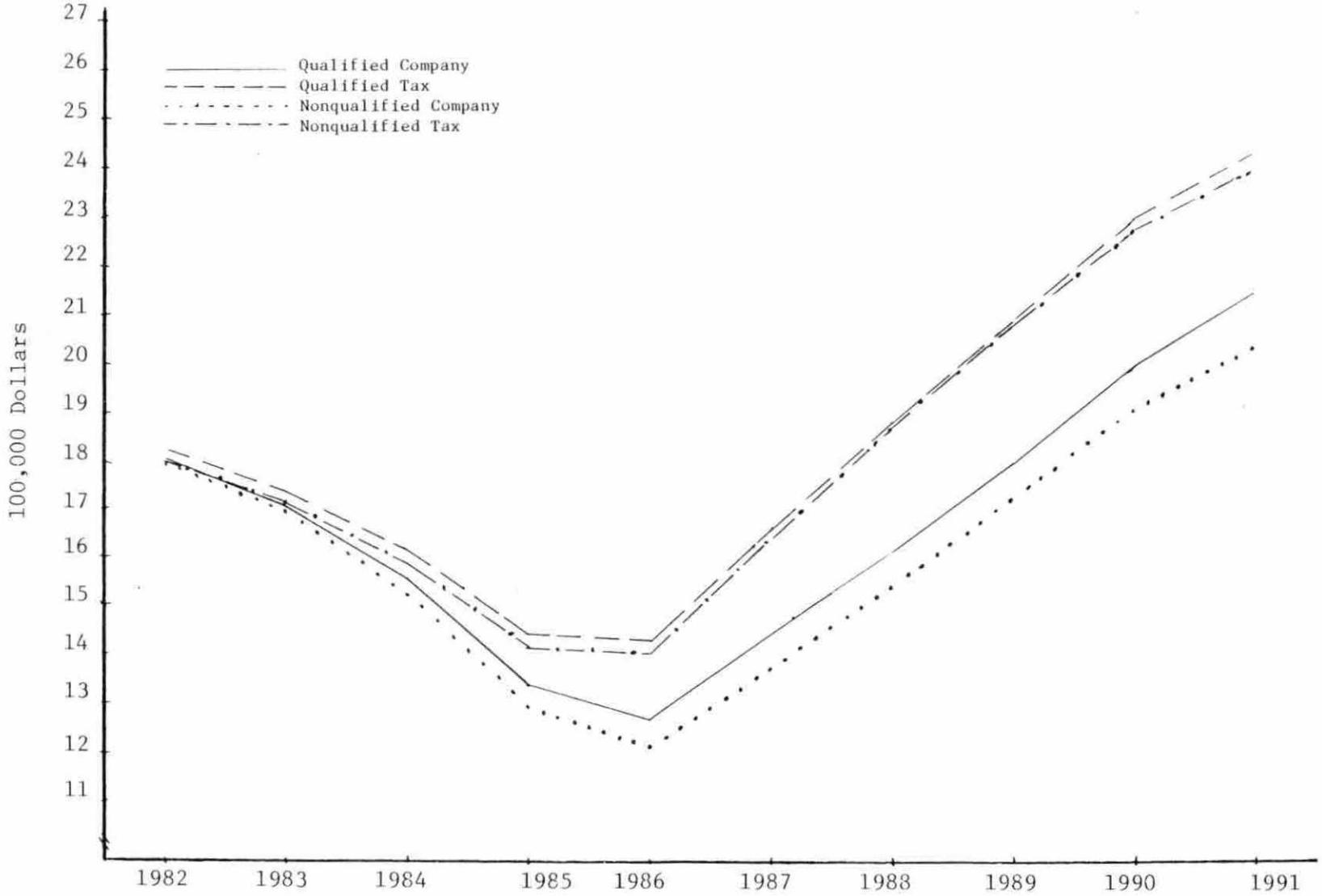

Figure 3.8 Indiana, Working Capital, 40% Cash Patronage

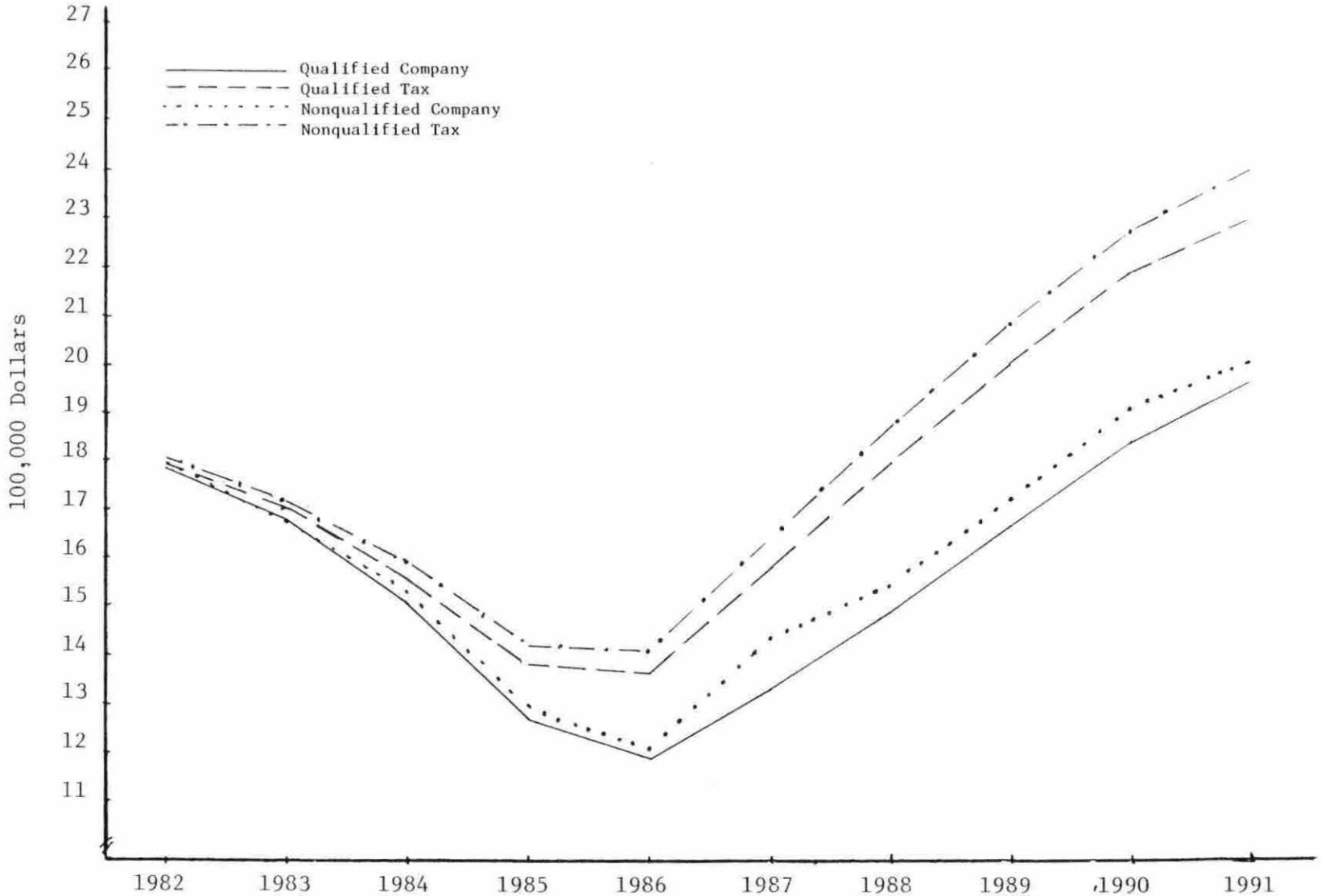

Figure 3.9 Indiana, Working Capital, 45% Cash Patronage

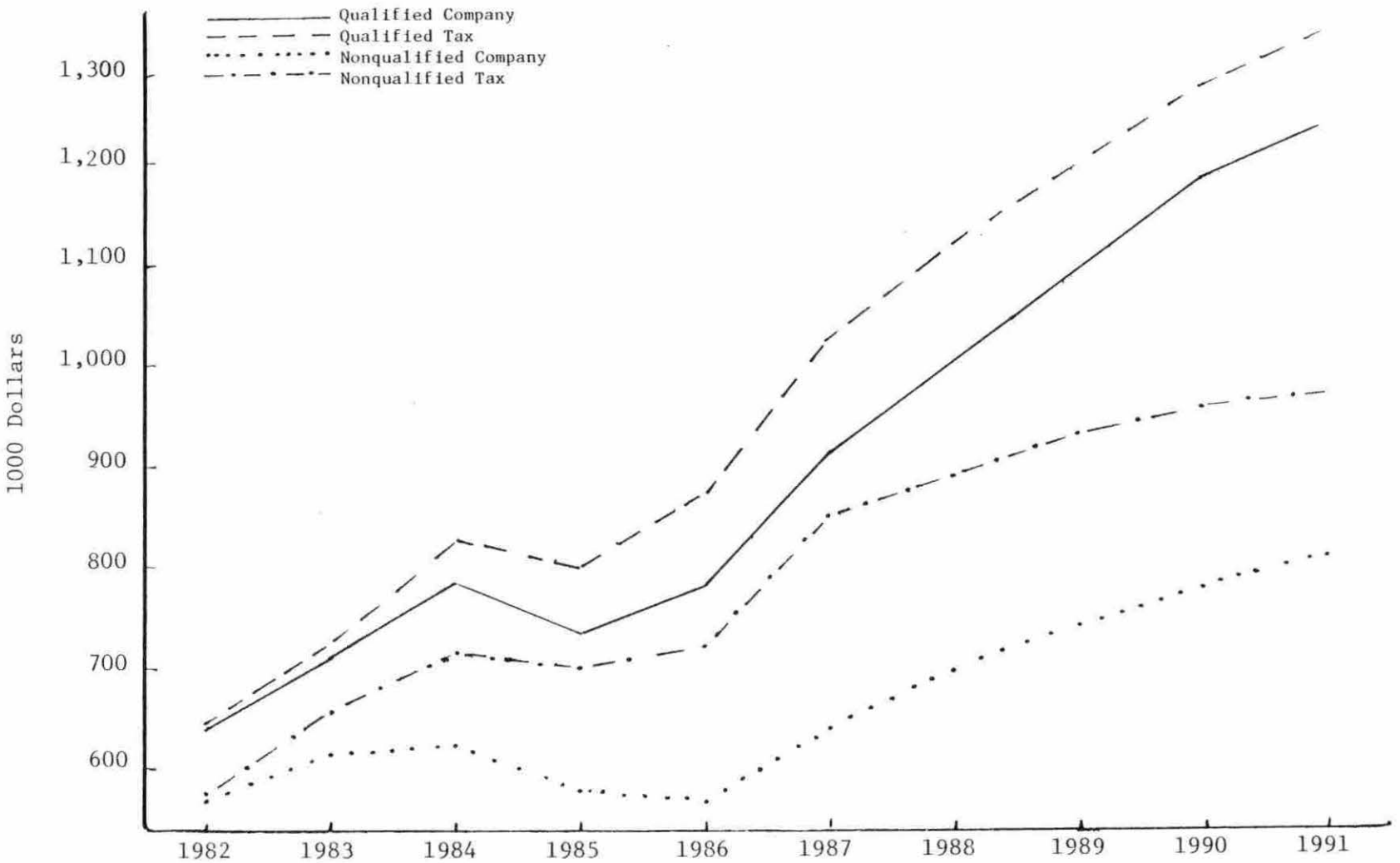

Figure 3.10 Iowa, Working Capital, 30% Cash Patronage'

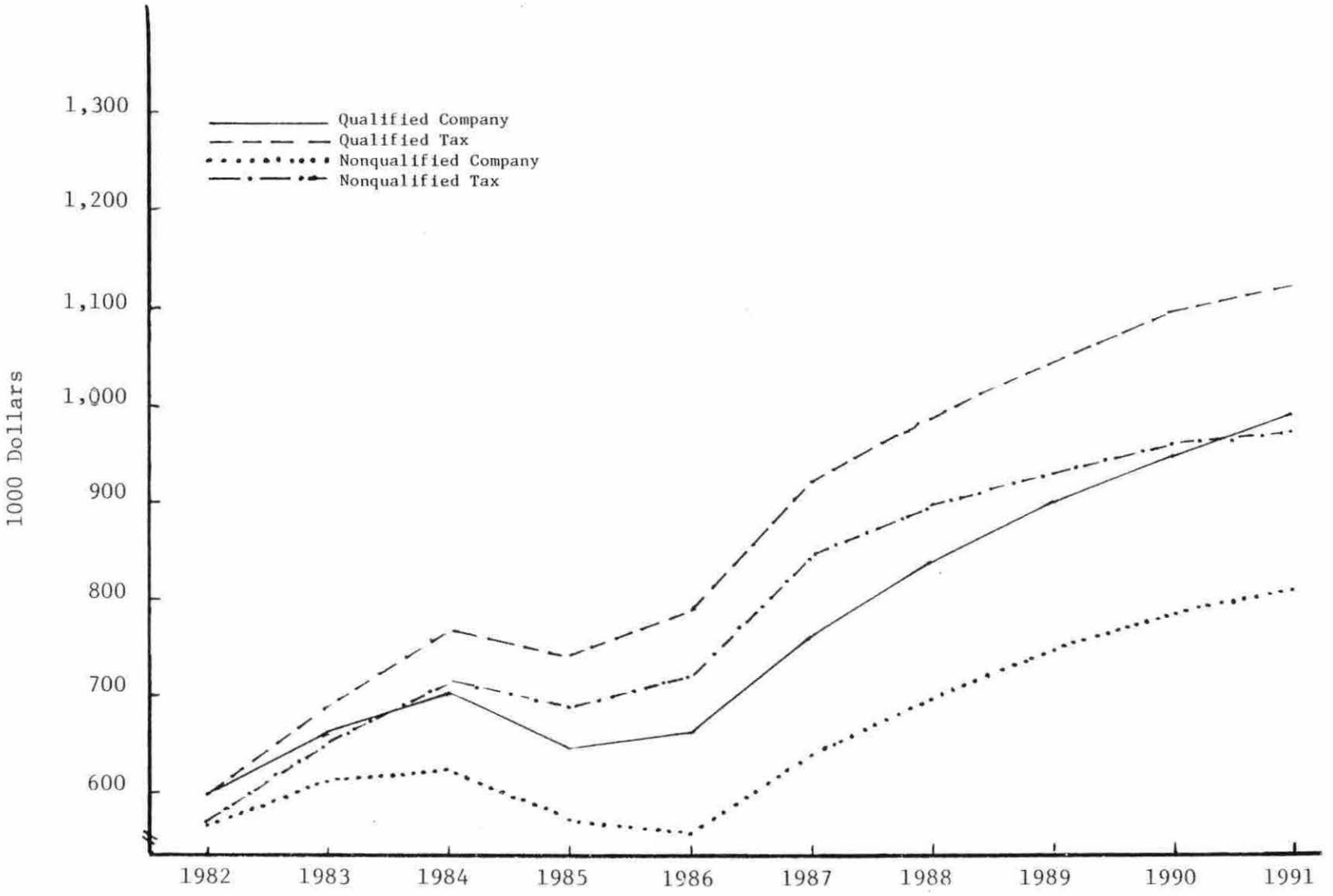

Figure 3.11 Iowa, Working Capital, 40% Cash Patronage

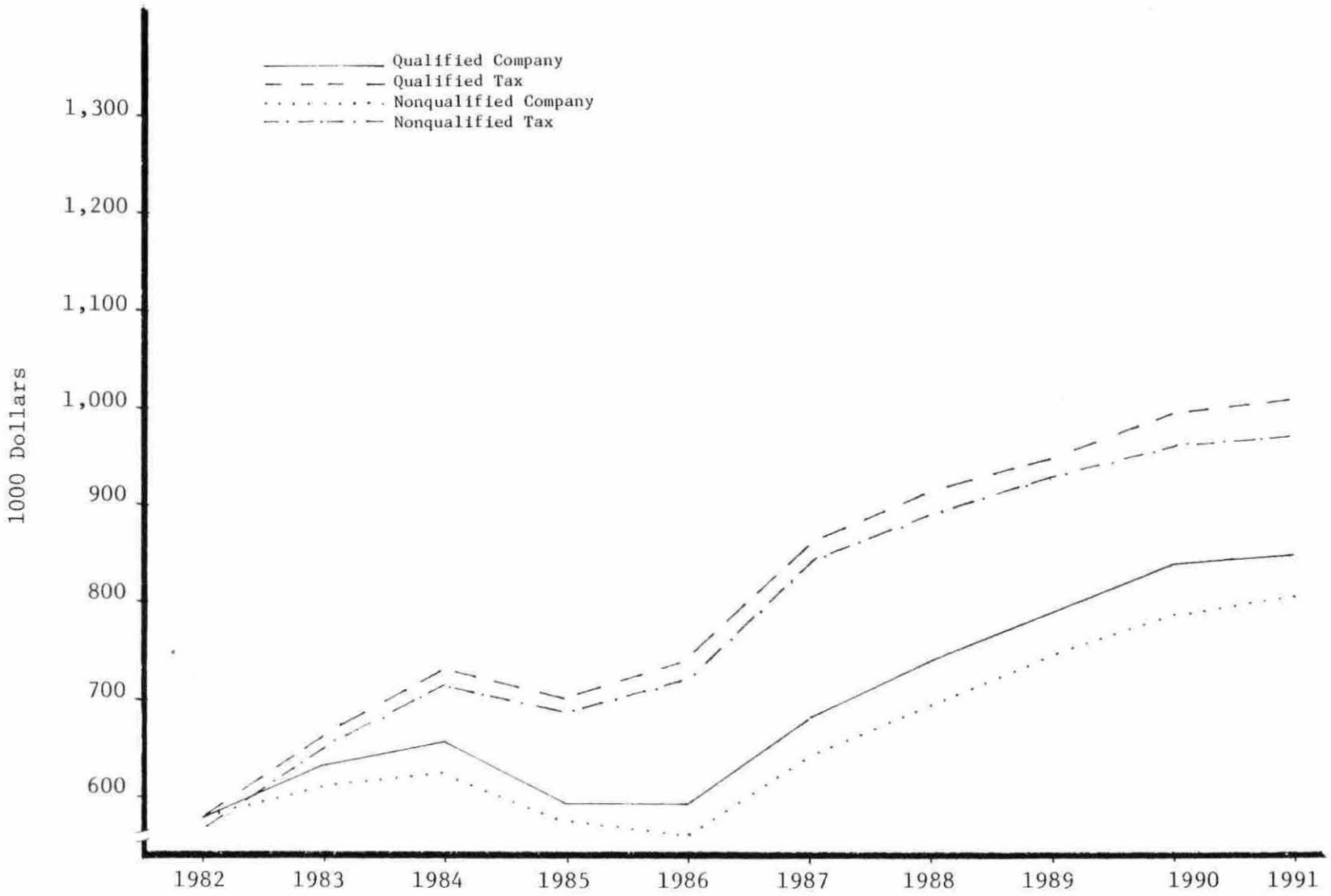

Figure 3.12 Iowa, Working Capital, 45% Cash Patronage

Figure 3.13 Eastern, Working Capital, 30% Cash Patronage

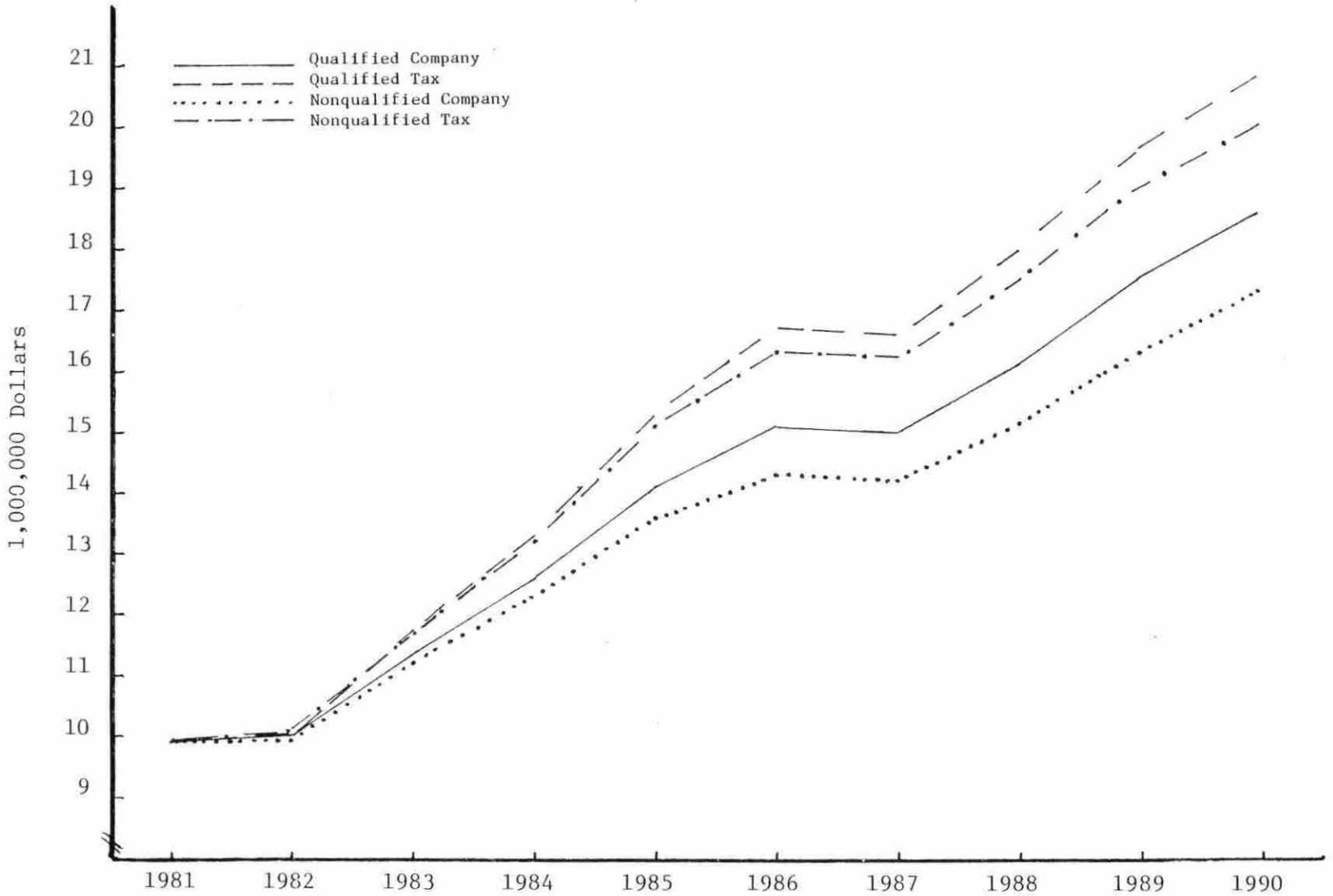

Figure 3.14 Eastern, Working Capital, 40% Cash Patronage

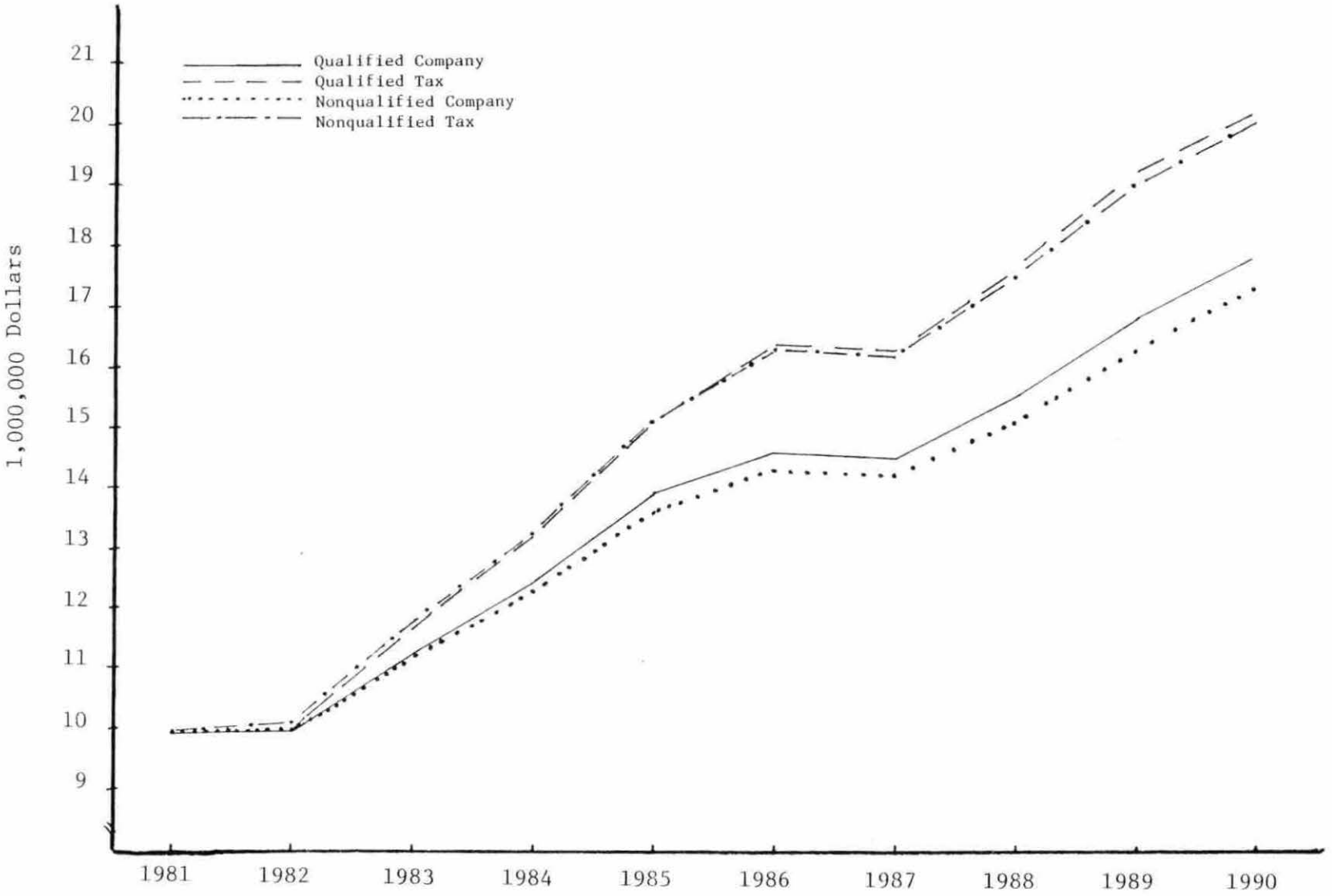

Figure 3.15 Eastern, Working Capital, 45% Cash Patronage

not adjust debt financing year to year in accordance with the increasing working capital.

This adjustment was not made in order to see direct impacts on absolute amounts of working capital. Because of the method used, the benefits of added working capital were not reflected in terms of lower borrowing or interest earned on the extra working capital available through rapid-ACRS depreciation.

In order to identify the value of the extra-working capital, the annual differences between the TAX working capital and COMPANY working capital were compounded from the time they were earned to the end of the projection period. This provided an indication of the additional time value benefits to the cooperative associated with using rapid-ACRS.

The difference between TAX working capital and COMPANY working capital each year was compounded by the appropriate future value factor and summed over the 10 years.[1] The

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[1] $\sum_{n=1}^{10} [(T_{wc} - C_{wc}) * FVCF_{i,n}]$,

TAX_{wc} = tax working capital, i = interest rate,

$COMPANY_{wc}$ = company working capital, n = year,

$FVCF_{i,n} = \frac{1}{(1+i)^n}$.

results of compounding the marginal differences in working capital at 10, 12 and 14 percent are shown in Table 3.6.

The nonqualified portion of the table shows the greatest difference in working capital when rapid-ACRS is used instead of ACRS-SL. In 10 years, the Iowa cooperative would have at least $2,000,000 more in working capital from using rapid-ACRS. Even larger amounts resulted in the Indiana and eastern marketing and processing cooperative.

Since the cooperative paid taxes on the entire tax bill when nonqualified equities were distributed, the higher earning levels that resulted, the greater the corporate tax burdens. Therefore, a greater drain on working capital was observed. The problem of working capital drain was greatest when nonqualified equity growth was occurring with no revolving. If revolving had been conducted, the deduction from the nonqualified equity retired would have reduced the drain by reducing federal taxes paid at the cooperative level.

When a qualified distribution was made, the percent of allocated earnings paid in cash was a significant factor. At higher levels of cash patronage, using the rapid-ACRS (TAX) became more beneficial. Once again, the total TAX distribution was less than the COMPANY total distribution. The larger percent cash patronage to be distributed was computed on a smaller base earnings in the TAX runs. Thus, the increase in

Table 3.6 Future value, working capital - tax vs. company[a]

Type of comparison	Compound rate	Iowa	Indiana	Eastern
Qualified tax vs. qualified company 45% cash patronage	10%	$1,839,120	$2,841,164	$18,933,516
	12	2,004,723	3,059,441	20,352,517
	14	2,189,976	3,304,106	21,941,418
Qualified tax vs. qualified company 40% cash patronage	10	1,603,825	2,562,143	16,413,536
	12	1,747,643	2,761,098	17,630,261
	14	1,908,499	2,984,289	18,992,433
Qualified tax vs. qualified company 30% cash patronage	10	1,132,076	1,728,773	10,061,693
	12	1,232,221	1,862,640	10,811,370
	14	1,344,171	2,012,720	11,651,437
Nonqualified tax vs. nonqualified company	10	2,063,052	3,045,745	21,553,504
	12	2,250,442	3,199,912	23,198,654
	14	2,460,080	3,507,196	27,648,656

[a] $(TAX_{WC} - COMPANY_{WC})$.

cash payout from rapid-ACRS was lower, relative to the increase in cash payout from the ACRS-SL.

At a level of 30 percent cash patronage payout, the difference in working capital compounded at 10 percent was $10,016,693 in the eastern cooperative, but at a level of 45 percent cash patronage the amount jumped to $18,933,516. This was evident in Figures 3.7 to 3.9. A larger gap separated the TAX and COMPANY runs as the cooperative increased its cash patronage in each of the case cooperatives.

Total tax liability

The method used to recover the cost of fixed assets also affected both the cooperative tax liability and the member tax liability. In order to maximize the net benefits to members, the total tax liability between the cooperative and members should be minimized.

The total taxes were assumed (in the model) to be a combination of federal tax liability of the cooperative, and federal tax liability of the members plus the social security tax liability of members as a direct result of the earnings distribution from the cooperative. The state tax liabilities for the cooperative and for members were not included due to the variability in state taxation across the United States.

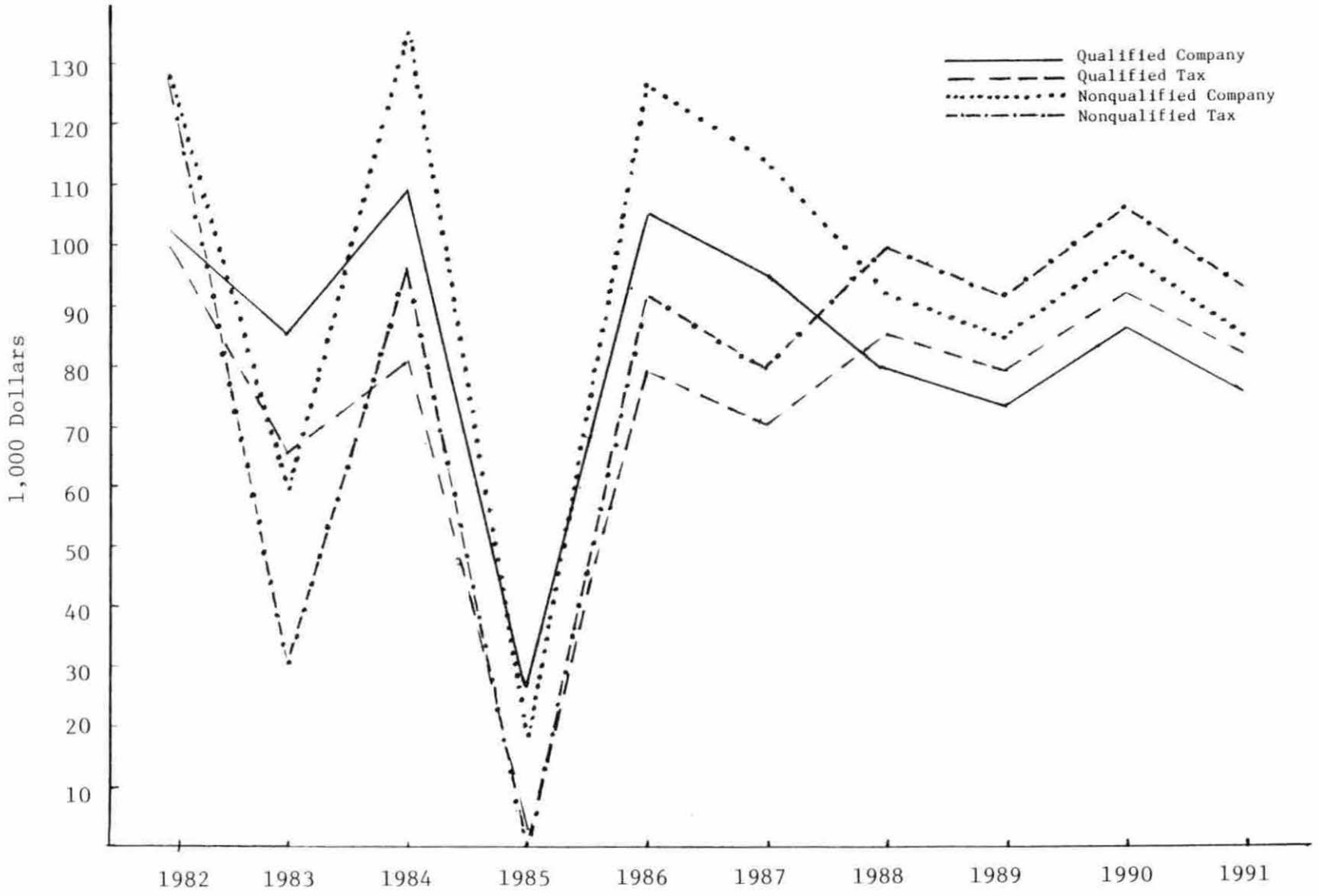

Figure 3.16 Iowa, Total Member and Corporate Tax Liability, Scenario 1

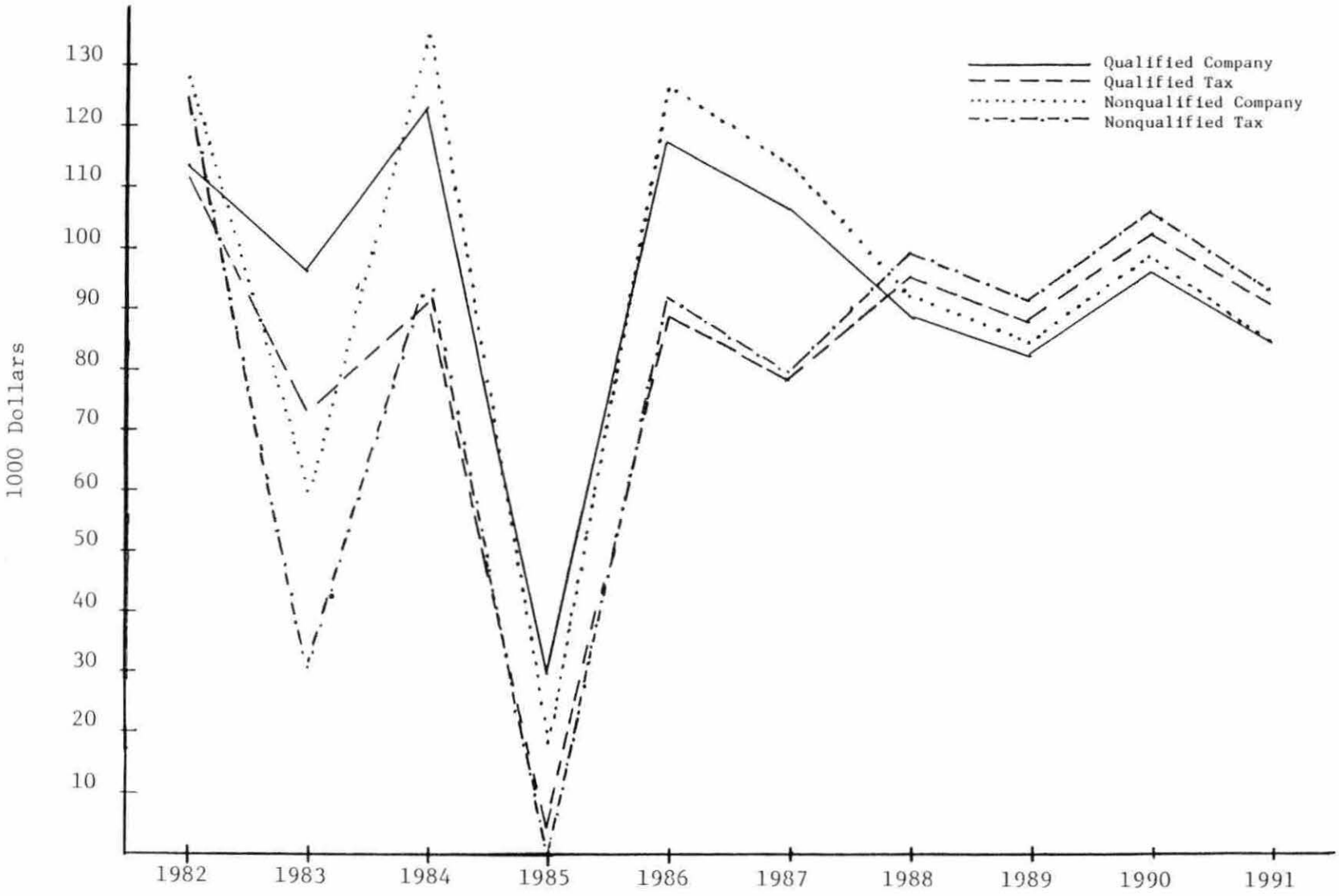

Figure 3.17 Iowa, Total Member and Corporate Tax Liability, Scenario 2

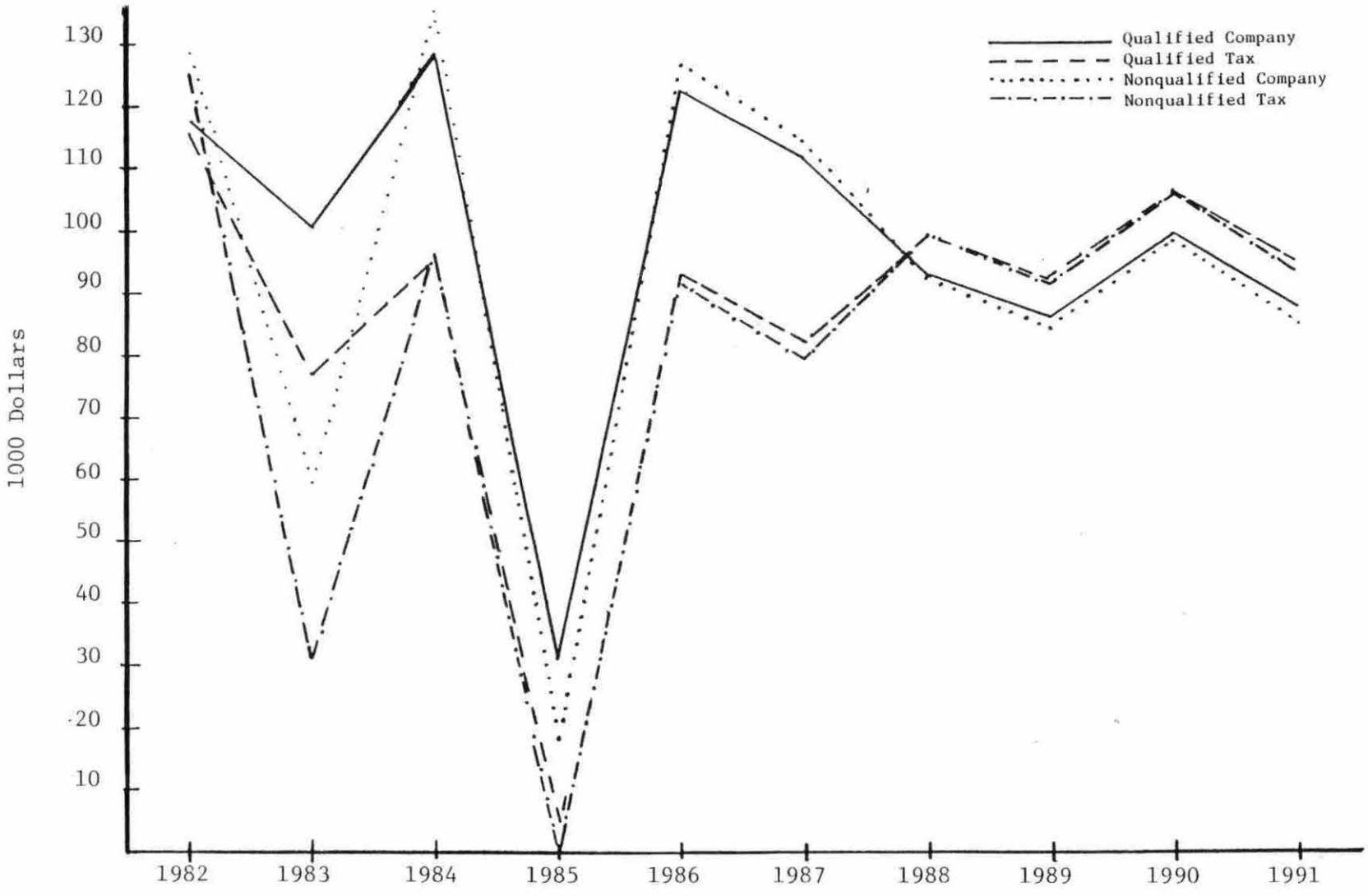

Figure 3.18 Iowa, Total Member and Corporate Tax Liability, Scenario 3

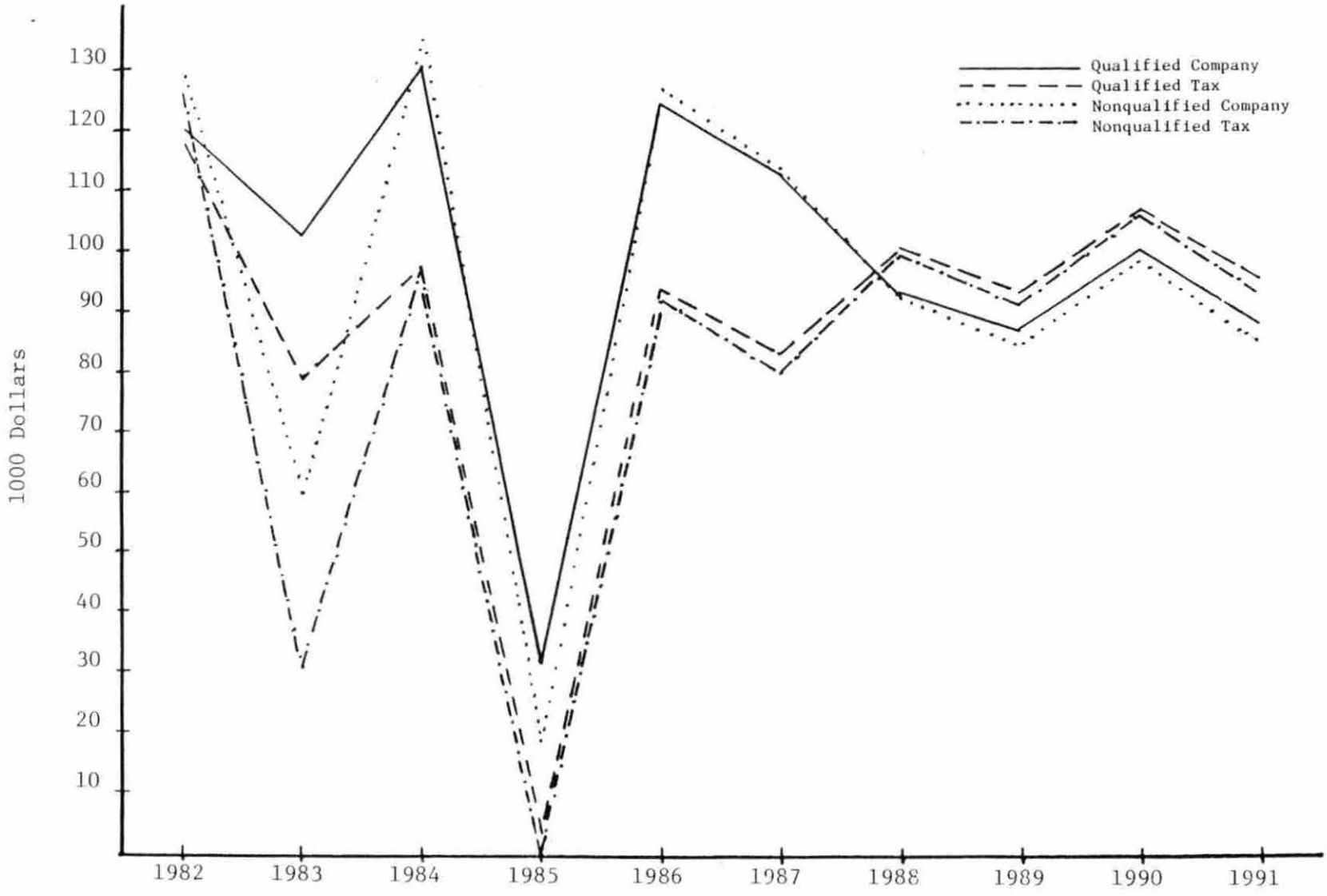

Figure 3.19 Iowa, Total Member and Corporate Tax Liability, Scenario 4

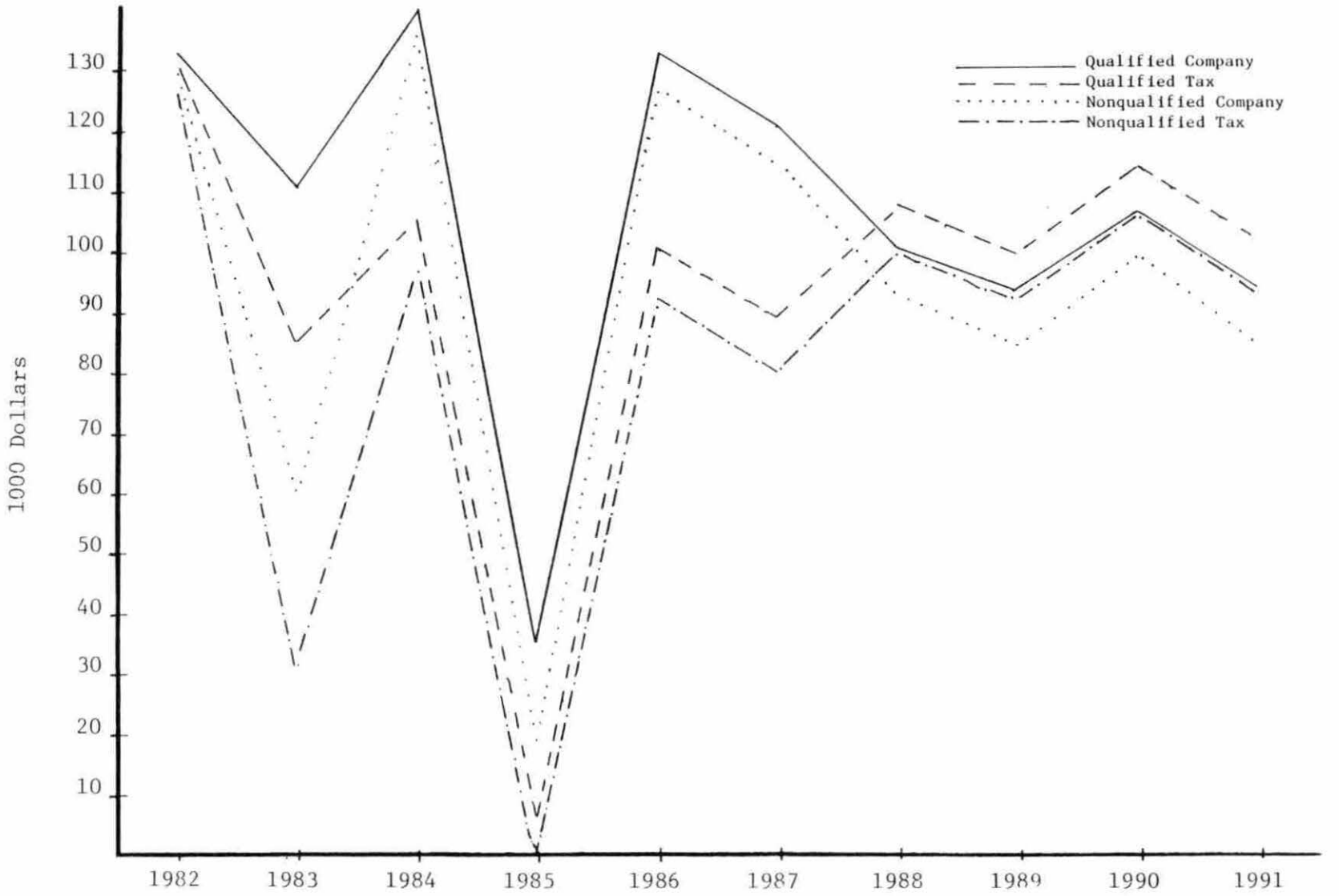

Figure 3.20 Iowa, Total Member and Corporate Tax Liability, Scenario 5

Figures 3.16-3.20 from the Iowa cooperative, reflect the pattern that was seen in all three cooperatives. Each of the five graphs shown was computed under a separate tax liability scenario. The scenarios differed according to assumptions in Chapter 2 about the distribution of member tax brackets. The aggregate members' tax liability increased as the average member tax bracket in the distribution "centered" at a higher marginal tax rate.

In general, the TAX lines fell below the COMPANY lines in earlier years simply because earnings were less in years under the rapid depreciation schedules permitted by ACRS. However, in 1983 the nonqualified COMPANY line fell below the qualified TAX line.

In 1983, the Iowa cooperative invested $525,000 in an elevator annex for their operations. The investment entitled them to $52,000 of investment tax credit. When the cooperative was distributing nonqualified equities, it was possible to take advantage of the ITC at the cooperative level. Their total tax bill was directly reduced by $48,375.

Furthermore, after using the available ITC at the cooperative level, the remaining $4,125 of ITC was passed on to the members. In the case of the qualified TAX distribution, the cooperative could use only $3,671 of ITC to reduce the corporate tax bill from the additions to capital surplus. The cooperative used $21,083 of the ITC as cash patronage to

members and $27,747 was returned to members in addition to the patronage.[2] Since members still received the same taxable distribution as they would have received without the ITC, only $27,747 of the ITC could be used to offset their total taxes.

In the later years, 1988-1991, the total tax pattern switched in the Iowa cooperative. The Iowa cooperative had only one large investment (in 1983). Since the investment was classified as Section 1245 5-year property in the TAX run, full cost recovery had been accomplished at the end of 1987. In the COMPANY run, the elevator addition was still being depreciated. Therefore, depreciation expense was larger and earnings were less than the earnings in the TAX runs. Consequently, the lower earnings level resulted in less taxes paid under the COMPANY run.

Examination of the results from the Indiana and eastern cooperatives shows that the same patterns were evident in the final projection year (see Figures 4.3-4.7 and Appendix Figures B.1-B.5). The nonqualified COMPANY line fell below the nonqualified TAX line. The higher the average tax bracket of the members (i.e. moving from scenario 1 to scenario 5), the larger the gaps between the qualified COMPANY and the qualified TAX lines. The pattern was evident in all three of

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[2]Under cooperative tax statutes investment tax credits may be passed to members in lieu of cash patronage payments if the cooperative cannot use them.

the cooperatives. This implied that the difference between the COMPANY-taxable distribution and the TAX-taxable distribution became more important as members' tax liability "centered" at higher marginal tax brackets.

Using rapid-ACRS depreciation had the effect of delaying taxes. Thus, the time value of money was measured. Table 3.7 shows future value comparisons of taxes paid between TAX and COMPANY runs for selected scenarios. Separate comparisons were made under the assumption that a qualified distribution was made and under the assumption that a nonqualified distribution was made.

The compounded differences between the qualified distributions increased from scenario 1 to scenario 5. These were calculated by subtracting the COMPANY total taxes paid from the TAX total taxes paid each year. The differences were then multiplied by the appropriate future value factor coefficient and the resulting values were summed over the ten years.[3] The results indicated that the total tax savings

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[3] $\sum_{n=1}^{10} [(Tax_{TTL} - Company_{TTL}) * FVCF_{i,n}]$,

Tax_{TTL} = total tax liability from tax run,

$Company_{TTL}$ = total tax liability from company run,

n = year, i = interest rate,

$FVCF_{i,n} = \frac{1}{(1+i)^n}$.

Table 3.7 Future value, total member and corporate tax liability - tax vs. company[a]

Type of comparison	Compound rate	Iowa	Indiana	Eastern
Qualified tax vs. qualified company Scenario 1	10%	$(214,039)	$(394,125)	$(3,577,661)
	12	(246,207)	(442,199)	(3,973,794)
	14	(282,534)	(492,134)	(4,418,147)
Qualified tax vs. qualified company Scenario 2	10	(240,265)	(442,345)	(4,035,304)
	12	(276,529)	(494,283)	(4,483,076)
	14	(317,213)	(552,355)	(4,985,203)
Qualified tax vs. qualified company Scenario 5	10	(271,659)	(501,033)	(4,587,961)
	12	(312,796)	(559,941)	(5,098,629)
	14	(358,953)	(625,810)	(5,671,348)
Nonqualified tax vs. nonqualified company Scenario 1	10	(269,952)	(637,341)	(4,721,761)
	12	(311,396)	(712,305)	(5,247,931)
	14	(379,917)	(796,129)	(5,838,029)
Nonqualified tax vs. nonqualified company Scenario 2	10	(269,952)	(637,178)	(4,789,753)
	12	(311,396)	(712,121)	(5,323,144)
	14	(379,917)	(795,920)	(5,921,330)
Nonqualified tax vs. nonqualified company Scenario 5	10	(269,952)	(636,967)	(5,311,054)
	12	(311,396)	(711,881)	(5,894,643)
	14	(379,917)	(790,326)	(6,549,625)

[a] $(TAX_{TTL} - COMPANY_{TTL})$.

increased as the average tax bracket of members increased in all the qualified cases if the cooperatives used rapid-ACRS instead of ACRS-SL.

This was not the case when the cooperative distributed nonqualifieds. In the Indiana cooperative, the total tax savings became less as the members moved to higher tax brackets. Compounding at 10 percent, the absolute value of the savings decreased from $637,341 to 636,967. When nonqualifieds were distributed, members did not pay taxes on their distribution. Thus, the only important factor was the cooperative (corporate) federal tax rate. Impacts of social security tax were also absent.

The Indiana and eastern cooperatives paid dividends on preferred stock in addition to the nonqualified distributions. Both the cooperative and members paid taxes on these dividends. Therefore, member tax liabilities occurred even though nonqualified equities were issued. This was not the case in the Iowa cooperative where no dividends were paid.

Because members paid social security taxes and these taxes are very regressive, the lower average tax brackets (scenarios 1 and 2) were affected the most (Appendix Figures B.6-B.10). The members in the higher average tax brackets (scenarios 4 and 5) were already paying the maximum amount of social security tax regardless of the dividends they received. Hence, they were not affected.

In the eastern cooperative, another factor entered the analysis. The cooperative maintained no unallocated capital surplus. Therefore, when the losses were sustained the cooperative was forced to pass the losses on to their members. The difference between the COMPANY and TAX lines on the member federal tax graphs was larger as the average tax bracket increased (Appendix Figures B.11-B.15). Therefore, the compounded values increased from scenario 1 through scenario 5.

Member's net cash flow

The method of depreciating fixed assets had implications for the member's net cash flow from the cooperative earnings distribution. The level of cash patronage paid by the cooperative (as a portion of the qualified distribution) was also important. The results in all three cooperatives indicated that at a level of 30 percent cash patronage the members received more net cash when rapid-ACRS was used. This was true without regard to the average tax bracket of the member. In part, this can be explained by the fact that with rapid-ACRS they were receiving a smaller taxable distribution.[4] The cash distribution associated with the

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[4]For example, members in the 40 percent tax bracket may receive a qualified distribution of $80 when rapid-ACRS is used and $100 if ACRS-SL is used. They both receive 30 percent of the distribution in cash than the rapid-ACRS results in -$8 to members while ACRS-SL results in -$10 to members.

COMPANY runs was not large enough to cover the tax liabilities that must be paid on the larger qualified distribution received. In addition to this, the ITC available to pass to members in rapid-ACRS runs was greater than the ITC passed to members in ACRS-SL runs. This is because the earnings were larger in ACRS-SL runs, thus, more ITC was used to cover the tax liability on the additions to capital surplus and to pay out cash patronage to members than in rapid-ACRS runs. At lower levels of cash patronage, the relative importance of ITC passed to members was greater than at higher levels of cash patronage.

Figures 3.21-3.29 show the net cash flow to members at 30, 40, and 45 percent cash patronage for members in the Iowa cooperative in different tax brackets under the assumption of scenarios 1, 4, and 5 (Appendix Figures B.16-B.33).[5] The TAX lines were above the COMPANY lines for both qualified and nonqualified runs at 30 percent cash patronage.

At cash patronage levels of 40 and 45 percent, it is more difficult to see whether members were better off with rapid-

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[5]The total cash flow to members in the same tax brackets but different scenarios will not be the same because of the assumption of the five scenarios of member distribution discussed in Chapter 2. For example, the members of the 35% tax bracket in Scenario 1 receive less total cash flow than the members of the 35% tax bracket in Scenario 3. Thus, the scenarios are not comparable in this manner.

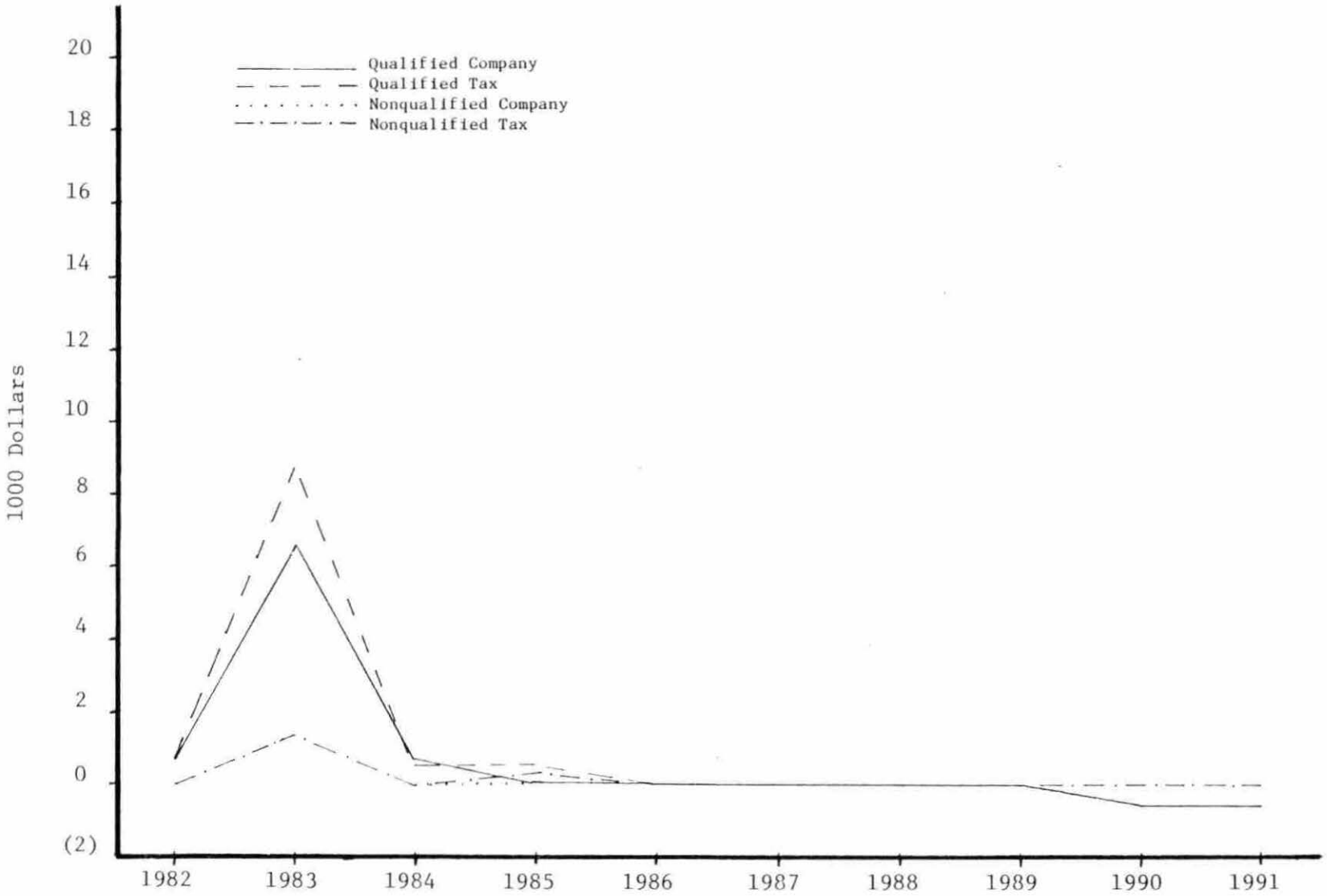

Figure 3.21 Iowa, Net Cash Flow to Members, 20% Tax Bracket, Scenario 1, 30% Cash Patronage

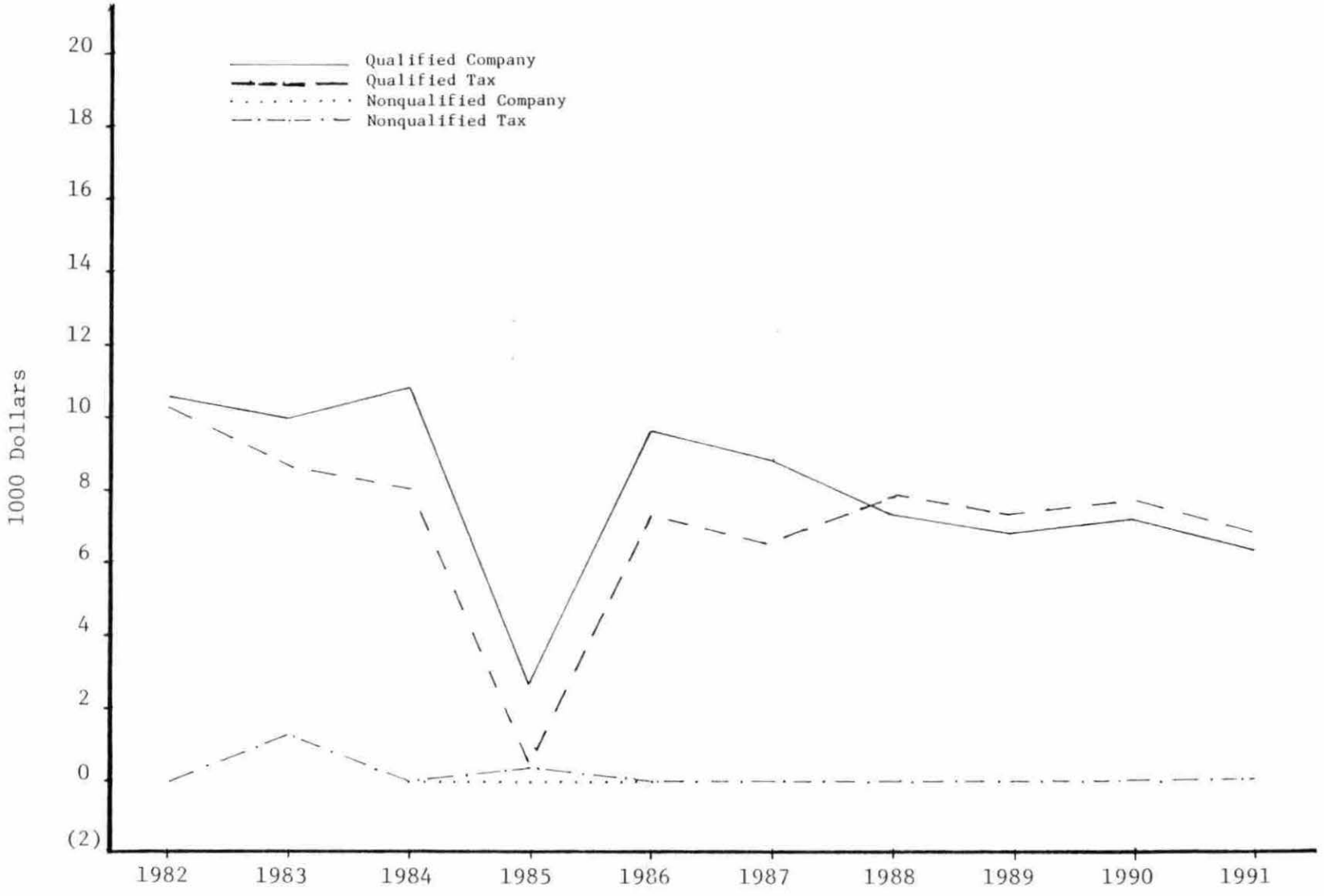

Figure 3.22 Iowa, Net Cash Flow to Members, 20% Tax Bracket, Scenario 1, 40% Cash Patronage

Figure 3.23 Iowa, Net Cash Flow to Members, 20% Tax Bracket, Scenario 1, 45% Cash Patronage

Figure 3.24 Iowa, Net Cash Flow to Members, 35% Tax Bracket, Scenario 4, 30% Cash Patronage

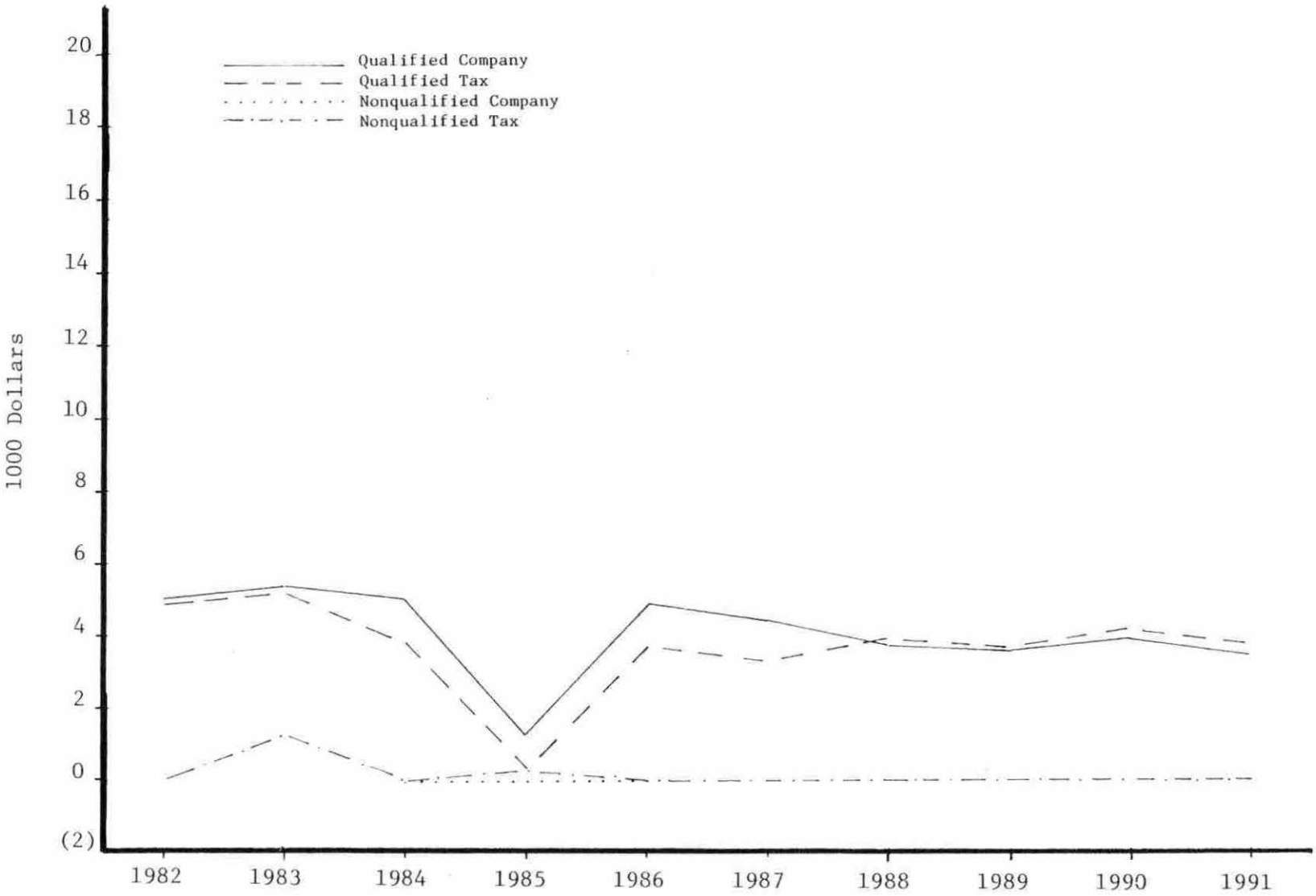

Figure 3.25 Iowa, Net Cash Flow to Members, 35% Tax Bracket, Scenario 4, 40% Cash Patronage

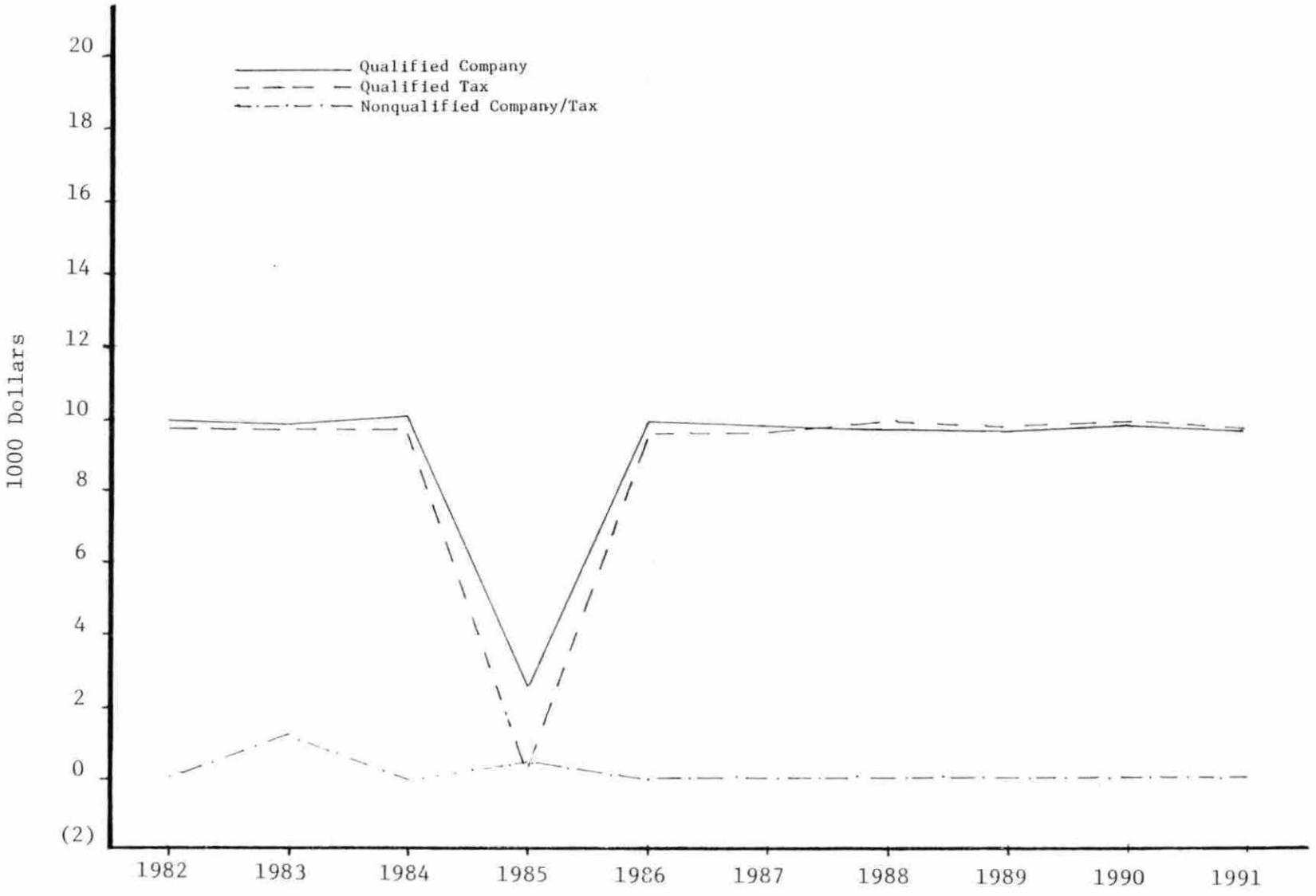

Figure 3.26 Iowa, Net Cash Flow to Members, 35% Tax Bracket, Scenario 4, 45% Cash Patronage

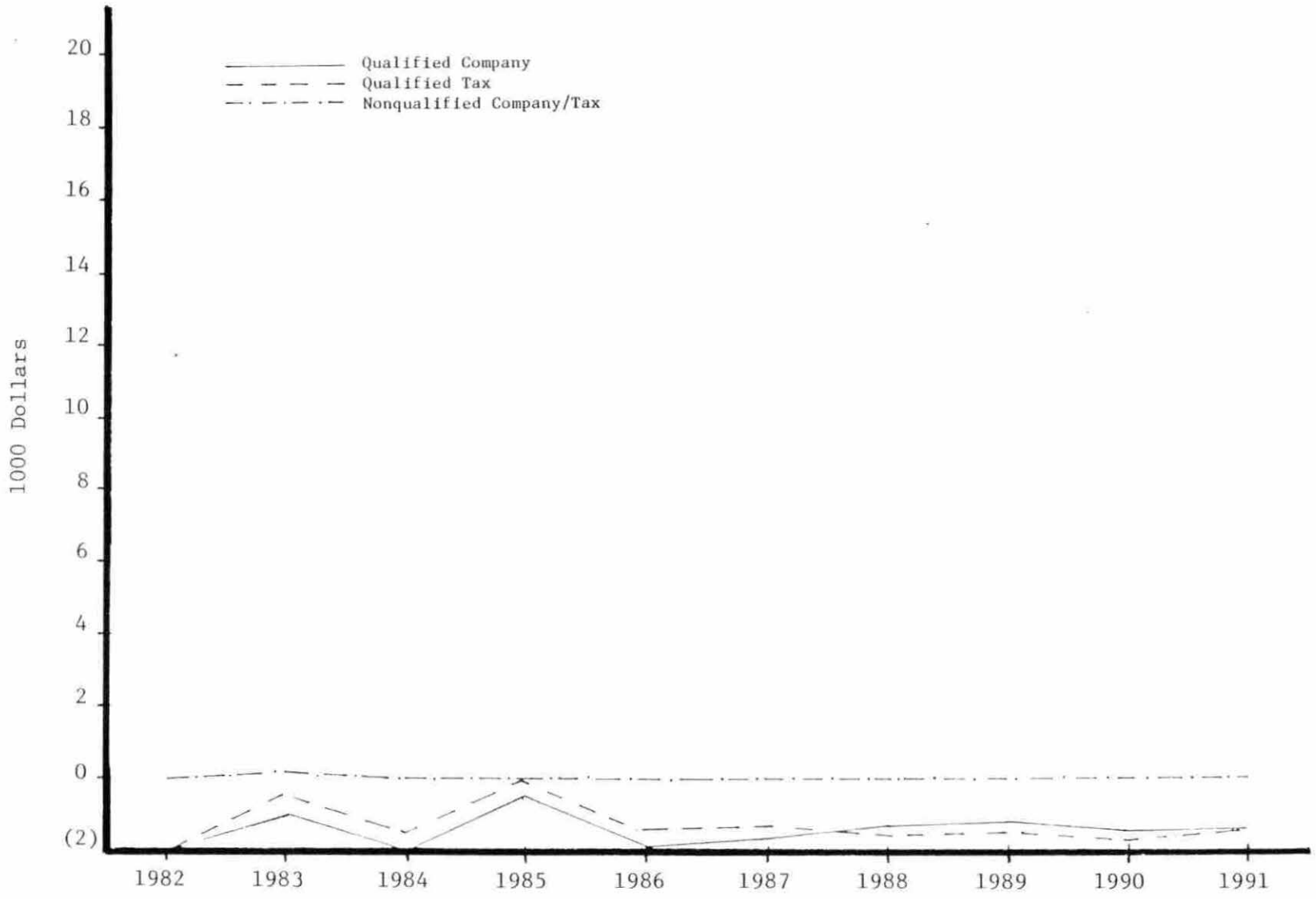

Figure 3.27 Iowa, Net Cash Flow to Members, 50% Tax Bracket, Scenario 5, 30% Cash Patronage

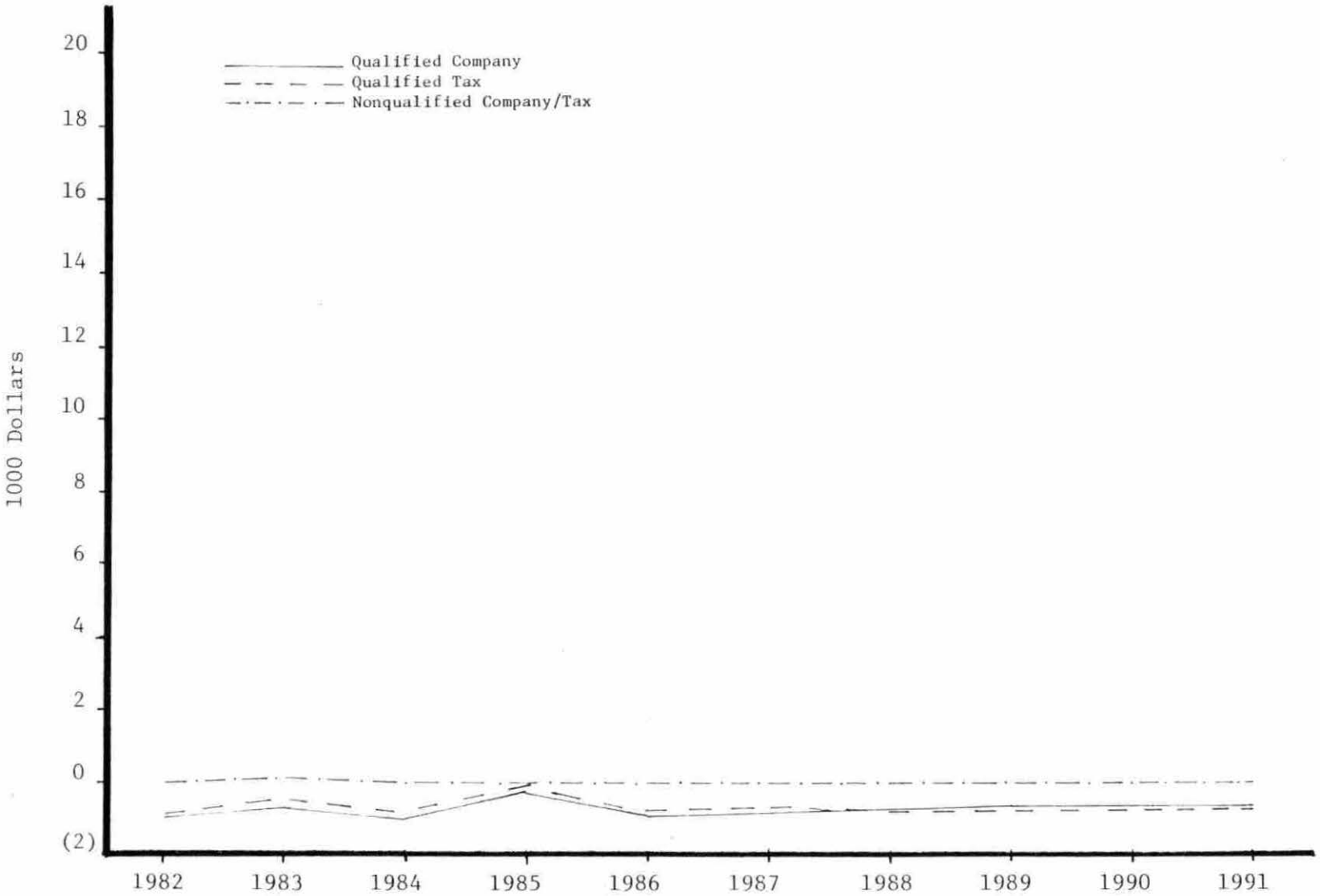

Figure 3.28 Iowa, Net Cash Flow to Members, 50% Tax Bracket, Scenario 5, 40% Cash Patronage

Figure 3.29 Iowa, Net Cash Flow to Members, 50% Tax Bracket, Scenario 5, 45% Cash Patronage

ACRS depreciation or ACRS-SL depreciation by looking at the graphs. The level of cash did not affect the nonqualified net cash flow because it was assumed that the entire nonqualified distribution was paid in nontaxable equities. Since only nonqualified allocated equities were being distributed, the entire tax liability fell at the cooperative level.

The stream of cash flow to members over the entire 10 years was considered. Table 3.8 is a comparison of the qualified TAX results and the qualified COMPANY results. The difference between the two net cash flow values for members each year was calculated over the 10 year period. The values were then multiplied by the appropriate future value factors and the resulting values were summed over the 10 years.[6]

At 30 percent cash patronage, the compounded numbers are positive confirming that the net cash flow to members from TAX runs is greater than the net cash flow to members from COMPANY runs. The Iowa and Indiana cooperatives have the same pattern. If the cooperative's member tax bracket distribution

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[6] $\sum_{n=1}^{10} [(Tax_{NCF} - Company_{NCF}) * FVCF_{i,n}]$,

Tax_{NCF} = net cash flow to members from TAX run,

$Company_{NCF}$ = net cash flow to members from COMPANY run,

n = year, i = interest rate,

$FVCF_{i,n} = \frac{1}{(1+i)^n}$.

Table 3.8 Future value, net cash flow to members - qualified tax vs. qualified company[a]

Type of comparison	Compound rate	Iowa	Indiana	Eastern
Scenario 1				
20% tax bracket				
30% cash	10%	$5,519	$12,828	$346,414
	12	6,438	14,264	394,358
	14	7,556	15,857	432,096
Scenario 1				
20% tax bracket				
40% cash	10	(18,472)	(38,140)	24,967
	12	(21,234)	(42,656)	25,151
	14	(24,320)	(47,707)	25,964
Scenario 1				
20% tax bracket				
45% cash	10	(30,458)	(56,884)	(229,224)
	12	(35,070)	(63,606)	(252,947)
	14	(41,180)	(71,123)	(297,153)
Scenario 4				
35% tax bracket				
30% cash	10	16,260	33,929	496,713
	12	18,826	37,862	553,564
	14	21,751	42,244	617,393
Scenario 4				
35% tax bracket				
40% cash	10	(4,075)	(18,741)	188,528
	12	(4,726)	(20,946)	211,195
	14	(5,444)	(23,412)	237,220
Scenario 4				
35% tax bracket				
45% cash	10	(19,762)	(37,489)	41,030
	12	(22,756)	(41,900)	52,097
	14	(26,118)	(46,833)	64,411
Scenario 5				
50% tax bracket				
30% cash	10	4,588	8,839	111,662
	12	5,293	9,875	124,581
	14	6,090	11,031	139,033
Scenario 5				
50% tax bracket				
40% cash	10	2,183	3,749	62,271
	12	2,517	4,190	69,528
	14	2,894	4,683	77,719
Scenario 5				
50% tax bracket				
45% cash	10	991	1,873	46,415
	12	1,141	2,094	51,803
	14	1,310	2,340	56,123

[a](QUALIFIED $\underline{\text{TAX}}_{NCF}$ - QUALIFIED $\underline{\text{COMPANY}}_{NCF}$).

fits scenario 1 or scenario 4, a 40 percent and a 45 percent cash patronage will result in more cash flow to members by using ACRS-SL. However, if the distribution of member tax brackets centers at a higher average tax bracket even at a level of 45 percent cash patronage members receive more by using rapid-ACRS. In the case of the 50 percent tax bracket, they will have to pay less (not receive more) since in almost every year their net cash flow was negative.

The members in the eastern cooperative were in a different net cash flow position. The only situation where members were better off with ACRS-SL (received more net cash flow) was when the average tax bracket of members was very low (scenario 1) and when the cooperative was paying 45 percent cash patronage. In every other case, the cooperative benefitted members more by using rapid-ACRS.

The primary reason that the net cash flow to members in the eastern cooperative differed from the other two cooperatives was the two loss years they encountered. The fact that they passed the loss to their members instead of reducing capital surplus allowed the members to enjoy large tax savings in those years. On the graphs, the peak year was 1987. The gap between the TAX and COMPANY runs was greatest in that year. Furthermore, the gap was large enough to have a major impact on the overall outcome of member net cash flow for the entire 10 year period. Without the loss, the net cash

flow to members would probably look more like the net cash flow to members in the Indiana and Iowa cooperatives.

Member equity

At this point, it is necessary to examine the impacts of the Book-to-Tax (BTT) system of accounting. Book-to-tax is a means of reconciling differences when allocations are made on the basis of COMPANY earnings and TAX earnings. BTT is necessary only for equity measurement. (The previous results were not changed as a result of using BTT accounting.) Figures 3.30-3.38 show the trend in allocated equities when five different methods of allocation occur. They include: (1) qualified equities-COMPANY run; (2) qualified equities-TAX run; (3) nonqualified equities-COMPANY run; (4) nonqualified equities-TAX run; and (5) nonqualified equities-BTT run.

By simply looking at the bottom four lines, the allocated equity from TAX runs was generally lower (at least until 45 percent cash patronage was paid). These results were not surprising in view of the investment patterns that were assumed. In the earlier years, the depreciation expense from the TAX runs was so much greater than the depreciation expense of COMPANY runs that earnings were substantially lower. As a direct consequence of lower earnings in those years, the earnings distributions were smaller in the TAX runs.

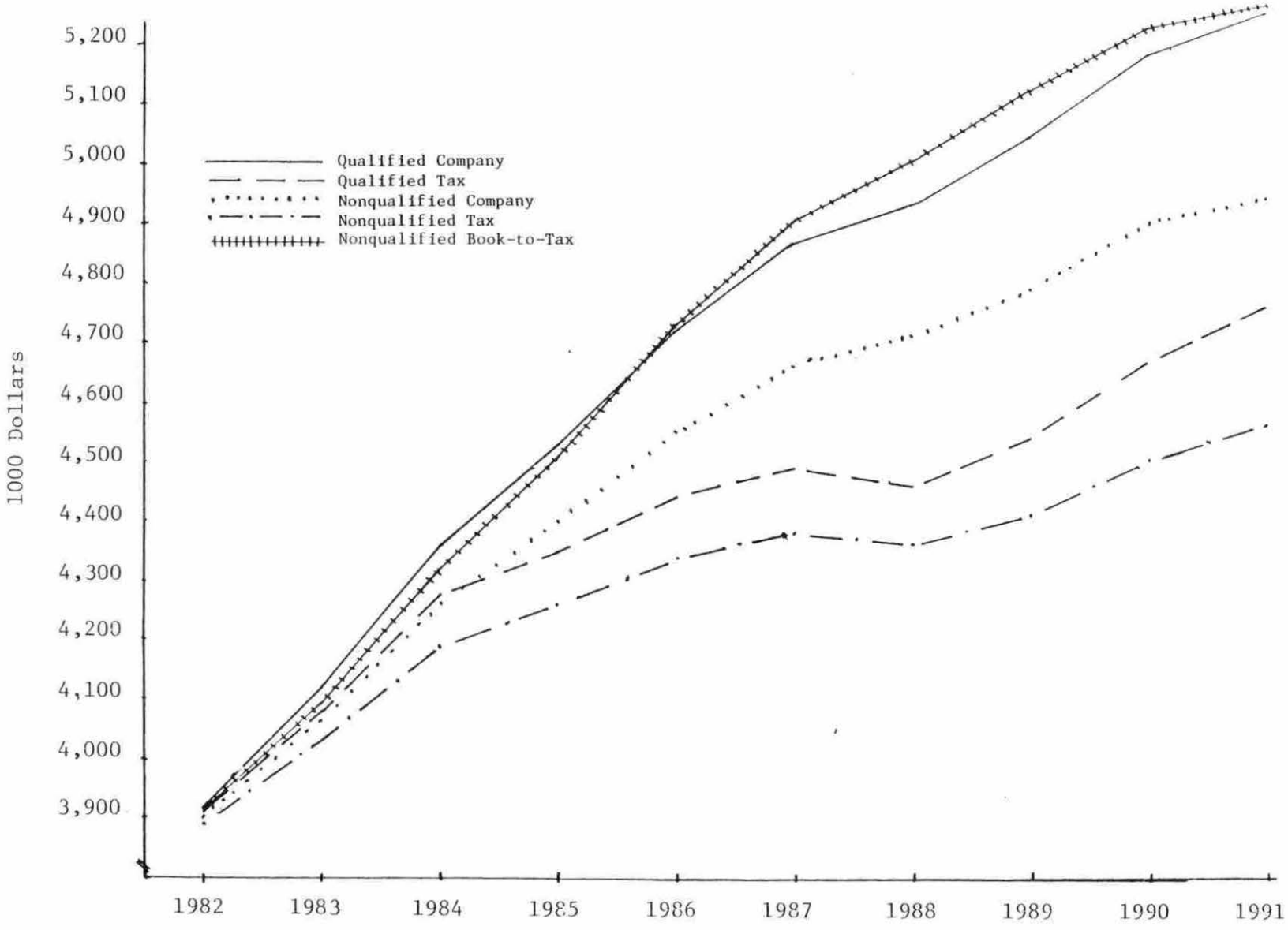

Figure 3.30 Indiana, Allocated Equities, 30% Cash Patronage

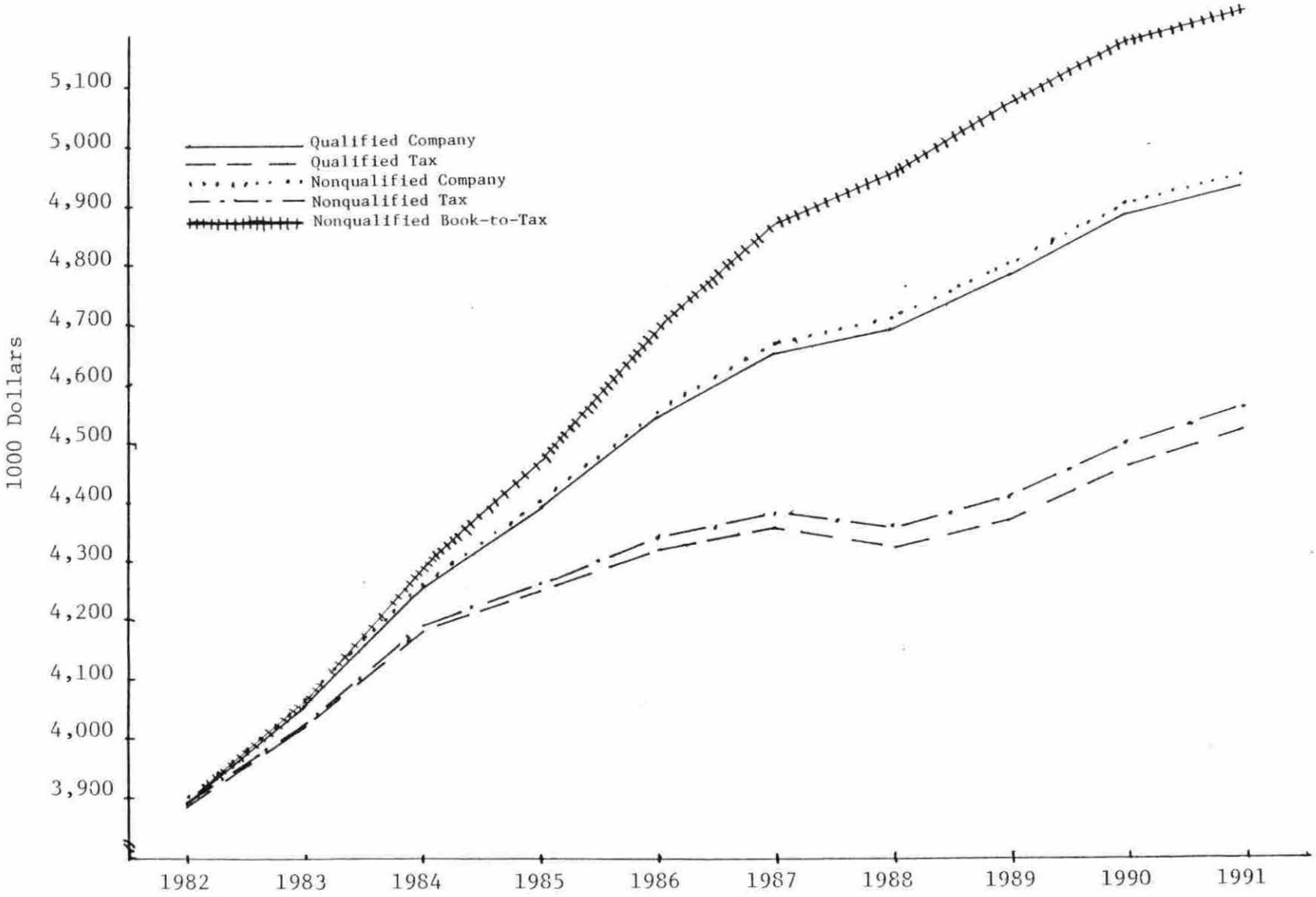

Figure 3.31 Indiana, Allocated Equities, 40% Cash Patronage

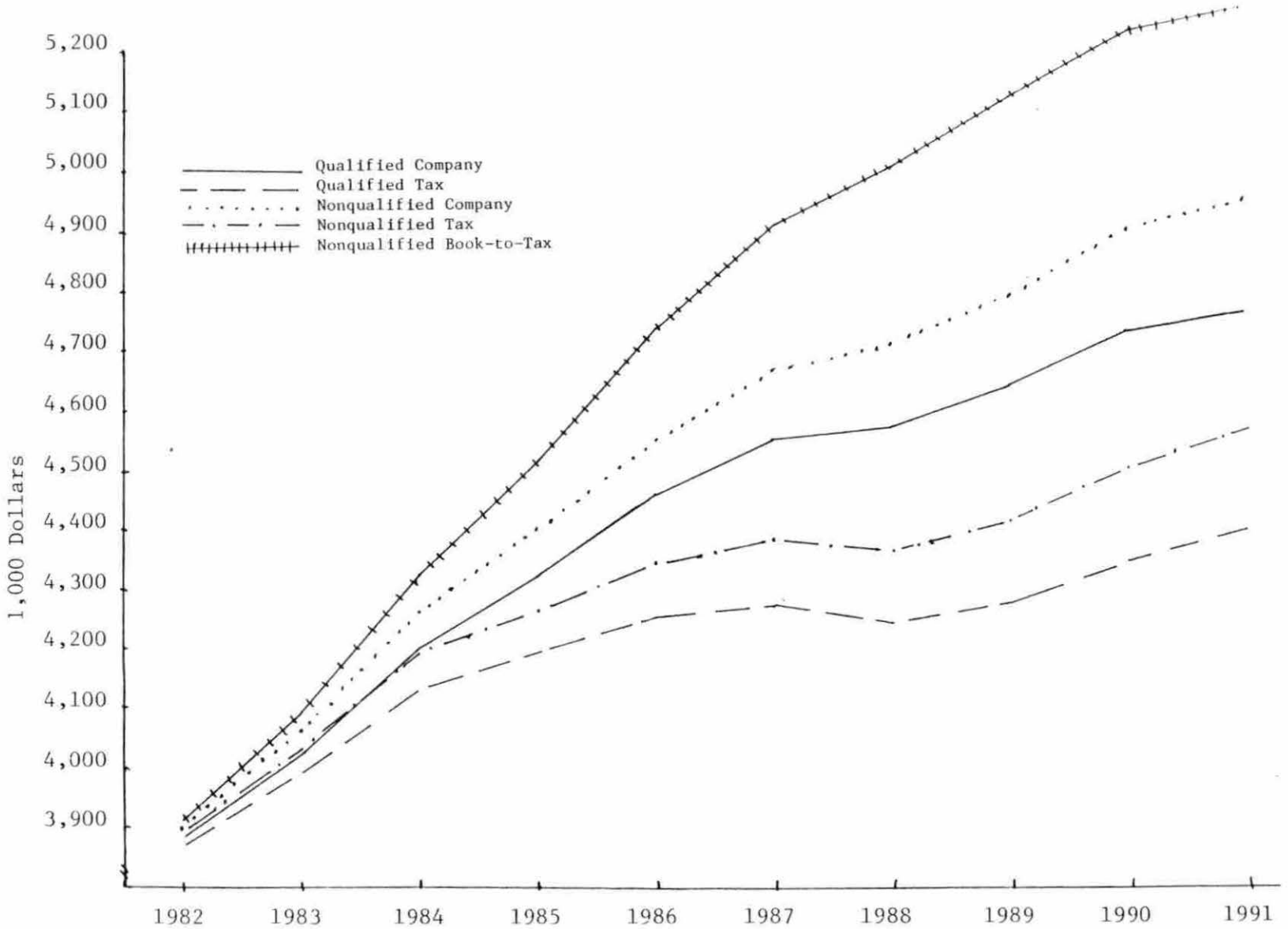

Figure 3.32 Indiana, Allocated Equities, 45% Cash Patronage

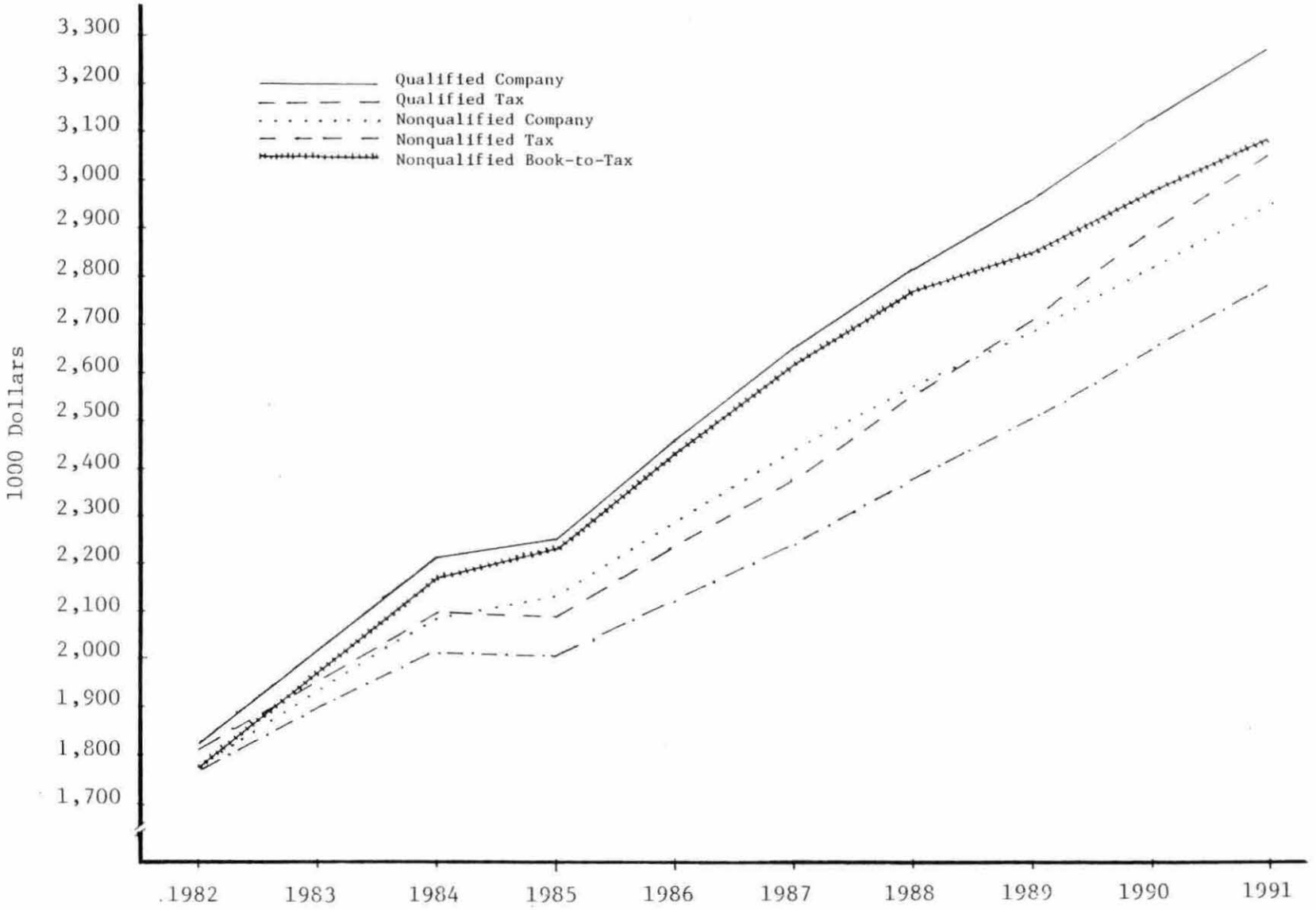

Figure 3.33 Iowa, Allocated Equities, 30% Cash Patronage

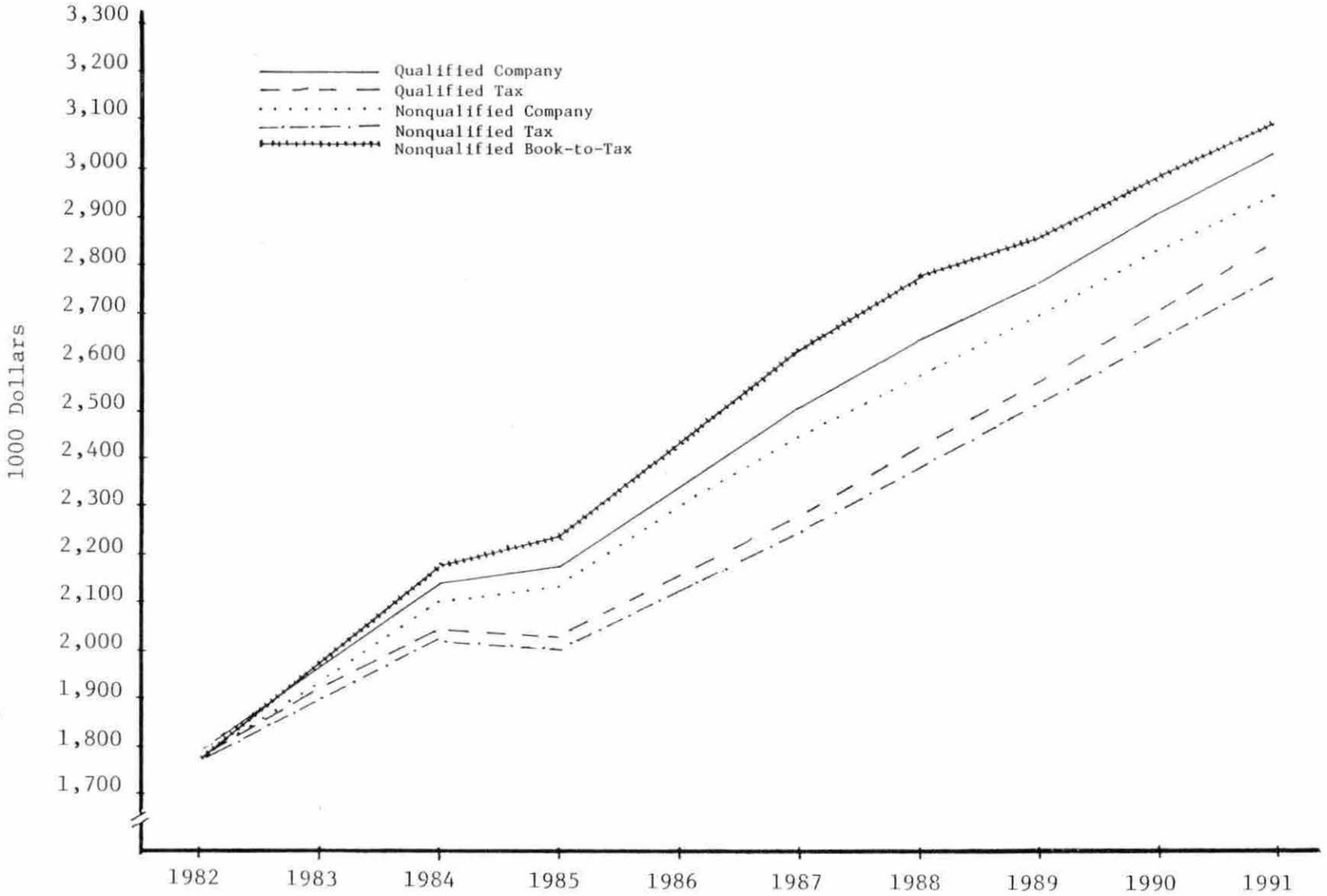

Figure 3.34 Iowa, Allocated Equities, 40% Cash Patronage

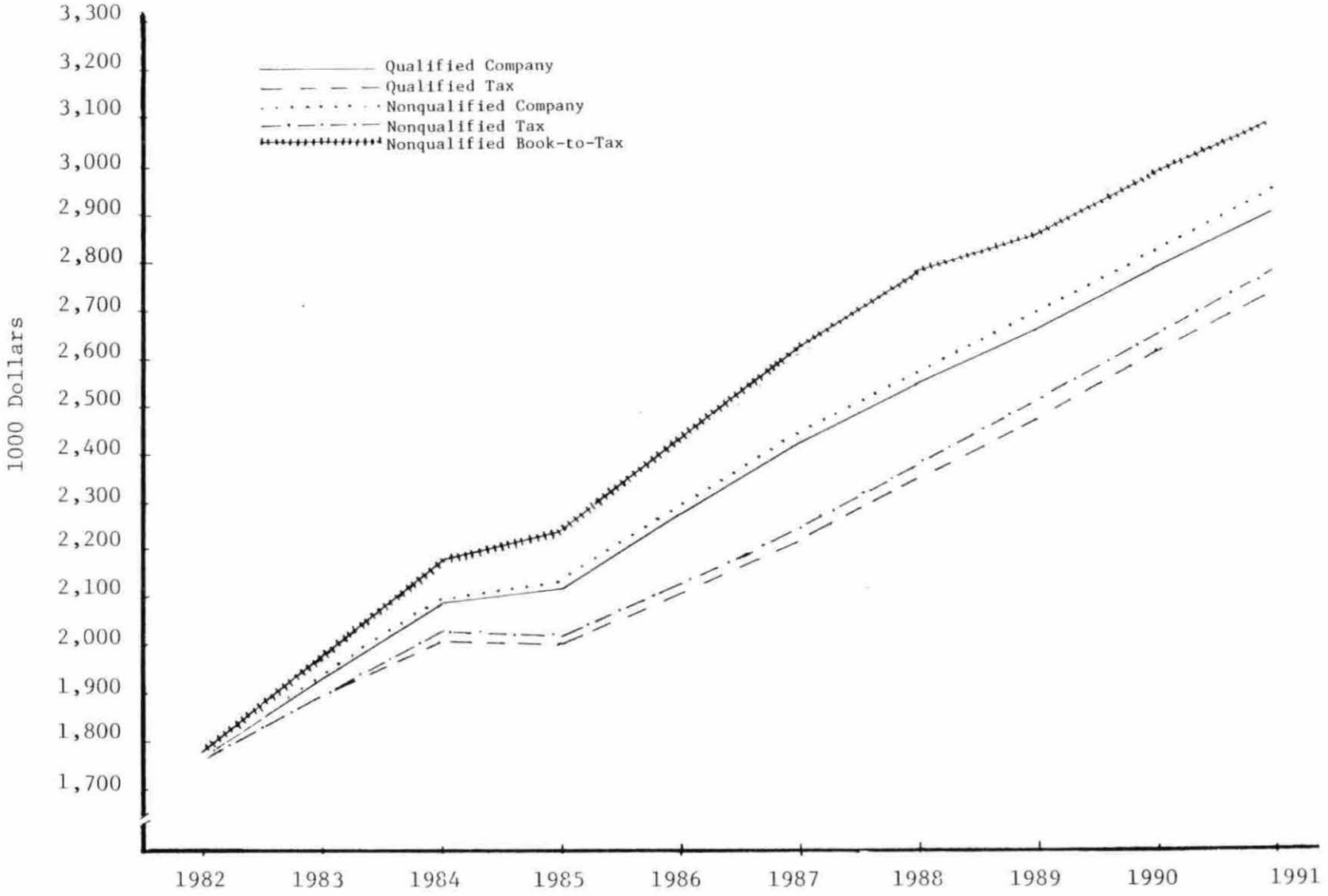

Figure 3.35 Iowa, Allocated Equities, 45% Cash Patronage

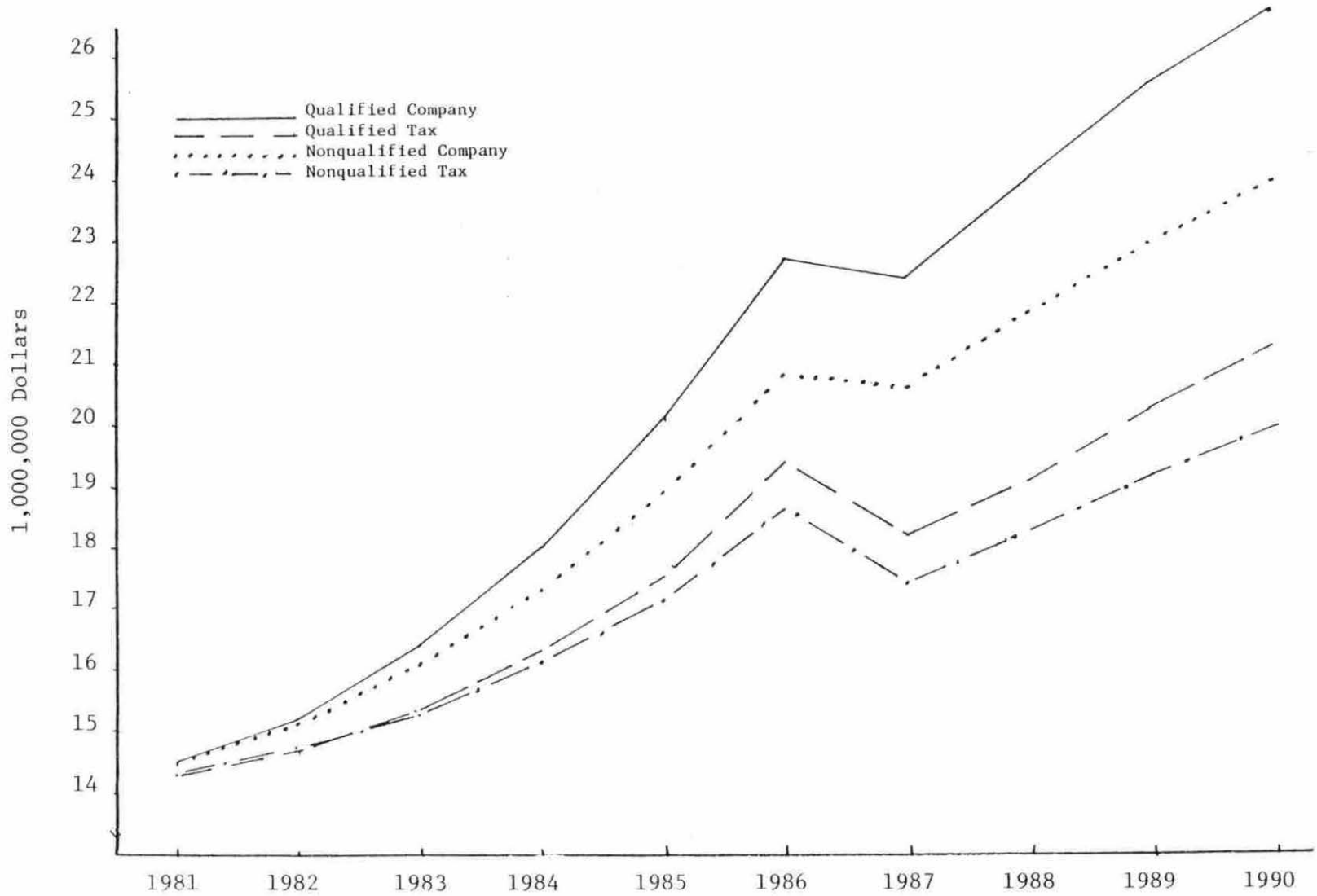

Figure 3.36 Eastern, Allocated Equities, 30% Cash Patronage

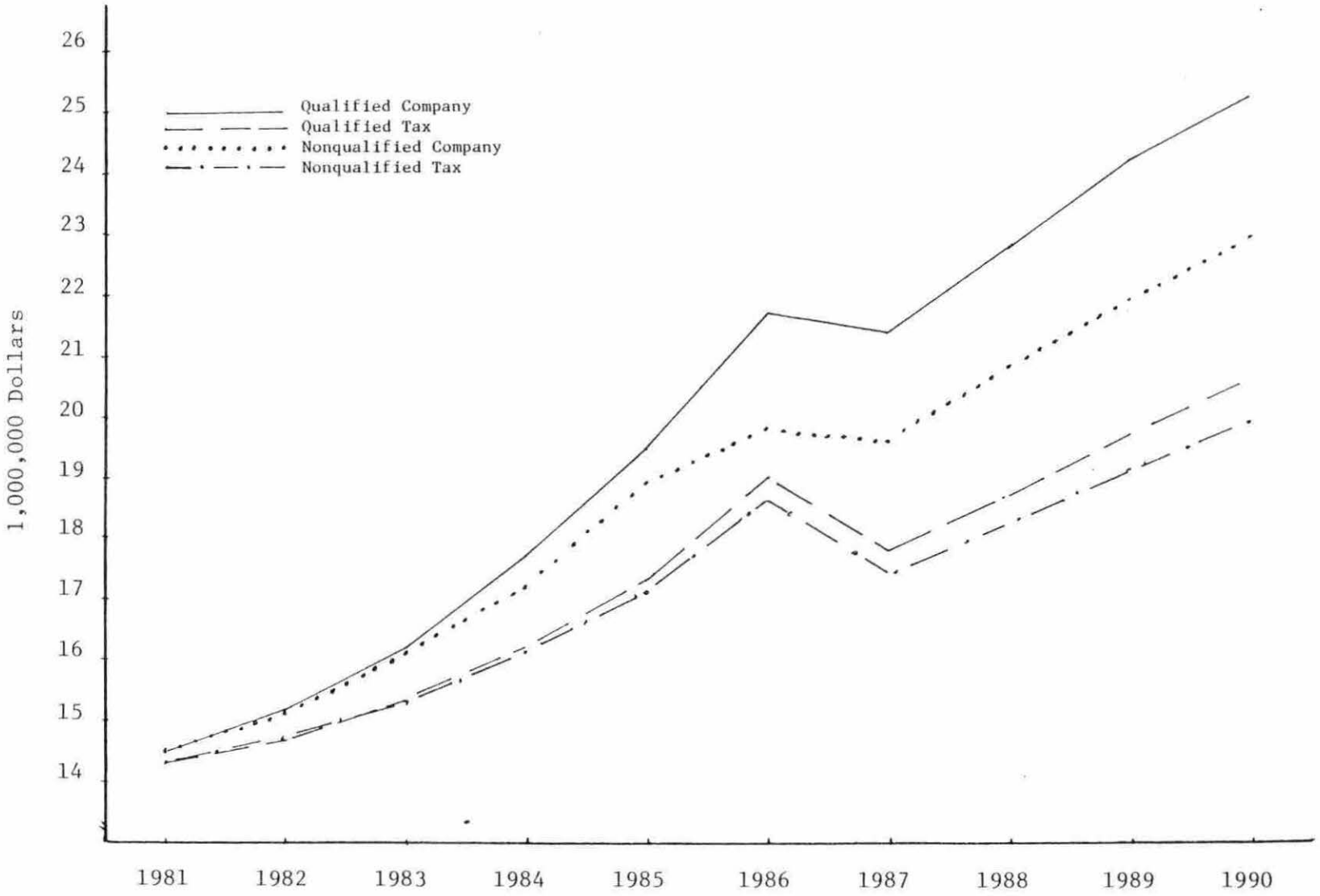

Figure 3.37 Eastern, Allocated Equities, 40% Cash Patronage

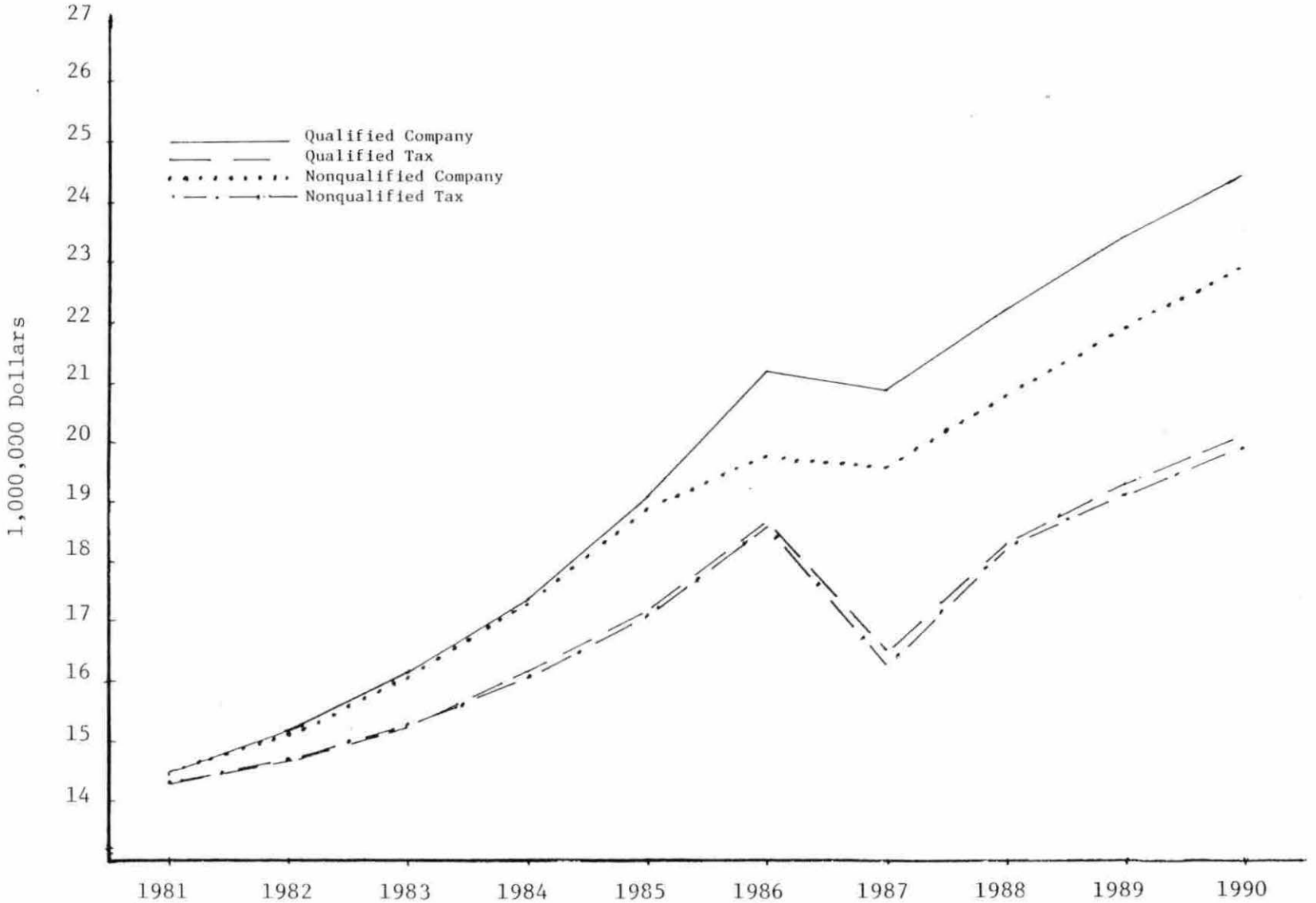

Figure 3.38 Eastern, Allocated Equities, 45% Cash Patronage

If the runs had gone beyond 10 years and no additional investments had been made, the pattern would have changed [27] . The COMPANY run would have had lower earnings (and smaller distributions). COMPANY runs would still have depreciation expense on a straight-line basis. The reduction in distributable earnings due to depreciation expense takes place over a much longer period. Consequently, the distributions to members from straight-line depreciation would not fluctuate to the degree that they fluctuate in the TAX runs. The COMPANY earnings therefore tended to be higher than TAX earnings in the initial years and lower than TAX in latter years.

In the TAX runs, members in the early years did not receive as large a distribution relative to members in later years. Because the depreciation expense fell entirely on the members in the first five years of the asset life, a radical change occurred in the sixth year.

As long as the membership and the volume of business done by individual members does not change, there would not be a serious problem. In later years, the same members would receive larger distributions in equal proportion. But if membership does change or the proportion of volume changes, all members are not treated fairly and equitably. At this point, rapid-ACRS could be rejected because it does not provide fair and equitable treatment to members over time.

However, the BTT system of accounting can be used to resolve the problem.

In the provisions in ERTA-1981, cooperatives are allowed to pay taxes on TAX (rapid-ACRS) earnings and to distribute allocations based on COMPANY (ACRS-SL) earnings. They are allowed to create a reserve for excess rapid-ACRS depreciation. Nonqualifieds may be issued to current members against the reserve.

This increases the accounting responsibilities of the cooperative but the results indicate that the benefit BTT provides members may well be worth the extra effort and time. The top line on the graphs were from the nonqualified BTT runs. Nonqualified allocated equities grew at a faster rate when BTT was implemented. This occurred because in the BTT run, the difference between the rapid-ACRS depreciation expense and the ACRS-SL depreciation expenses was put into a reserve account in the equity section. The reserve account was offset by a corresponding increase (decrease) in nonqualified allocated equities to cover 90 percent of the reserve. An increase (decrease) in capital surplus to cover 10 percent of earnings from nonmember sourced business accounted for the remainder of the reserve. Total member equity remained unchanged as a result of this (Appendix Figures B.34-B.42).

The ACRS-reserve is an unallocated equity account, but it is actual equity the cooperative has as a result of the rapid-

ACRS depreciation. Since the cooperative paid taxes based on TAX earnings, they paid less in earlier years than if they had paid taxes based on COMPANY earnings. This decreased tax liability in earlier years was a source of additional equity for the cooperative. The quantity of the equity increased rapidly during the rapid-ACRS depreciation period and declined slowly as the deferred taxes are paid out in later years.

Summary

This chapter provided an analysis of several possible methods of earnings distribution. Distributions under two alternative methods of calculating net earnings were examined.

Earnings were calculated in accordance with the new laws governing depreciation as established by ERTA-1981. The two depreciation methods examined were rapid-ACRS and ACRS-SL. In general, net earnings were less when rapid-ACRS was used with a constant stream of investments. Other results were as follows:

1) Rapid-ACRS generated more working capital than straight line. Differences between the ACRS working capital and the straight-line working capital increased as the percentage of earnings paid out in cash increased. This was due to the fact that a fixed percent payout was applied to a lower earnings figure.

2) As the average tax bracket of members increased the total tax savings from issuing qualified patronage increased if rapid-ACRS depreciation was used and allocations were made on the basis of the tax runs.

3) At a level of 30 percent cash patronage, all members received higher net cash flow if rapid-ACRS was used; beyond 30 percent this was not true.

4) Using ACRS-SL when the average tax bracket of members was low resulted in more cash flow to members even when the cooperative was paying 45 percent of its earnings in cash patronage.

5) Allocated equities grew fastest when BTT accounting was used and nonqualified allocations were distributed to members. Allocated equities (qualifed and nonqualified) grew to levels above either the TAX or the COMPANY when earnings were caluculated on the basis of TAX for computing corporate taxable income and distributed on the basis of COMPANY. These equities can be seen, however, only if a BTT statement reconciling BTT differences is prepared.

6) Capital surplus grew at a faster rate under both qualified and nonqualified distribution when ACRS-SL was used rather than rapid-ACRS.

7) The debt to equity ratio increased slightly when rapid-ACRS was used instead of ACRS-SL. This was due to the

fact that the BTT entry for the additional cash flow was not shown in either statement.

8) In the two loss years where losses were passed to members, rapid-ACRS was more beneficial to the eastern poultry cooperative patrons than ACRS-SL.

CHAPTER 4. EARNINGS DISTRIBUTION

Comparison of Nonqualified and Qualified Allocations

This chapter is an analysis of the two main types of distribution a cooperative may use to distribute net earnings to their members. The analysis was designed to compare the impacts on the cooperative and its members, of using nonqualified allocations rather than qualified allocations. The effects of equities on working capital, allocated member equities, capital surplus, debt to equity ratios, and cash flow to members were examined.

One reason a cooperative may choose to distribute nonqualified allocated equity is to improve their equity redemption program [Royer]. Hence, limited analysis of impacts under the assumption of equity retirement was conducted for each of the variables.

Working capital

At levels of 30 and 40 percent cash patronage, the qualified allocations generated more working capital than nonqualified allocations. These results are shown in Figures 3.7-3.15. The cooperative was paying only cash patronage and relatively small amounts of income taxes (if any). Thus, the amount of working capital used was less than the amount of working capital required to defray the corporate tax burden when nonqualified allocations were distributed. At a level of

40 percent cash patronage, the qualified working capital lines fell substantially so that the gap between the qualified lines and nonqualified lines was small.

Although members would prefer to have larger cash patronage payments, there appears to be a limit to the extent that cooperatives can afford to increase cash patronage at the expense of working capital, before nonqualifieds become feasible. This is true even when there is no retirement of nonqualified equities. With retirement of nonqualified equities, this point would be reached much sooner.

At a level of 45 percent cash patronage, the qualified and nonqualified lines come together. The data from the Iowa cooperative indicated that qualified allocations still generated more working capital (Figure 3.12). However, the eastern and Indiana results showed that at 45 percent cash patronage a change occurred (Figures 3.9 & 3.15).

The Indiana cooperative definitely generated more working capital by allocating nonqualified equities rather than using the qualified allocation. The working capital required to pay the cash portion of the qualified allocation was so large that the cooperative used less working capital to pay corporate taxes on a nonqualified distribution. In other words, the use of working capital to defray taxes was less than the use of funds for cash patronage payout. Two factors contributing to

Table 4.1 Future value, working capital - nonqualified vs. qualified[a]

Type of comparison	Compound rate	Iowa	Indiana	Eastern
Nonqualified tax vs. qualified tax (40%)	10%	$(1,252,489)	$(377,330)	$(4,054,761)
	12	(1,367,184)	(414,558)	(4,291,514)
	14	(1,496,345)	(501,543)	(4,556,313)
Nonqualified tax vs. qualified tax (45%)	10	(354,859)	736,319	(930,711)
	12	(389,896)	827,937	(957,153)
	14	(429,429)	868,959	(986,423)
Nonqualified tax vs. qualified company (30%)	10	(3,738,849)	(639,279)	2,655,144
	12	(4,074,393)	(724,983)	2,970,963
	14	(4,451,599)	(821,545)	3,324,589
Nonqualified tax vs. qualified company (40%)	10	347,706	2,260,436	12,366,893
	12	376,719	2,433,674	13,361,343
	14	408,265	2,627,346	14,438,373
Nonqualified tax vs. qualified company (45%)	10	1,484,260	follows	follows
	12	1,614,827	same	same
	14	1,760,546	pattern	pattern

[a] $(NONQUALIFIED_{WC} - QUALIFIED_{WC})$.

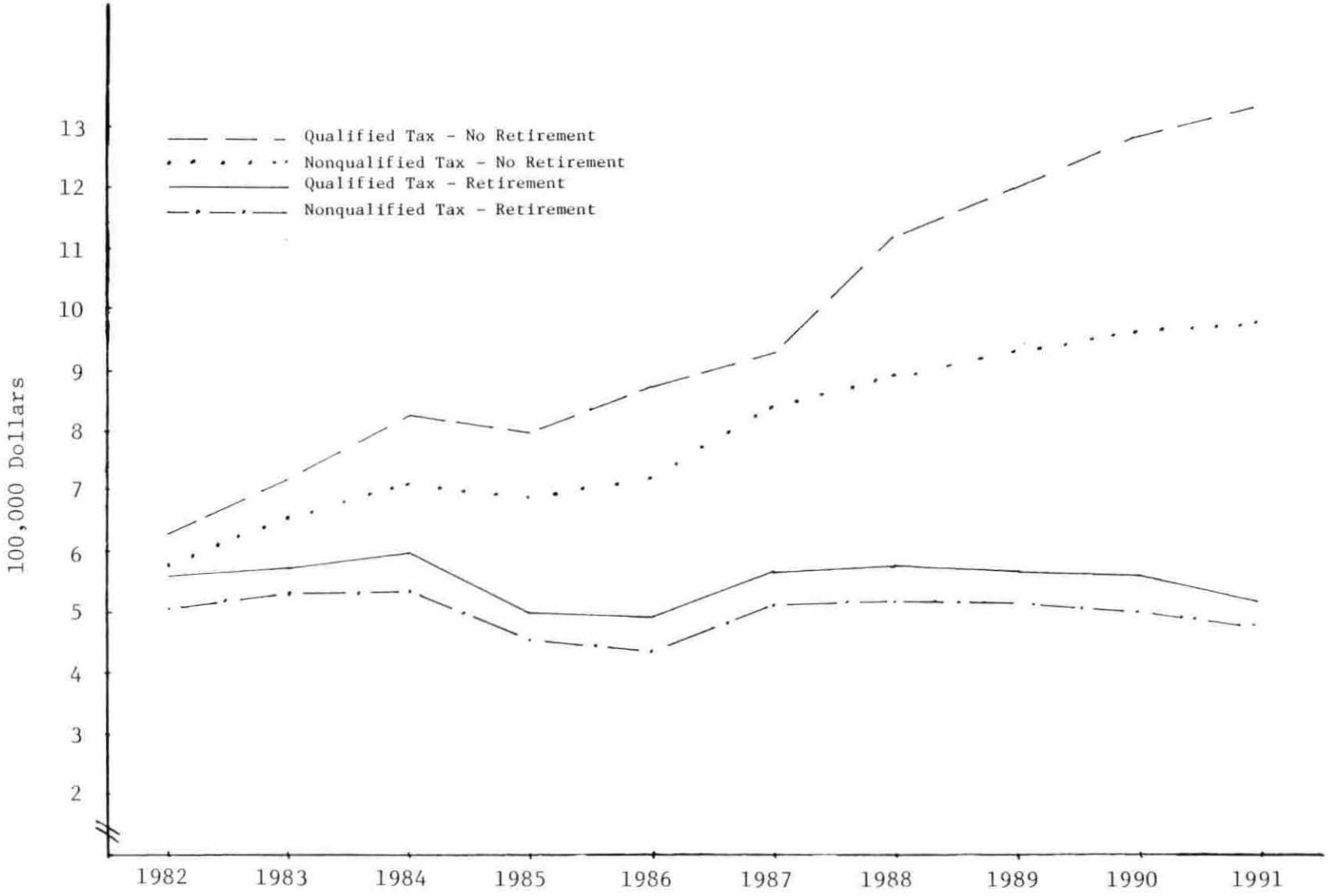

Figure 4.1 Iowa, Working Capital With Equity Retirement, 30% Cash Patronage

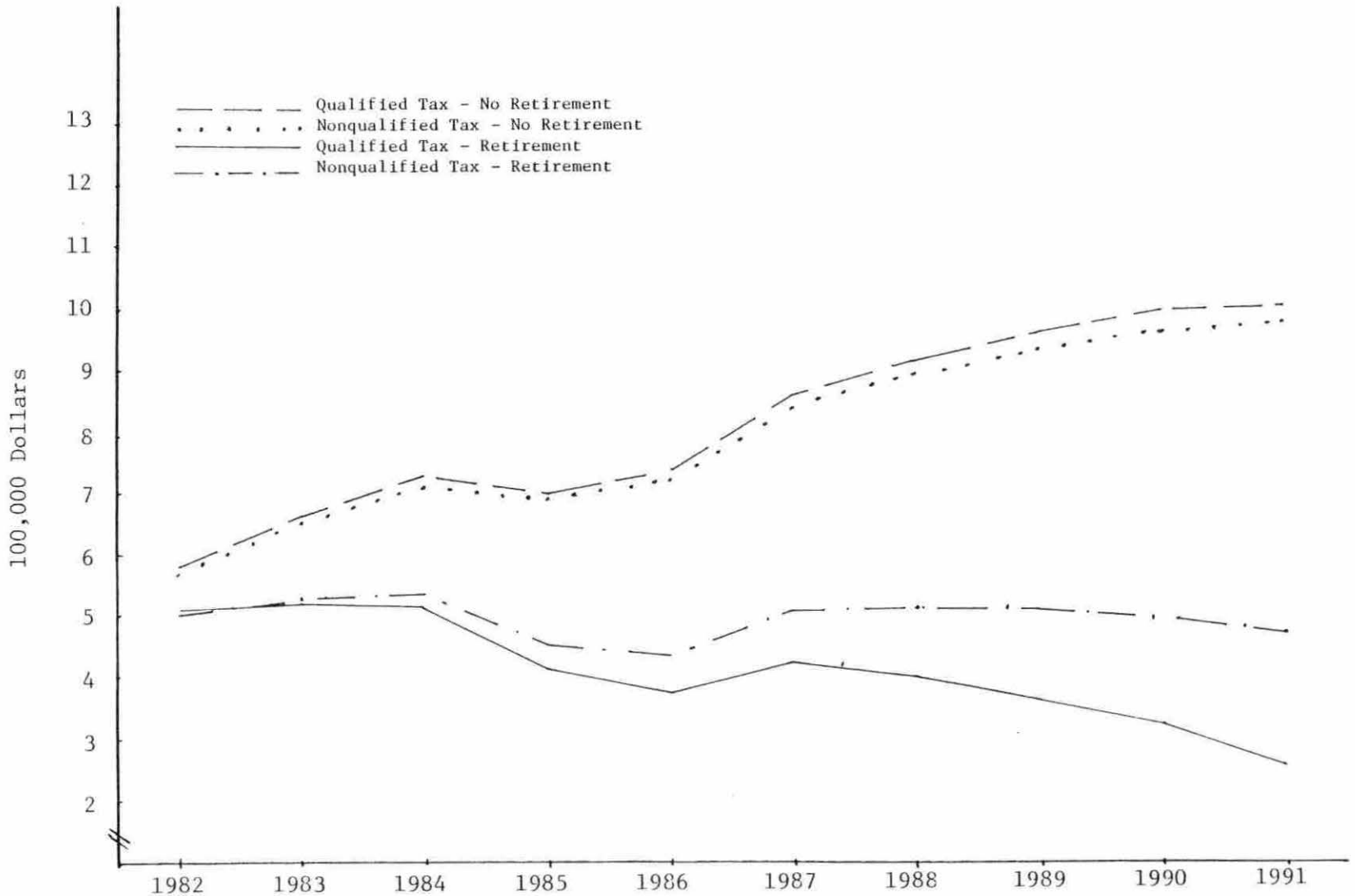

Figure 4.2 Iowa, Working Capital With Equity Retirement, 45% Cash Patronage

this result were the investment pattern and the earnings pattern of the Indiana cooperative.

The figures for the eastern cooperative do not show clearly which method of allocation results in more working capital to the cooperative over the 10 years because the lines cross at points in the 10-year projection period (Figures 3.12-3.15). The absolute differences between the working capital generated by nonqualified TAX runs and qualified TAX runs was calculated and summed. The value for each year was compounded and summed over the ten years to arrive at an estimate. The results show that allocating qualified equities when using rapid-ACRS generated more working capital over the 10 years. Table 4.1 gives the comparison of future values for working capital under the assumption that nonqualified equities would have been issued rather than qualified equities.

Working capital with equity retirement

The analysis above suggested that by distributing non-qualified allocations the cooperative may be better able to retire equities. Analysis of TAX qualified distribution was conducted at cash patronage levels of 30 and 45 percent versus TAX nonqualified distributions.

Figures 4.1-4.2 show the 10 year pattern. At 30 percent, the qualified allocation resulted in greater working capital

and the lines were parallel for the 10 years. However, at 45 percent there was a different pattern. The nonqualified TAX working capital line was higher than the qualified-TAX working capital line. In addition to this change, the lines were no longer parallel. The qualified TAX working capital line fell substantially after 1987. The burden of paying larger cash patronages and of retiring equities had seriously eroded the working capital. Although nonqualified equity was not retired, it is hypothesized that the working capital of the cooperative would be greater than in this case because of the taxation procedure of nonqualified equities.

Total tax liability

The question of who pays the taxes is a concern to both the members and the cooperative. Since taxes are potentially due at the member level as well as the cooperative level, it can not be addressed at the cooperative level alone. The cooperative board must consider the entire tax liability paid by members and the cooperative corporation.

The following graphs for the eastern cooperative were the result of combining total member tax liability and total cooperative tax liability for each method of allocation (Figures 4.3-4.7). In every scenario, the nonqualified TAX line was on the bottom indicating that total taxes were less when nonqualifieds were distributed in conjunction with rapid-

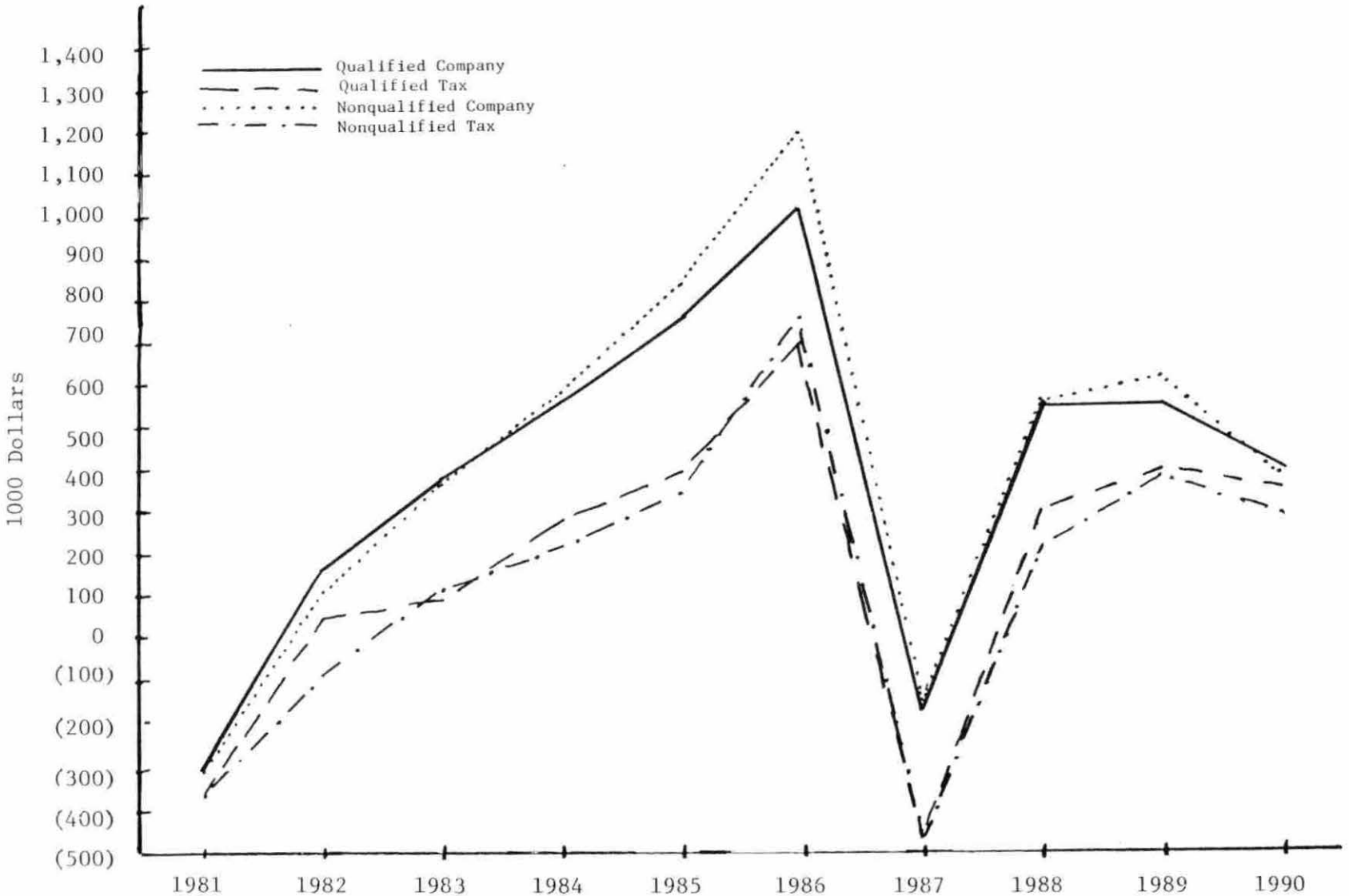

Figure 4.3 Eastern, Total Member and Corporate Tax Liability, Scenario 1

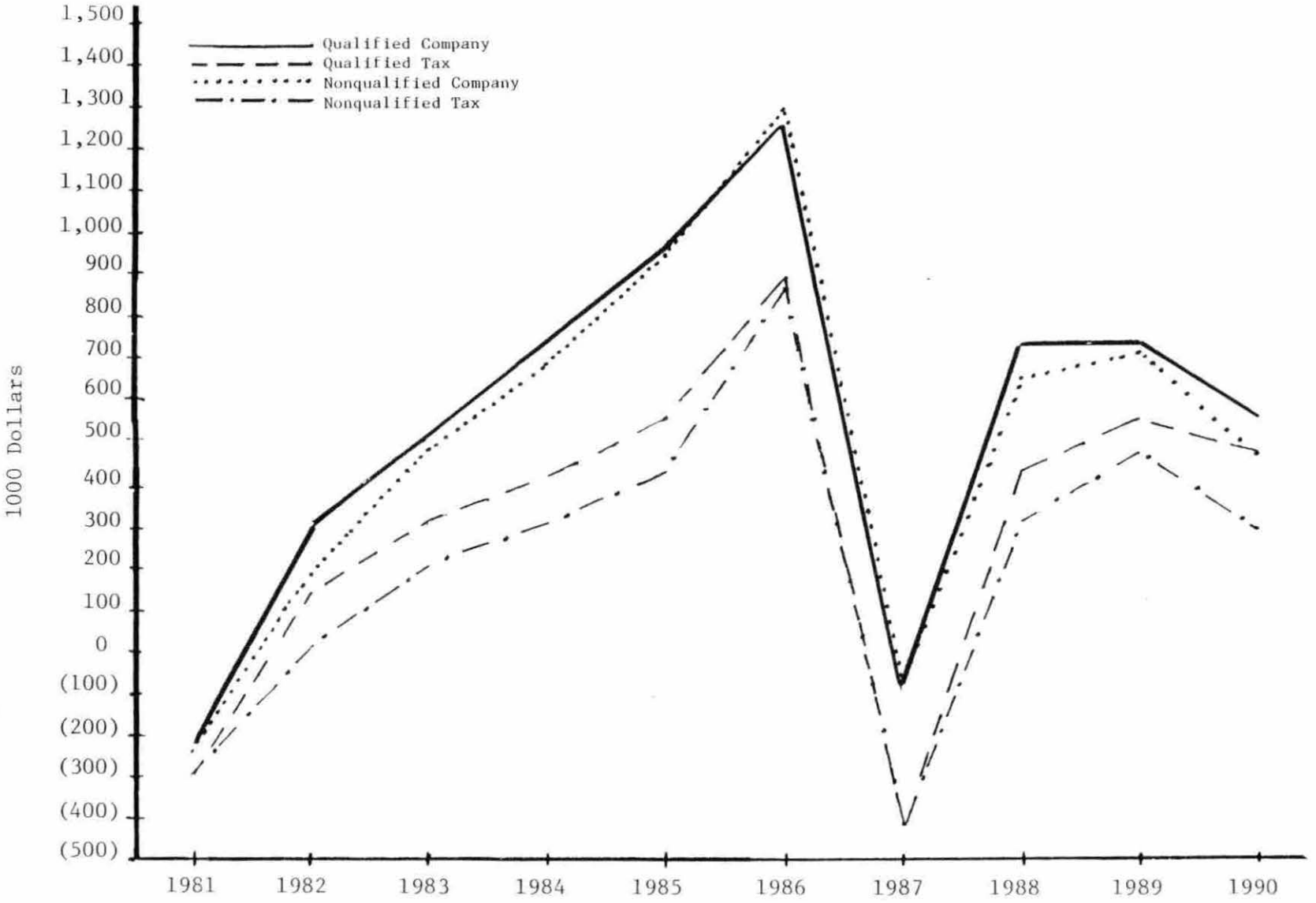

Figure 4.4 Eastern, Total Member and Corporate Tax Liability, Scenario 2

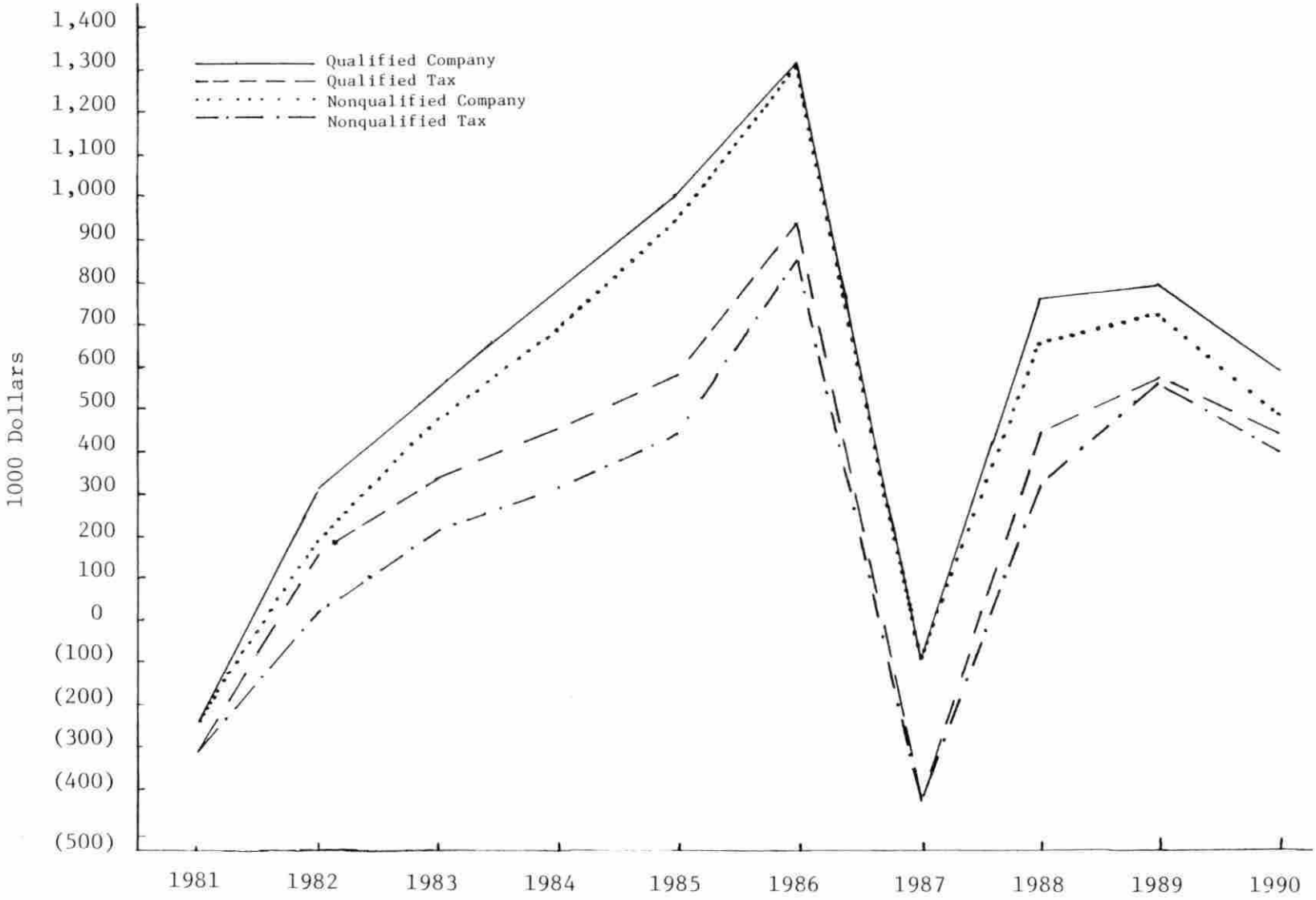

Figure 4.5 Eastern, Total Member and Corporate Tax Liability, Scenario 3

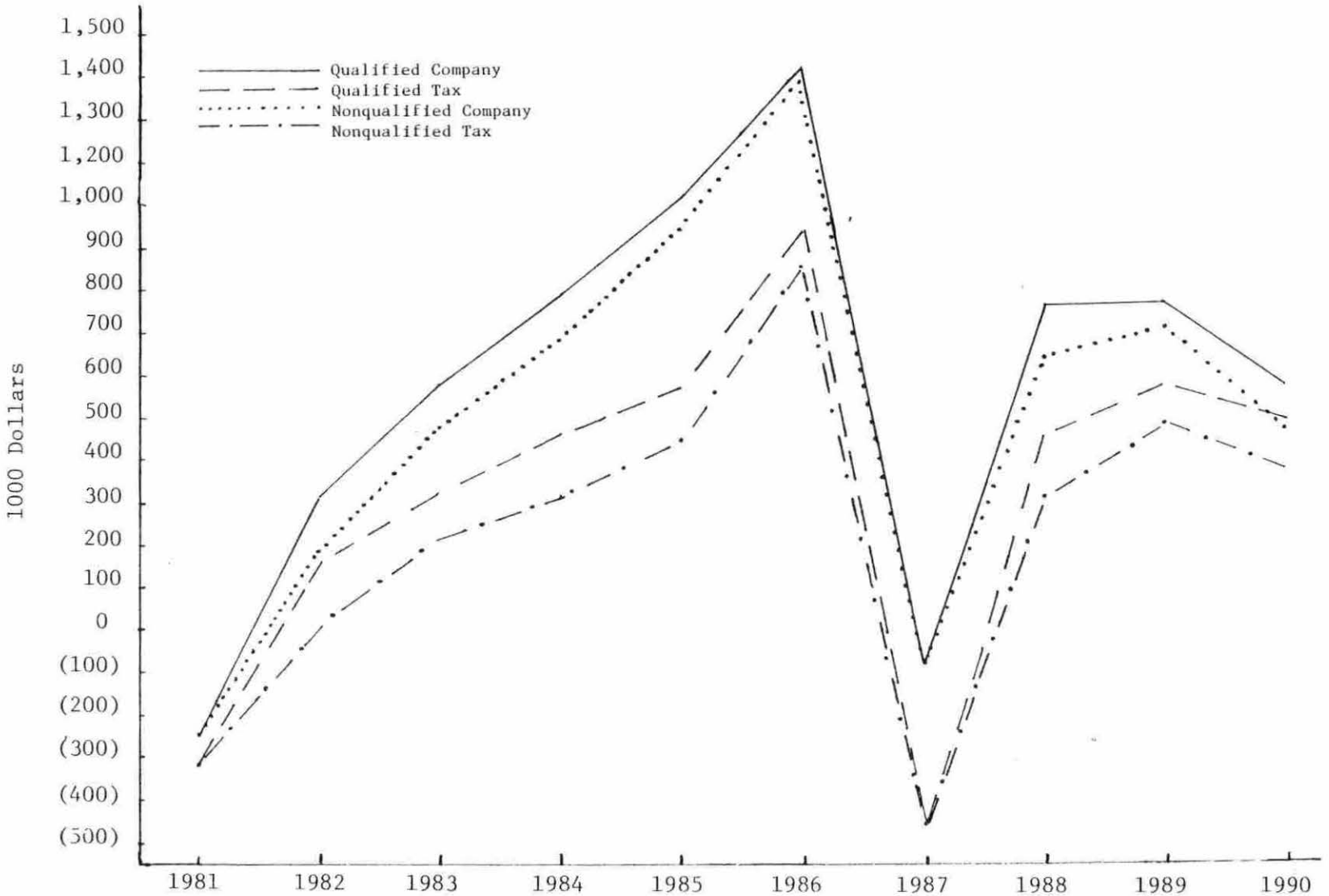

Figure 4.6 Eastern, Total Member and Corporate Tax Liability, Scenario 4

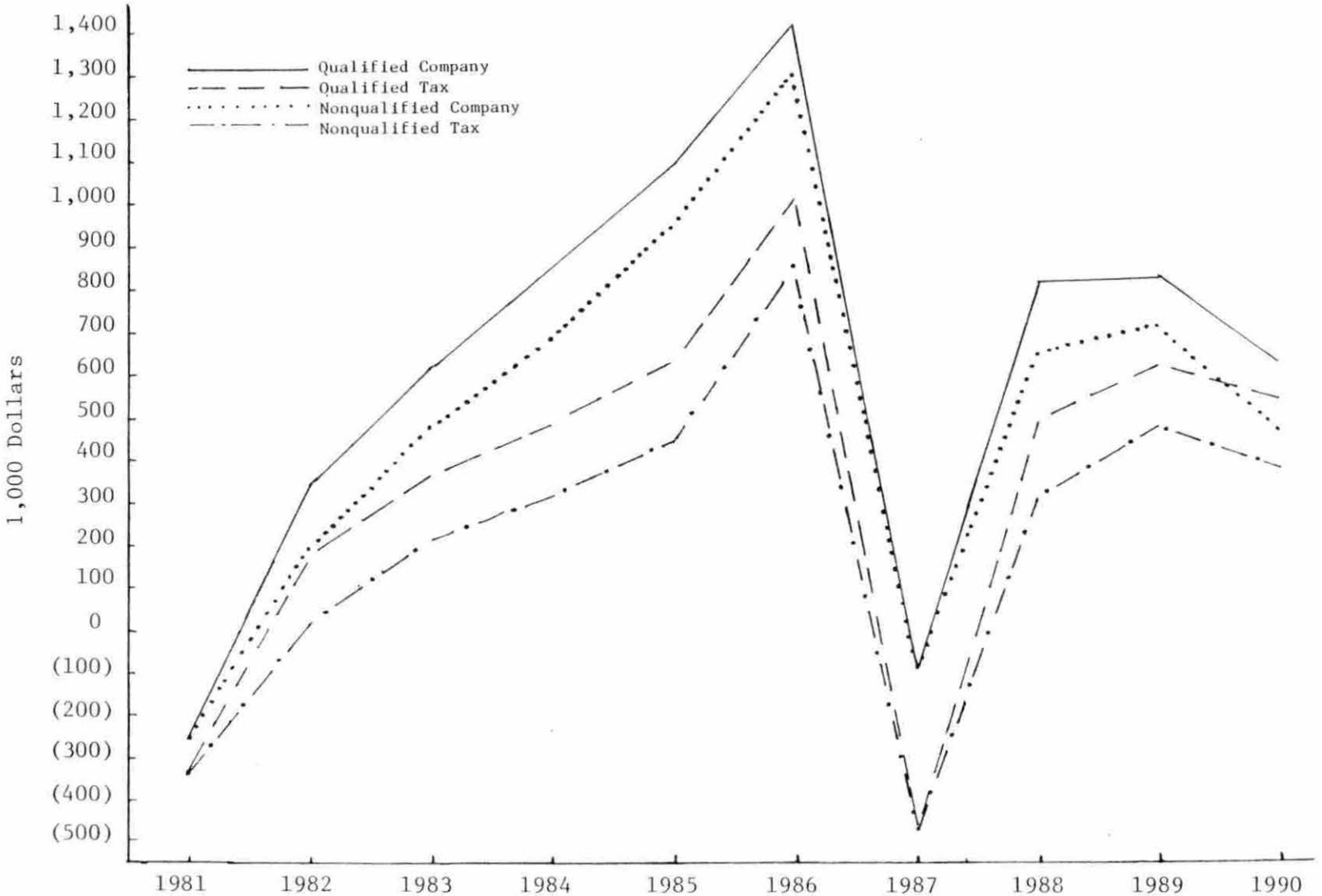

Figure 4.7 Eastern, Total Member and Corporate Tax Liability, Scenario 5

ACRS depreciation. Progressing from scenario 1 to scenario 5, qualified total taxes increased due to the fact that the average tax bracket of members had increased. This resulted in an increase in the member tax liability.

The Iowa cooperative showed a different pattern after 1987 (Figures 3.16-3.20). The underlying cause for the change was their relatively inactive investment pattern. After 1987, depreciation expense in the TAX runs was less than depreciation expense in the COMPANY runs. Therefore, earnings were greater in the TAX runs than in the COMPANY runs. As a consequence of this switch in the earnings pattern, the combined tax liabilities of the members and the cooperative of the COMPANY run fell below the combined member and corporate tax liabilities of the TAX runs (the nonqualified COMPANY line is below the nonqualified TAX line in all of the scenario 5 cases). However, in both cases nonqualified equity distributions generated lower overall tax liability than qualified equity distributions. The same pattern was evident in the Indiana cooperative (Appendix Figures B.1-B.5).

A preliminary analysis completed early in this study did not include member social security tax liability. Without social security tax the results were different. It was not until scenario 4 and scenario 5 that nonqualified TAX, resulted in the lowest taxes as indicated in Figures 4.8-4.12. The regressive impact of the social security tax was

Figure 4.8 Eastern, Total Member and Corporate Tax Liability, Scenario 1, Social Security Tax not Included

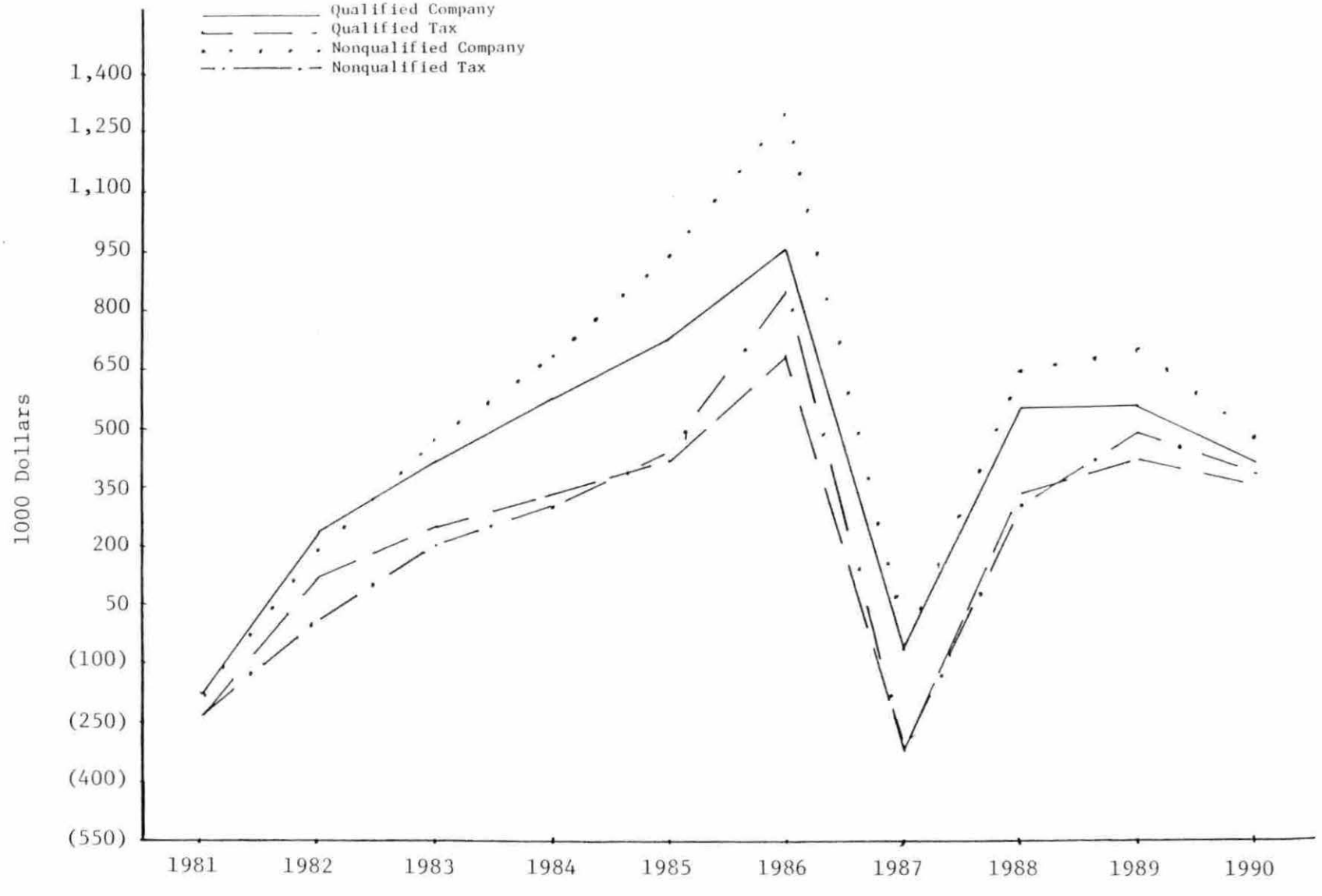

Figure 4.9 Eastern, Total Member and Corporate Tax Liability, Scenario 2, Social Security Tax not included

Figure 4.10 Eastern, Total Member and Corporate Tax Liability, Scenario 3, Social Security Tax not Included

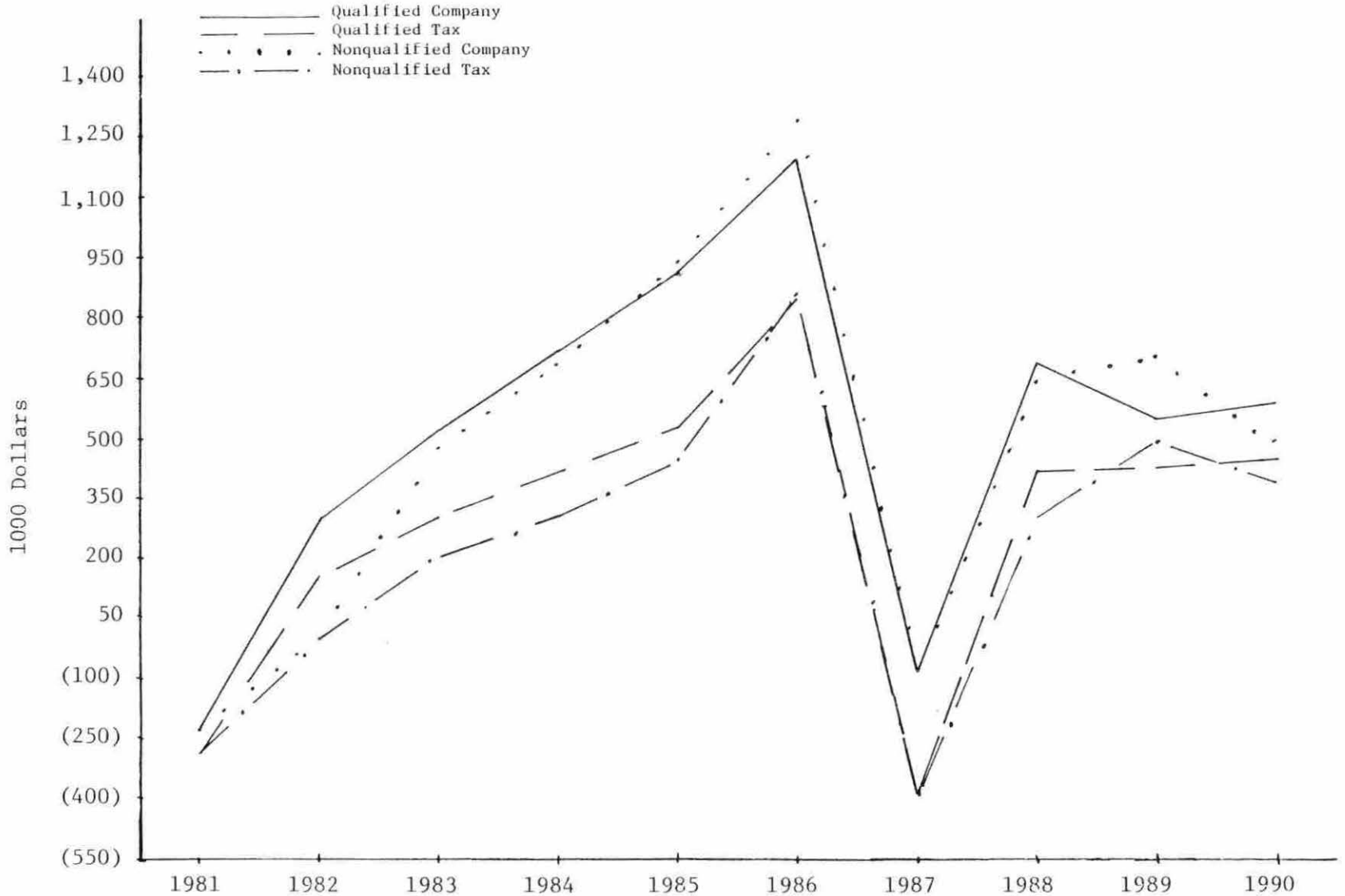

Figure 4.11 Eastern, Total Member and Corporate Tax Liability, Scenario 4, Social Security Tax not Included

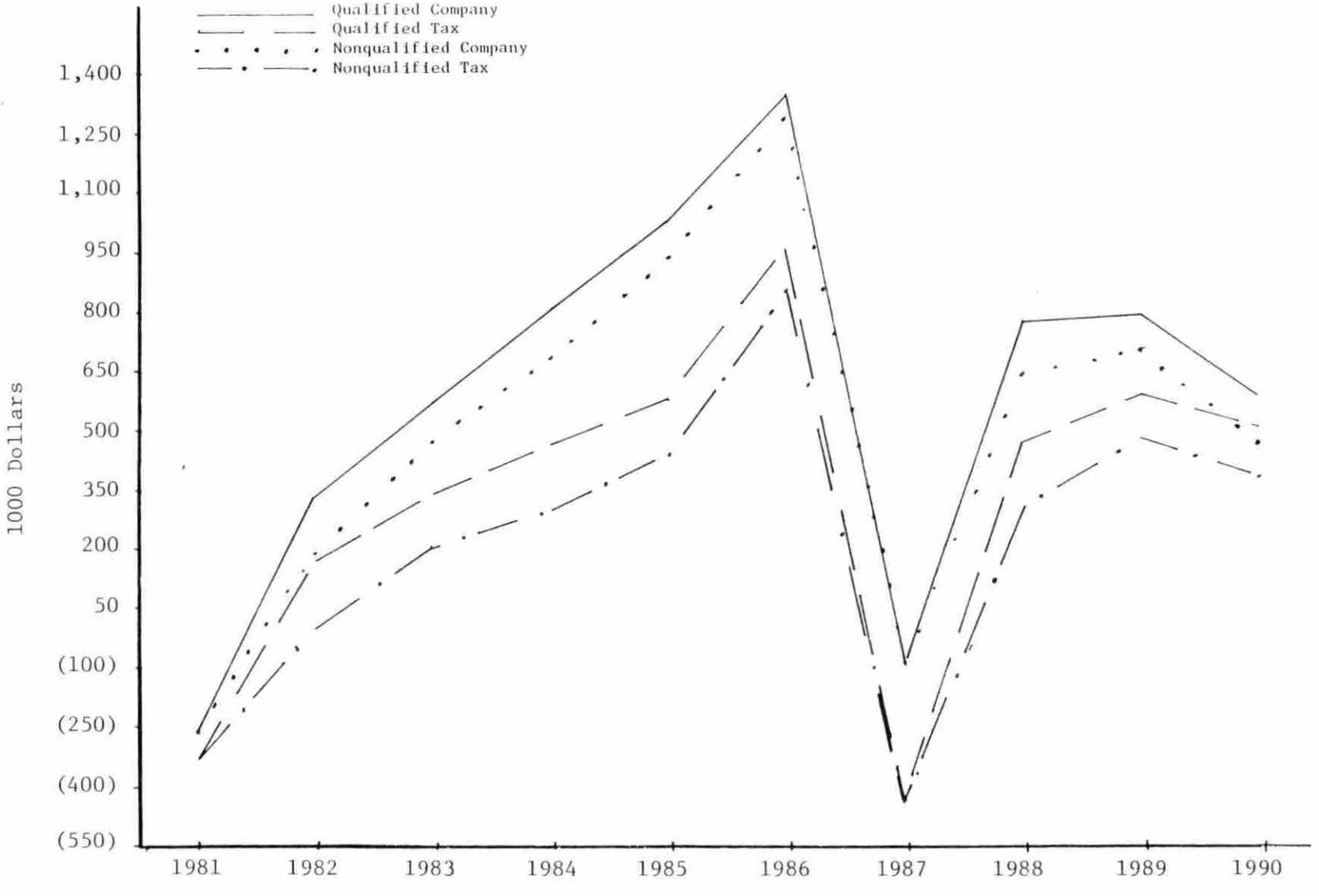

Figure 4.12 Eastern, Total Member and Corporate Tax Liability, Scenario 5, Social Security Tax not Included

sufficient to change the results. The inclusion of the self-employment tax in the model increased the member tax liability enough to cause the qualified total tax lines to move above the nonqualified total tax lines for all the scenarios except scenario 1 in the Indiana and Iowa case cooperatives.

The future values for the difference in total taxes paid from qualified and nonqualified allocations are shown in Table 4.2 for selected scenarios. The negative numbers in every case except scenario 1 for Iowa and Indiana confirmed the results that the total tax savings was increased when nonqualified equities were distributed rather than qualified equities.

Total tax liability with retirement

When equity was retired, there was no change in the total tax liability. Since only qualified equities were retired in the study, no member or cooperative tax liability was created. This would not be the case if nonqualifieds had been retired. If retiring nonqualified equities, members would be required to pay taxes on the income received as ordinary income. The cooperative would in turn take a deduction in the amount of the retirement from total taxable income. This deduction is allowed to the cooperative since it paid taxes on the equities when they were issued. This principle of single taxation of net savings dictates that the deduction may be taken at the

Table 4.2 Future value, total member and corporate tax liability - nonqualified tax vs. qualified tax[a]

Type of comparison	Compound rate	Iowa	Indiana	Eastern
Scenario 1	10%	121,651	151,422	(780,746)
	12%	124,950	157,290	(887,670)
	14%	133,581	183,621	(1,000,911)
Scenario 2	10%	(38,981)	(39,970)	(1,430,788)
	12%	(47,484)	(39,184)	(1,600,831)
	14%	(57,460)	(37,695)	(1,792,870)
Scenario 3	10%	(104,077)	(112,855)	follows
	12%	(120,111)	(120,882)	pattern of
	14%	(138,850)	(128,949)	Sce. 1&2
Scenario 4	10%	follows	follows	follows
	12%	pattern of	pattern of	pattern of
	14%	Sce. 2&3	Sce. 2&3	Sce. 1&2

[a](NONQUALIFIED TAX_{TTL} - QUALIFIED TAX_{TTL}).

time the equity is retired. Despite the fact that the members would be taxed on the equity redeemed, the net cash flow position of members would be positive. This occurs because when nonqualified equities are retired, they are redeemed for 100 percent cash.

Allocated equities

Many cooperatives distribute qualified equities based on straight-line (COMPANY) earnings because this method allows equity to grow at a more rapid rate. The results from the Iowa cooperative indicated that this strategy was effective if the cooperative was paying no more than 30 percent cash patronage (Figures 3.33-3.35). On the other hand, at 40 percent cash patronage, the results from the Indiana cooperative showed that the allocated equities from a qualified COMPANY run did not grow any faster than the allocated equity from a BTT run where nonqualified equity was created (Figures 3.30-3.32).

In fact, after 1986 allocated equity grew faster in the nonqualified BTT run. At higher levels of cash patronage, the allocated equity from qualified COMPANY runs fell far below the allocated equity from the BTT run and as cash patronage increased, the gap between the two increased.

As mentioned previously, in the BTT run the ACRS-reserve account is offset in the equity section by a nonqualified

distribution to members. This extra equity provided equity funds for the cooperative to use and as the graphs indicate, it grew quickly during the years of rapid-ACRS and tapered off in later years.

The equity that was allocated in the BTT run was nonqualified equity because Rev. Rul. 74-274 essentially eliminates the possibility of distributing qualified allocations in a BTT situation. The ruling states, "A distribution by a nonexempt cooperative that used different methods of depreciation for net book earnings and net earnings from business done with or for patrons reported for federal income tax purposes will qualify as a patronage dividend only to the extent of the net earnings reported for federal income tax purpose" [60]. The ruling indicated that if a cooperative has paid taxes on the basis of rapid-ACRS earnings, it cannot distribute on the basis of COMPANY earnings unless the distribution is taxable to the cooperative and reported as such.

This ruling prevents a cooperative from calculating taxable income based on rapid-ACRS earnings, then distributing qualified equities based upon a large earnings calculated on a slower depreciation schedule. In essence, the ruling states that the cooperative can not deduct the large qualified patronage distribution from its already artificially low federal taxable income.

A nonqualified allocation for the amount of earnings in excess of the taxable income, however, does not violate the Rev. ruling. The cooperative may pay taxes on the basis of TAX (rapid-ACRS) earnings and distribute on the basis of COMPANY earnings as long as the cooperative issues a taxable nonqualified distribution. In later years, when the nonqualified equities are redeemed, the cooperative can deduct the distribution from its federal income taxes.

Capital surplus

Capital surplus grew at a steady rate regardless of whether qualified or nonqualified allocations were used. However, the growth rate was faster when qualified allocations were distributed (Figure 4.13 - 4.14). The faster growth rate under qualified distribution was a result of the higher levels of taxation at the cooperative level. The 10 percent retained into capital surplus under qualified was frequently taxed at a lower marginal rate since unallocated surplus was frequently the only taxable income. In qualified runs, only the amount allocated to stock dividends and capital surplus was taxed. The remainder could be deducted from taxable income.

In nonqualified runs, all of the earnings were taxed at the corporate level. The marginal corporate tax rates changed at increments of $25,000 up to $100,000. The model did not calculate the tax for nonqualified allocated equities and

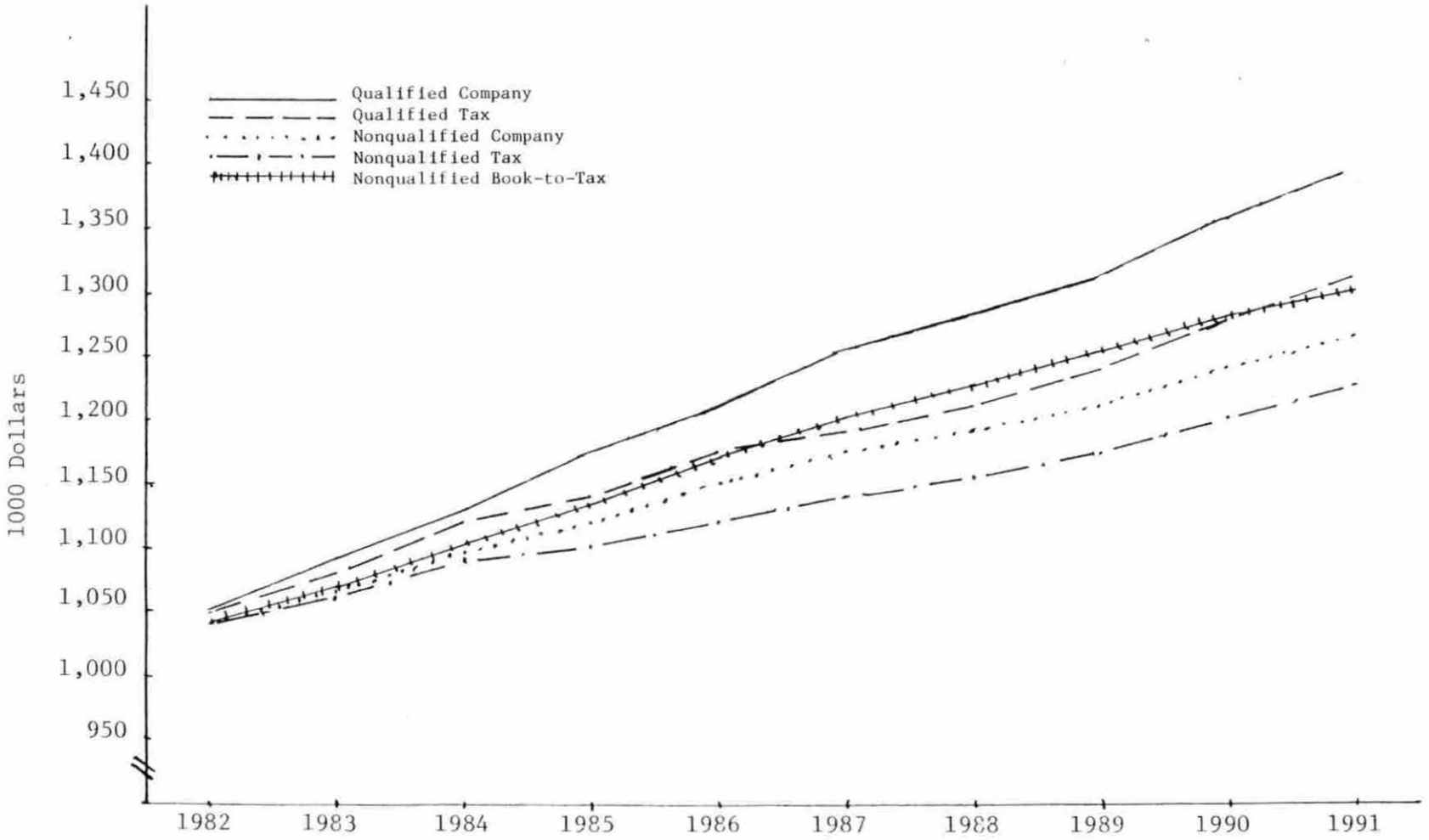

Figure 4.13 Indiana, Capital Surplus

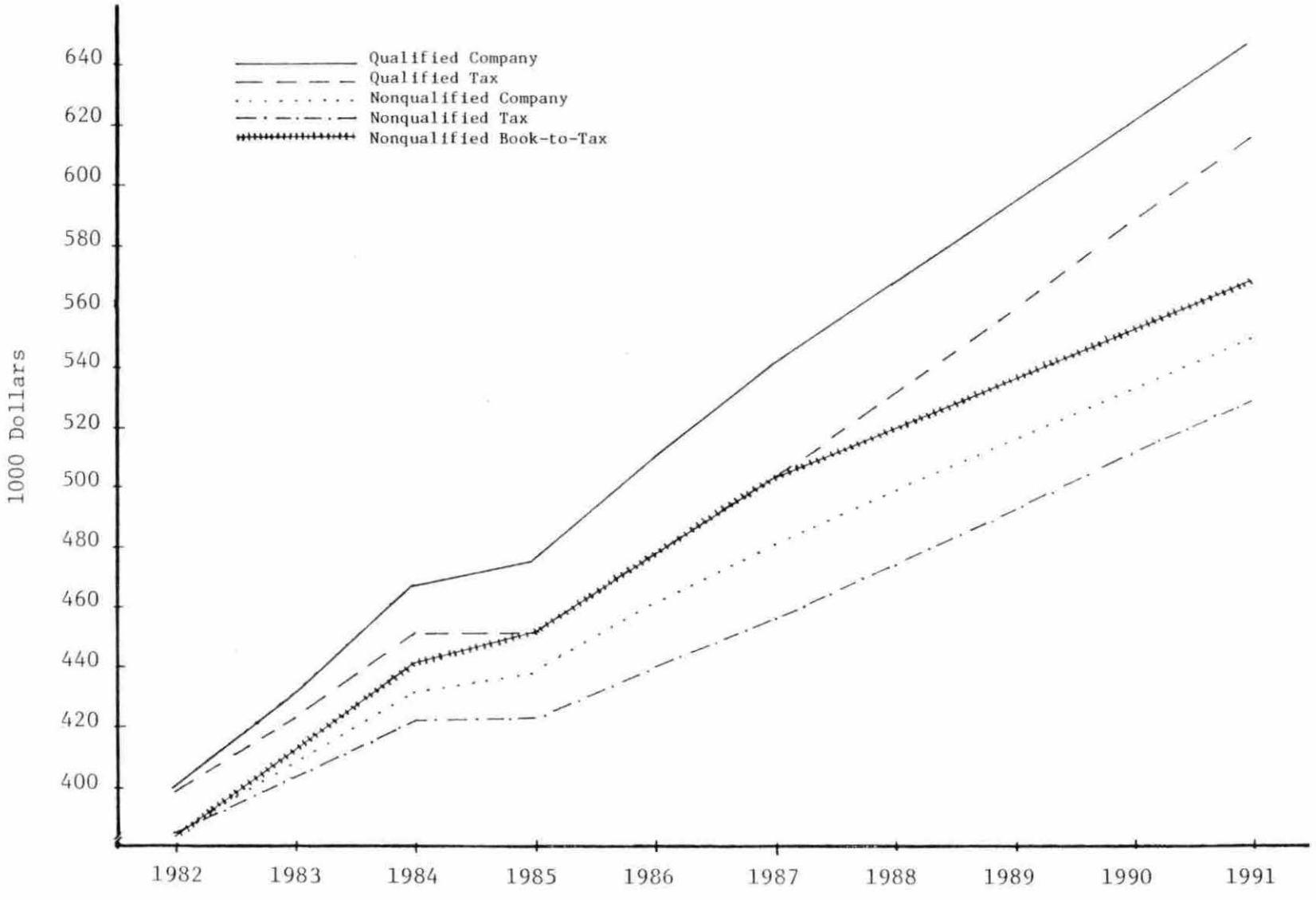

Figure 4.14 Iowa, Capital Surplus

capital surplus separately. Instead, the earnings were taxed before distribution. No distinction was possible between the tax rate on the nonqualified equities account and the capital surplus account. Hence, a lower remainder was available for distribution to members and capital surplus.

Member equities with retirement of qualified equities

Substantial changes in the equity section of the balance sheets were shown when equity retirement was simulated. Figures 4.15-4.16 show these changes. The top two lines represent no retirement situations that resulted from qualified TAX and nonqualified TAX runs. The bottom two lines represent the siutation, that would result if four percent of qualified allocated equites had to be retired using qualified TAX and nonqualified TAX runs. Without a retirement plan, equity grew rapidly when qualified equities rather than nonqualified equities were distributed. However, when equity was retired, the qualified allocated equity and nonqualified allocated equity lines were nearly the same (assuming a 30 percent cash patronage payout to members). Because retirement was based on four percent of the qualified equity pool, the results are not directly comparable.

Within the nonqualified runs, the qualified account did not grow, therefore the amount retired was less each year because four percent of a shrinking pool was retired.

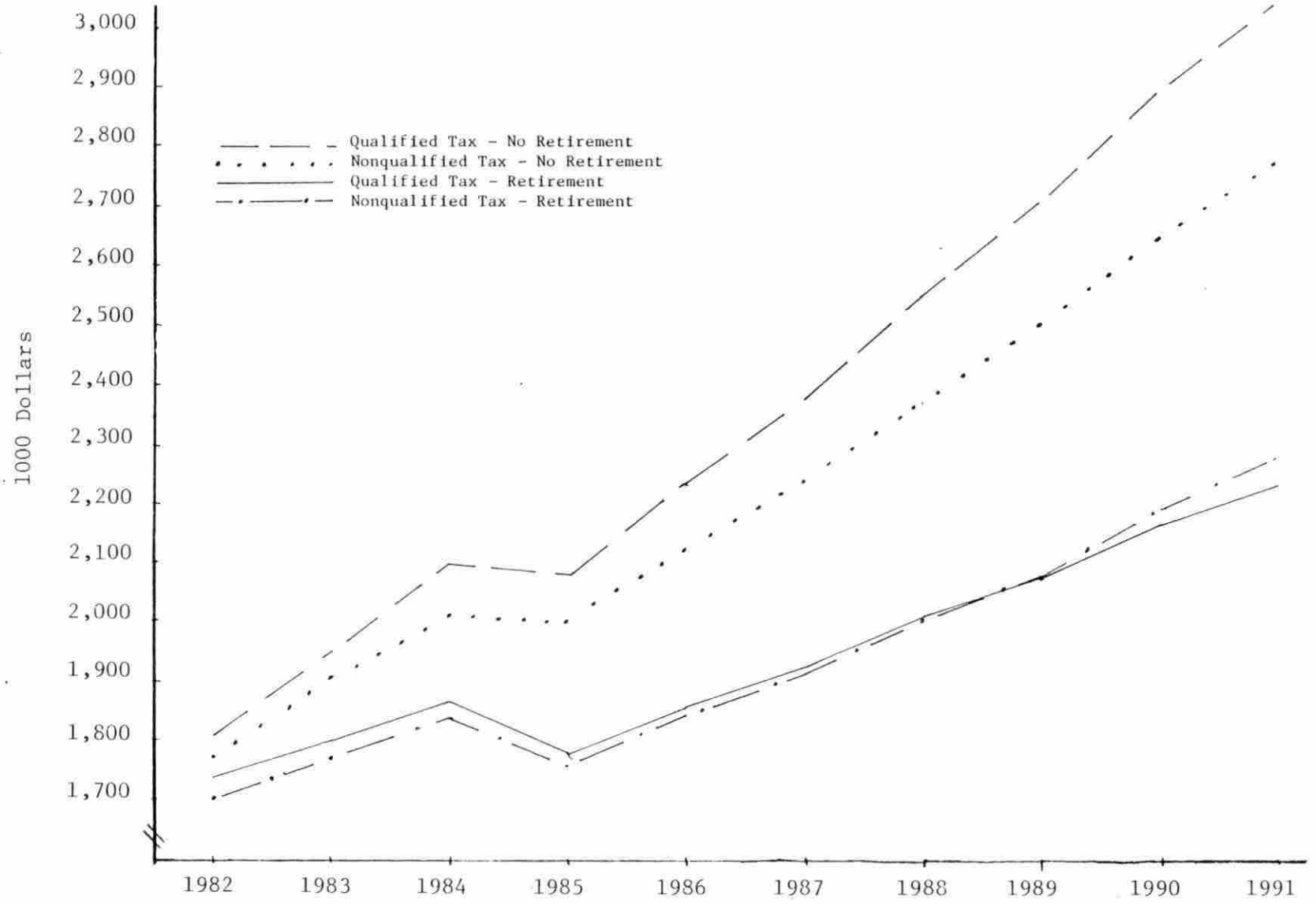

Figure 4.15 Iowa, Allocated Equities with Equity Retirement-4% of Qualified Pool, 30% Cash Patronage

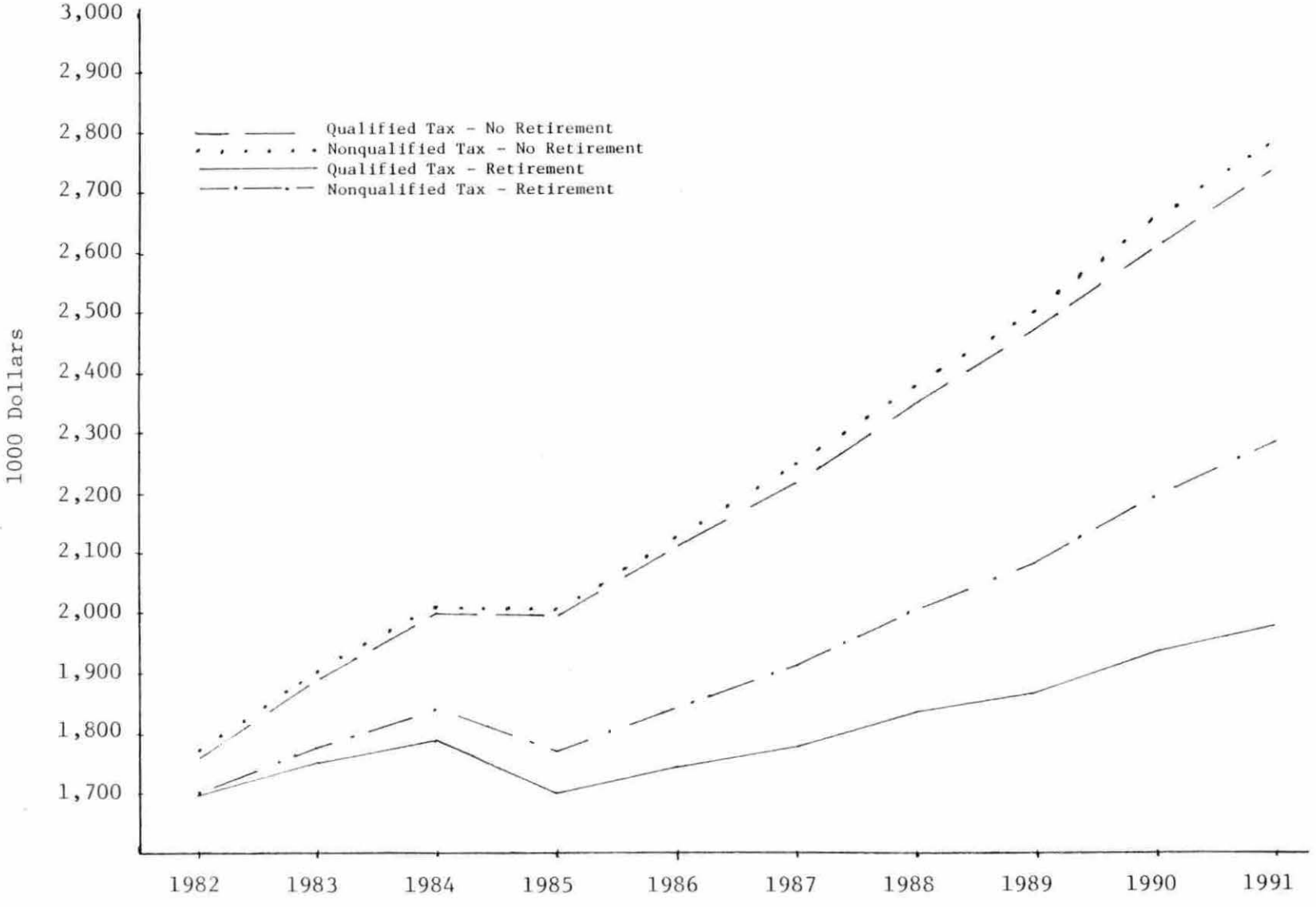

Figure 4.16 Iowa, Allocated Equities With Equity Retirement-4% of Qualified Pool, 45% Cash Patronage

However, within the qualified runs, the qualified account had additions made to it each year. Therefore, the absolute amount retired in qualified runs was far greater than the amount retired in nonqualified runs. The nonqualified equity account was growing steadily in the nonqualified runs without any nonqualified equities being retired. Meanwhile in the qualified runs, the equity pool was growing and retirements were made at the four percent level of a larger pool.

At a level of 45 percent cash patronage, the result was even more pronounced. The qualified equity account was eroding quickly in the qualified run. Qualified equity was not growing at a sufficient rate to keep up with the rate of equity retirement since 45 percent of each year's earnings was paid out in cash. The nonqualified allocated equity account remained the same under all levels of cash patronage since there was no cash paid on nonqualified distribution.

Analysis was somewhat limited in that a direct comparison of nonqualifieds and qualified retirement was not possible. However, it did illustrate the results of a transition period of switching from qualified to nonqualified allocated equities. This situation is a likely path for most cooperatives in the process of moving from an equity base of mostly qualified to one of mostly nonqualified.

At some point, the nonqualified equity must be retired also. The expected results of this would be much different

than those shown above in several respects. First, there would be a tax deduction for each dollar of nonqualified retired. This would allow a "swap" of a new dollar of tax paid equity for each dollar of equity retired. No cash patronage would be required to make this swap. Equity growth would again require that additional taxes be paid by the cooperative for each dollar of new nonqualified equity brought into the cooperative.

Total member equity followed the same pattern but because of the difference in the unallocated capital surplus accounts mentioned earlier, the changeover did not occur as quickly as cash patronage increased (Appendix Figures B.43-B.44). Total member equity in the qualified runs fell slower than the allocated equity in qualified runs.

Debt to equity

The debt to equity ratio varied inversely with the equity accounts. Since long term debt was held constant, the only determining factor was total member equity. Without equity retirement, the qualified runs generated more member equity, therefore, the debt to equity ratio was lower than when nonqualified equities were distributed (Figures 4.17-4.19). The graphs for both Indiana and Iowa cooperatives exhibited a difference that was not very significant.

Figure 4.17 Eastern, Long Term Debt to Member Equity, 30% Cash Patronage

Figure 4.18 Eastern, Long Term Debt to Member Equity, 40% Cash Patronage

Figure 4.19 Eastern, Long Term Debt to Member Equity, 45% Cash Patronage

As the cash patronage increased, the qualified lines and nonqualified lines tended to converge. This was expected as the level of cash paid to members approached the level of tax liability on the nonqualifieds. The eastern cooperative showed the same convergence but the debt to equity ratio was much higher because it used relatively more debt to finance their operations over the 10 year period.

Equity retirement changed the outcome. At 30 percent, the nonqualified debt to equity lines were above the qualified debt to equity lines. This was again a result of the depletion of the allocated equity accounts (Figure 4.20). At 45 percent cash patronage, the pattern changed (Figure 4.21). The debt to equity ratio that resulted from distributing qualified equities exceeded the debt to equity ratio that resulted from distributing the nonqualified equities. Again, this is a result of how the allocated equity accounts changed when qualified equity was retired.

Net cash flow to members

Evaluating the net cash flow to members was somewhat difficult because of the lack of empirical information and the many variables involved. Problems included the following: (1) the particular distribution of tax brackets among members in a cooperative was generally not known. Hence, these were approximated by assuming a quasi normal member tax bracket

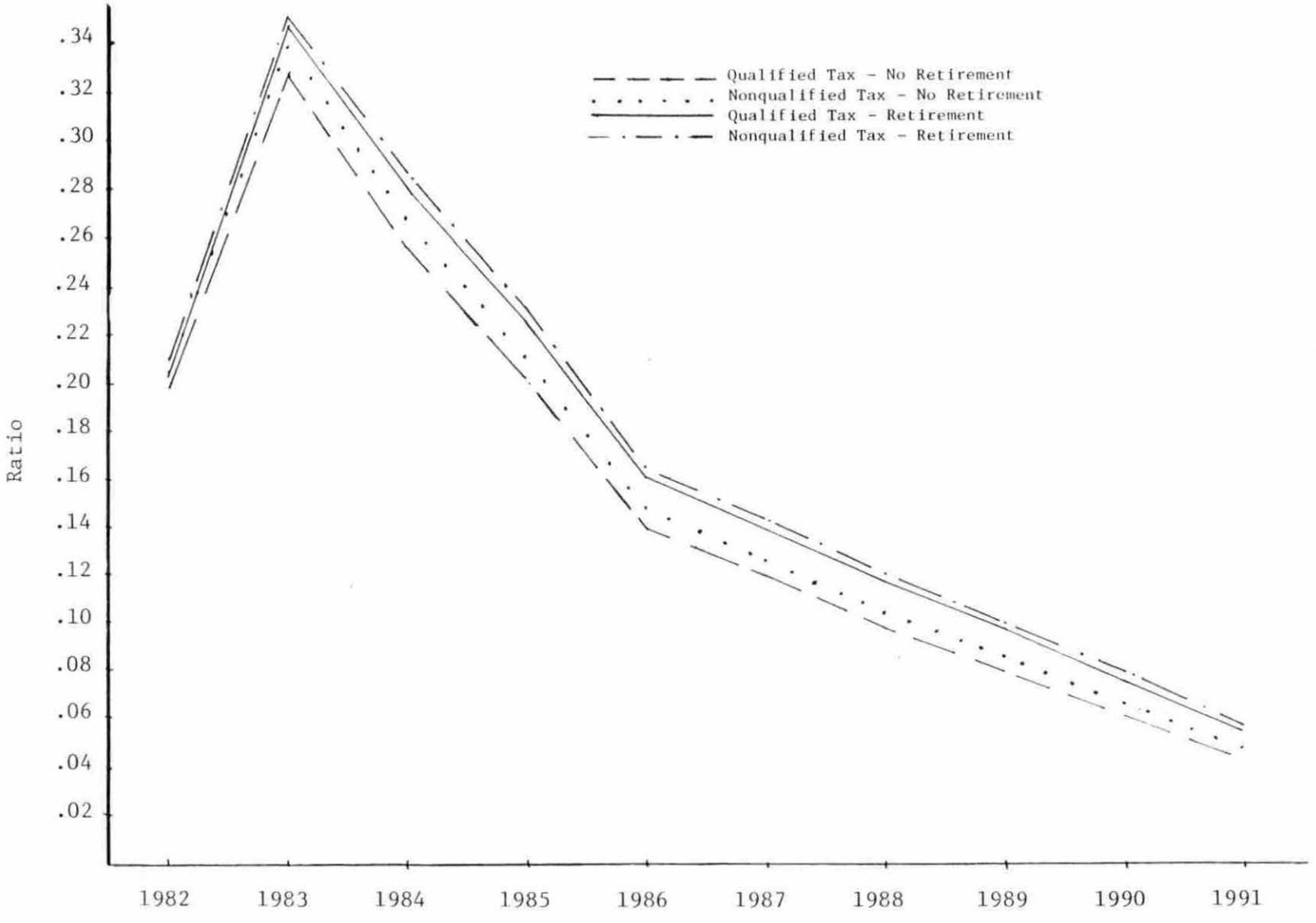

Figure 4.20 Iowa, Long Term Debt to Member Equity, 30% Cash Patronage

Figure 4.21 Iowa, Long Term Debt to Member Equity, 45% Cash Patronage

distribution scenarios;[1] (2) the marginal tax brackets of the majority of individual members may change from year to year, therefore causing the statistical distribution to change from year to year. This was solved by providing a variety of scenarios to allow approximatation of five alternative quasi normal distributions; and (3) the level of cash patronage will impact member cash flow dramatically. Therefore, a number of levels of cash patronage payout were run.

Two definite conclusions can be drawn from the data and the graphs. First, under any scenario and any level of cash patronage, those individuals in the 20 percent marginal tax bracket have higher net cash flow if qualified equities are distributed than would be the case if nonqualifeds had been used (Figures 3.21 and 3.23). Second, under any scenario and any level of cash patronage, those individuals in the 50 percent marginal tax bracket have higher net cash flow if nonqualified equities are distributed (Figures 3.27-3.29). The individuals in the 50 percent marginal tax bracket generally have negative net cash flow when qualified equities are distributed with cash less than 50%. That will not be the case if nonqualified equities are distributed. The two

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[1]The alternative to this was collecting actual tax information from members. The problems of getting an adequate response to requests for such personal financial information were considered to be greater than the benefits of having the information.

conclusions pose a dilemma for the cooperatives because in actuality each cooperative probably has members in both marginal tax brackets.

The net cash flow to members in the middle tax brackets is not as clearly defined (Figures 3.24-3.26). If scenario 4 is examined, the 35 percent marginal tax bracket, and 30 percent cash patronage is paid, the situation for members in the eastern cooperative is a toss-up. By compounding the difference between the net cash flow to members from nonqualified runs and qualified runs, the results showed that members received $10,875 (at 10%) less when nonqualified were distributed rather than qualified allocations (Tables 4.3 and 4.4). The amount increased at levels of cash patronage above 35 percent.

In the other cooperatives, the qualified runs generated higher net cash flow to members than the nonqualified runs. As cash patronages increase, the gap between the qualified and nonqualified lines widened even further.

An element a board needs to consider is fair treatment of members. Not all members were treated fairly when qualified equities were distributed. At the time nonqualified equities were allocated, all members were treated fairly because no one received a taxable distribution since the cooperative assumed the tax liability on the allocation. Figures 3.21-3.29 show a fairly constant net cash flow across tax brackets for

Table 4.3 Future value, eastern, net cash flow to members, nonqualified tax vs. qualified tax, scenario 4, 35% tax bracket[a]

Type of comparison	Compound rate	Net future values
Nonqualified tax vs. qualified tax 30% cash patronage	10%	(10,875)
	12	(20,739)
	14	(32,270)
Nonqualified tax vs. qualified tax 40% cash patronage	10	(329,621)
	12	(366,168)
	14	(407,670)
Nonqualified tax vs. qualified tax 45% cash patronage	10	(417,138)
	12	(449,624)
	14	(485,182)

[a](NONQUALIFIED TAX_{NCF} - QUALIFIED TAX_{NCF}).

Table 4.4 Future value, eastern, Indiana, net cash flow to members, nonqualified tax vs. qualified tax, scenario 5, 50% tax bracket[a]

Type of comparison	Compound rate	Future values	
		Eastern	Indiana
Nonqualified tax vs. qualified tax 30% cash patronage	10%	63,088	21,715
	12	77,022	24,813
	14	83,684	28,340
Nonqualified tax vs. qualified tax 40% cash patronage	10	23,427	11,248
	12	26,491	12,825
	14	29,852	14,616
Nonqualified tax vs. qualified tax 45% cash patronage	10	14,247	6,307
	12	15,632	7,056
	14	17,140	7,904

[a](NONQUALIFIED TAX_{NCF} - QUALIFIED TAX_{NCF}).

nonqualified distributions.[2] When nonqualified equities are retired, the equities are taxed to members at different marginal tax rates, but the distribution is paid entirely in cash. Therefore, all members will receive positive net cash flow since the cash portion will be large enough to defray the tax liability, regardless of member tax bracket.

Net cash flow with retirement

As qualified equity was retired, the gap increased between qualified net cash flow and nonqualified net cash flow (Figures 4.22-4.27). Since qualified equity was being retired while no nonqualified equity was paid out, the absolute amounts of equity flowing back to farmers in cash was greater. The members received all of the cash from the retired equities because they had paid taxes on the distribution in earlier years when it had been allocated. Also, the total amount retired was less in the nonqualified runs because the pool of qualified equities did not grow during the projection period.

There was only one case where nonqualified allocations resulted in more net cash flow to members. This was at a

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[2]The variation in the net cash flow is due to the tax liability scenario assumption described in Chapter 2 and the fact that members receive ITC. Thirty percent of the membership falls into the 20 percent bracket in scenario 1, only three percent of membership falls into the 20 percent bracket in scenario 4 and in scenario 5, only two percent were assumed to be in the 20 percent tax bracket. Thus, different amounts of ITC were distributed to the entire group depending upon the scenario.

Figure 4.22 Iowa, Net Cash Flow to Members, 20% Tax Bracket, Scenario 1, 30% Cash Patronage, Retirement

Figure 4.23 Iowa, Net Cash Flow to Members, 20% Tax Bracket, Scenario 1, 45% Cash Patronage, Retirement

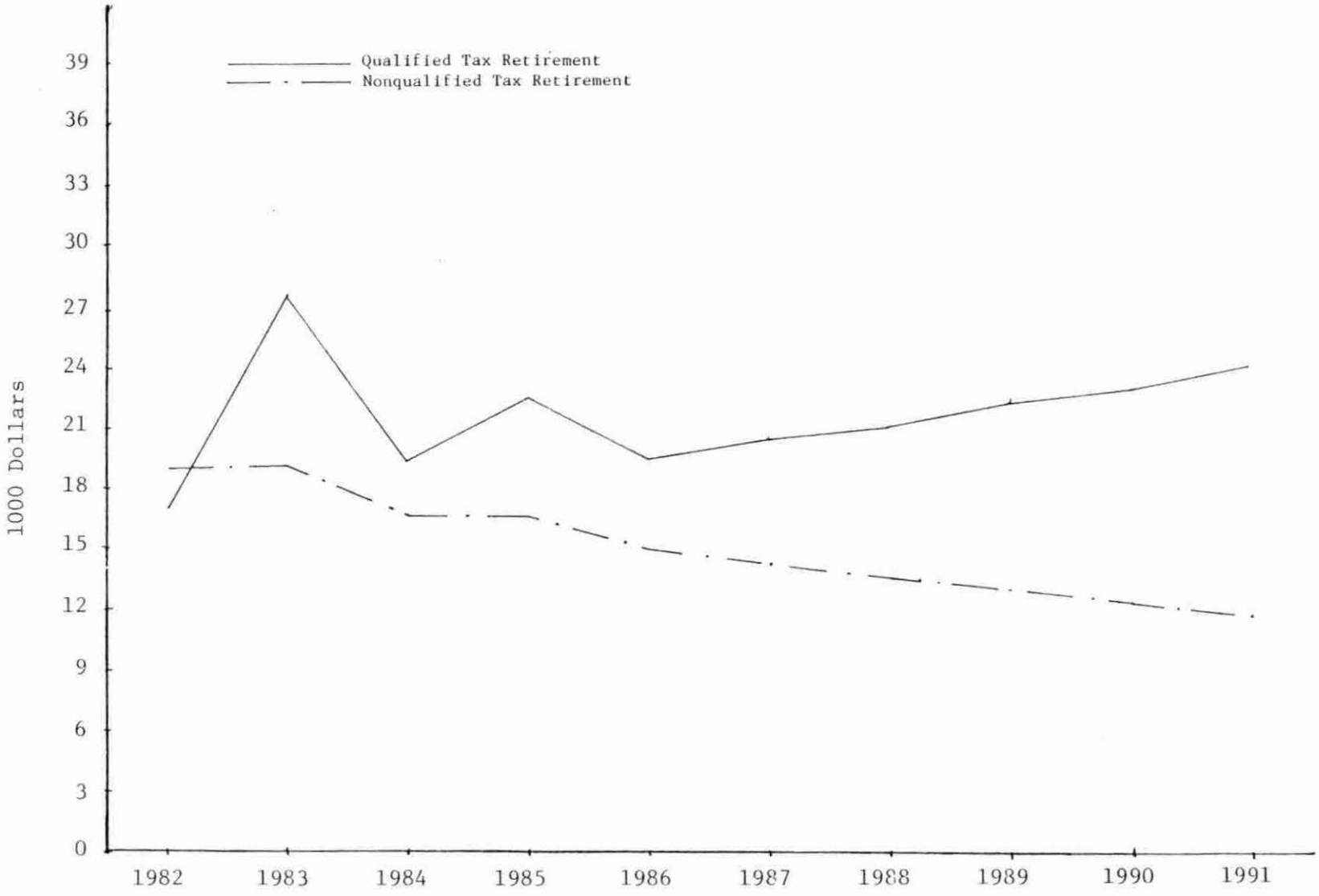

Figure 4.24 Iowa, Net Cash Flow to Members, 35% Tax Bracket, Scenario 4, 30% Cash Patronage, Retirement

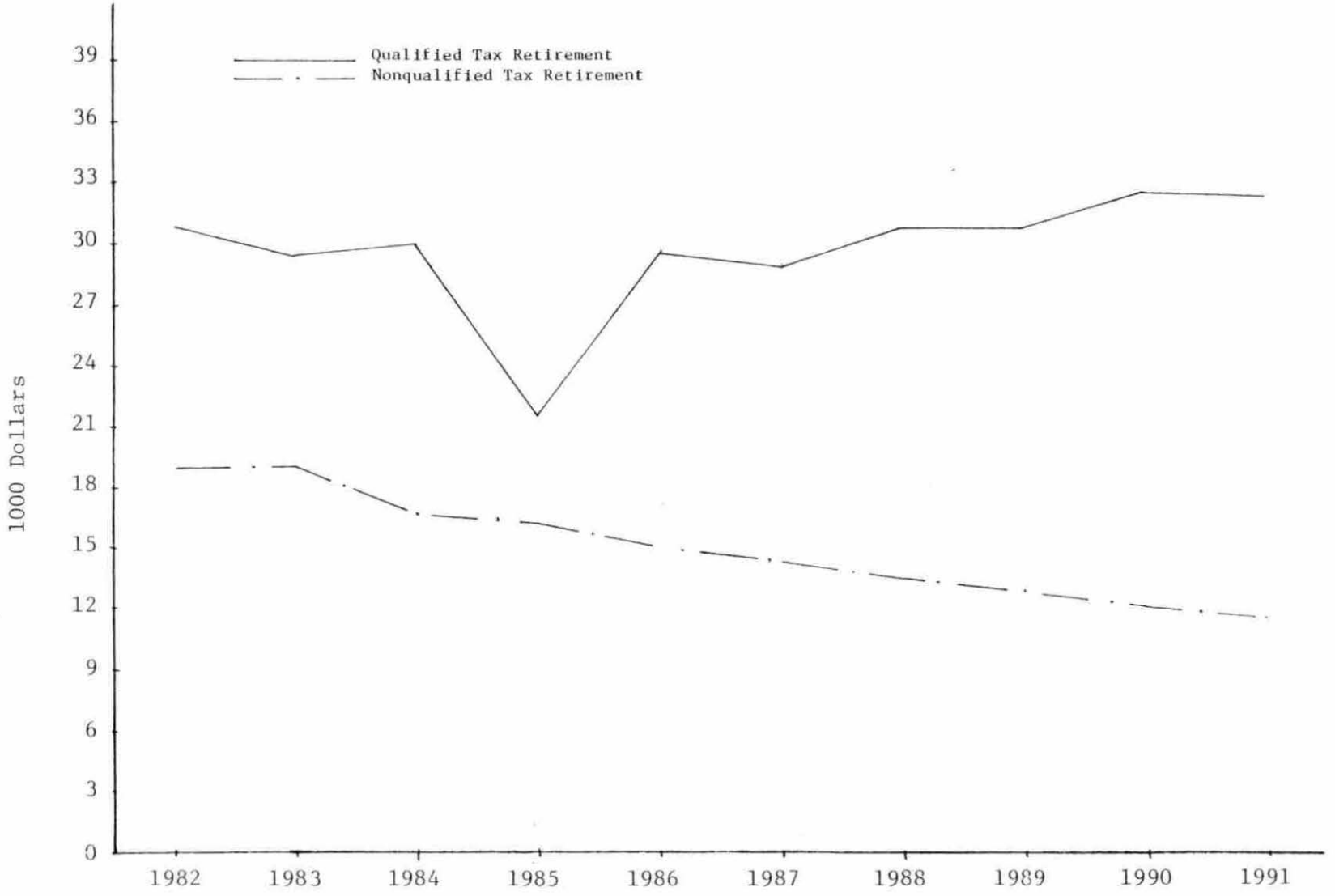

Figure 4.25 Iowa, Net Cash Flow to Members, 35% Tax Bracket, Scenario 4, 45% Cash Patronage, Retirement

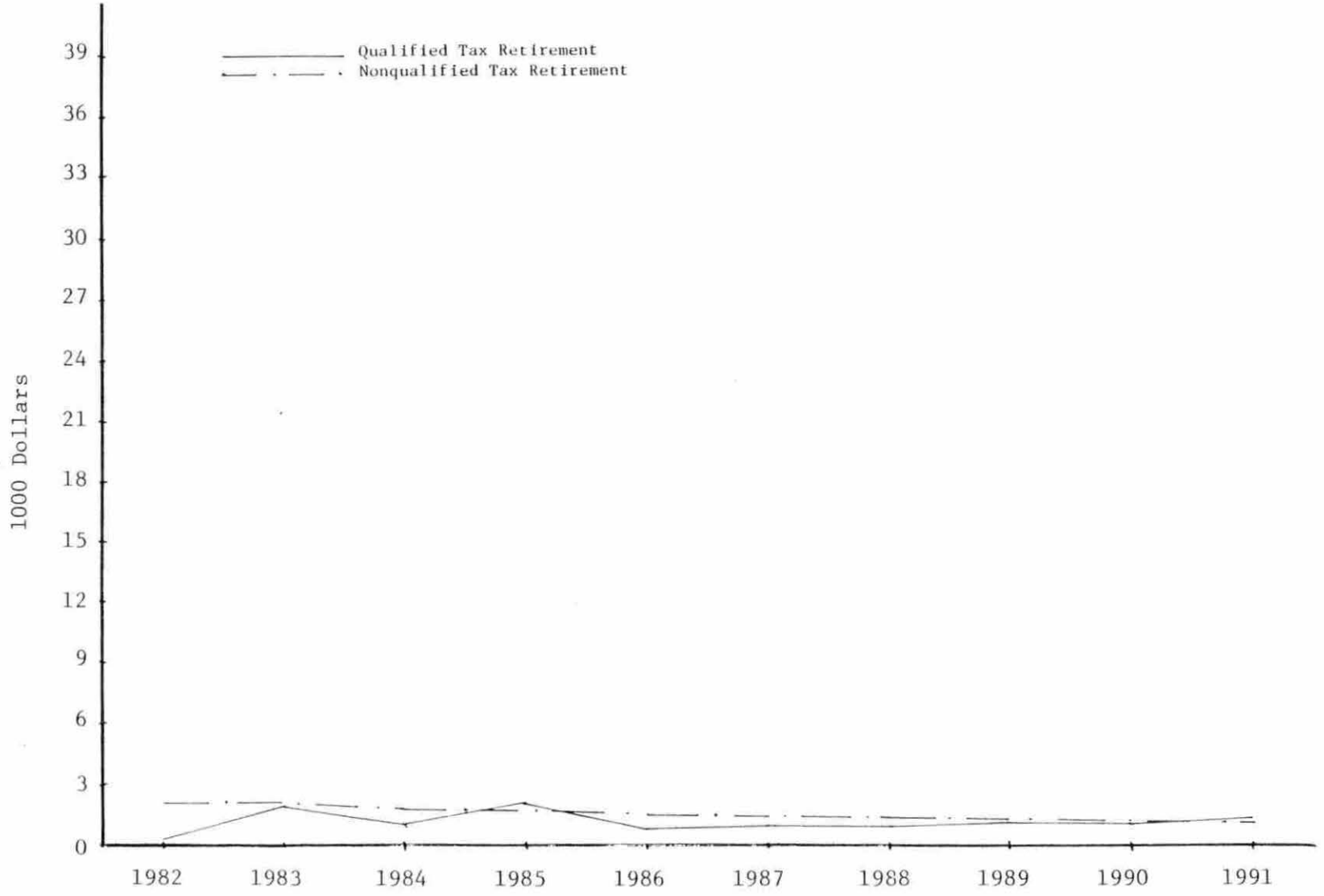

Figure 4.26 Iowa, Net Cash Flow to Members, 50% Tax Bracket, Scenario 5, 30% Cash Patronage, Retirement

Figure 4.27 Iowa, Net Cash Flow to Members, 50% Tax Bracket, Scenario 5, 45% Cash Patronage, Retirement

Table 4.5 Future value, Iowa, net cash flow to members, nonqualified tax vs. qualified tax, retirement[a]

Type of comparison	Future value	Iowa 10%	Iowa 12%	Iowa 14%
Scenario 1 20% tax bracket 30% cash		(165,548)	(182,660)	(202,061)
Scenario 1 20% tax bracket 45% cash		(301,317)	(334,934)	(372,987)
Scenario 4 35% tax bracket 30% cash		(102,359)	(111,438)	(165,414)
Scenario 4 35% tax bracket 45% cash		(238,221)	(263,861)	(292,854)
Scenario 5 50% tax bracket 30% cash		7,771	9,061	10,524
Scenario 5 50% tax bracket 45% cash		(5,816)	(6,184)	(6,592)

[a](NONQUALIFIED TAX_{NCF} - QUALIFIED TAX_{NCF}).

level of 30 percent cash patronage and the 50 percent marginal tax bracket in the Iowa cooperative (Figure 4.27). The compounded values are shown in Table 4.5. Again, the situations are not entirely comparable because nonqualifieds were not retired. Members would receive positive net cash flow when nonqualifieds are redeemed, even though they pay taxes because they receive the entire amount in cash.

Summary

This chapter looked at two types of equity allocations to members under rapid-ACRS, ACRS-SL and BTT.

Simulated earnings allocated to members in the form of qualified and nonqualified equities were examined in this section. Three levels of cash patronages were distributed as a portion of the qualified allocations. The results from this chapter were as follows:

1) At levels of 30 and 40 percent cash patronage with no equity retirement, the qualified allocations generated more working capital than nonqualifieds. At 45 percent, the working capital generated in nonqualified distributions equalled or surpassed the working capital generated by qualified distributions, in two of the three cooperatives. This result occurred due to the shifting of the tax burden from the cooperative to the members at the lower levels of cash patronage when qualified allocations were made.

2) With equity retirement, the qualified run generated more working capital at 30 percent cash patronage but at 45 percent the nonqualified distribution generated much more working capital than the qualified.

3) In almost every case, the combined total of taxes paid by members and the cooperative when earnings were distributed as nonqualified allocations were less than the total member and corporate taxes that would result from distributing earnings as qualified allocations.

4) Qualified allocations resulted in a higher rate of growth in equities if a 30 percent cash patronage was paid. In general, at levels of 40 and 45 percent cash patronage, the equities grew faster by distributing nonqualified allocations. The pattern was the same when qualified equity was retired.

5) The capital surplus account grew faster when qualified allocations were distributed due to the fact that the 10% addition to capital surplus was calculated on the basis of after tax cooperative earnings.

6) The results confirmed the dilemma that exists among members in the different tax brackets. Members in the lower tax brackets (20 to 35 percent) received more net cash flow when qualified allocations were distributed because they received a cash patronage large enough to defray their tax liability from their distribution. However, members in the highest tax brackets (45 to 50 percent) did not. Therefore,

their net cash flow situation improved when they received nonqualified allocations and the cooperative assumed the tax liability. Distributing nonqualified allocations was fair to all members, regardless of tax bracket because the cooperative assumes the tax liability on the distribution.

The results vary slightly depending on the cooperative. They indicate that managers and boards need to look closely at their cooperative to determine which methods will maximize the net benefits to the members. The size of the cooperative, their investment decisions, the level of cash patronage, their equity retirement plan, and the average tax bracket of members are of particular importance.

CHAPTER 5. LOSSES

Introduction

The method a cooperative uses to allocate earnings is relevant not only when the cooperative has positive net earnings but also when the cooperative sustains losses. The previous chapter focused on a stream of positive net earnings, except for two loss years in the eastern cooperative. In this chapter, the impacts on the cooperative and the members under the assumption that losses occurred in two consecutive years will be examined. This past year (1982) was a devastating year for some local cooperatives and some regional cooperatives. Year-end earnings for 1983 show little promise for improvement.

Several factors have led to the present economic situation of cooperatives. Spurred by an expectation of growing export markets in the coming years, cooperatives engaged in plant expansions. But the larger market has not materialized; instead, the export market has been sluggish due to the strength of the dollar, bumper crops in the United States and a depressed international economy in general. The result of this expansion and sluggish markets has been overcapacity in many cooperatives. In addition to overcapacity of fixed assets, margins have fallen because of depressed prices for feed grains and soybeans due to the recent bumper crops. On

top of these factors are inflation and high interest rates of the past few years. Inflation has come to a halt and interest rates have come down but the real interest rates still remain higher than a few years ago. Interest payments are eating away at the earnings and working capital of some cooperatives. The possibility of some cooperatives recovering during 1983 is bleak; therefore, managers and boards must learn to more effectively manage operating losses.

The problem of handling losses is magnified when a regional cooperative operates at a loss. Federated regional cooperative operations have a direct impact on member cooperatives. Some financial decisions made at the regional level are linked directly to the financial health at the local cooperative level through the patronage they allocate back to the locals.

Therefore, the way regionals handle ordinary net operating losses may become a critically important factor in the local cooperative's financial condition. This is particularly true as it relates to the proper tax treatment of the losses [56].

The regional cooperative has several alternatives for treating their losses. Some of the alternative treatments have not been viewed favorably by the Internal Revenue Service (IRS); however, the IRS has reasoned that in a patronage business operating losses occurred because overadvances were made

in the case of marketing cooperatives or underpricing occurred in input cooperatives. In other words, the cooperative simply misjudged its financial needs for the year. Therefore, the IRS reasons, current patrons should make up the difference.

Interpreted in their most severe light some recent opinions of the IRS follow these lines: (1) the IRS does not want cooperatives to operate at a loss in their patronage activities and make up the difference with nonpatronage income; (2) the IRS does not want patrons of one function absorbing the losses generated by another function; and (3) the IRS does not want patrons who were not patrons in the year when the loss occurred to absorb the losses generated by patrons of current or succeeding years [56].

Several recent court case decisions have more or less followed the guidelines above; nevertheless, some exceptions have been recorded. In the Ford-Iroquis case [Ford-Iroquis FS. Inc., 74 T.C. #88 (1980)], netting between patronage functions was allowed. The fact that the members using the function were substantially the same was a major factor in the final decision. But the tax court stressed "that the netting of losses among patrons of a cooperative was a matter of internal management discretion, and that the Government's interference was unwarranted" [33]. In the Farm Service case [Farm Service Cooperative vs. Commissioner, 619 F. 2d 718 (8th

Cir. 1980)], the court approved the use of patronage losses to reduce qualified equities issued in earlier years [56].

The subject of cooperative losses has had little attention in recent years. Although losses have occurred, the perceived need for a systematic approach has been less. In earlier years, the majority of the losses that did occur were taken from capital surplus; in many cases, the following year was a profit year. In other cases, mergers with stronger cooperatives occurred. In a few of the more severe cases, losses have been allocated to members.

Current conditions in agriculture of slow growth in demand, surpluses of commodities and financial pressure could easily result in losses next year. Many cooperatives may not be able to reduce capital surplus again without putting their surplus accounts in a negative position. In order for cooperatives to be able to meet the objective of enhancing member benefits in loss years, the board of directors must understand the impact on the members associated with each method of treating a loss. The overall purpose of the work included in this chapter was to analyze the impact on the local cooperative and its members of an ordinary net operating loss.

Two situations were hypothesized with respect to sources and magnitude of losses. In the first situation, a regional cooperative loss was examined in conjunction with a local cooperative net operating savings. The magnitudes were such

that the combined net earnings for the local cooperative resulted in a loss. The second situation combined a regional operating loss and local operating loss that resulted in negative net local savings. Three of the case cooperatives described in Chapter 2 were chosen for analysis in this chapter.

The analysis was primarily concerned with (1) the effects on the balance sheet of the local cooperative; (2) the distribution of income to members; (3) the tax implications for the cooperative and the members; (4) how the debt to equity ratio was affected by each use of the loss; and in conclusion a subjective evaluation of the alternatives was given. The evaluation concentrated on the justice and fairness to members, the legal soundness, and the overall economic impacts associated with the alternative strategies.

Data Used in the Analysis

The three cooperatives used to evaluate the treatment of losses were the Iowa grain and marketing cooperative, the Indiana supplies cooperative, and the small Nebraska wheat cooperative. Special projections were made for three years. The earnings patterns of the cooperatives previously postulated for the earlier analyses were altered for the three years. The first year was left constant but changes were made in the projection input data for two following years that

would cause operating losses. A summary of these changes for each cooperative is as follows.

Iowa

The basic changes made in the Iowa cooperative projection which lead to negative earnings were: (1) lower gross margins in the corn and feed departments; (2) decreases in corn and fertilizer volumes of 15 percent in the second period; (3) increases in salaries; and (4) increases in other operating expenses.

Indiana

The changes in assumption which lead to combined net operating losses in the Indiana cooperative were: (1) a five percent decrease in sales of supplies; (2) lower gross margins in both the supply and marketing departments; (3) increases in salaries of five percent; and (4) an additional five percent increase in operating expenses in the second period.

Nebraska

The Nebraska cooperative was subjected to similar changes in assumptions. They were: (1) a 30 percent decrease in grain volume in the second period and a 10 percent decline in the volume of merchandise sold; (2) lower gross margins in the grain department; (3) increases of eight percent each year in salary expenses; and (4) a nine percent increase each year in operating expenses.

These assumptions are indicative of the kinds of pressures that these cooperatives might face in the current economic climate.

Model and Assumptions

In order to compare the results of normal years and loss years, period one was assumed to be a normal net earnings year for each cooperative. A normal year in this case is a year where both local savings and regional patronage were positive. In periods two and three, the local cooperatives were subject to losses from various sources and of various magnitudes.

The assumptions that apply for all three periods were as follows: (1) depreciation was calculated on a straight-line basis; (2) investment tax credits were earned, (those not used to offset corporate taxes incurred by the cooperative were passed to members even in loss years); (3) no nonqualified written notices of allocation were distributed; (4) a ten-year revolving fund existed for allocated equities; (5) the debt to equity ratio did not create a problem for borrowing; (6) all cooperatives found it desirable to retire qualified allocated equities; (7) the marginal income tax bracket distribution for the members centered at 41 percent (scenario 4); (8) social security (self-employment tax) impacts were not calculated but were approximated by pushing the center of the member tax

bracket distribution from 32 to 41 percent; (9) a substantial number of members either (a) had income this year; (b) had income within the past three years; or (c) expect to have income in future years.

Assumptions applying specifically to periods two and three are: (1) 10 percent of the loss was taken from capital surplus to cover nonpatronage based loss; (2) sufficient qualified allocated equities existed to cover the loss; (3) negative stock credit balances were run for new members; (4) equity retirement programs were suspended in loss years and no estates paid; (5) cash patronage to local members was not paid when net local savings were negative; (6) no dividends were paid on any preferred stock owned by members in the loss years. All other factors were held constant so that the results would be comparable.

Strategies for Handling the Losses

In period one, each of the cooperatives had positive net earnings. In periods two and three, the regional cooperative operated at a loss. Two sets of runs were completed; in the first set the local cooperative had positive local earnings, and in the second set the local cooperative had negative local earnings. Three strategies were applied to treat the losses for each cooperative. They were as follows:

Strategy A: The regional cooperative held the loss and decreased capital surplus. As a consequence, the local cooperative did not receive a regional patronage - either positive or negative. Without the patronage, the local cooperative had positive local earnings in the first set and negative local earnings in the second set.

Strategy B: The regional cooperative passed the loss to the local cooprative in the form of a negative, noncash patronage (i.e. the local coop's equity in the regional cooperative was decreased). The patronage was subtracted from local earnings which left the cooperative operating at a loss. The local cooperative treated the loss by reducing unallocated capital surplus. In both sets of runs, the local cooperative had negative net earnings.

Strategy C: The regional cooperative passed the loss to the local cooperative in the form of a negative, noncash patronage. The local cooperative treated the loss in this case by distributing 90 percent of the loss in the form of a negative, noncash patronage refund to its members. This was accomplished by reducing allocated member equity of the previous year. The remaining 10 percent was taken from capital surplus to cover nonpatronage based loss.

Results of the Analysis

Strategy A: the regional cooperative held the loss

When the regional cooperative did not pass a patronage, two different conditions were assumed at the local level. First, it was assumed that the local cooperative still had local earnings to allocate to members. In a second set of conditions, it was assumed that the local cooperative operated at a loss; therefore, there were no earnings available for allocation to members. The results from application of Strategy A can be seen in Tables 5.1 and 5.2. Table 5.1 contains the data generated under the assumption that local earnings were positive. Table 5.2 contains the data generated under the assumption that local earnings were negative. From the data, it is evident that the Iowa cooperative depended more heavily on their regional patronage. In period one, the patronage they received was $200,000 which was greater than their local earnings of $172,500. In the Nebraska cooperative where the regional patronage was only $3,000, the impact was quite small compared to their local earnings of $110,374. Therefore, when the regional cooperative did not pass a patronage refund, it affected the Iowa and Indiana cooperative more seriously than the Nebraska cooperative. The Iowa and Indiana cooperative that had been receiving large amounts of regional patronage still carried the regional patronage investment in their assets section at the original level.

Table 5.1 Strategy A - loss held within the regional cooperative - local net earnings positive, set 1

	IOWA		
	Period		
	1	2	3
Local earnings	172,500	133,241	164,428
Regional patronage	200,000	0	0
Combined net earnings[a]	372,500	133,241	164,428
Total assets	4,059,833	4,587,523	4,646,224
Investment in other cooperatives	1,156,054	1,156,054	1,156,054
Term liabilities	475,507	842,507	707,007
Qualified equities	1,854,911	1,950,844	2,069,232
Capital surplus	398,099	410,624	426,080
Total member equity	2,448,160	2,556,617	2,690,462
Taxable cash to members	66,243	23,983	29,597
Taxable noncash to members	264,971	95,933	118,388
ITC to members	0	50,621	182

[a]Includes both regional patronage and local earnings.

INDIANA			NEBRASKA		
Period			Period		
1	2	3	1	2	3
207,456	115,746	66,000	110,374	16,442	16,638
130,000	0	0	3,000	0	0
337,456	115,746	66,000	113,374	16,442	16,638
9,847,610	9,805,813	9,827,442	987,540	961,013	952,130
2,365,342	2,365,342	2,365,342	110,877	110,877	110,877
443,581	308,320	183,059	101,250	78,750	56,250
3,983,418	4,066,755	4,114,275	497,639	509,447	521,456
1,051,850	1,063,424	1,070,024	94,490	96,073	97,674
5,333,348	5,428,259	5,482,379	684,007	697,428	711,009
95,903	20,834	11,880	20,407	2,960	2,995
209,949	83,337	47,520	81,630	11,838	11,980
10,844	20,264	35,510	0	763	760

Table 5.2 Strategy A - loss held within the regional cooperative - local net earnings negative, set 2

	IOWA		
	Period		
	1	2	3
Local earnings	172,150	(15,744)	(33,256)
Regional patronage	200,000	0	0
Combined net earnings[a]	372,150	(15,744)	(33,256)
Total assets	4,059,833	4,439,339	4,325,325
Investments in other cooperatives	1,156,054	1,156,054	1,156,054
Term liabilities	475,507	842,507	707,007
Qualified equities	1,854,911	1,840,741	1,810,811
Capital surplus	398,099	396,525	393,199
Total member equity	2,448,160	2,432,416	2,399,160
Taxable cash to members	66,243	0	0
Taxable noncash to members	264,971	(14,170)	(29,930)
ITC to members	0	52,500	2,500

[a]Includes both regional patronage and local earnings.

INDIANA			NEBRASKA		
Period			Period		
1	2	3	1	2	3
207,456	(94,924)	(85,375)	110,374	(7,204)	(8,134)
130,000	0	0	3,000	0	0
337,456	(94,924)	(85,375)	113,374	(7,204)	(8,134)
9,847,610	9,595,143	9,486,231	987,540	937,429	906,795
2,365,342	2,365,342	2,365,342	110,877	110,877	110,877
433,581	308,320	183,059	101,250	78,750	56,250
3,983,418	3,897,986	3,281,148	497,639	491,155	483,834
1,051,850	1,042,358	1,033,820	94,490	93,770	92,957
5,333,348	5,238,423	5,153,048	684,007	676,803	668,669
95,903	0	0	20,407	0	0
209,949	(85,432)	(76,838)	81,630	(6,484)	(7,320)
10,844	22,000	36,500	0	1,000	1,000

The qualified equity account, the capital surplus account, and therefore the total member equity account all grew when local earnings were positive. The opposite occurred when the local earnings were negative. Members received taxable cash and noncash distributions in the first set, but in the second set in periods two and three, 10 percent of the local loss was taken from capital surplus and 90 percent was taken from the qualified allocated equity of members by allocating a negative, taxable, noncash distribution to the members. Members were entitled to a tax deduction as a result of the decrease in their equity in the cooperative. They also received an ITC allocation.

Strategy B: loss taken from local cooperative's capital surplus

The net result of the regional cooperative passing a negative patronage to the local was negative net earnings for the local cooperative under both the assumption that the local had positive earnings and the assumption that local earnings were negative. Because the regional patronage was larger in absolute terms than the local earnings the combined net savings was negative. Under the assumption that local earnings were already negative, the regional loss simply increased the size of the loss at the local level. Table 5.3 and 5.4 contain the data from these runs.

Table 5.3 Strategy B - loss taken from local cooperative's capital surplus - local net earnings positive, set 1

	IOWA		
	Period		
	1	2	3
Local earnings	172,500	133,241	164,428
Regional patronage	200,000	(175,000)	(200,000)
Combined net earnings[a]	372,500	(41,759)	(59,030)
Total assets	4,059,833	4,413,323	4,273,536
Investments in other cooperatives	1,156,054	981,054	761,054
Term liabilities	475,507	842,507	707,007
Qualified equities	1,854,911	1,854,911	1,854,911
Capital surplus	398,099	356,340	297,310
Total member equity	2,448,160	2,406,401	2,437,371
Taxable cash to members	66,243	0	0
Taxable noncash to members	264,971	0	0
ITC to members	0	52,500	2,500

[a]Includes both regional patronage and local earnings.

INDIANA			NEBRASKA		
Period			Period		
1	2	3	1	2	3
207,456	115,746	66,000	110,374	16,442	16,638
130,000	(120,000)	(145,000)	3,000	(20,000)	(30,000)
337,456	(4,254)	(79,000)	113,374	(3,558)	(13,362)
9,847,610	9,685,814	9,583,277	987,540	941,075	905,213
2,365,342	2,245,342	2,100,342	110,877	90,877	60,877
433,581	308,320	183,059	101,250	78,750	56,250
3,983,418	3,983,418	3,983,418	497,639	497,639	497,639
1,051,850	1,047,596	968,596	94,490	90,932	77,751
5,333,348	5,329,094	5,250,094	684,007	680,449	667,087
95,903	0	0	20,407	0	0
209,949	0	0	81,630	0	0
10,844	22,000	36,500	0	1,000	1,000

Table 5.4 Strategy B - loss taken from local cooperative's capital surplus - local net earnings negative, set 2

	IOWA		
	Period		
	1	2	3
Local earnings	172,150	(15,744)	(33,256)
Regional patronage	200,000	(175,000)	(220,000)
Combined net earnings[a]	372,150	(190,744)	(253,256)
Total assets	4,059,833	4,264,338	3,930,323
Investment in other cooperatives	1,156,054	981,054	761,054
Term liabilities	475,507	842,507	707,007
Qualified equities	1,854,911	1,854,910	1,854,909
Capital surplus	398,099	207,355	(45,900)
Total member equity	2,448,160	2,257,415	2,004,158
Taxable cash to members	66,243	0	0
Taxable noncash to members	264,971	0	0
ITC to members	0	52,500	2,500

[a]Includes both regional patronage and local earnings.

INDIANA			NEBRASKA		
Period			Period		
1	2	3	1	2	3
207,456	(94,924)	(85,375)	110,374	(7,204)	(8,134)
130,000	(120,000)	(145,000)	3,000	(20,000)	(30,000)
337,456	(214,924)	(230,375)	113,374	(27,204)	(38,134)
9,847,610	9,475,144	9,221,231	987,540	917,429	856,795
2,365,342	2,245,342	2,100,342	110,877	90,877	60,877
433,581	308,320	183,059	101,250	78,750	56,250
3,983,418	3,983,418	3,983,417	497,639	497,639	497,638
1,051,850	836,926	606,551	94,490	67,286	29,152
5,333,348	5,118,424	4,888,048	684,007	656,803	618,669
95,903	0	0	20,407	0	0
209,949	0	0	81,630	0	0
10,844	22,000	36,500	0	1,000	1,000

In general, the total asset accounts declined from period one to period three because the investments in other cooperatives fell by the amount of the negative patronage. The Iowa cooperative was an exception due to the $525,000 addition to fixed assets. Although the Iowa cooperative had an increase in total assets in period two, it was due to the large increase in fixed assets. The qualified equity account remained unchanged over the three periods. The capital surplus account fell by the total amount of the loss sustained in the two years.

Under the assumption that losses occurred at the local as well as the regional, the results changed somewhat. The decreases in capital surplus in the Iowa cooperative were so large when the local also had negative earnings that the cooperative had a negative capital surplus account in period three of -$45,900. A negative balance in this account implies an attempt to "carry forward" the loss. Little or no difference in allocated member equities at the local level resulted.

The capital surplus account for Nebraska declined almost 60 percent from period one to three. Total member equity fell by the same amount as the decline in capital surplus. Although the members of all three cooperatives received no taxable allocation, they did receive an ITC allocation. This allocation had to be passed through to the members or lost. The current tax code prohibits the cooperative from carrying

the loss forward. None of the locals was able to use ITC with the losses they had incurred because they had no federal tax liability. Member cash flow was therefore positive, regardless of member tax bracket under this assumption.

Strategy C: loss taken from local member's equity

As in Strategy B, the regional passed the loss on to the local by decreasing the local's equity in the regional cooperative. The combined local and regional earnings at the local level were again negative whether or not the local was assumed to have earnings. Under the assumption that local earnings were positive, total assets also followed the same pattern that occurred in Strategy B. The total assets again declined. Tables 5.5 and 5.6 contain the data that resulted from applying Strategy C when net earnings at the local level were assumed to be positive.

However, the qualified equity account was affected differently by using Strategy C. In periods two and three, the qualified equities were reduced by 90 percent of the loss. Previously allocated equity of members was written-off the books, and the cooperative was no longer accountable to the members for retirement of that portion of equity. Under Strategy A or Strategy B, that equity would eventually have been eligible to be retired.

Table 5.5 Strategy C - loss taken from member's allocated equity - local net earnings positive, set 1

	IOWA		
	Period		
	1	2	3
Local earnings	172,500	133,241	164,428
Regional patronage	200,000	(175,000)	(220,000)
Combined net earnings[a]	372,500	(41,759)	(59,030)
Total assets	4,059,833	4,413,323	4,273,535
Investments in other cooperatives	1,156,054	981,054	761,054
Term liabilities	475,507	842,507	707,007
Qualified equities	1,854,911	1,817,327	1,764,200
Capital surplus	398,099	393,924	388,021
Total member equity	2,448,160	2,406,400	2,437,370
Taxable cash to members	66,243	0	0
Taxable noncash to members	264,971	(37,583)	(53,127)
ITC to members	0	52,500	2,500

[a]Includes both regional patronage and local net earnings.

INDIANA			NEBRASKA		
Period			Period		
1	2	3	1	2	3
207,456	115,746	66,000	110,374	16,442	16,638
130,000	(120,000)	(145,000)	3,000	(20,000)	(30,000)
337,456	(4,254)	(79,000)	113,374	(3,558)	(13,362)
9,847,610	9,685,814	9,583,277	987,540	941,075	905,213
2,365,342	2,245,342	2,100,342	110,877	90,877	60,877
433,581	308,320	183,059	101,250	78,750	56,250
3,983,418	3,979,589	3,908,489	497,639	494,436	482,411
1,051,850	1,051,424	1,043,524	94,490	94,135	92,798
5,333,348	5,329,094	5,250,094	684,007	680,449	667,087
95,903	0	0	20,407	0	0
209,949	(3,829)	(71,100)	81,630	(3,202)	(12,025)
0	22,000	36,500	0	1,000	1,000

Table 5.6 Strategy C - loss taken from member's allocated equity - local net earnings negative, set 2

	IOWA		
	Period		
	1	2	3
Local earnings	172,150	(15,744)	(33,256)
Regional patronage	200,000	(175,000)	(220,000)
Combined net earnings*	372,150	(190,744)	(253,256)
Total assets	4,059,833	4,264,339	3,930,325
Investments in other cooperatives	1,156,054	981,054	761,054
Term liabilities	475,507	842,507	707,007
Qualified equities	1,854,911	1,683,241	1,455,311
Capital surplus	398,099	379,025	353,699
Total member equity	2,448,160	2,257,416	2,004,160
Taxable cash to members	66,243	0	0
Taxable noncash to members	264,971	(171,670)	(227,930)
ITC to members	0	52,500	2,500

[a]Includes both regional patronage and local earnings.

INDIANA			NEBRASKA		
Period			Period		
1	2	3	1	2	3
207,456	(94,924)	(85,375)	110,374	(7,204)	(8,134)
130,000	(120,000)	(145,000)	3,000	(20,000)	(30,000)
337,456	(214,924)	(230,375)	113,374	(27,204)	(38,134)
9,847,610	9,475,144	9,221,231	987,540	917,429	856,795
2,365,342	2,245,342	2,100,342	110,877	90,877	60,877
433,581	308,320	183,059	101,250	78,750	56,250
3,983,418	3,789,986	3,582,648	497,639	473,155	438,834
1,051,850	1,030,358	1,007,320	94,490	91,770	87,957
5,333,348	5,118,423	4,888,048	684,007	656,803	618,669
95,903	0	0	20,407	0	0
209,949	(193,432)	(207,338)	81,630	(24,484)	(34,320)
10,844	22,000	36,500	0	1,000	1,000

The members received a negative taxable noncash distribution. As explained in Chapter 3, the members were entitled to use the noncash loss to reduce ordinary income because taxes were paid when the equity was allocated, the IRS recognizes it as an ordinary loss. No taxable cash distribution was given. However, an ITC allocation equal to the one distributed in Strategy B was received by the members.

The unallocated capital surplus account declined when Strategy C was used to treat the loss. But it fell by only 10 percent of the combined loss for the local cooperative. This reduction was made to account for the portion of the loss due to nonpatron sourced business. Thus, under either the assumption that the local cooperative had positive net savings or sustained a local net loss, the outcome for major financial accounts moved in the same direction. The impact on farmer cash flow also moved in the same direction. The magnitude of these changes in cooperative accounts and farmer cash flow was greater under the assumption that a local loss occurred as well as the one passed from the regional.

Detailed Analysis of Loss Distribution

The analysis that follows is a detailed comparison of Strategies A, B and C for handling losses that originated at a regional or local cooperative. The three cooperatives that were used in this section responded in differing degrees

depending on the importance of the regional patronage to the cooperative. As mentioned in the previous section, the Iowa cooperative received more from the regional cooperative than the cooperative generated locally. Consequently, when no patronage was received from the regional cooperative or when a negative patronage was handed down to the Iowa cooperative the impact was greater on it than in the other cooperatives. For this reason, the Iowa cooperative was chosen as the primary focus of the analysis. A short analysis of the impacts on the Indiana and the Nebraska cooperatives was included to provide insight into the impacts that losses will have on other types of cooperatives.

Analysis of the Impacts of the Iowa Cooperative

Earnings

The Iowa cooperative generated local earnings of $133,241 and $164,428 in periods 2 and 3, respectively (Table 5.7). As long as the regional loss was held at the regional cooperative, the local cooperative functioned as usual. The combined net earnings was less than normal. Nonetheless, the local was obligated to distribute patronage dividends to members and to pay cash on the allocated earnings at the minimum rate of 20 percent if the allocation was qualified. As an alternative they could retain earnings into unallocated surplus or issue nonqualified allocations. In either of these cases, taxes

Table 5.7 Iowa - local net savings postive - set 1

	Period 1	Period 2			Period 3		
		Loss held at regional	Loss taken from local capital surplus	Loss taken from member equity	Loss held at regional	Loss taken from local capital surplus	Loss taken from member equity
Earnings (local)	172,500	133,241	133,241	133,241	164,428	164,428	164,428
Regional patronage	200,000	0	(175,000)	(175,000)	0	(220,000)	(220,000)
Total assets	4,059,833	4,587,523	4,413,323	4,413,323	4,646,224	4,273,536	4,273,535
Term liabilities	475,507	842,507	842,507	842,507	707,007	707,007	707,007
Taxable cash to members	66,243	23,983	0	0	29,597	0	0
Taxable noncash to members	264,971	95,933	0	(37,583)	118,388	0	(53,127)
ITC to members	0	50,621	52,500	52,500	182	2,500	2,500
Total tax (scenario 4)	112,049	46,568	0	(14,714)	50,063	0	(17,973)
Total tax (scenario 5)	127,153	46,036	0	(14,428)	56,811	0	(20,395)
Qualified equities	1,854,911	1,950,844	1,854,911	1,817,327	2,069,232	1,854,911	1,764,200
Capital surplus	398,099	410,624	356,340	393,924	426,080	297,310	388,021
Corporate tax (after ITC)	619	0	0	0	637	0	0
Total member equity	2,448,160	2,556,617	2,406,401	2,406,400	2,690,462	2,437,371	2,437,370
Debt/equity ratio	.15	.33	.35	.35	.26	.30	.30

would have to be paid. The situation changed when the regional cooperative passed the loss to the Iowa cooperative. Their local earnings were not large enough to offset the large negative distributions of -$175,000 and -$220,000 from the regional. Therefore, combined net earnings were -$41,759 and -$55,572 in periods two and three, respectively. Both Strategies B and C resulted in the same net earnings situation for the local. In both cases, the members did not receive a positive taxable distribution.

Table 5.8 contains the results under the assumption that the Iowa cooperative had negative local earnings. The magnitude of the loss was much greater. In periods two and three, the combined net earnings were -$190,744 and -$253,256, respectively. The cooperative was faced with a situation much different from period one when the combined net earnings were $372,500.

Total assets

The total asset account fell in period three by the amount of the negative regional patronage when Strategies B and C were used. In period two, the cooperative invested in a $525,000 elevator. Hence, the total assets increased. Investments in other cooperatives, an asset account, was composed of the equity that the Iowa cooperative held in other cooperatives (usually the regional cooperatives). Within the

Table 5.8 Iowa - local net savings negative - set 2

	Period 1	Period 2			Period 3		
		Loss held at regional	Loss taken from local capital surplus	Loss taken from member equity	Loss held at regional	Loss taken from local capital surplus	Loss taken from member equity
Earnings (local)	172,500	(15,744)	(15,744)	(15,744)	(33,256)	(33,256)	(33,256)
Regional patronage	200,000	0	(175,000)	(175,000)	0	(220,000)	(220,000)
Total assets	4,059,833	4,439,339	4,264,338	4,264,339	4,325,325	3,930,323	3,930,325
Term liabilities	475,507	842,507	842,507	842,507	707,007	707,007	707,007
Taxable cash to members	66,243	0	0	0	0	0	0
Taxable noncash to members	264,971	(14,170)	0	(171,670)	(29,930)	0	(227,930)
ITC to members	0	52,500	52,500	52,500	2,500	2,500	2,500
Total tax (scenario 4)	112,049	(4,794)	0	(58,076)	(10,125)	0	(77,109)
Total tax (scenario 5)	127,153	(5,440)	0	(65,904)	(11,490)	0	(87,502)
Qualified equities	1,854,911	1,840,741	1,854,910	1,683,241	1,810,811	1,854,909	1,455,311
Capital surplus	398,099	396,525	207,355	379,025	393,160	(45,900)	353,699
Corporate tax (after ITC)	619	0	0	0	0	0	0
Total member equity	2,448,160	2,432,416	2,257,415	2,257,415	2,399,160	2,004,158	2,004,160
Debt/equity ratio	.15	.35	.37	.37	.29	.35	.35

regional cooperative, the loss was written-off by decreasing the allocated equity accounts of its member cooperatives. In order to reflect the loss in equity, the Iowa cooperative decreased its investments in other cooperatives. As a result, assets fell in period three from $4,413,323 to $4,273,535.

When the loss was held at the regional and taken from capital surplus, there was no reflection of the loss on the Iowa cooperative. Investments in other cooperatives did not change. Therefore, assets grew over the three year period from $4,059,833 to $4,646,244 under the assumption that the Iowa cooperative had positive earnings with no allocation from the regional, assets increased only slightly when the local cooperative had negative local earnings. (Again, the additions to fixed assets caused some of the increase.)

Growth in assets is normally considered to be a desirable sign. This is especially true when the growth is backed by equity rather than debt. However, it is important in this case to examine the situation carefully. Regardless of whether the investment account in the Iowa cooperative had fallen or not, the fact remained that the regional cooperative in which the Iowa cooperative had equity, had suffered a loss.

The true value of that equity had declined. It would be very misleading to look at a local cooperative's balance sheet as an accurate indication of net worth if this process were to

be continued for several periods. The asset account may no longer reflect face value because the regional cooperative's net worth would be lower. Those lending to the local cooperatives may become skeptical in making loans if the local cooperative's assets appeared to be overvalued as a result of the regional losses. Eventually a nonqualified opinion audit would not be possible without "writing down" this value.

Capital surplus

The capital surplus account is seriously affected as a result of the methods chosen of allocating the loss because each method handles unallocated capital surplus differently. The Iowa cooperative provides a clear picture of what would happen to some cooperatives if they incur losses several years in a row.

The capital surplus account increased only when the regional cooperative held the loss and the local cooperative had positive earnings. Ten percent of the after-tax local earnings were placed in the capital surplus account each year so that by the third period the capital surplus account had increased from $398,000 to $426,080. The increases were small relative to previous years, nonetheless capital surplus increased. When the local earnings were negative and the regional held the loss, the decrease in the account was relatively small.

As was mentioned earlier, by using Strategy B the entire loss was taken out of the local capital surplus account. Because the loss was so large, it resulted in a substantial decrease in the local capital surplus account. When the local cooperative had positive net earnings, capital surplus declined from $398,099 to $297,310 after loss periods two and three. In two years, the reserves had fallen by $100,000.

The impact was much greater when it was assumed that the local cooperative operated at a loss also. The capital surplus account fell 50 percent from period one to period two, and went negative from period two to period three. The losses were so substantial that by period three capital surplus was -$45,900. It was obvious that the cooperative could not continue in this manner.

The unallocated capital surplus account reflected a smaller portion of the loss when Strategy C was applied. Capital surplus declined in periods two and three, but only by 10 percent of the loss. When earnings were positive at the local level, the capital surplus account declined by $4,176 and $5,557 in periods two and three, respectively. When local earnings were assumed to be negative, capital surplus fell by $19,674 and $25,326 in periods two and three, respectively. Although not desirable, the decrease was not enough in any period to cause alarm.

There are two major problem associated with decreasing the capital surplus account (especially to the extent that it fell by using Strategy B). First, it leaves the cooperative with the liability to retire equities that have been lost in reality. Second, current patrons would not be the only ones who would absorb the loss. Patrons of previous years and (more important) patrons of future years are the ones who will have to absorb the loss.

The attitude of the IRS towards this kind of arrangement has already been discussed in the first section of this chapter. The IRS strongly believes in the "principle of equitable allocation", that is, "the patrons should share in the savings produced by their business in proportion to each member's activities with the cooperative" [56].

Qualified equity

Qualified equity, like capital surplus, only grew in one circumstance. When it was assumed that the local cooperative had positive earnings and the regional used Strategy A (loss held at the regional), the allocated equities increased over the three periods from $1,854,911 to $2,096,232. When the local loss was assumed using Strategy A, qualified equities fell by 90 percent of the local loss in each period. This reduction represented the passing to members of the local portion of the loss.

Since the capital surplus account was decreased by the entire amount of the combined local net earnings under Strategy B, the qualified equity account remained unchanged over the three years. This result occurred whether local earnings were positive or negative. The greatest change in qualified equities occurred in Strategy C. In each period, qualified equities fell by 90 percent of the combined net local earnings. In set one, the qualified account fell from $1,854,911 to $1,764,200 after the third period. In set two, the decline was larger because the combined losses were larger. Qualified equities fell from $1,854,911 to $1,455,311 over the three periods.

Treating losses in this manner has received IRS approval and the tax court approval in the Farm Service case cited earlier in the chapter. Patrons were allocated the loss in proportion to the business they did with the cooperative during the year the loss occurred. In this manner, a loss is treated just like a gain.

It is important at this point to stress that the same principle was applied earlier when the regional cooperative decreased the local cooperative's equity in the regional. If the loss is taken from capital surplus instead of allocated equity at the local level there is no reflection on the member's balance sheet. Hence, the member carries an investment at face value despite the fact a loss has occurred and

the investments may be of lower value.[1] If losses are relatively high, farmer equity in the cooperative would no longer be worth the face value that appears on their balance sheet. For this reason, the loss should be reflected in their net worth.

Stock in a cooperative is not sold on the open market. Therefore, the value of the stock may not fluctuate to reflect the losses that were taken from capital surplus. One way to compensate for the lack of an equity pricing mechanism (for allocated cooperative equities) is to pass the loss to the members by decreasing the amount of equity they have in the cooperative. In this way members would not be misled as to the value of their investment in the cooperative and the financial position of the cooperative.

Total taxes

Other benefits to members were documented when losses were passed to members. Members were required to report and pay taxes on qualified allocated equities at the time these were received as ordinary income. Therefore, when the cooperative chose to decrease allocated equities to account for the

[1]Although a case could be made that members frequently do not use cooperative equities in the process of calculating net worth, ample evidence exists that when they cease to do business with the cooperative they do expect to receive equity from the cooperative.

loss, the members were entitled to report the reduction in equity as an ordinary loss.

If the Iowa cooperative had a distribution of members similar to scenario 4 in Chapter 2, the members (collectively) would have received $12,714 in period two and $17,973 in period three on their taxable noncash allocations of -$37,583 in period two and -$53,127 in period three (set one). If the average tax bracket of members had been higher (scenario 5) then members would have received $14,428 and $20,395 in tax savings. Under the assumption that the cooperative had sustained a local loss, the amount of tax deductions were much greater. A member tax bracket distribution such as scenario 5 would have entitled members to $65,904 in period two. This positive cash flow was based on the member's noncash loss of $171,670. In period three, the cash flow would have been $87,502 on the member's taxable noncash loss (equity reduction) of $227,930.

When Strategy A (holding losses at the regional) was used instead of Strategy B, members would pay approximately $46,000 in taxes if the local cooperative had positive earnings. In set two, the members would receive a small tax savings as a result of the local loss. Treating the loss by reducing local capital surplus resulted in no taxable noncash distribution to members. Therefore, members were not entitled to any tax deduction.

The apparent results show that the cooperative would not pay any federal taxes. But since the extent to which a cooperative can carry the loss forward or backward to offset income of previous or future years is open to question, the extra tax benefit from the loss might be lost [33]. Hence, these apparent results may overstate the financial position of the cooperative if an unfavorable ruling from IRS did actually result.

Net cash flow to members

Further analysis of the tax reductions through ordinary losses to members is necessary since greater net cash flow is a desirable result. Table 5.9 gives the net cash flow to members for every $1 of distribution they receive from each method of allocation. Two tax brackets were selected in order to represent the net cash flow of members in both a low and a high average tax bracket.

Table 5.9 is useful in illustrating when members have positive or negative net cash flow. The negative signs indicate negative net cash flow for members in that tax bracket. There are limitations to this method of presenting cash flow information. Large positive numbers do not necessarily imply that large amounts of cash are being distributed to members. For example, in periods two and three using Strategy B, the members received $1.0/$1 distribution. Their distribution is

Table 5.9 Iowa net cash flow to members per dollar distribution

	41 percent tax bracket			23 percent tax bracket		
	Year			Year		
	1	2	3	1	2	3
Positive local earnings - set 1						
Strategy A - loss held at the regional	-.208	.149	-.209	-.028	.276	-.029
Strategy B - loss taken from local capital surplus	-.208	1.0	1.0	-.028	1.0	1.0
Strategy C - loss taken from member equities	-.208	.754	.437	-.028	.679	.265
Negative local earnings - set 2						
Strategy A - loss held at the regional	-.208	.875	.455	-.028	.836	.289
Strategy B - loss taken from local capital surplus	-.208	1.0	1.0	-.028	1.0	1.0
Strategy C - loss taken from member equities	-.208	.548	.416	-.028	.410	.238

100 percent cash, but the distribution is entirely ITC that the cooperative could not use. In period two, the ITC was $52,000 and in period three it was only $2,500 yet the cash flow per dollar of distribution is the same for both periods.

When local earnings were assumed to be positive, all the members received positive net cash flow in period two regardless of tax bracket. But the amount of cash flow depends on the strategy employed. Table 5.10 shows total dollar cash flow to members. Strategy A resulted in $25,410 to members, Strategy B resulted in $52,500 to members and Strategy C resulted in $67,923 to members of the 41 percent tax bracket.[2] Because the regional held the loss in Strategy A, the local cooperative had a tax liability on its local earnings. The ITC was used to defray tax liabilities at the cooperative level. Consequently only a small amount of ITC was available to pass to members. Thus, the ITC was used to offset tax liabilities on local earnings when those earnings could have been offset by the regional loss.

In period three, members in marginal tax brackets above 23 percent were in a negative net cash flow position (Table 5.11). Members' net cash flow as a result of Strategy A was -$30,967, but with Strategy C members received $24,308 in net

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[2]Calculated by taking the total distribution for each method times the net cash flow/$1 distribution.

Table 5.10 Total cash flow to members, 41 percent tax bracket

	Assuming local earnings positive		Assuming local earnings negative	
PERIOD	2	3	2	3
Strategy A - loss held at the regional	$25,410	$(30,967)	$58,336	$14,756
Strategy B - loss taken from local capital surplus	52,500	2,500	52,500	2,500
Strategy C - loss taken from member equities	67,923	24,308	122,845	95,859

Table 5.11 Net cash flow to members per dollar distribution

Marginal bracket percent tax	20	23	26	29	32	35	38	41	44	47	50
Net cash flow/$ distribution	.001	-.029	-.059	-.089	-.119	-.149	-.179	-.209	-.238	-.268	-.298

cash flow. Thus, an absolute difference of more than $55,000 in cash flow resulted. Again, the ITC was used at the cooperative level to offset the taxes as a result of local earnings under Strategy A.

Under the assumption that local losses occurred, the members had positive net cash flow in both periods two and three due to the local loss and the tax deduction. In period two, those members in the 41 percent tax bracket would have received $58,336 from Strategy A, $52,000 from Strategy B, and $122,845 from Strategy C.

Strategy C provided the largest positive net cash flow to the members. Whether it was assumed that local earnings were positive or negative, the members were in a positive cash flow position in both periods two and three. The net cash flow that members received was larger using Strategy C than Strategy A in set two. The tax reduction was only $4,794 (scenario 4) using Strategy A. Using Strategy C, the savings were $58,076.

Despite the positive cash flow impacts, trade-off was involved. The members, as a group, lost more nominal equity by using Strategy C than in Strategy A. In addition to the positive net cash flow from the decrease in equities, members need to consider the time value of money. The trade-off reduces to a question of whether the tax deduction today is more valuable than the face value of the equity to be retired

in the future. One way to determine the value of the tax deduction is to calculate the discounted value of the gain (tax deduction) using rates that approximate the opportunity cost of the foregone future earnings (equity retired in the future). By comparing current net cash flow to the present value of the flow anticipated from future equity retirement, the trade-off can be qualified.

The number of years calculated to break even may be compared to the number of years it takes a cooperative to revolve its equities. If the break-even number of years is less than the number of years to revolve equity, then it would clearly be to the member's advantage to take a loss in qualified equities and the associated tax deduction.[3] Table 5.12 gives the length of the revolving periods necessary to break-even at different discount rates and for members in different average tax brackets. The number of years appears to be high but the calculations were not adjusted to account for social security taxes.

Whether or not the cooperative has a specific plan to retire equities using Strategy B - taking the loss from

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[3]Under the conditions of running a negative capital surplus balance at the regional or local level, this test may not provide unambiguous results. If breakeven number of years is greater than the revolving period and negative surplus balances are run this may imply that the cooperative would not be in a position to maintain the expected revolving period. Rather a longer period would be necessary.

Table 5.12 Length of revolving period (in years) necessary to equalize current cash flow with face value of equities[a]

Average tax bracket	Discount rate .08	.10	.12	.14
20%	19.5	15.5	13.0	11.5
26%	17.0	14.0	12.0	10.0
29%	16.0	13.0	11.0	9.5
35%	14.0	11.5	9.5	8.0
41%	12.5	10.0	8.5	7.5

[a] $Q = 37,583$,

$PV_t = \frac{Q}{(1+i)^n}$,

Q = qualified allocation,

PV_t = total tax savings for average tax bracket,

i = discount rate, and

n = number of years.

capital surplus - is likely to lengthen the number of years to revolve equity. Replenishing a negative capital surplus would use funds that might have been a potential source for equity redemption.

Debt to equity and return on member equity

In order to analyze these ratios, the impacts on total member equity and debt was examined. Strategy A resulted in greater total member equity than either Strategy B and Strategy C. Both Strategies B and C generated the same total member equity. This result occurred because the loss was allocated to an equity account in both cases. Debt was held constant. Therefore, the debt to equity ratio from applying strategies B and C were the same. Likewise, the return on member equity was the same.

Since total member equity was greater under Strategy A than under Strategy B or C, the Strategy A debt to equity ratios are greater.

Table 5.13 shows the debt to equity ratio for the Iowa cooperative for all these strategies. Table 5.14 shows the return on member equity from using the three strategies. If lower debt to equity is desirable, the apparent results from Strategy A are substantially better than the results for Strategies B and C. However, the results in Strategy A, in a sense, conceal the true condition of the cooperative. The

Table 5.13 Iowa - long term debt to member equity

	Set 1 - local earnings positive			Set 2 - local earnings negative		
	Periods			Periods		
	1	2	3	1	2	3
Positive local earnings - set 1						
Strategy A - loss held at the regional	.19	.33	.26	.19	.35	.29
Strategy B - loss taken from local capital surplus	.19	.35	.30	.19	.37	.35
Strategy C - loss taken from member equities	.19	.35	.30	.19	.37	.35

Table 5.14 Iowa - return on member equity

	Set 1 - local earnings positive			Set 2 - local earnings negative		
	Periods			Periods		
	1	2	3	1	2	3
Positive local earnings - set 1						
Strategy A - loss held at the regional	15.2	5.21	6.11	15.2	-.65	-2.36
Strategy B - loss taken from local capital surplus	15.2	-1.74	-2.51	15.2	-8.45	-12.64
Strategy C - loss taken from member equities	15.2	-1.74	-2.51	15.2	-8.45	-12.64

loss that occurred at the regional cooperative was not reflected in these ratios. Hence, they might present a false sense of financial well-being in the local cooperative and serve to delay needed financial decisions that should be made. The misleading results are particularly dangerous if the cooperative uses nominal equity in the regional cooperative as a bargaining tool with lenders.

Working capital

The last element of concern in the Iowa cooperative was the impact on working capital as a result of the treatment of the loss. In all of the cases, the working capital grew over the three periods. The only difference in the three strategies was under Strategy A (the loss was not passed to the local) under the assumption that the local had positive earnings. Under these circumstances, working capital was less than working capital generated in the other strategies. The cooperative paid 20 percent cash patronage to members and paid taxes on the portion put into capital surplus. Under Strategies B and C, less cash was paid to members and less taxes were paid on the addition to unallocated surplus. Table 5.15 contains the working capital generated by the three strategies.

Table 5.15 Iowa - working capital

	Set 1 local earnings positive			Set 2 local earnings negative		
	Period			Period		
	1	2	3	1	2	3
Strategy A: loss held at the regional	663,168	735,324	834,699	663,168	611,123	543,397
Strategy B: loss taken from local capital surplus	663,168	760,108	886,608	663,168	611,123	543,397
Strategy C: loss taken from member equities	663,168	760,108	886,608	663,168	611,123	543,395

Results in the Indiana and Nebraska Cooperatives

The data generated from applying Strategies A, B, and C on the Indiana cooperative are given in Tables 5.16 and 5.17. The Indiana cooperative was in better financial condition to cope with the absence of a regional patronage. Their local earnings were $207,456 in period one and their regional patronage was only $130,000. Under the assumption that local earnings were positive in period two, the regional passed -$120,000 which left combined local earnings at -$4,254. In period three set one, combined local earnings were -$79,000. Under the assumption that local losses occurred in periods two and three, the combined loss was -$214,294 in period two and $230,375 in period three.

The results of allocating the losses are consistent with those from the Iowa cooperative. The capital surplus account in particular was reduced substantially by using Strategy B when both local and regional losses occurred. If Strategy C had been used under these circumstances, the members would have shared $79,597 in tax deductions (scenario 5), or $70,142 in scenario 4.

The Nebraska cooperative behaved in the same way as the previous two cooperatives. In set one, combined local earnings were -$3,558 and -$13,362 in periods two and three, respectively. The losses in set two were -$27,204 and -$38,134. Although the magnitude of the losses was much

Table 5.16 Indiana - local net earnings positive - set 1

	Period 1	Period 2			Period 3		
		Loss held at regional	Loss taken from local capital surplus	Loss taken from member equity	Loss Held at regional	Loss taken from local capital surplus	Loss taken from member equity
Earnings (local)	207,456	115,746	115,746	115,746	66,000	66,000	66,000
Regional patronage	130,000	0	(120,000)	(120,000)	0	(145,000)	(145,000)
Total assets	9,847,610	9,805,813	9,685,814	9,685,814	9,827,442	9,583,277	9,583,276
Term liabilities	433,581	308,320	308,320	308,320	183,059	183,059	183,059
Taxable cash to members	95,903	20,834	0	0	11,880	0	0
Taxable noncash to members	209,949	83,337	0	(3,829)	47,520	0	(71,100)
ITC to members	10,844	20,264	22,000	22,000	35,510	36,500	36,500
Total tax (scenario 4)	103,470	35,241	0	(1,295)	20,095	0	(24,053)
Total tax (scenario 5)	117,416	39,991	0	(1,470)	22,804	0	(27,295)
Qualified equities	3,983,418	4,066,755	3,983,418	3,979,589	4,114,275	3,983,418	3,908,489
Capital surplus	1,051,850	1,063,424	1,047,596	1,051,424	1,070,024	968,596	1,043,524
Corporate tax (after ITC)	619	0	0	0	0	0	0
Total member equity	5,333,348	5,428,259	5,329,094	5,329,093	5,482,379	5,250,094	5,250,093
Debt/equity ratio	.08	.057	.058	.058	.033	.035	.035

Table 5.17 Indiana - local net earnings negative - set 2

	Period 1	Period 2			Period 3		
		Loss held at regional	Loss taken from local capital surplus	Loss taken from member equity	Loss held at regional	Loss taken from local capital surplus	Loss taken from member equity
Earnings (local)	207,456	(94,294)	(94,294)	(94,294)	(85,375)	(85,375)	(85,375)
Regional patronage	130,000	0	(120,000)	(120,000)	0	(145,000)	(145,000)
Total assets	9,847,610	9,595,143	9,475,144	9,475,144	9,486,231	9,221,231	9,221,231
Term liabilities	433,581	308,320	308,320	308,320	183,059	183,059	183,059
Taxable cash to members	95,903	0	0	0	0	0	0
Taxable noncash to members	209,949	(85,432)	0	(193,432)	(76,838)	0	(207,338)
ITC to members	10,844	22,000	22,000	22,000	36,500	36,500	36,500
Total tax (scenario 4)	103,470	(28,901)	0	(65,438)	(25,994)	0	(70,142)
Total tax (scenario 5)	117,416	(32,797)	0	(74,258)	(29,498)	0	(79,597)
Qualified equities	3,983,418	3,897,986	3,983,418	3,789,986	3,281,148	3,983,417	3,582,648
Capital surplus	1,051,850	1,042,358	836,926	1,030,358	1,033,820	606,551	1,007,320
Corporate tax (after ITC)	0	0	0	0	0	0	0
Total member equity	5,333,348	5,238,423	5,118,424	5,118,423	5,153,048	4,888,048	4,888,048
Debt/equity ratio	.08	.59	.60	.60	.36	.38	.38

smaller than in the Iowa and Indiana cooperatives, the results are still consistent with their results. The data generated from the Nebraska cooperative are given in Tables 5.18 and 5.19.

Overall Evaluation

Fairness and justice to members

In order to evaluate the methods of allocating losses used in this chapter, the theory behind cooperative activity must be reviewed. Ladd's conclusion that, 'the goal of the cooperative should be to maximize net member benefits' will be used as the assumed objective for the cooperative firm. [40] The net member benefits criterion is assumed to include members from the past who still have equity in the cooperative, the present members, and members who join the cooperative in the future. In the years of positive earnings, members receive a distribution of earnings based on the level of patronage with the cooperative in the last year. The practice of retaining equity allocated and revolving out previous equity is well-established. This helps to ensure that current patrons are financing the cooperative.

Though management may be reluctant to apply it, the fairness principle should apply when a cooperative has an operating loss. The loss in most cases is a result of the current patrons' business. In some manner they must be willing to

Table 5.18 Nebraska - local net earnings positive - set 1

	Period 1	Period 2			Period 3		
		Loss held at regional	Loss taken from local capital surplus	Loss taken from member equity	Loss held at regional	Loss taken from local capital surplus	Loss taken from member equity
Earnings (local)	110,374	16,442	16,442	16,442	16,638	16,638	16,638
Regional patronage	3,000	0	(20,000)	(20,000)	0	(30,000)	(30,000)
Total assets	987,540	961,013	941,075	941,075	952,130	905,213	905,213
Term liabilities	101,250	78,750	78,750	78,750	56,250	56,250	56,250
Taxable cash to members	20,407	2,960	0	0	2,995	0	0
Taxable noncash to members	81,630	11,838	0	(3,202)	11,980	0	(12,025)
ITC to members	0	763	1,000	1,000	760	1,000	1,000
Total tax (scenario 4)	34,519	5,006	0	(1,083)	5,066	0	(4,068)
Total tax (scenario 5)	39,172	5,681	0	(1,229)	5,749	0	(4,617)
Qualified equities	497,639	509,447	497,639	494,436	521,456	497,639	482,411
Capital surplus	94,490	96,073	90,932	94,135	97,674	77,571	92,798
Corporate tax (after ITC)	637	0	0	0	240	0	0
Total member equity	684,007	697,428	680,449	680,449	711,009	667,087	667,087
Debt/equity ratio	.15	.11	.12	.12	.08	.084	.084

Table 5.19 Nebraska - local net earnings negative - set 2

	Period 1	Period 2			Period 3		
		Loss held at regional	Loss taken from local capital surplus	Loss taken from member equity	Loss held at regional	Loss taken from local capital surplus	Loss taken from member equity
Earnings (local)	110,374	(7,204)	(7,204)	(7,204)	(8,134)	(8,134)	(8,134)
Regional patronage	3,000	0	(20,000)	(20,000)	0	(30,000)	(30,000)
Total assets	987,540	937,429	917,429	917,429	906,795	856,795	856,795
Term liabilities	101,250	78,750	78,750	78,750	56,250	56,250	56,250
Taxable cash to members	20,407	0	0	0	0	0	0
Taxable noncash to members	81,630	(6,484)	0	(24,484)	(7,320)	0	(34,320)
ITC to members	0	1,000	1,000	1,000	1,000	1,000	1,000
Total tax (scenario 4)	34,519	(2,194)	0	(8,283)	(2,476)	0	(11,611)
Total tax (scenario 5)	39,172	(2,489)	0	(9,399)	(2,810)	0	(13,176)
Qualified equities	497,639	491,155	497,639	473,155	483,834	497,638	438,834
Capital surplus	94,490	93,770	67,286	91,770	92,957	29,152	87,957
Corporate tax (after ITC)	637	0	0	0	0	0	0
Total member equity	684,007	676,803	656,803	656,803	668,669	618,669	618,669
Debt/equity ratio	.15	.11	.12	.12	.08	.09	.09

accept the consequences. Although the net cash flow to members was positive in all cases, a reduction in future equity claims resulted when the local members received an allocated loss. If a cooperative has been allocating qualified equities, the members have been paying the taxes. The cash flow merely represents an adjustment for these tax payments.

When a loss occurs and the capital surplus is reduced, the cooperative may successfully carry forward the loss through negative capital surplus. In the event this is not allowed by IRS, potential use of the loss as an offset to ordinary income is lost.

If the loss is passed to the members, they can be compensated for some of the taxes they have paid in previous years. The same principle applies in the situation between the local cooperative and the regional cooperative. If the regional cooperative holds the loss, it may lose its entire tax offset. The local can, however, use it which may be used to offset current income tax liabilities or pass it to members.

A much debated issue today is how cooperatives should set up an equity retirement plan. Older members are interested in having their equity in the cooperative liquidated when they no longer use the association. Depending upon the method used, allocating losses can help or hinder equity retirement plans. In many cases, taking the loss from capital

surplus can be expected to lengthen the revolving period. But if the loss is taken from allocated equities, the cooperative can reduce the equity to be retired without an additional drain on their working capital. Members receiving retired equities are not the only beneficiaries of this method. Current members benefit also since it was shown that net cash flow to all members was positive. Young farmers are often more concerned about their cash flow position because they have larger debt obligations when they begin farming. Perhaps most important, the true equity position of the cooperative is more clearly understood.

Legal soundness

A number of legal questions surrounding net operating losses of cooperatives are not completely resolved. There are no specific procedures required of coopeartives in allocating operating losses. In general, handling losses with these constraints has been left to the discretion of the board of directors. In the past, a greater portion of the losses have been taken from capital surplus rather than from allocated equities. This trend may change if the losses expected in 1983-84 materialize. This could occur simply because some cooperatives will not be able to take the entire loss from capital surplus without running a significant negative balance. The IRS may disallow the practice in the future if

current court decisions are any indication of what the future might hold for cooperatives.

Netting of losses between different functions or units has been questioned by the IRS but has been allowed in at least one case (Ford-Iroquois F.S., Inc., 398 supra.). If the functions are distinct and separate functions, the IRS would probably not allow netting because they do not want patrons of one function making up for losses in another function. Cooperative members feel that unless it is stated in the by-laws, the netting of losses should be left to the discretion of the board [33].

Thus far, there is no reason to believe that netting of losses between regional and local cooperatives is illegal since local cooperatives play a major role in the operation of regional cooperatives. Passing the regional loss to member cooperatives does not seem out of line with the IRS rulings or opinions that current patrons should be the ones who incur the loss.

Economic impacts on the community

The entire community is often affected when one business incurs a loss. Cash flow is important during these times in order to stimulate the local economy.

Each of the strategies for allocating the losses will have an impact on the local economy. The regional

cooperative's action is not independent of the local community. When the loss was held at the regional cooperative and the local cooperative had positive earnings, the net cash flow to members was not positive for all tax brackets. Members in the 41 percent tax bracket and above were not receiving enough cash to defray their tax liabilities. As a result of the regional keeping the loss, more cash was going out of the local community.

A loss that is passed to members by a reduction in their allocated equities would have a current positive impact on the community. The analysis showed that the members (collectively) received a large tax savings due to the loss in equities. In addition to the tax savings, the members received the entire ITC that was available to the cooperative because in those cases the local cooperative did not have any taxable earnings. This indicated that thousands of dollars would be available for expenditure through the community business.

Summary

Because of the recent economic situation there is a need for a systematic approach to deal with cooperative losses. This chapter examined the impacts on the cooperative and the cooperative members under the assumption that losses occurred in two consecutive years. A simulation model analyzed three

methods of treating the loss. Two origins of the loss were analyzed: (1) the regional cooperative; and (2) the local cooperative. The regional cooperative had the choice of keeping the loss and decreasing capital surplus (Strategy A) or passing the loss to member cooperatives. The member (local) cooperative then had the choice of keeping the loss and decreasing capital surplus (Strategy B) or passing the loss to its members (Strategy C). When the source of the loss included both the regional and local, it was necessary to use Strategy B or Strategy C.

Through some recent court cases, some guidelines for handling the losses have been established. The IRS has also issued opinions on some of the issues. In particular, an opinion has been expressed that the current patrons should be the patrons who incur the loss. The possibility exists that more definite rulings will be made concerning the treatment of net operating losses.

Since the results from all three cooperatives were the same, the Iowa cooperative was selected as a representative for the three. The chapter focused primarily on how the three methods affected the Iowa cooperative and its members. The following are some general results from the analysis:

1) When the regional cooperative held the loss, it left total assets at the local level unchanged as a result of the loss. There was no reflection on the local cooperative

financial statement that the regional cooperative had operated at a loss. Total assets at the local level were therefore overstated if the loss was extremely large at the regional level.

2) Capital surplus was significantly reduced when the local cooperative kept the loss and reduced capital surplus for both of the years. The legality of this method is questioned and is still pending. Even if it is acceptable from the IRS, the financial impact on the cooperative and the members is questionable.

3) Total member equity at the local cooperative did not depend on how the local cooperative treated the loss. However, the regional cooperative's action of keeping the loss left local member equity greater than if they had passed the loss to the local in the form of a negative patronage.

4) Qualified equities were reduced when the local decided to pass the loss to its members. The decrease in qualified equities resulted in a tax deduction for members. The result was a positive net cash flow to members regardless of member tax bracket.

5) If the loss was held at the regional, members would receive a patronage refund and pay taxes in years that the local had positive earnings. The members in the higher average tax brackets (29 percent and above) were not allocated

large enough cash patronages to cover their tax liabilities on their noncash distributions.

6) Equity retirement was accomplished in an indirect manner when the loss was taken from allocated equities. If capital surplus was reduced to account for the loss, equity retirement is likely to be postponed.

7) The debt to equity ratio is lower at the local level if the regional holds the loss. It is understated in the sense that the market value of their equity in the regional cooperative has fallen because of the loss. The reduction in total equity while not retiring allocated equity may make retirement more difficult and lengthen revolving periods.

8) In all fairness to the present, past and future patrons, the loss should be allocated to the patrons who were patrons when the loss occurred. Reducing capital surplus to negative levels would penalize future patrons of the business for something they had no control over.

9) According to current law, there is no reason to believe that netting of losses between regional and local cooperatives is illegal as long as it can be shown that the two entities are not independent of each other.

10) Passing the loss to local members by decreasing their equity in the cooperative may have a positive impact on the community since the tax benefits associated with the loss are so great.

CHAPTER 6. CONCLUSIONS AND RECOMMENDATIONS

This study examined three major financial policy decisions which cooperatives face today. The three issues were: (1) the selection of an appropriate depreciation method; (2) the selection of a fair and equitable method to distribute net earnings; and (3) the selection of a method to handle net operating losses.

Depreciation Policy

The method of depreciation used by a cooperative had an effect on working capital, total tax liability of the cooperative and members, allocated equities, capital surplus, debt to equity ratio and net cash flow to members. Since depreciation can affect so many financial variables, it is important for a cooperative to investigate the possibilities available to them and choose the method that is best for their cooperative and its members on balance. The study focused on rapid-ACRS and ACRS-SL methods of depreciation and applied them to three cooperatives.

Alternative strategies for capital investment were not included in the analysis, but implications concerning the timing of investments could be drawn from the results. The Indiana cooperative had a constant investment stream with a few intermittant years of heavier investments. The Iowa

cooperative had one large investment in the second year and smaller net replacements to fixed assets in the other years. The eastern cooperative pursued a heavy investment stream for the ten years. Net earnings corresponded to these investment patterns because depreciation expense of the investments was an important component in calculating net earnings. During years of rapid-ACRS depreciation, earnings were low. In later years of the life of the asset, rapid-ACRS depreciation ran to zero which caused earnings to increase. Using ACRS-SL, the earnings pattern was more stable due to the constant stream of depreciation expense over the life of the asset.

Higher levels of working capital generated much earlier in the depreciation period were obtainable when rapid-ACRS was used instead of ACRS-SL. Distributions to members were smaller overall in the rapid-ACRS (TAX) runs; therefore, the total working capital drain for the cash portion of qualified allocations was less. As the level of cash patronage increased, the gap between working capital generated from rapid-ACRS runs and ACRS-SL runs increased because larger amounts of cash were distributed to members in the ACRS-SL runs. Working capital in the nonqualified runs was also greater when rapid-ACRS was instead of ACRS-SL. This was due to a smaller corporate tax liability on the smaller rapid-ACRS (TAX) earnings. Investment tax credit could also be used more effectively.

Another benefit of rapid-ACRS depreciation was observed. The total member and corporate tax liability required in rapid-ACRS runs was less than the total member and corporate tax liability in ACRS-SL runs in almost every situation. A notable exception occurred when the average tax liability of members "centered" at 20 percent. The overall tax savings from using rapid-ACRS instead of ACRS-SL increased in qualified runs as the average tax liability of members increased. This was due to the fact that the cooperative members were paying the greatest portion of the tax burden.

The level of cash patronage paid, and the marginal tax liability of members' determined the advantage or disadvantage of rapid-ACRS on net cash flow to members. If a cooperative paid 30 percent cash patronage, all members received more net cash flow when rapid-ACRS was used instead of ACRS-SL. However, at a level of 45 percent cash patronage, ACRS-SL resulted in higher levels of cash flow to members in low average tax brackets (20-35 percent), while rapid-ACRS depreciation resulted in more net cash to members in high average tax brackets (41 percent and above).

The eastern cooperative showed unique net cash flow patterns. The cooperative was forced to reduce allocated equities in two loss years because they had no unallocated capital surplus to reduce. The tax savings to members because of the noncash loss in those two years was so great that over

the ten projection years members received more cash flow when rapid-ACRS depreciation was used instead of ACRS-SL depreciation. Members in the 20 percent marginal tax bracket were the only group which would have received more if ACRS-SL had been used under these circumstances.

The equity account grew faster when ACRS-SL was used because member distributions were larger than member distributions in rapid-ACRS runs. However, the equity results changed when BTT reconciliation statement was used. The BTT statements exhibited a higher level of allocated equities than either rapid-ACRS or ACRS-SL calculations. It was found in this study and in a recent staff paper by Ginder and Geu that using BTT accounting results in greater growth in allocated equities than either rapid-ACRS or ACRS-SL [27]. BTT also generated more working capital in earlier years due to the deferred taxes, of basing taxable earnings on rapid-ACRS earnings instead of ACRS-SL earnings.

BTT accounting also resolved a problem that was encountered with rapid-ACRS. Rapid-ACRS depreciation resulted in distributions that were small during the initial depreciation years and distributions that were large in later years. Questions can be raised as to whether or not this process treats all members fairly and equitably. The ones who were members in the years that rapid-ACRS depreciation was taken were paying more heavily for the assets which members in

future years would also benefit from. However, when BTT accounting was used the problem was alleviated. The members received nonqualified distributions based on ACRS-SL earnings instead of rapid-ACRS earnings. This system spread the distributions to members in accordance with the useful life of the asset. Hence, members were treated fairly and equitably by using BTT.

ERTA 1981 has opened the door to quicker cost recovery systems for cooperatives. A depreciation policy that includes rapid-ACRS may not be beneficial for every cooperative. However, when rapid-ACRS was used in conjunction with BTT accounting the advantages were widespread.

Earnings and Distributions Policy

In order for a distribution policy to be acceptable under cooperative principle, it should treat members fairly and equitably. There are two dimensions to membership that a cooperative must consider. These include: (1) young and old members, and (2) current and future members. Another criterion that board members consider in a distribution policy is growth in the cooperative. Initially, members may be pleased to receive their entire distribution in cash but the cooperative would be short lived since most cooperatives gather member equity capital by retaining portions of their

distributions; the high cash payout threatens the main capitalization mechanism.

Two forms of allocations were analyzed in this study. They were: (1) qualified written notices of allocation, and (2) nonqualified written notices of allocation. A few of the criteria for comparisons were: (1) working capital, (2) total tax liability, (3) equities; and (4) member net cash flow. In order for an allocation to be qualified, at least 20 percent of the distribution must be in cash. This study looked at higher levels of cash patronage because for most members 20 percent of the distribution in cash was not adequate to defray the tax liability from the entire distribution they receive. The levels used were 30, 40, and 45 percent cash patronages. The feasibility of qualified allocations was determined largely by the level of cash patronage.

The working capital generated by qualified runs was greater than the working capital in nonqualified runs at lower levels of cash patronage (30 and 40 percent). At 45 percent cash patronage, the nonqualified runs resulted in more working capital to the cooperative. The cash pay-out for the patronage refund on qualified allocations exceeded the cash pay-out for the corporate tax liability on the nonqualified allocations. Nonqualified allocations also resulted in lower total member and corporate tax liability than qualified allocations. The stream of taxes paid for the ten years was less with

nonqualified allocations in all three cooperatives. Therefore, the tax savings of allocating nonqualifieds instead of qualified allocations compounded over the ten years was a sizable amount.

The net cash flow to members depended upon member marginal tax bracket. Members in the lower marginal tax brackets (20 to 35 percent) received more net cash when the allocation was qualified. Members in the upper marginal tax brackets (35 percent and above) received more net cash when nonqualified allocations were distributed. Nonqualified allocations resulted in equal allocations to all members because the cooperative assumed the tax liability on the distribution.

True potential allocated equities could be seen if BTT accounting was used. In our analysis, only nonqualified allocations were used because the legality of distributing qualified allocations in BTT situations is questionable. The study was limited to "no retirement" conditions in the BTT runs. Further research is needed in the area of equity retirement and the use of BTT accounting.

Qualified and nonqualified allocations were examined in a limited equity retirement situation. Four percent of the pool of qualified equities were retired in all 10 years. Since nonqualifieds were not retired, the conclusions which can be drawn are limited. The impact on working capital is substantial when qualified equities are retired in a qualified run.

The higher the level of cash patronage paid, the greater is the drain on working capital. The length of time that a cooperative would be able to continue retiring qualified equities and maintain a high cash payout would be limited. The revolving period would probably be extended in order to maintain adequate working capital. Further research on retiring nonqualified equities would be beneficial because the working capital situation of the cooperative would be different than in the runs where qualifieds are retired. The cooperative can take a tax deduction when nonqualified equities are retired; therefore, more working capital would be available to the cooperative. The fact that no cash payout is required on nonqualified distributions would further help this situation.

The use of nonqualified allocations by cooperatives has been limited to this point. A lack of information concerning the advantages of nonqualifieds is one major reason why they haven't been used. The results in this study have shown that nonqualified allocations are a viable alternative to qualified allocation.

Handling Net Operating Losses

Cooperative policy concerning net operating losses has been limited. This has been true partly because widespread losses have not been common in the past. In addition, the

scale of losses has been smaller in general. In the analysis, the cooperatives were subjected to three alternatives to handle the loss. These were: (1) holding the loss at the regional cooperative; (2) reducing local capital surplus for the loss; and (3) reducing local member equities to account for the loss. The Iowa cooperative was the focus for the report analysis although all three cooperatives exhibited the same patterns.

The impact on the local cooperative when a loss was held at the regional cooperative depended on the size of the loss. The major effects were unseen in the balance sheets and operating statements of the local cooperative. Investments in other cooperatives were unchanged at the local level.

However, the results have shown that a large loss at the regional cooperative not reflected at the local level by a reduction in their investments resulted in an overstatement of total assets at the local cooperative. The actual value of the investments had declined because of the regional loss. If the loss had been small, and in the following year the regional had positive net savings, there would be less concern. But after several years of large losses at the regional cooperative, the asset structure at the local cooperative would not reflect the true financial position of the cooperative. This is a dangerous situation for the local cooperative. Lenders may be skeptical about credit quality in

a cooperative in this position if the asset structure were to be carefully examined.

Another undesirable result of the regional holding the loss was the effect it had on member net cash flow. The net cash flow to members in marginal tax brackets above 23 percent was negative when the local cooperative had net earnings. The ITC was used at the cooperative level to offset the tax liability from earnings. Further results indicated that ITC would not be wasted on an overstated cooperative tax liability if the loss would have been passed to the local cooperatives.

When the loss was passed to the local cooperative, net local earnings were negative. Therefore, the cooperative did not have any tax liability and the ITC was passed to members. Local earnings (if positive) went toward building working capital. When the loss was taken from local unallocated capital surplus, the members did not receive a taxable distribution. The cash flow they received was entirely ITC.

The legality of this method is questionable. The IRS is concerned about fair and equitable treatment of members. The service is skeptical when the entire loss is taken from unallocated capital surplus because future members are bearing the burden of the loss along with the current patrons.

Another legal question arose from the situation where the capital surplus account ran a negative balance in the Iowa cooperative. In essence, the loss was carried forward.

Corporations are allowed to carry-forward and carry-backward losses. In the opinion of the IRS (due to the nature of cooperatives), this practice is questionable. Cooperatives electing this method of allocation should be aware that there are legal issues still pending.

From the analysis, passing the losses to members by decreasing allocated equities appeared to be the best alternative of the three methods. The tax benefits to members would provide a stimulus to the entire community surrounding the local cooperative. The net cash flow to members was positive for members in all tax brackets. Members received ITC in addition to the reduction in taxes. The method was fair to all members because the loss was allocated to members on the basis of patronage in the period that the loss occurred. There was also an indirect advantage of passing the loss to members. As equity was written-off to account for the loss, equity was "retired" without draining the cooperative of additional working capital. These advantages, however, must be measured against the cash future value of the equity that is eliminated to offset the loss.

Recommendations For Further Research

Recommendations for further research into the area of the distribution of net earnings and losses include the following:

1) To further investigate how the investment pattern affects the use of rapid-ACRS depreciation. There is evidence in this study (Figure 3.3) that suggests that rapid-ACRS depreciation expense and ACRS-SL depreciation expense may converge if steady, heavy investment is pursued by the cooperative over 10 years.

2) To examine the impacts of setting a target for maintaining working capital (i.e., 10 percent of sales), borrowing added funds in deficit years and buying T-bills in surplus years, in order to determine the additional time value benefits of working capital when rapid-ACRS is used.

3) To examine the impact on working capital if the paradox that occurred on page 48 (i.e., the cash portion was paid on total distribution) is eliminated. This can be accomplished by paying out equal amounts of cash in COMPANY (ACRS-SL) and TAX (rapid-ACRS) runs. Further investigation of the working capital situation under rapid-ACRS and increasing levels of cash patronage.

4) To examine the effects on the cooperative and the members of state taxation on the distribution of qualified and nonqualified equities.

5) To research the impact on the net cash flow and the change in the noncurrent position of members, by tax bracket, given that nonqualified equities are distributed and retired.

In addition to the impact on members, the impact on the cooperative's working capital, tax liability and equity position should be analyzed. It was hypothesized in this study that the working capital of the cooperative would be improved and that members would be treated fairly if nonqualified equities are allocated.

6) To further research the use of Book-to-Tax reconciliation statements and the possibility of issuing qualified equities for less than the amount of COMPANY (ACRS-SL) earnings. [It is illegal to calculate taxes based on TAX (rapid-ACRS) earnings and distribute qualified equities based on COMPANY earnings.]

7) To examine the effect of setting a target for growth in equities and examine the cooperative's ability to retire equities when: (a) qualified equities are allocated; and (b) nonqualified equities are allocated.

8) To pursue the results found concerning the regressive impact of social security taxes and determine at what level of cash patronage all members receive positive (zero) net cash flow. The higher the level of cash patronage that is required on the qualified allocation, the more feasible nonqualified allocations become for the cooperative, in view of the working capital drain of the high cash patronage.

9) To investigate the time value benefits of net cash flow to members, by tax bracket, when: (a) qualified equities

are distributed and retired, and (b) nonqualified equities are distributed and retired.

10) To research the long-run impacts of the methods of allocating losses. This would include: (a) the local cooperative's current and noncurrent position, (b) the local cooperative's ability to retire equities, (c) the tax implications to the cooperative and to the members, and (d) the net cash flow to members.

11) To further research the impact of losses on those cooperatives which do not maintain an unallocated capital surplus account. This study indicated that there were benefits to the cooperative and the members under these circumstances if the loss was passed to the member at the local level.

12) To investigate the concept of "shadow price" or "value" of the regional equity at the local level when the loss is held within the regional cooperative. Different magnitudes of regional losses should be examined since the shadow price is a function of the size of the loss.

13) To investigate, in particular, the impact on working capital at the local level when the local cooperative's earnings exceed the regional loss. Variables to examine include: (a) member equity, (b) tax liability of the cooperative and the members, (c) member net cash flow, and (d) other variables of interest.

14) To research the impact of rapid-ACRS depreciation if losses occur and compare the results to the straight-line depreciation results.

15) To research the inclusion of social security tax impacts in the analysis of the allocation of losses. This study underestimates the tax savings to members because social security taxes were not included.

16) To research the impact on working capital and other variables if losses occur and the cooperative continues to retire equities and pay estates.

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APPENDIX A: DEFINITION OF TERMS[1]

Since cooperatives are a unique form of business, there have also been terms that have evolved which are unique to cooperative financial management. A definition of some of the terms frequently used in this study are as follows:

1) Patronage Refunds: Net savings of a cooperative paid or allocated to a patron in proportion to the value or quantity of the individual's patronage
2) Capital Surplus or Retained Earnings: Net savings of cooperative which are retained but not allocated to individual patrons
3) Investment Tax Credit: Credit earned by a business which can be applied as payment toward federal income tax and which is based on investments made during the year in eligible property to be used by the business
4) Equity Redemption: The payment in cash or cash equivalent for previously issued equity
5) Retained Patronage Refunds: Allocated patronage refunds left in the cooperative, generally redeemed in cash at a later date

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[1]Source: Definitions were taken from a series of informational articles printed in Farmer Cooperatives from March 1980 to October 1980.

6) Net Earnings or Net Savings: Net sales or service revenue minus all costs, including cost of goods sold and operating expenses, plus other income such as refunds from other cooperatives and interest income

7) Revolving Fund: A system of equity accumulation and redemption where the earlier investments of members are redeemed first. Revolving equity usually originates from retained patronage refunds or per-unit capital retains

8) Noncash Patronage Refunds: Distributions of net savings which are allocated to patrons and retained by the cooperative in various forms of certificates or book credits

APPENDIX B: SUPPLEMENTARY GRAPHIC ANALYSIS

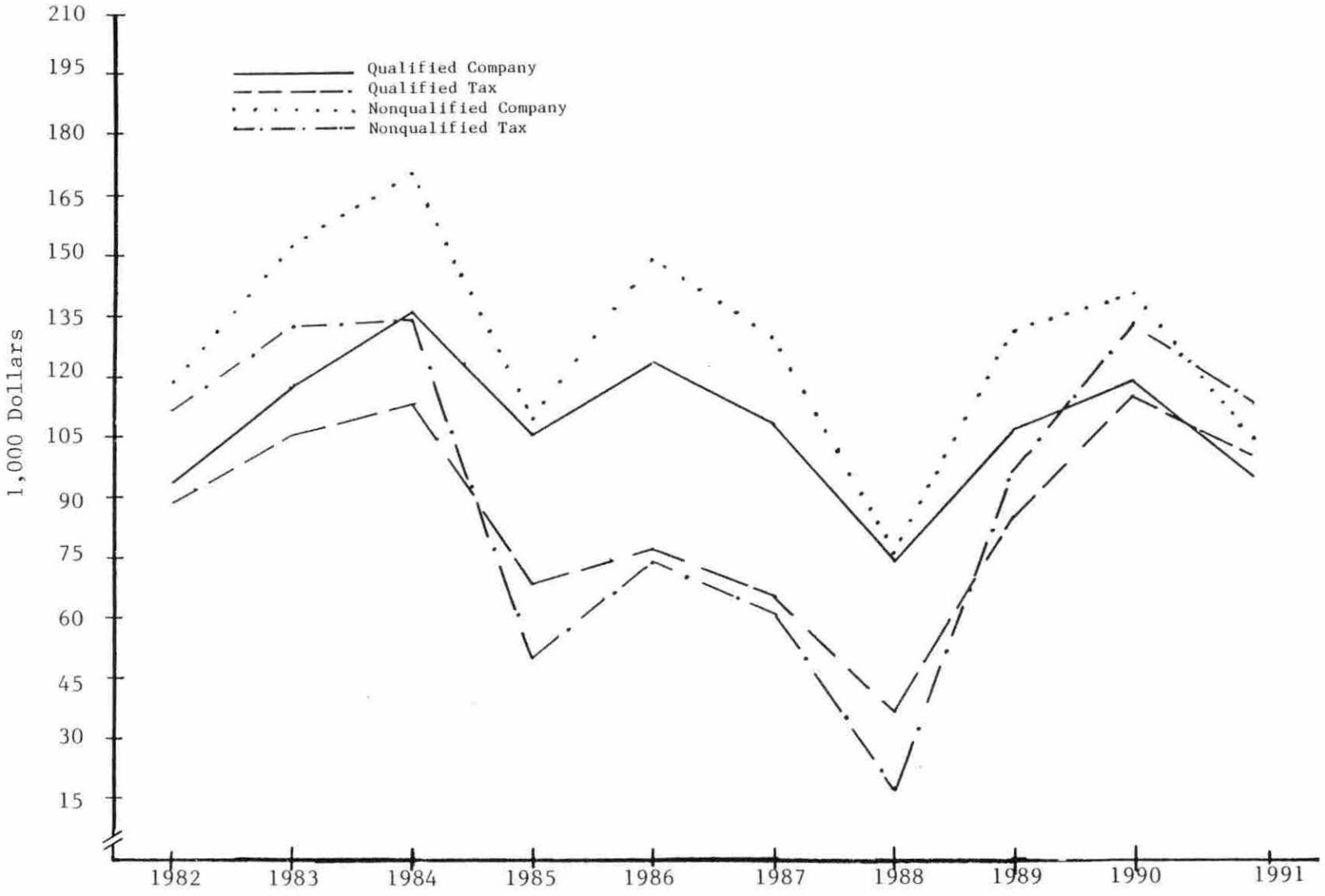

Figure B.1 Indiana, Total Member and Corporate Tax Liability, Scenario 1

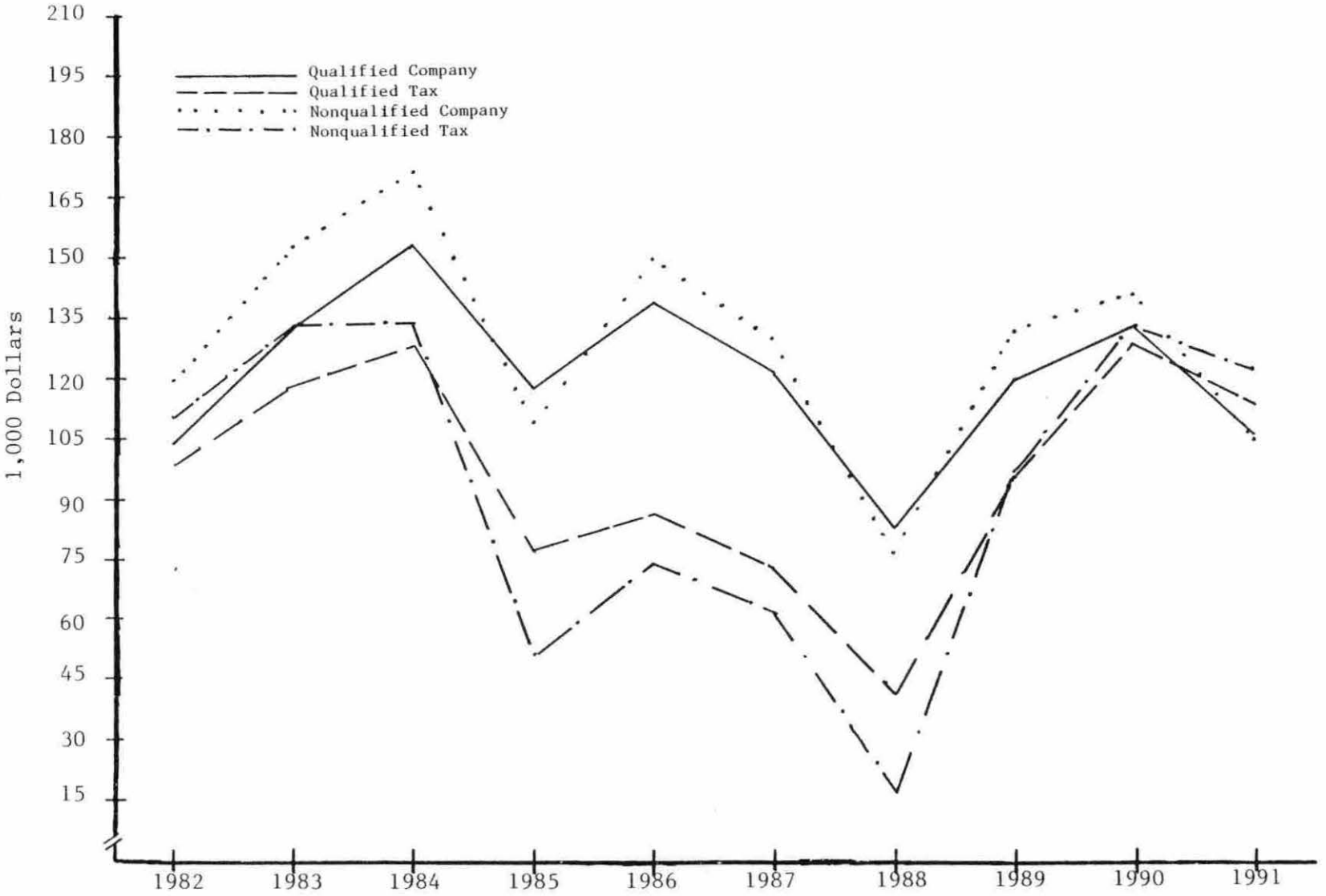

Figure B.2 Indiana, Total Member and Corporate Tax Liability, Scenario 2

Figure B.3 Indiana, Total Member and Corporate Tax Liability, Scenario 3

Figure B.4 Indiana, Total Member and Corporate Tax Liability, Scenario 4

Figure B.5 Indiana, Total Member and Corporate Tax Liability, Scenario 5

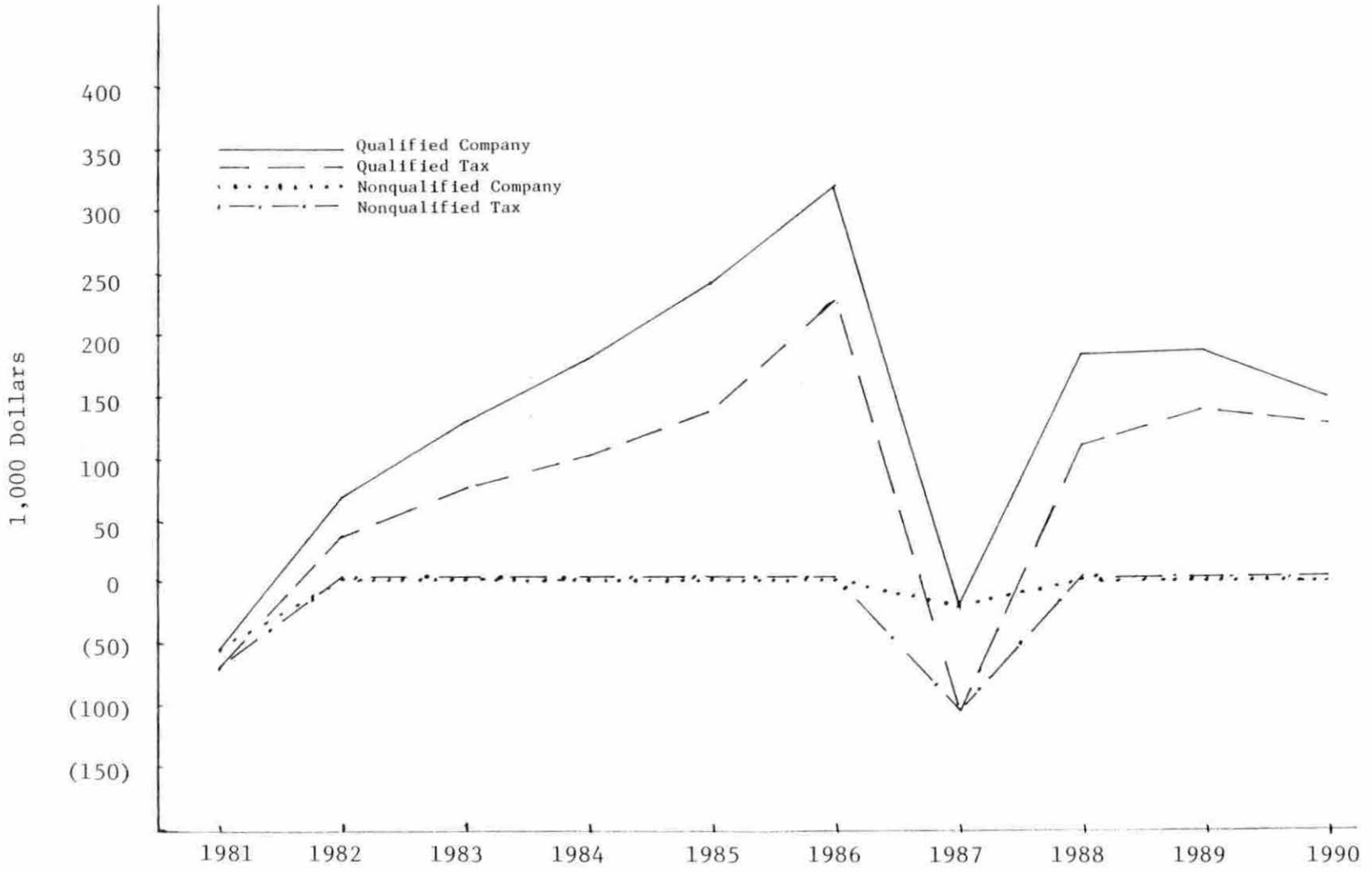

Figure B.6 Eastern, Member Social Security Tax Liability, Scenario 1

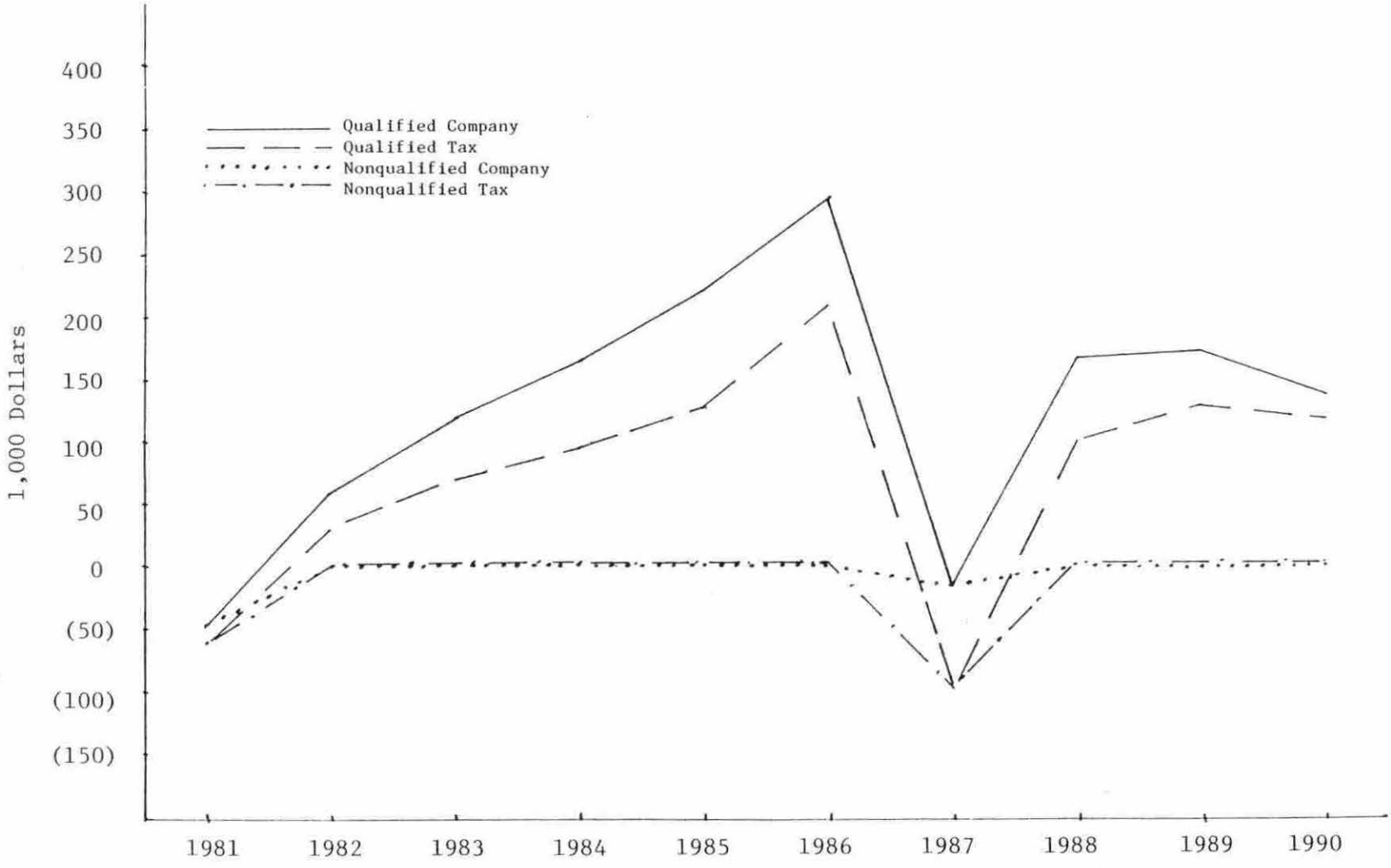

Figure B.7 Eastern, Member Social Security Tax Liability, Scenario 2

Figure B.8 Eastern, Member Social Security Tax Liability, Scenario 3

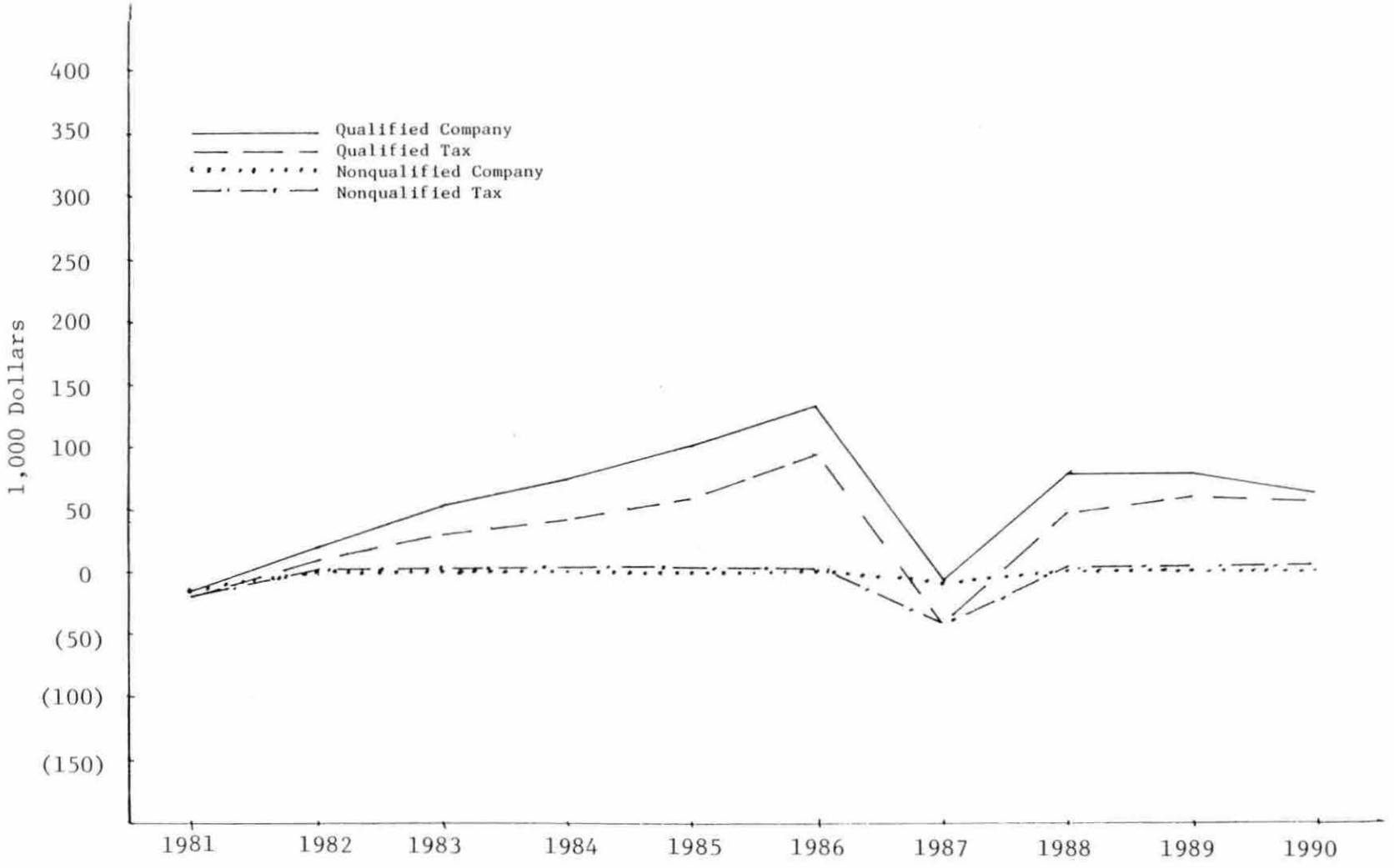

Figure B.9 Eastern, Member Social Security Tax Liability, Scenario 4

Figure B.10 Eastern, Member Social Security Tax Liability, Scenario 5

Figure B.11 Eastern, Member Federal Tax Liability, Scenario 1

Figure B.12 Eastern, Member Federal Tax Liability, Scenario 2

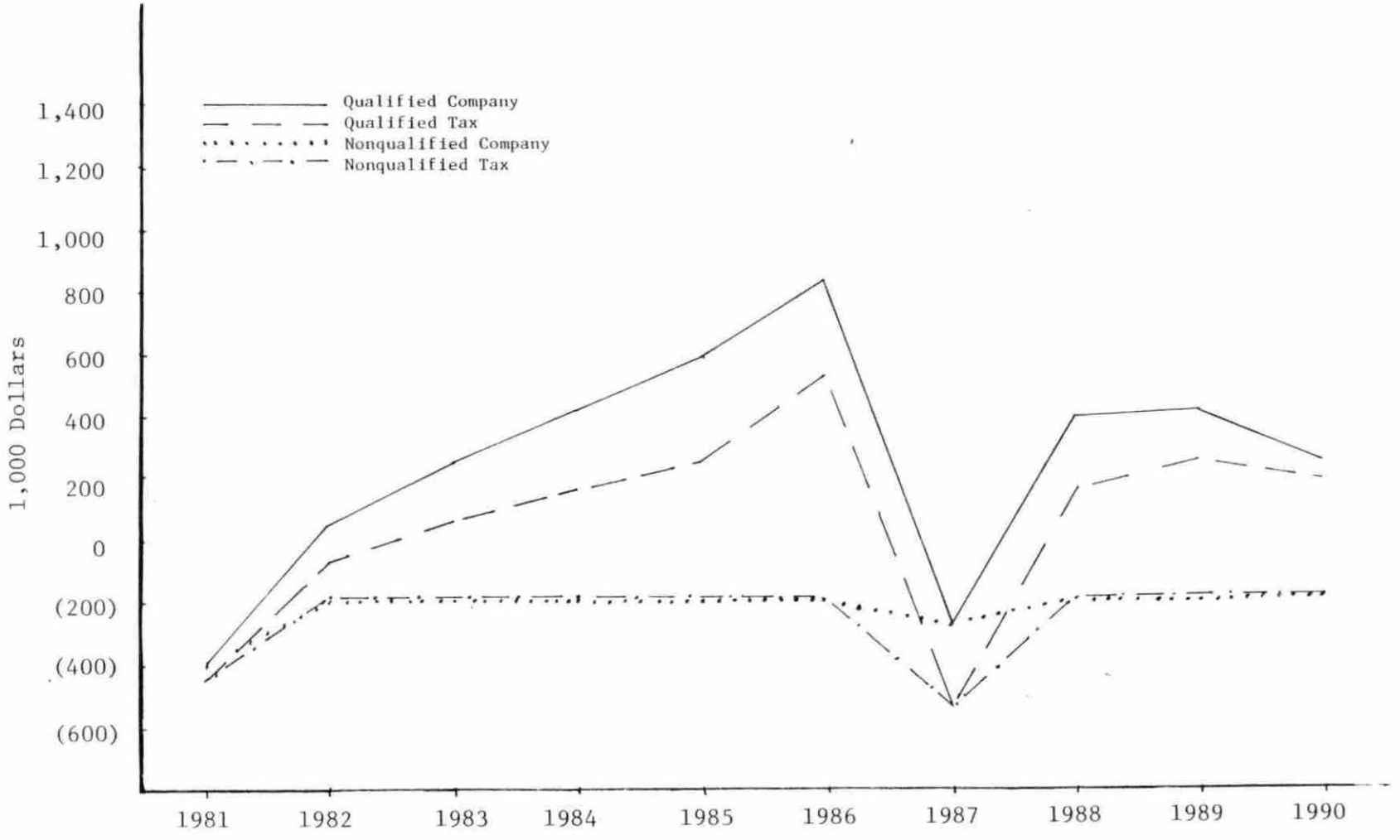

Figure B.13 Eastern, Member Federal Tax Liability, Scenario 3

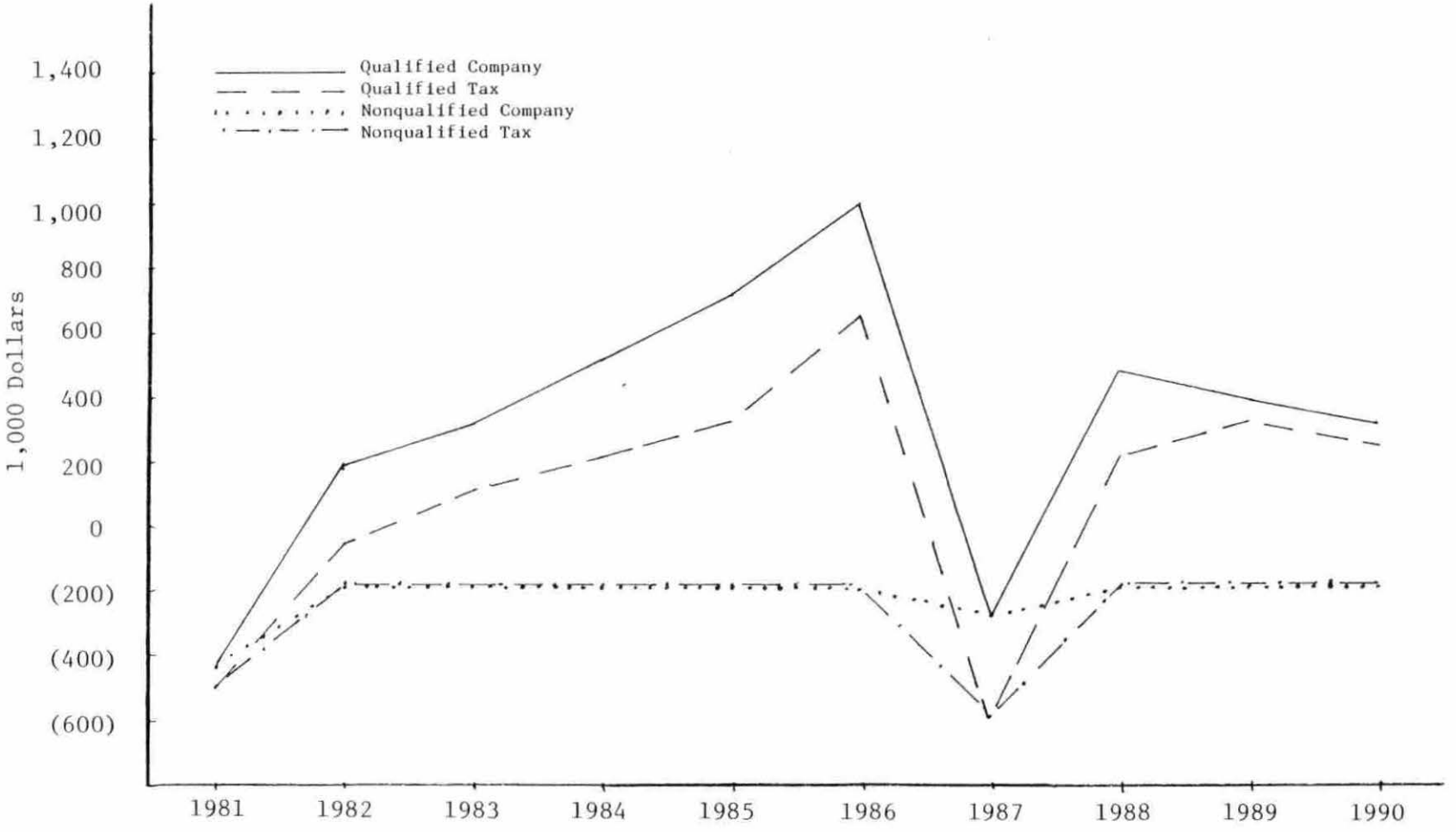

Figure B.14 Eastern, Member Federal Tax Liability, Scenario 4

Figure B.15 Eastern, Member Federal Tax Liability, Scenario 5

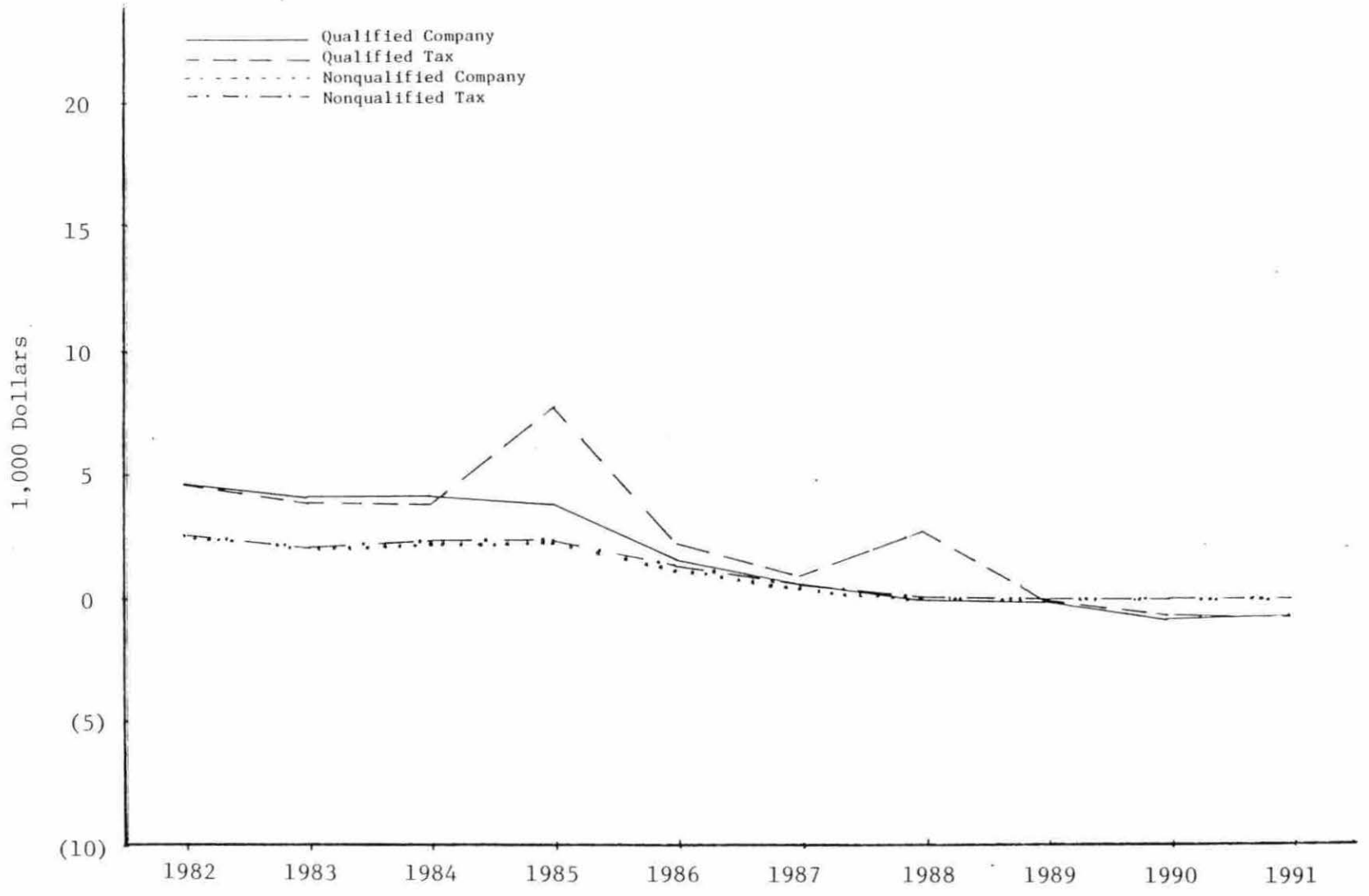

Figure B.16 Indiana, Net Cash Flow to Members, 20% Tax Bracket, Scenario 1, 30% Cash Patronage

Figure B.17 Indiana, Net Cash Flow to Members, 20% Tax Bracket, Scenario 1, 40% Cash Patronage

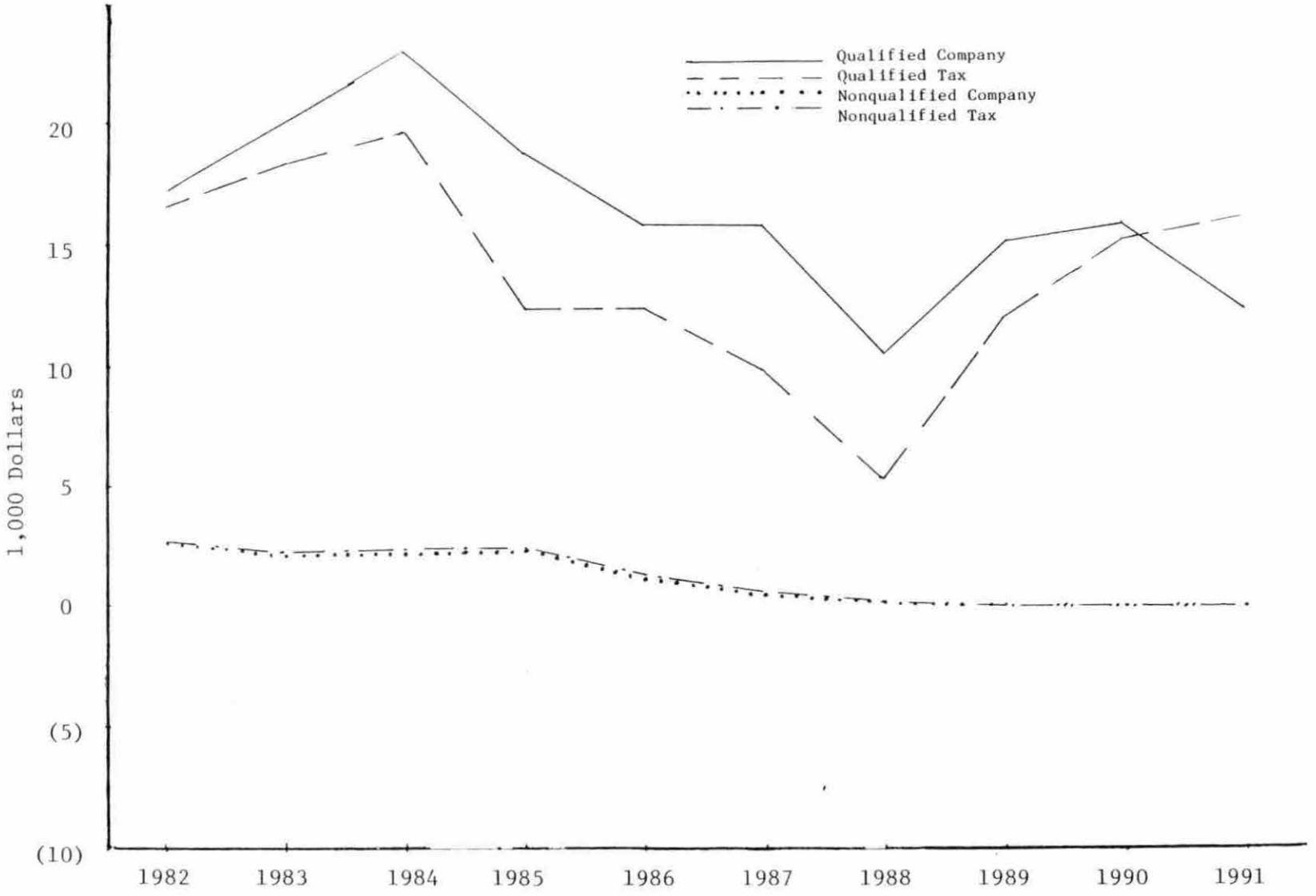

Figure B.18 Indiana, Net Cash Flow to Members, 20% Tax Bracket, Scenario 1, 45% Cash Patronage

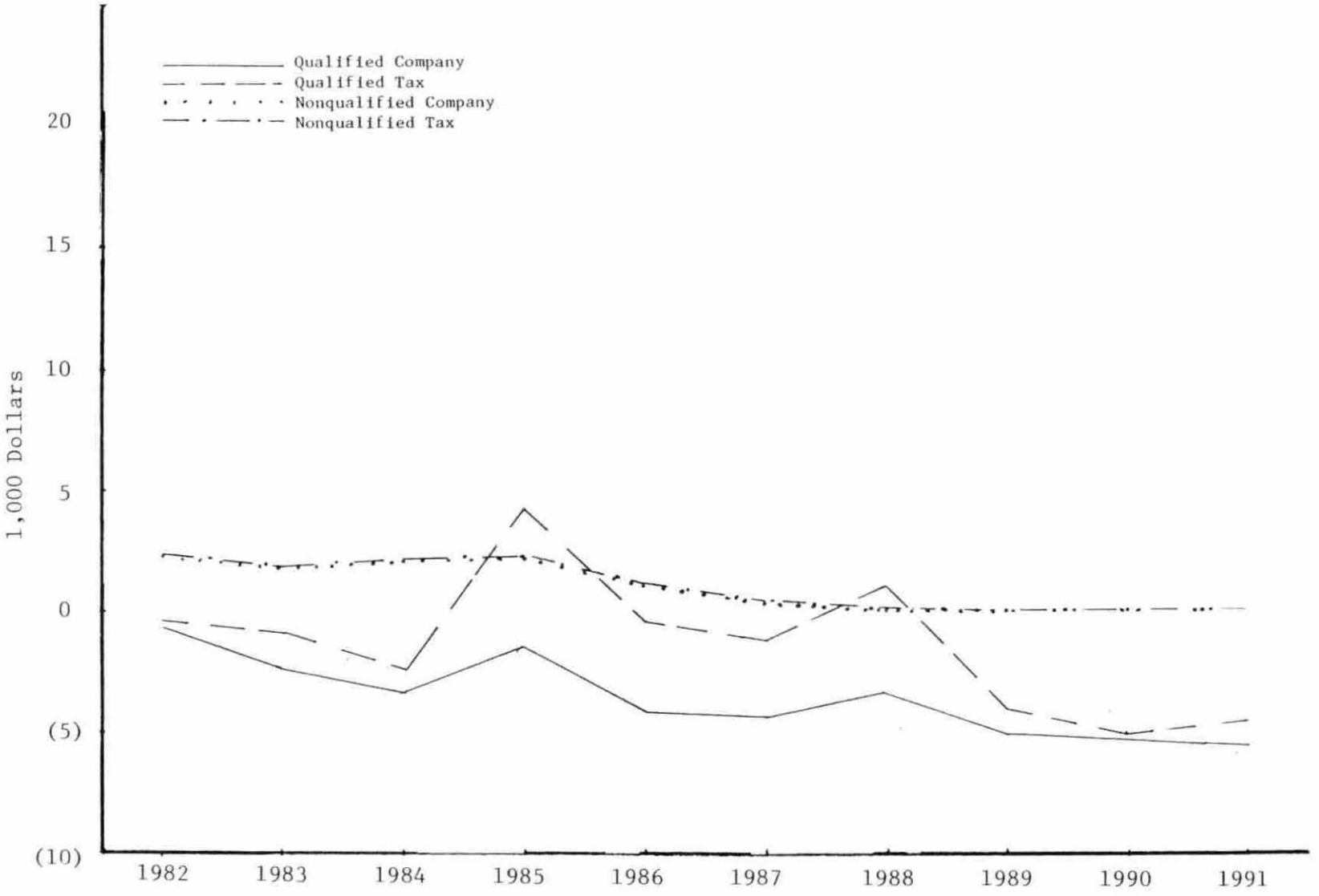

Figure B.19 Indiana, Net Cash Flow to Members, 35% Tax Bracket, Scenario 4, 30% Cash Patronage

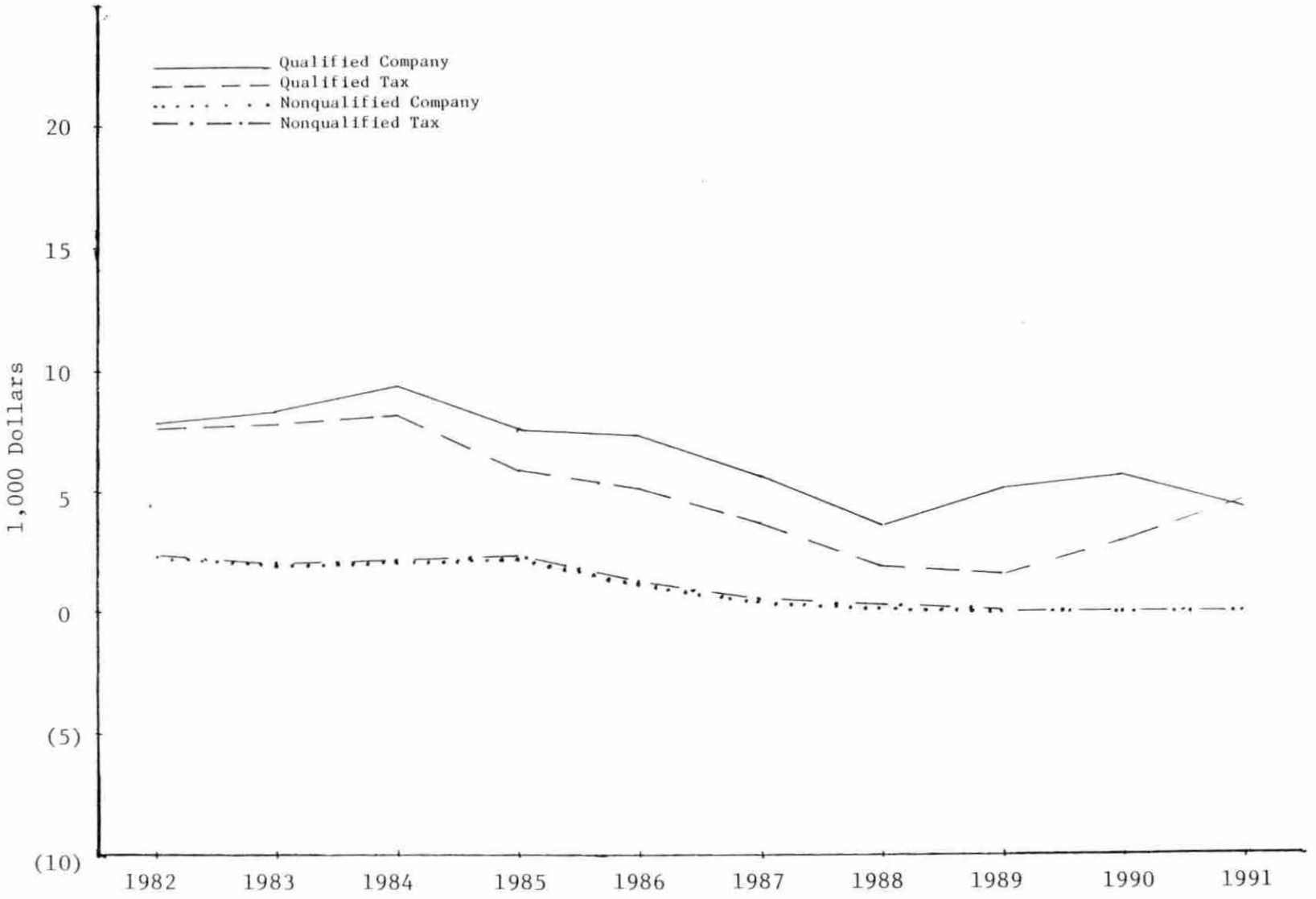

Figure B.20 Indiana, Net Cash Flow to Members, 35% Tax Bracket, Scenario 4, 40% Cash Patronage

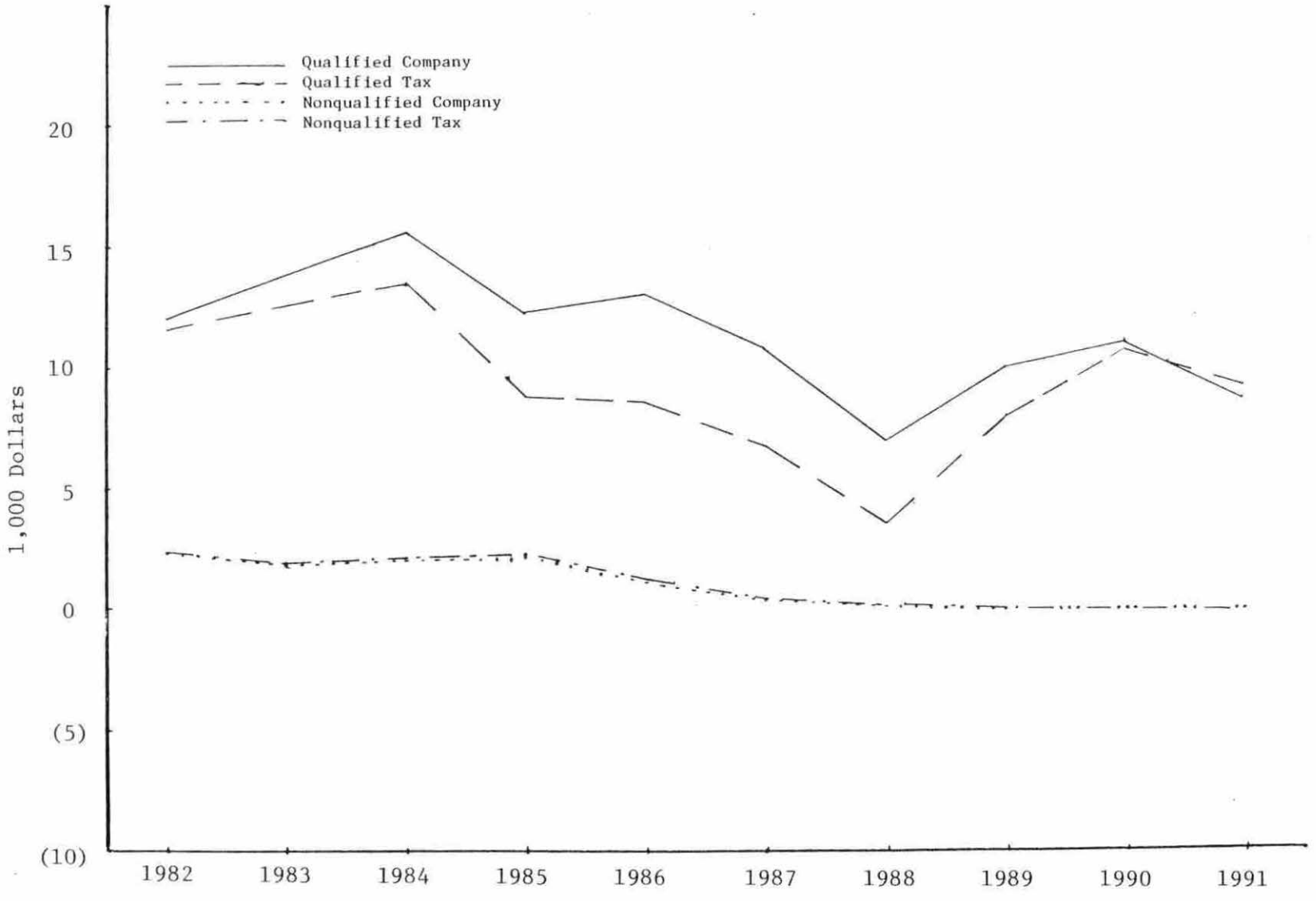

Figure B.21 Indiana, Net Cash Flow to Members, 35% Tax Bracket, Scenario 4, 45% Cash Patronage

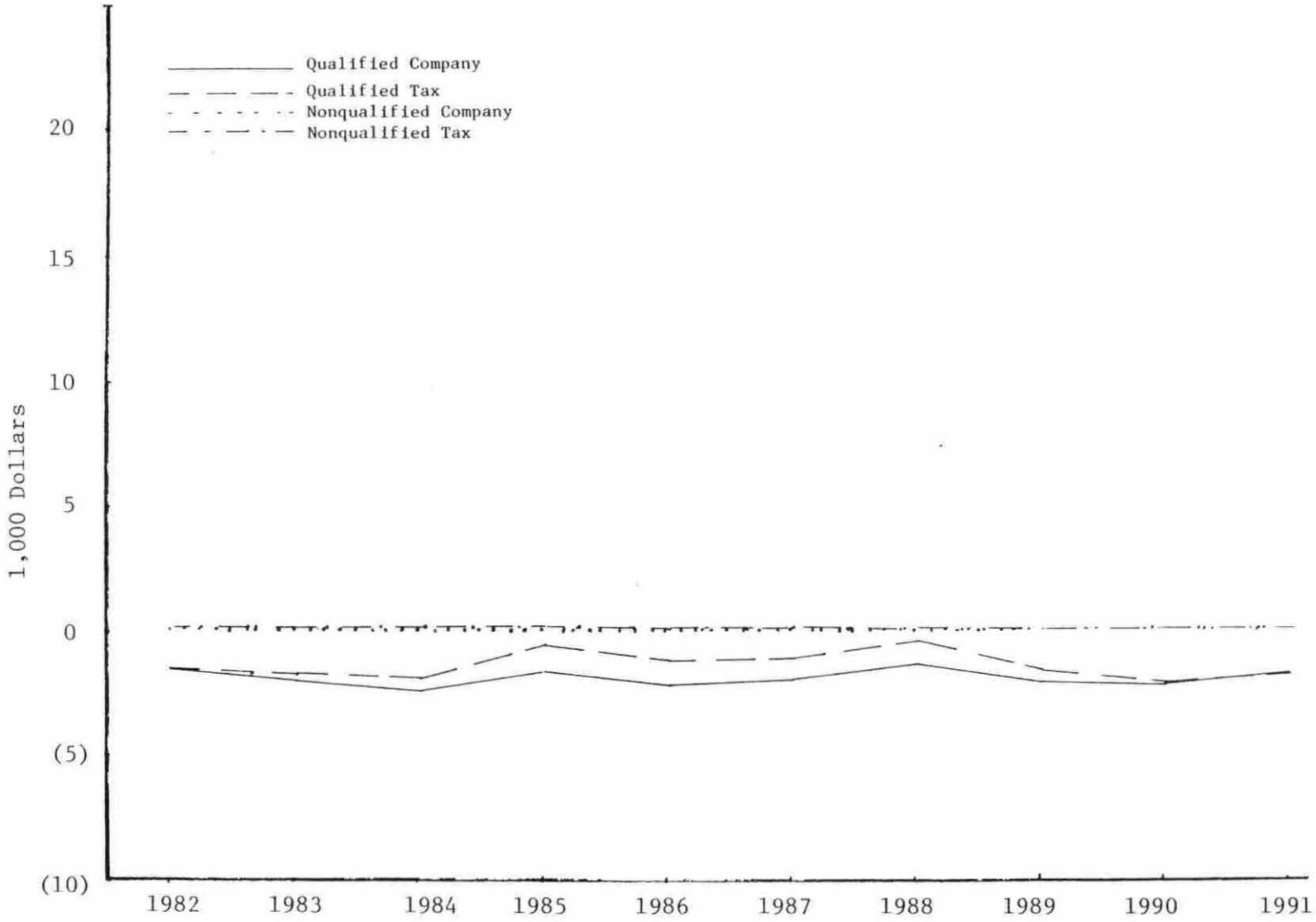

Figure B.22 Indiana, Net Cash Flow to Members, 50% Tax Bracket, Scenario 5, 30% Cash Patronage

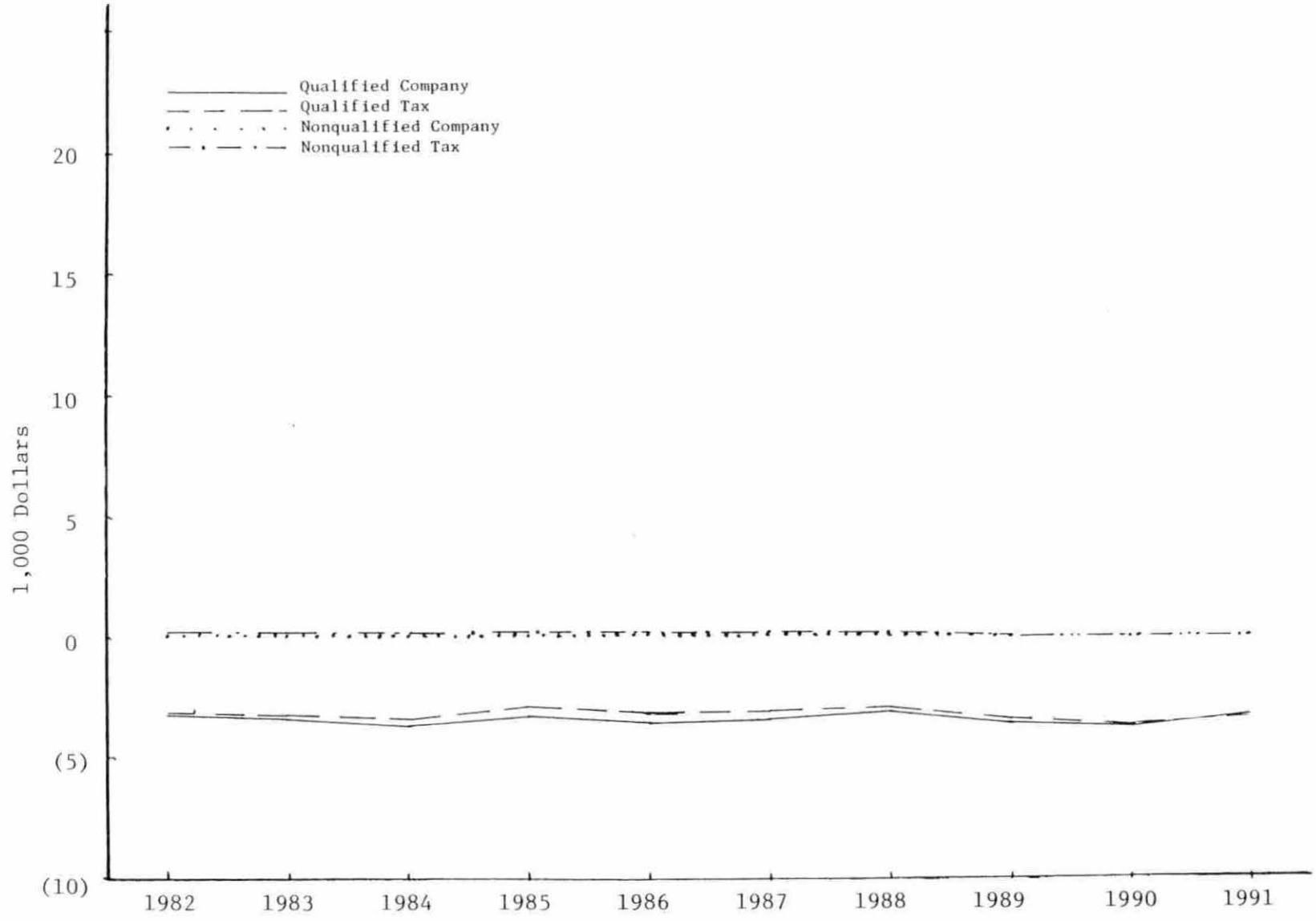

Figure B.23 Indiana, Net Cash Flow to Members, 50% Tax Bracket, Scenario 5, 40% Cash Patronage

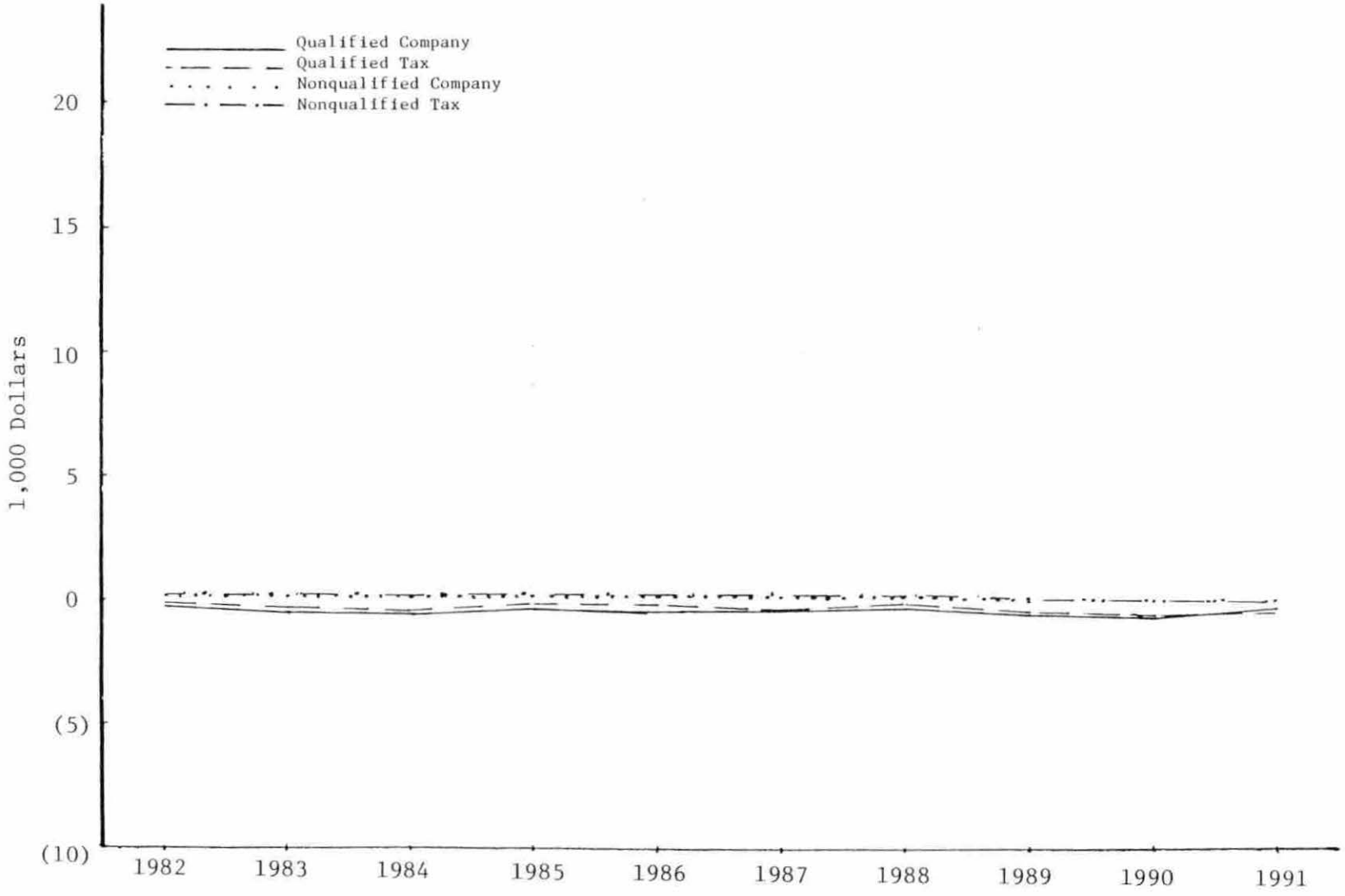

Figure B.24 Indiana, Net Cash Flow to Members, 50% Tax Bracket, Scenario 5, 45% Cash Patronage

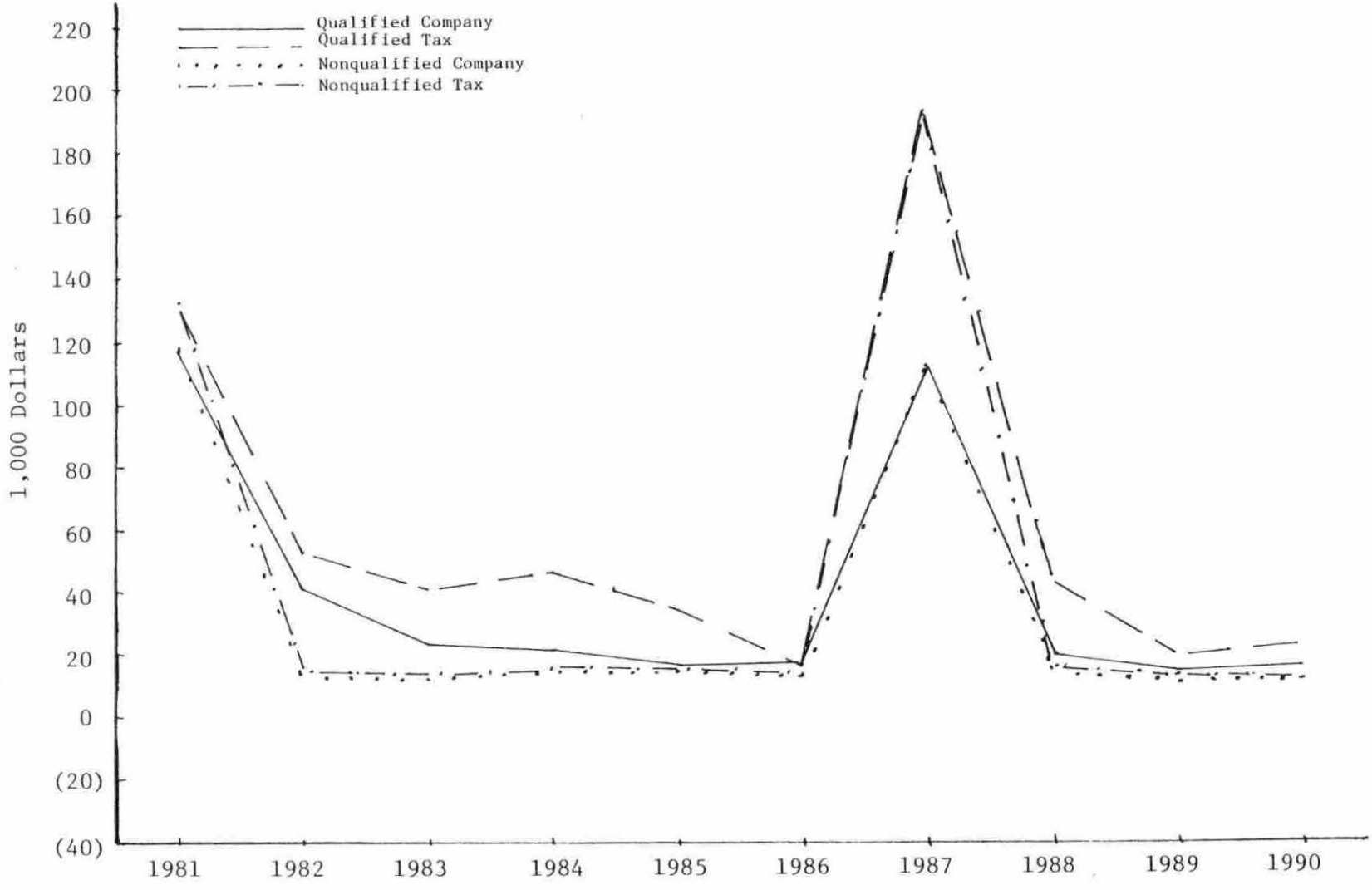

Figure B.25 Eastern, Net Cash Flow to Members, 20% Tax Bracket, Scenario 1, 30% Cash Patronage

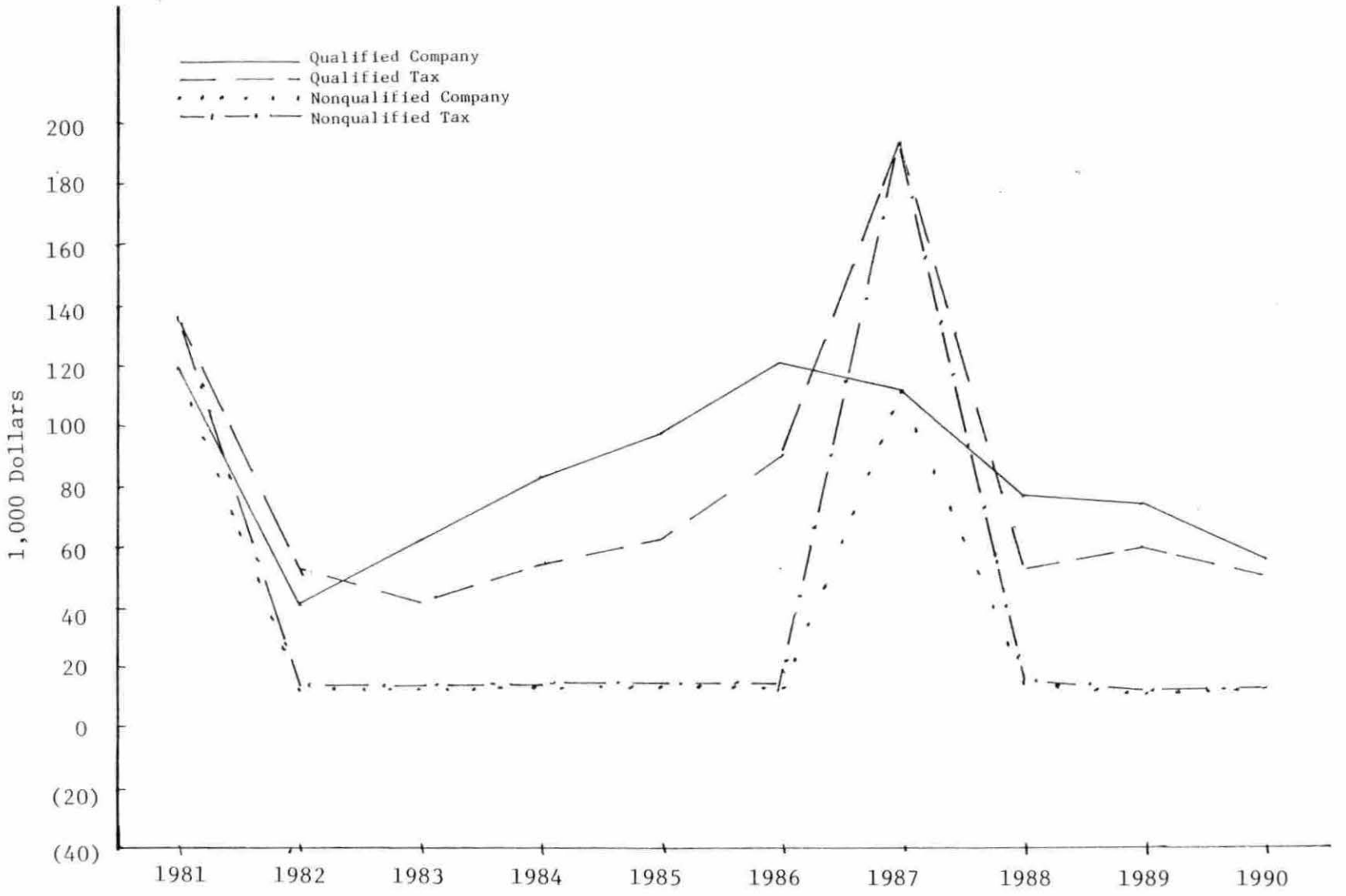

Figure B.26 Eastern, Net Cash Flow to Members, 20% Tax Bracket, Scenario 1, 40% Cash Patronage

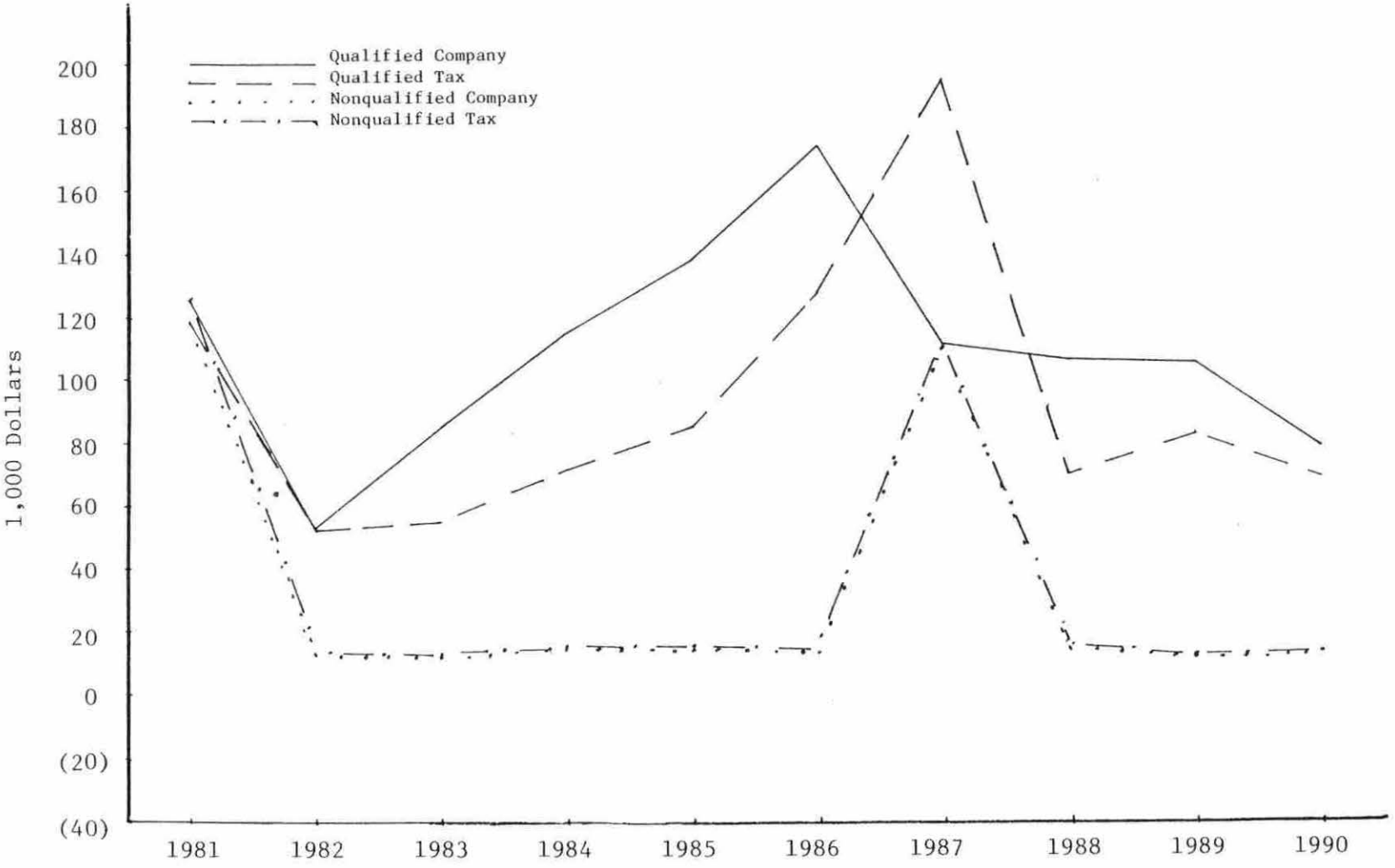

Figure B.27 Eastern, Net Cash Flow to Members, 20% Tax Bracket, Scenario 1, 45% Cash Patronage

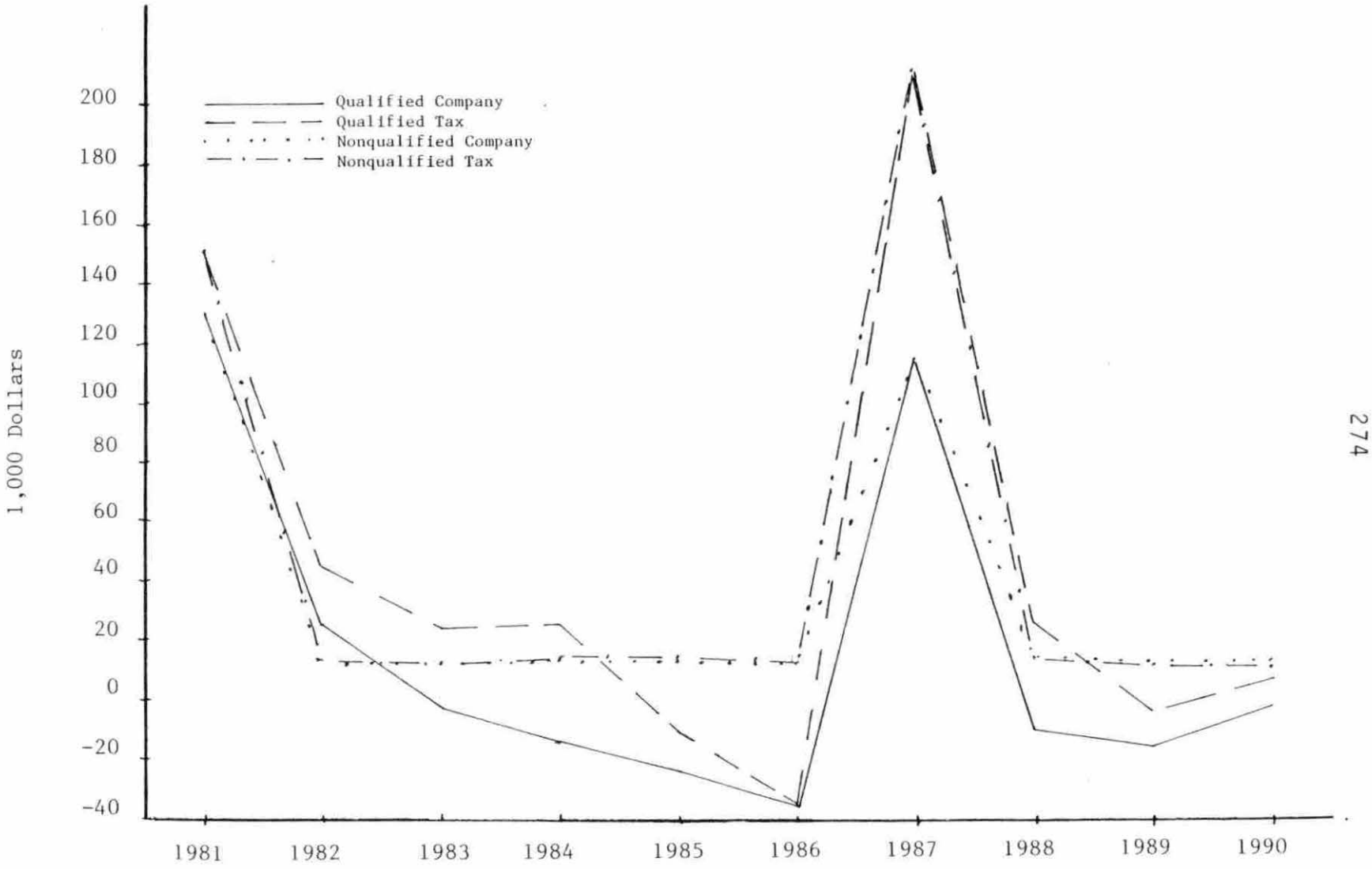

Figure B.28 Eastern, Net Cash Flow to Members, 35% Tax Bracket, Scenario 4, 30% Cash Patronage

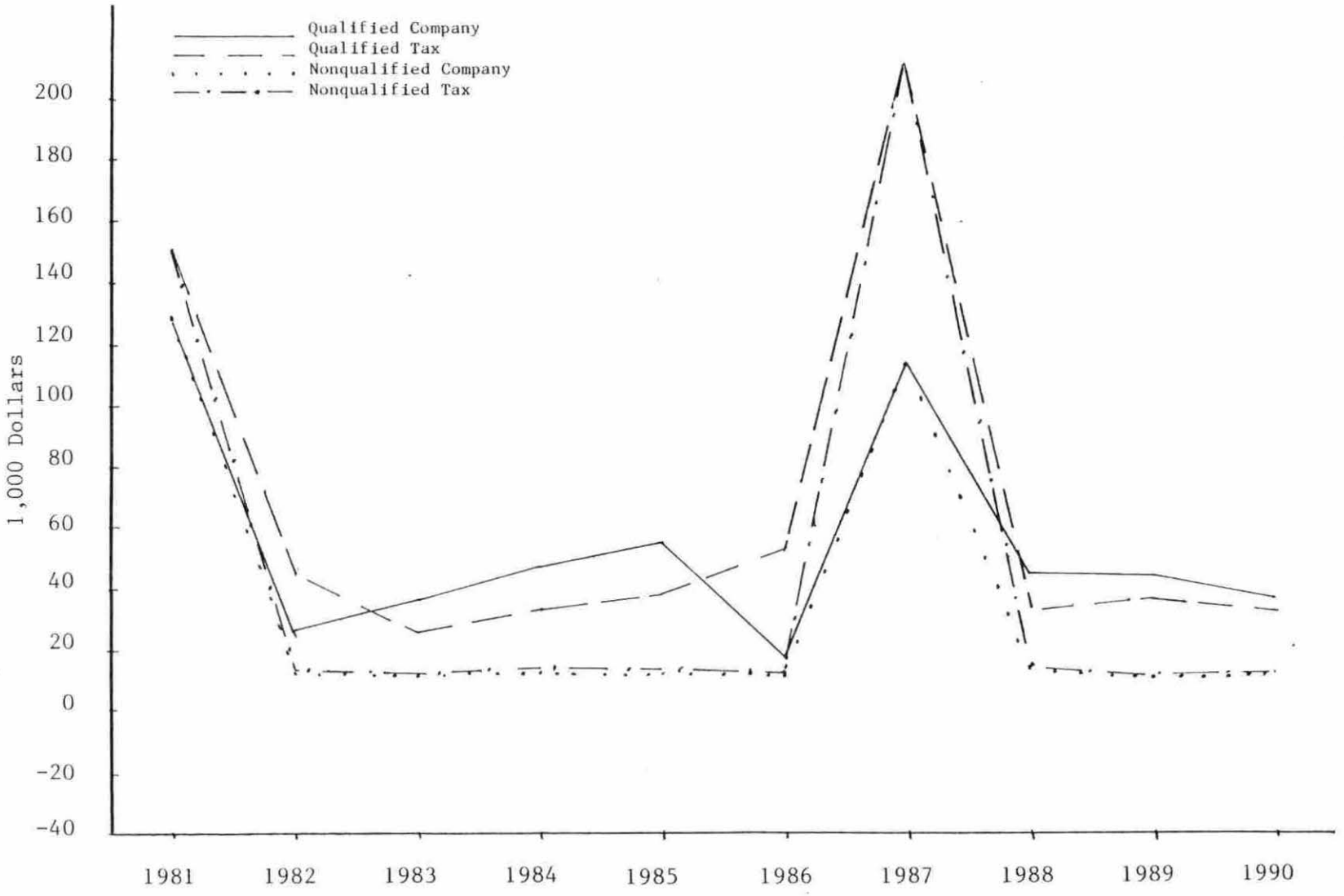

Figure B.29 Eastern, Net Cash Flow to Members, 35% Tax Bracket, Scenario 4, 40% Cash Patronage

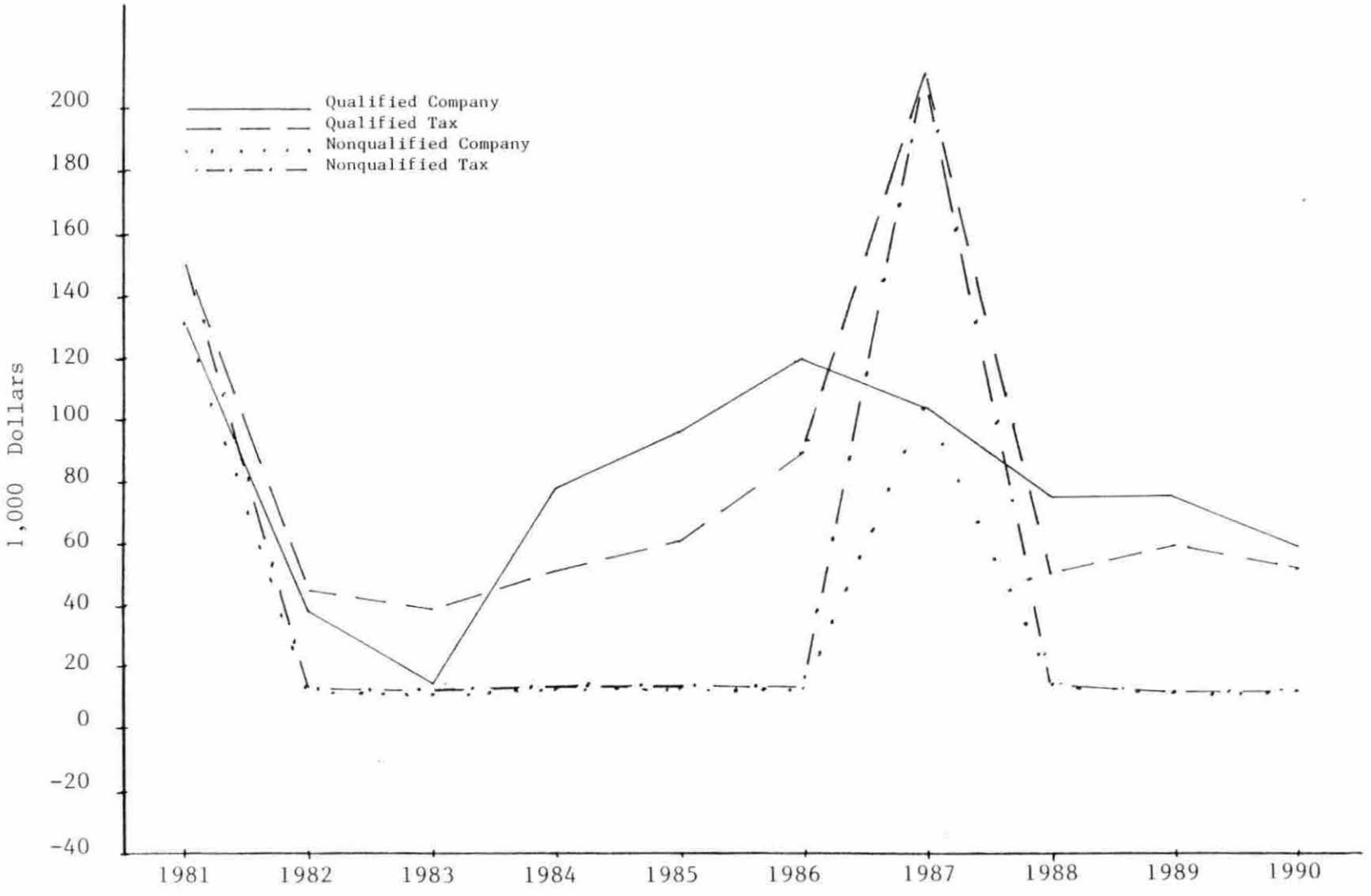

Figure B.30 Eastern, Net Cash Flow to Members, 35% Tax Bracket, Scenario 4, 45% Cash Patronage

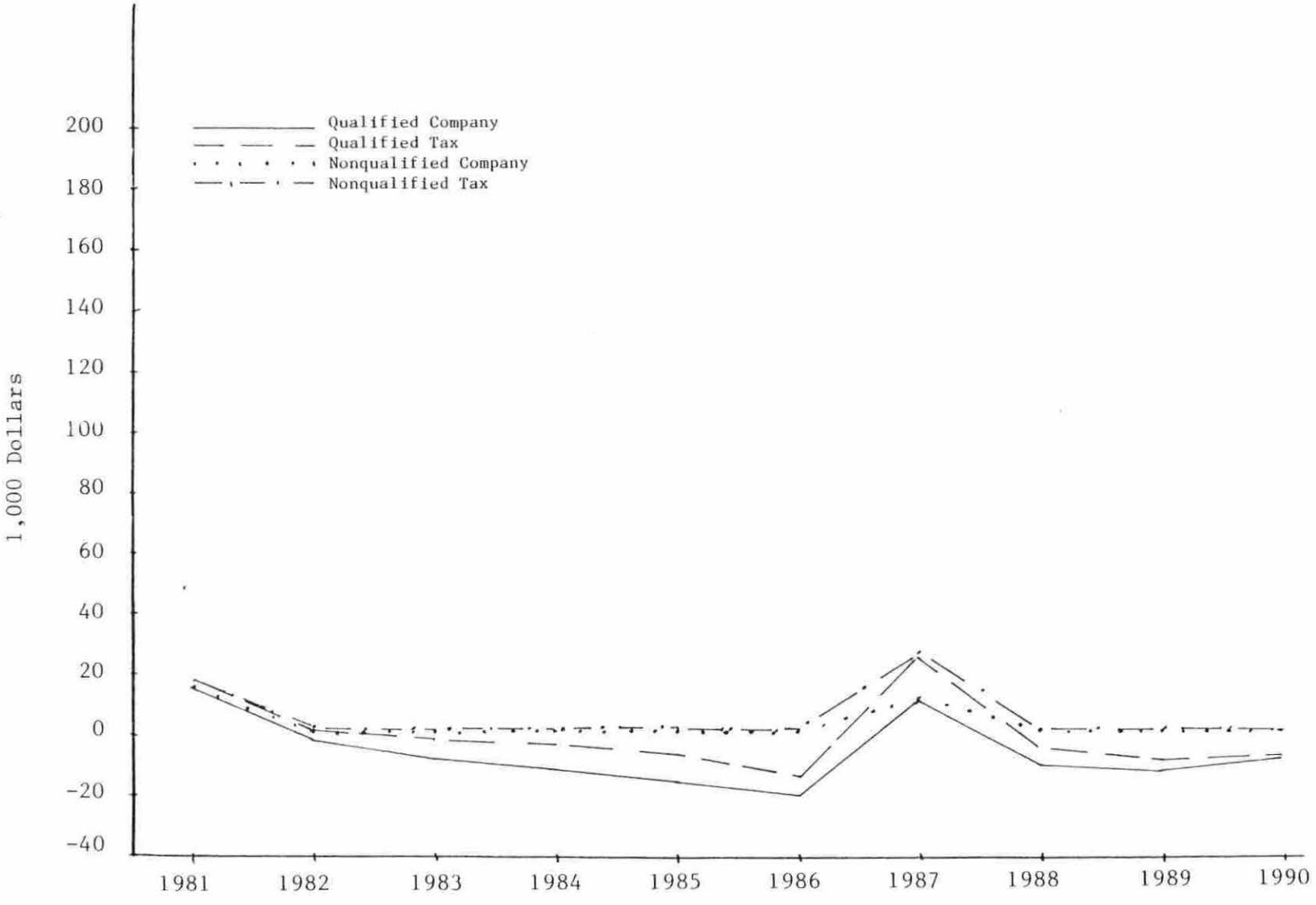

Figure B.31 Eastern, Net Cash Flow to Members, 50% Tax Bracket, Scenario 5, 30% Cash Patronage

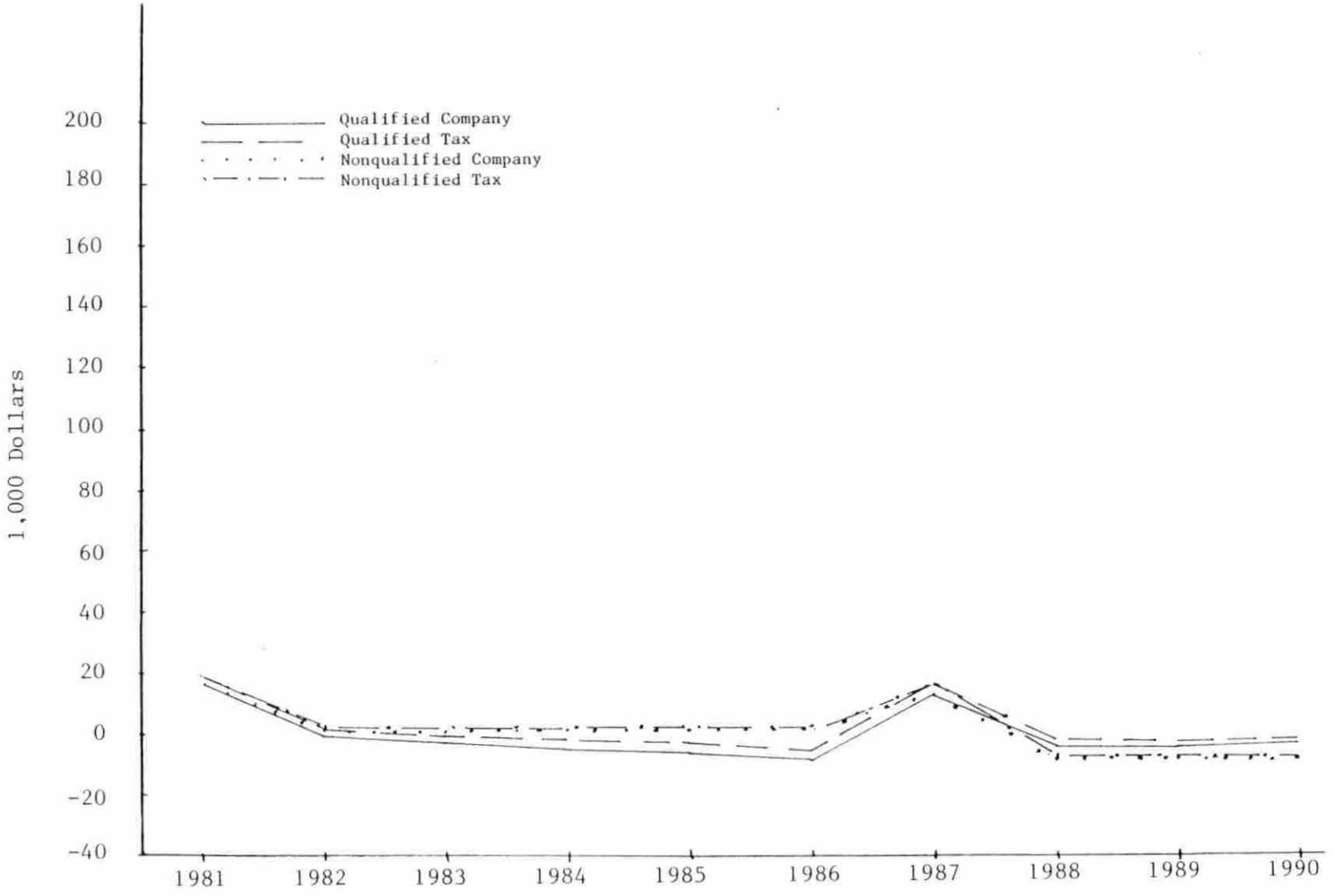

Figure B.32 Eastern, Net Cash Flow to Members, 50% Tax Bracket, Scenario 5, 40% Cash Patronage

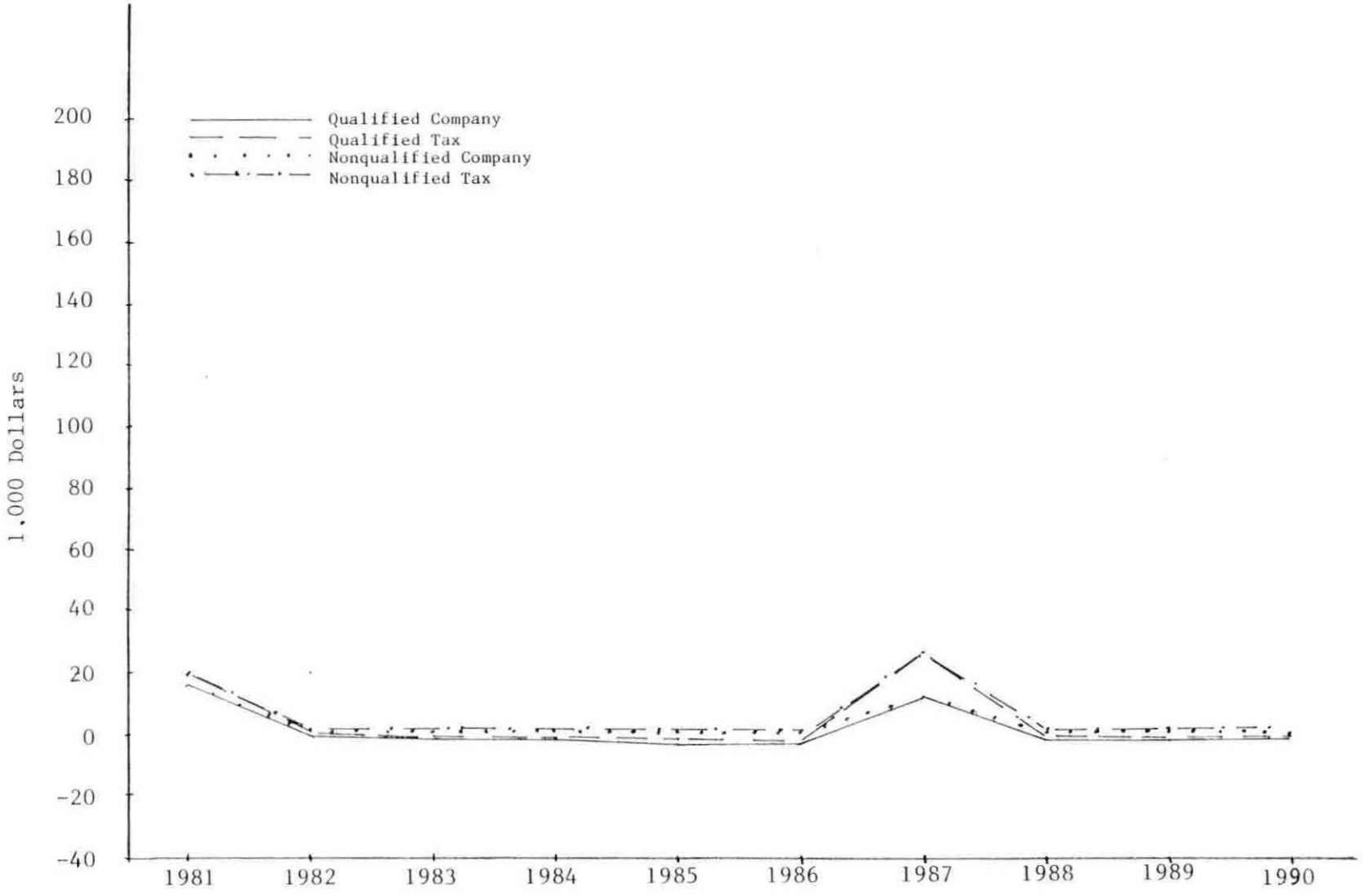

Figure B.33 Eastern, Net Cash Flow to Members, 50% Tax Bracket, Scenario 5, 45% Cash Patronage

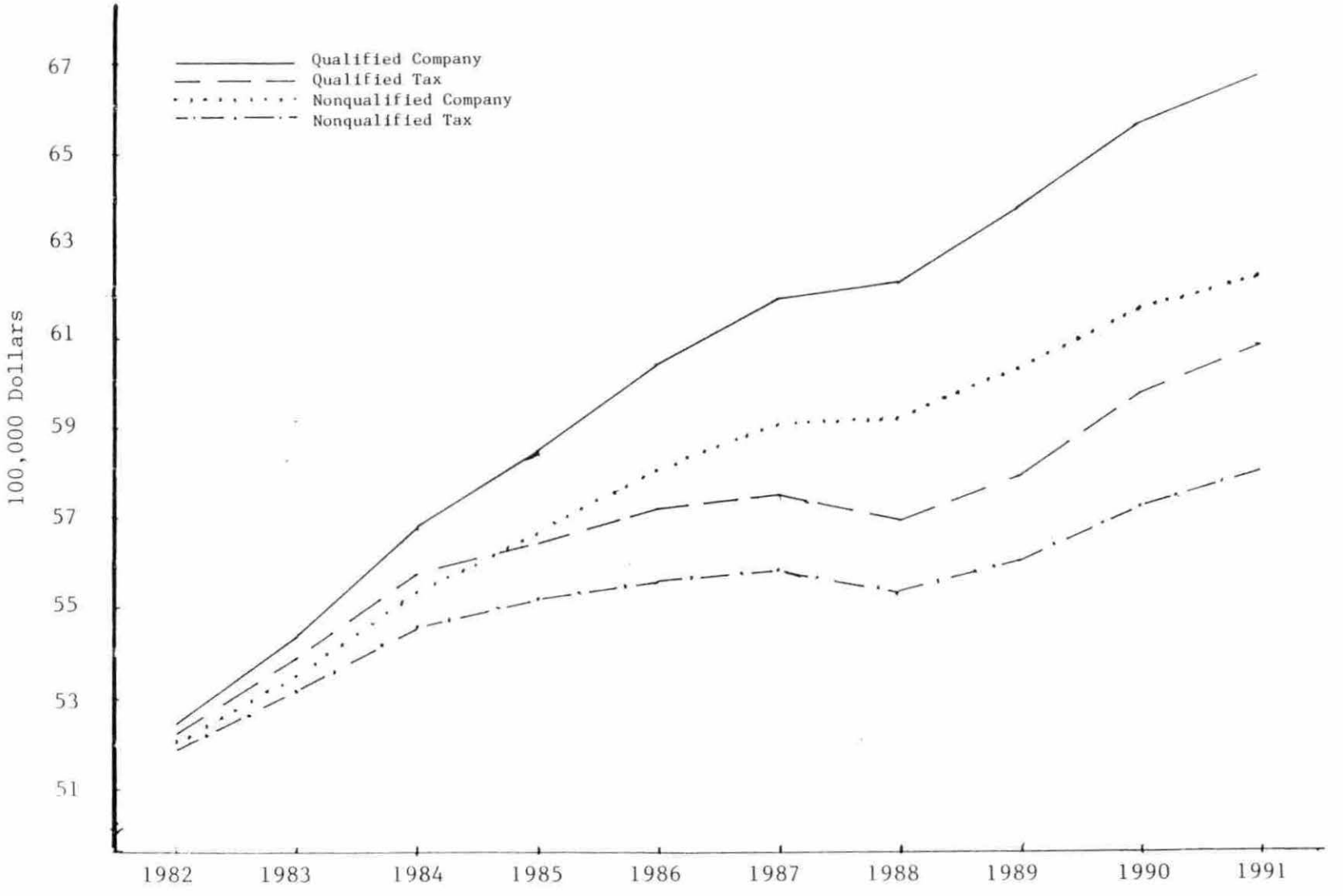

Figure B.34 Indiana, Total Member Equity, 30% Cash Patronage

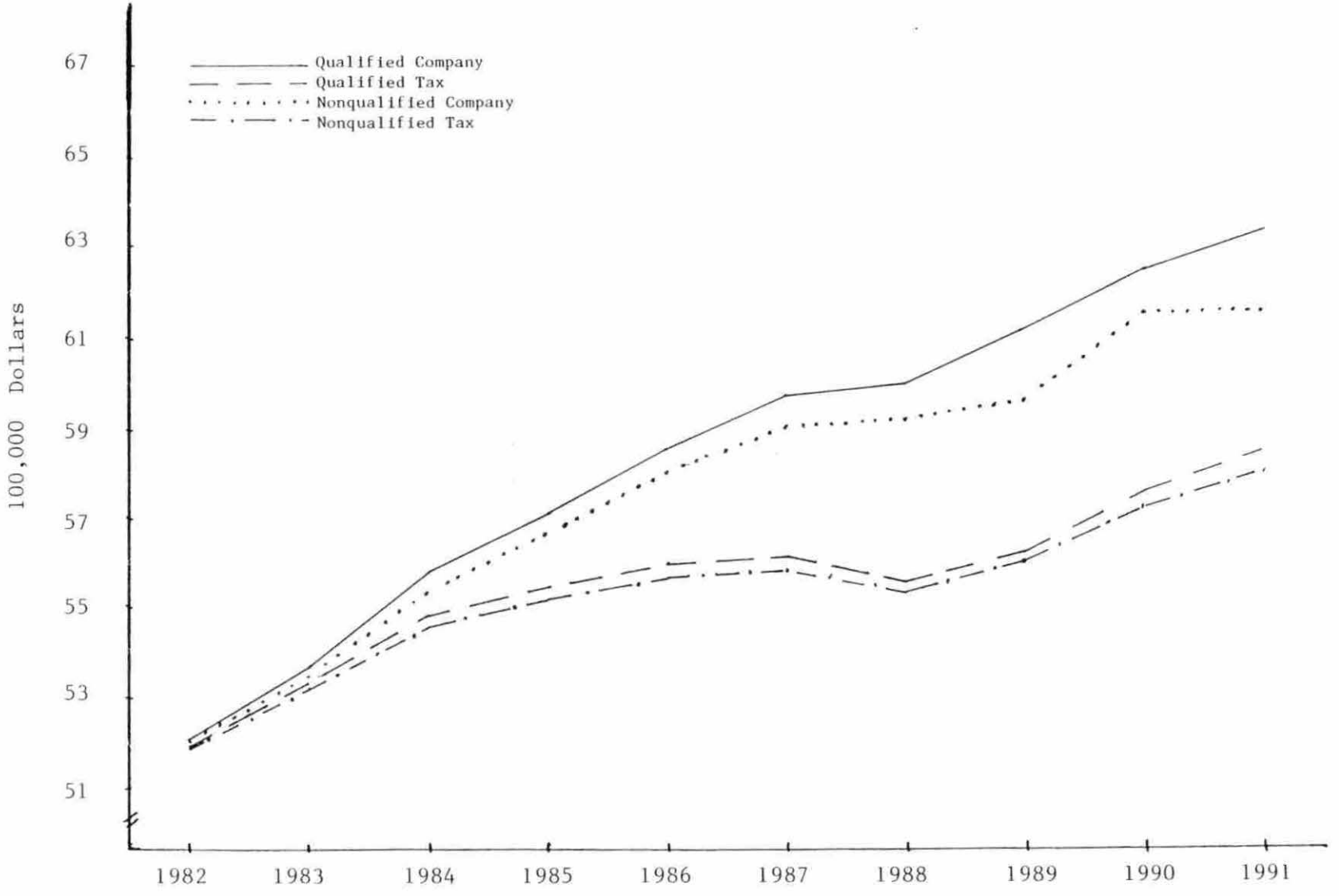

Figure B.35 Indiana, Total Member Equity, 40% Cash Patronage

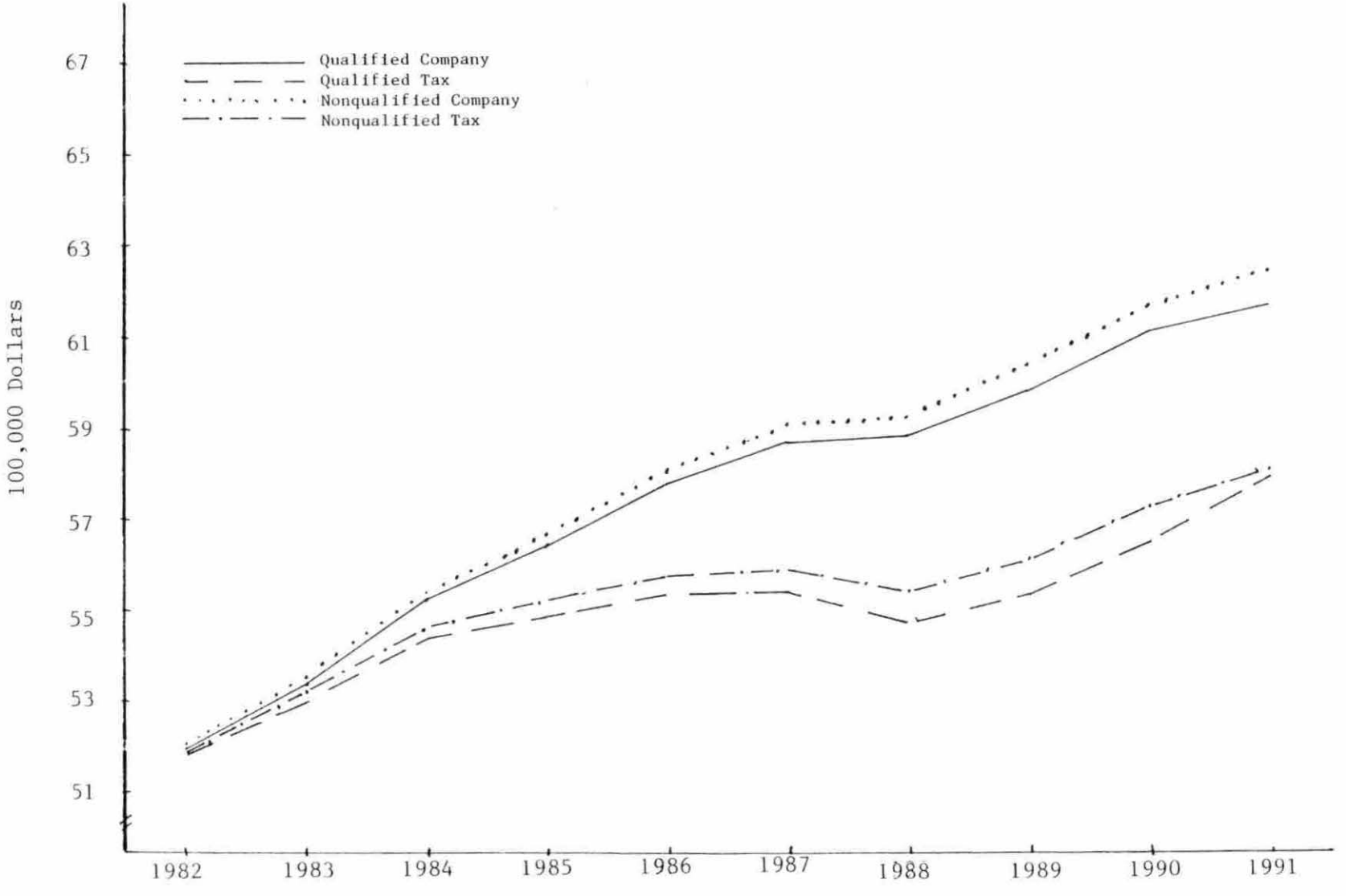

Figure B.36 Indiana, Total Member Equity, 45% Cash Patronage

Figure B.37 Iowa, Total Member Equity, 30% Cash Patronage

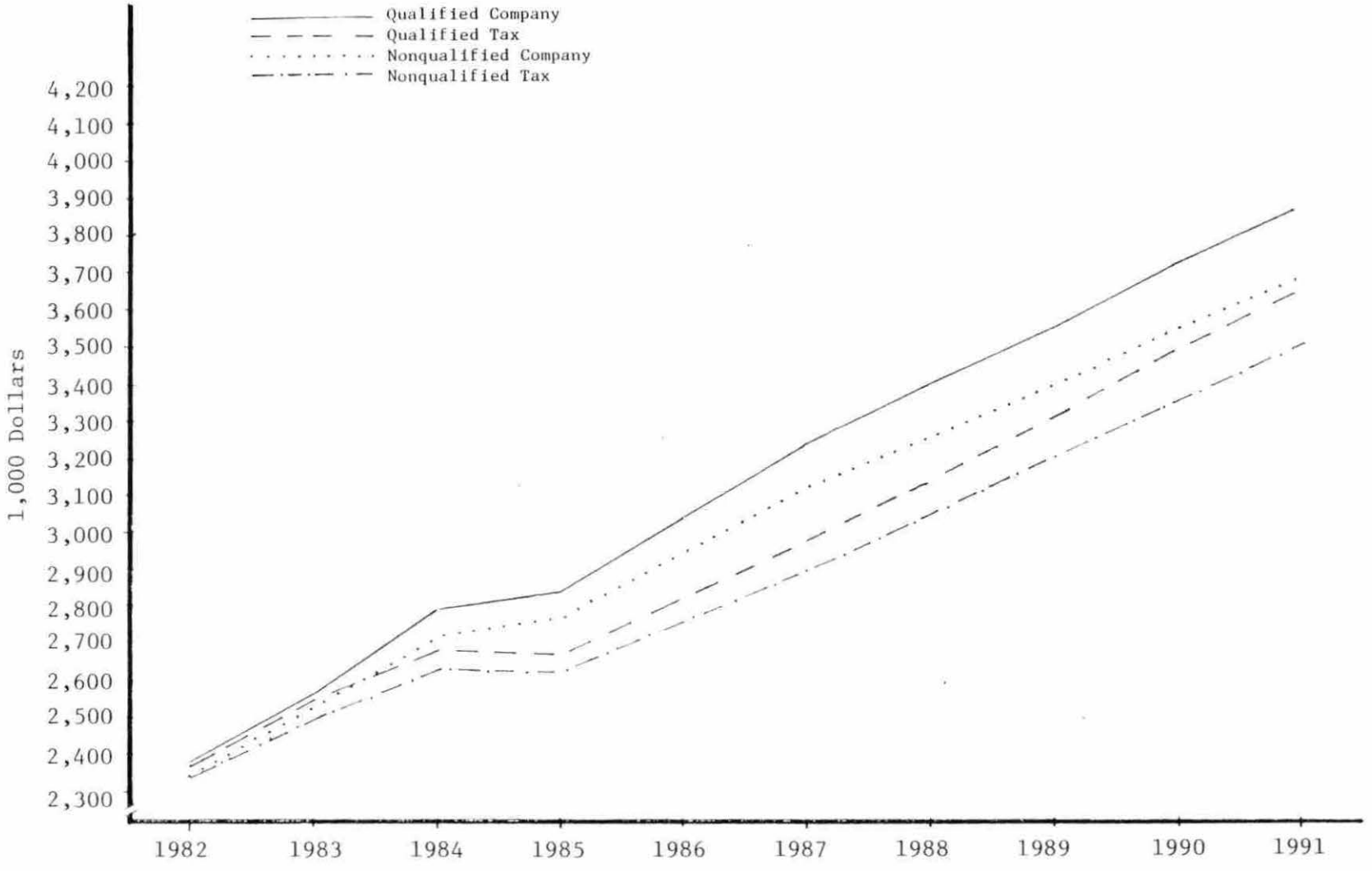

Figure B.38 Iowa, Total Member Equity, 40% Cash Patronage

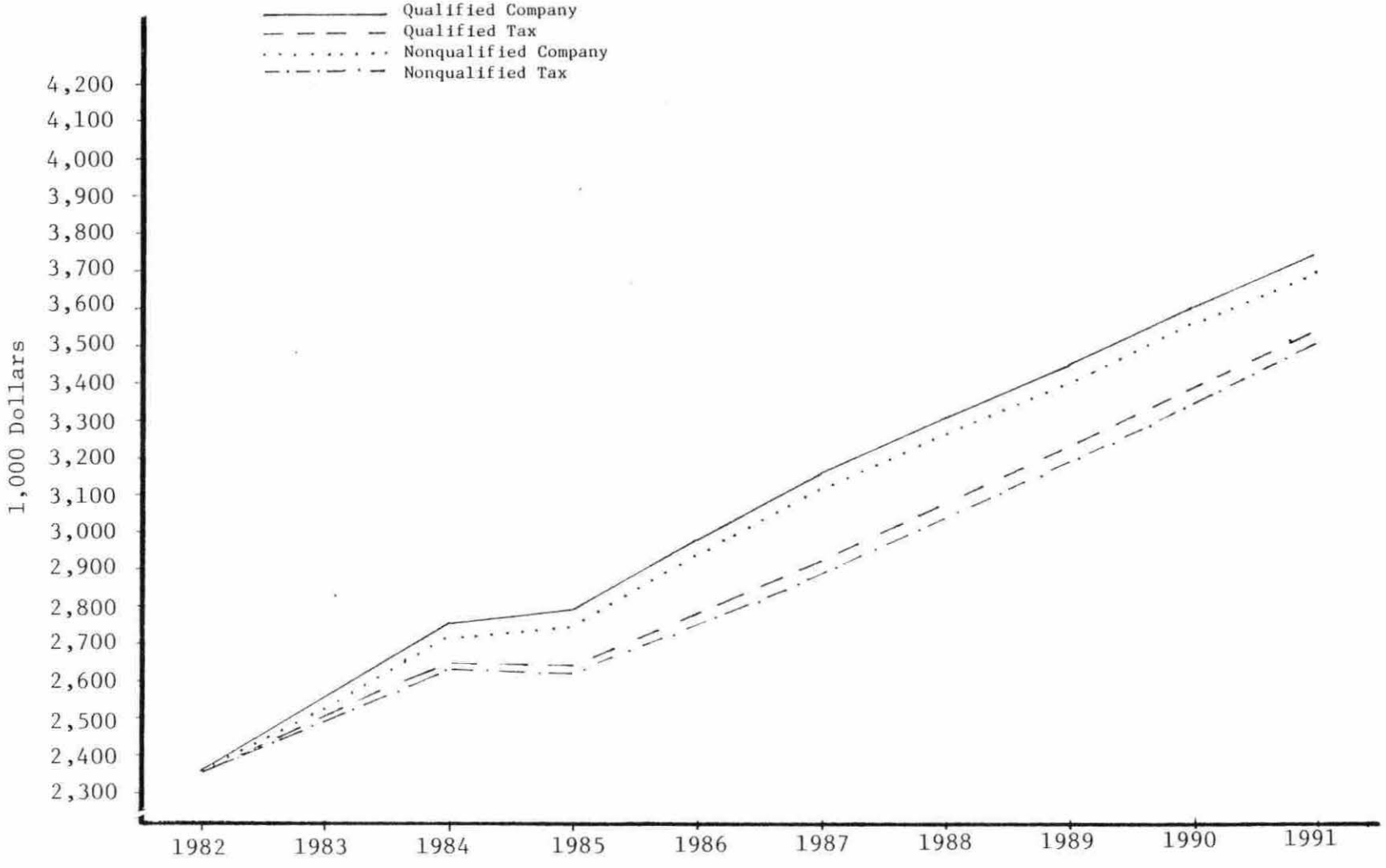

Figure B.39 Iowa, Total Member Equity, 45% Cash Patronage

Figure B.40 Eastern, Total Member Equity, 30% Cash Patronage

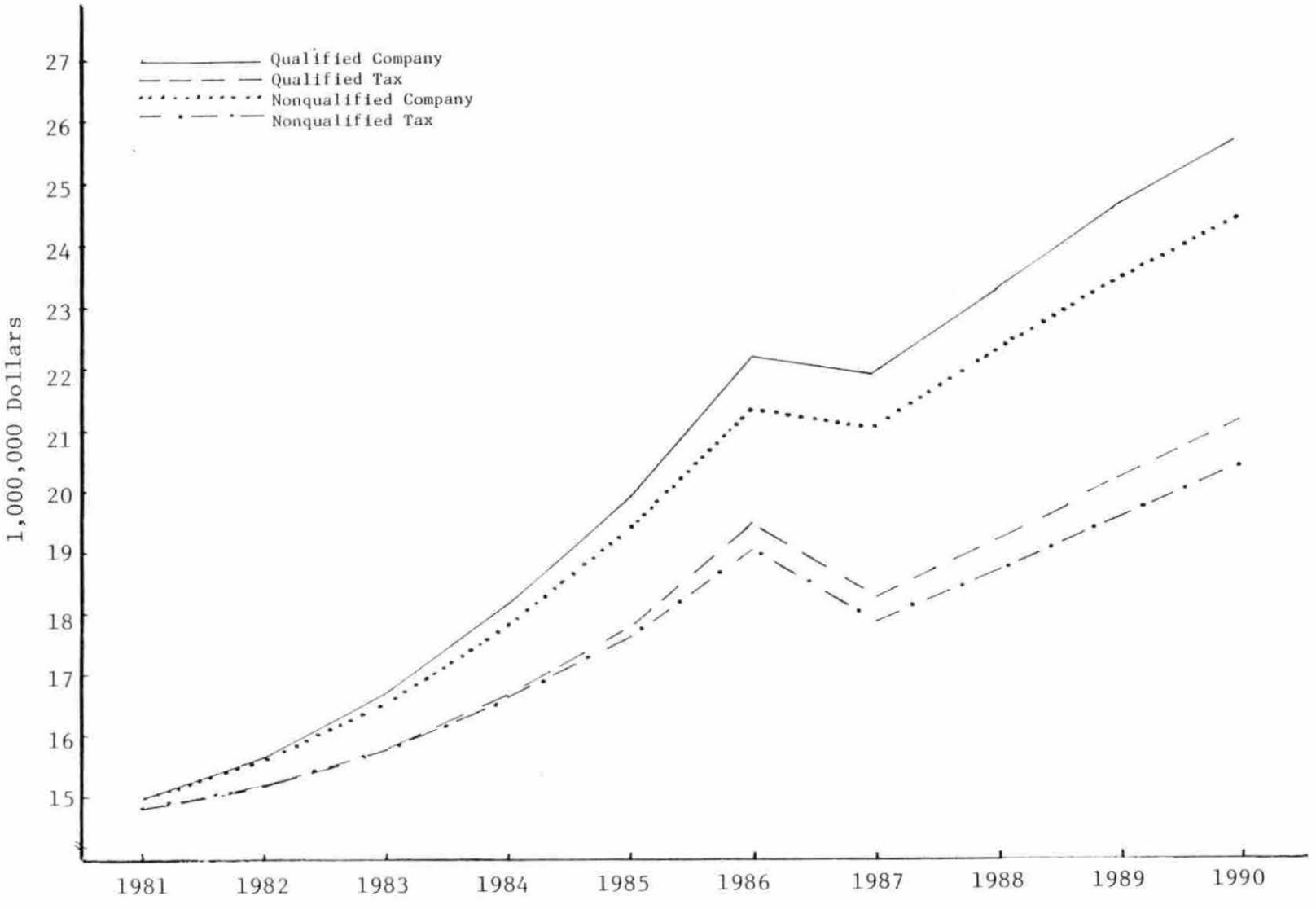

Figure B.41 Eastern, Total Member Equity, 40% Cash Patronage

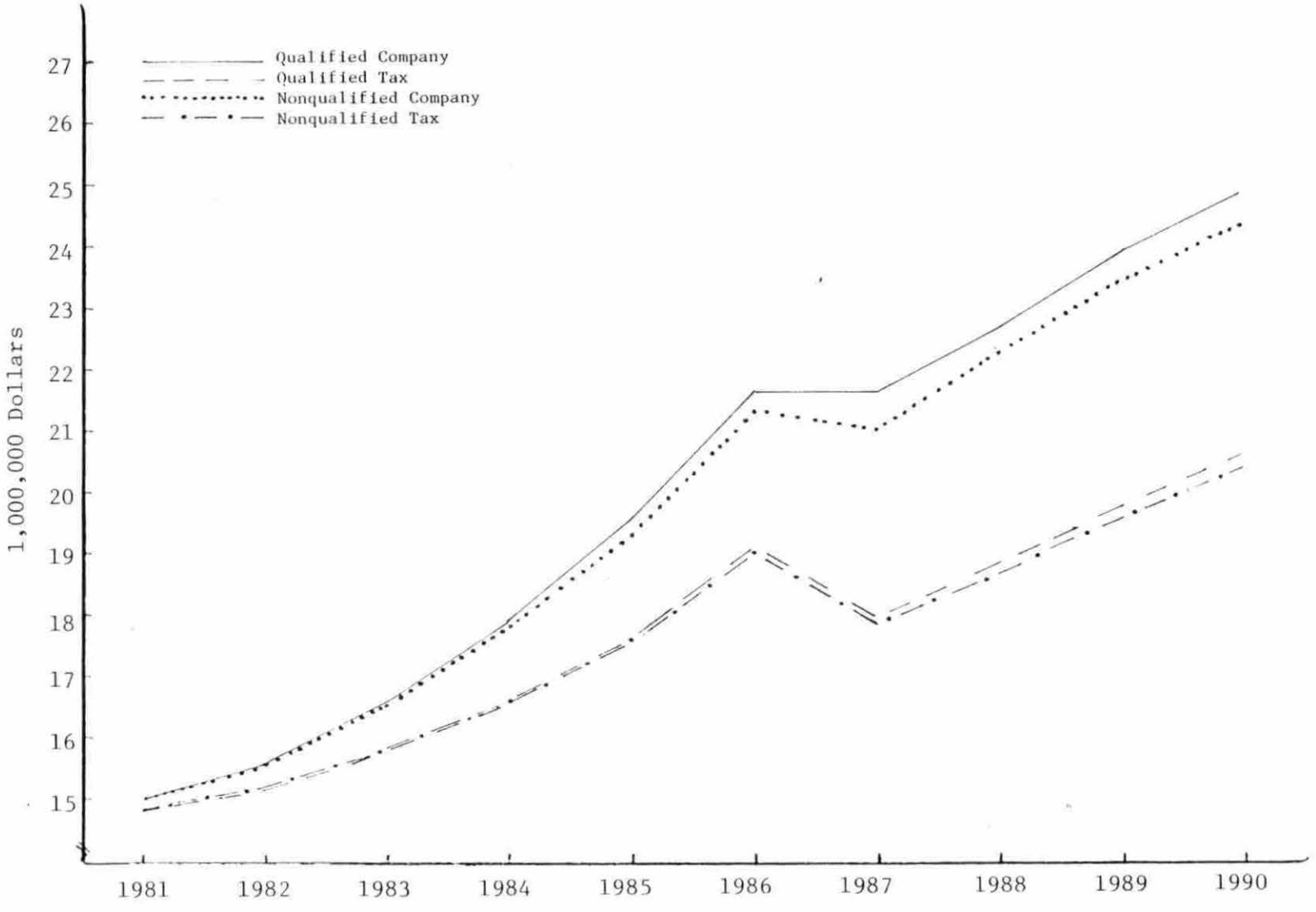

Figure B.42 Eastern, Total Member Equity, 45% Cash Patronage

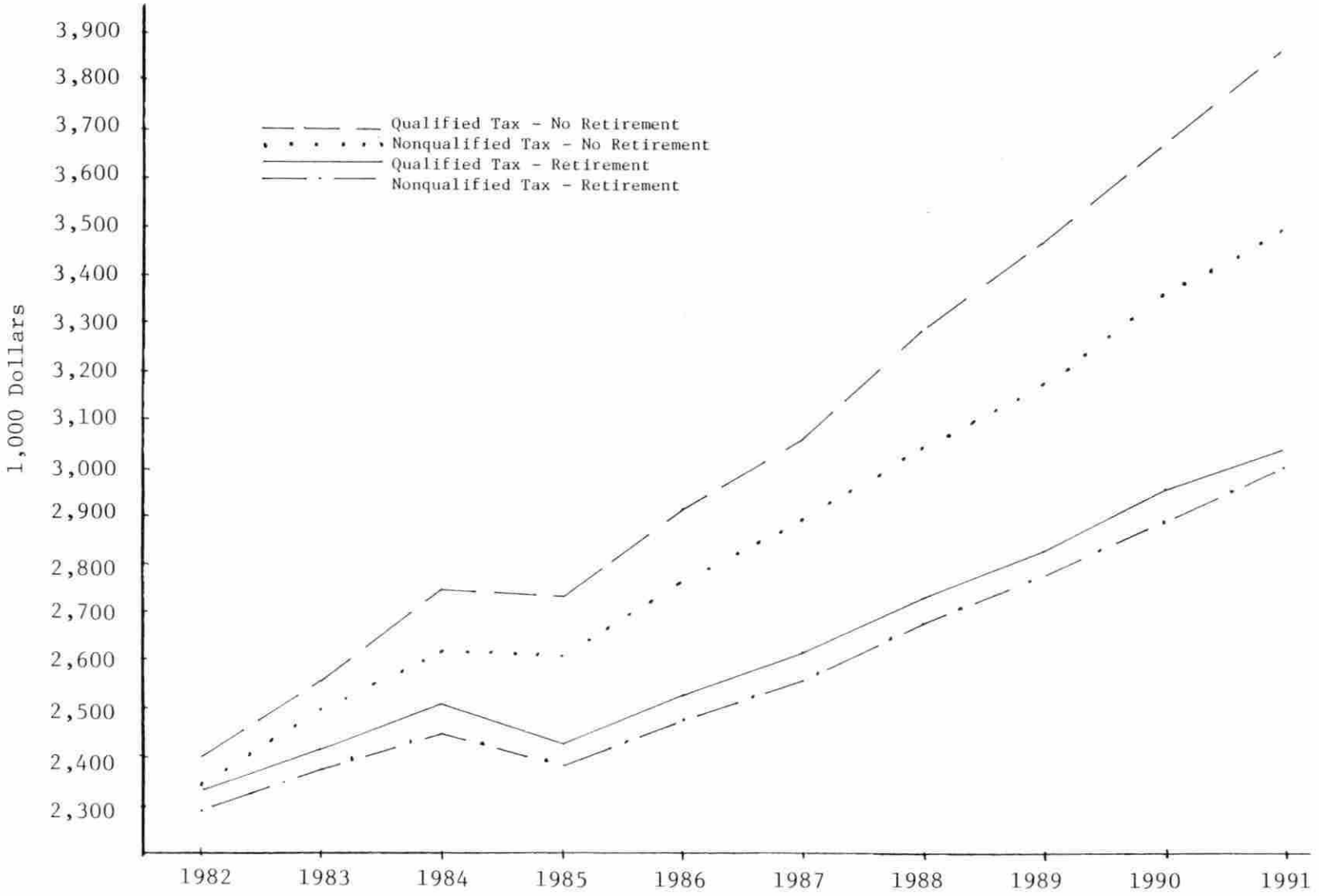

Figure B.43 Iowa, Total Member Equity with Equity Retirement, 30% Cash Patronage

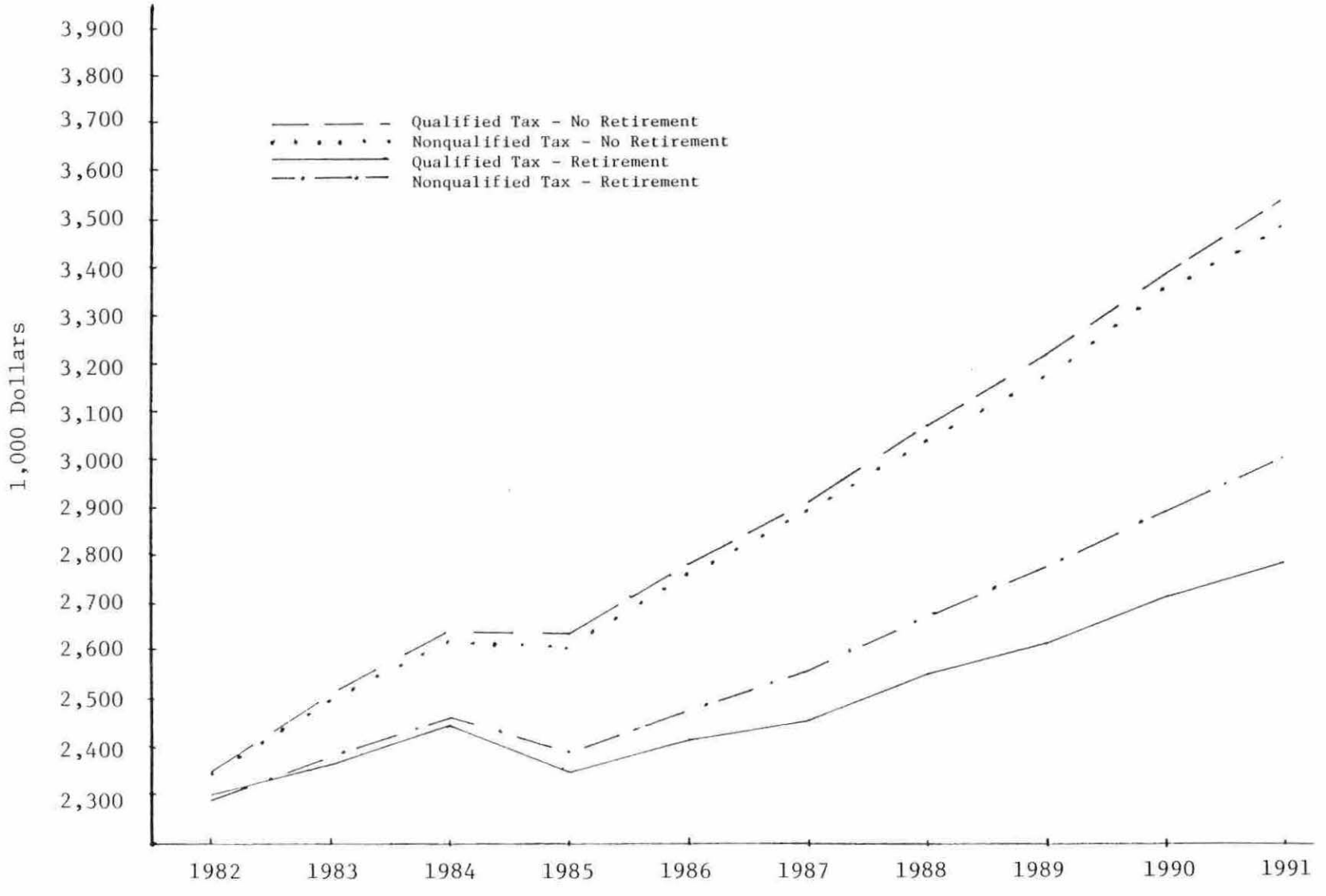

Figure B.44 Iowa, Total Member Equity with Equity Retirement, 45% Cash Patronage

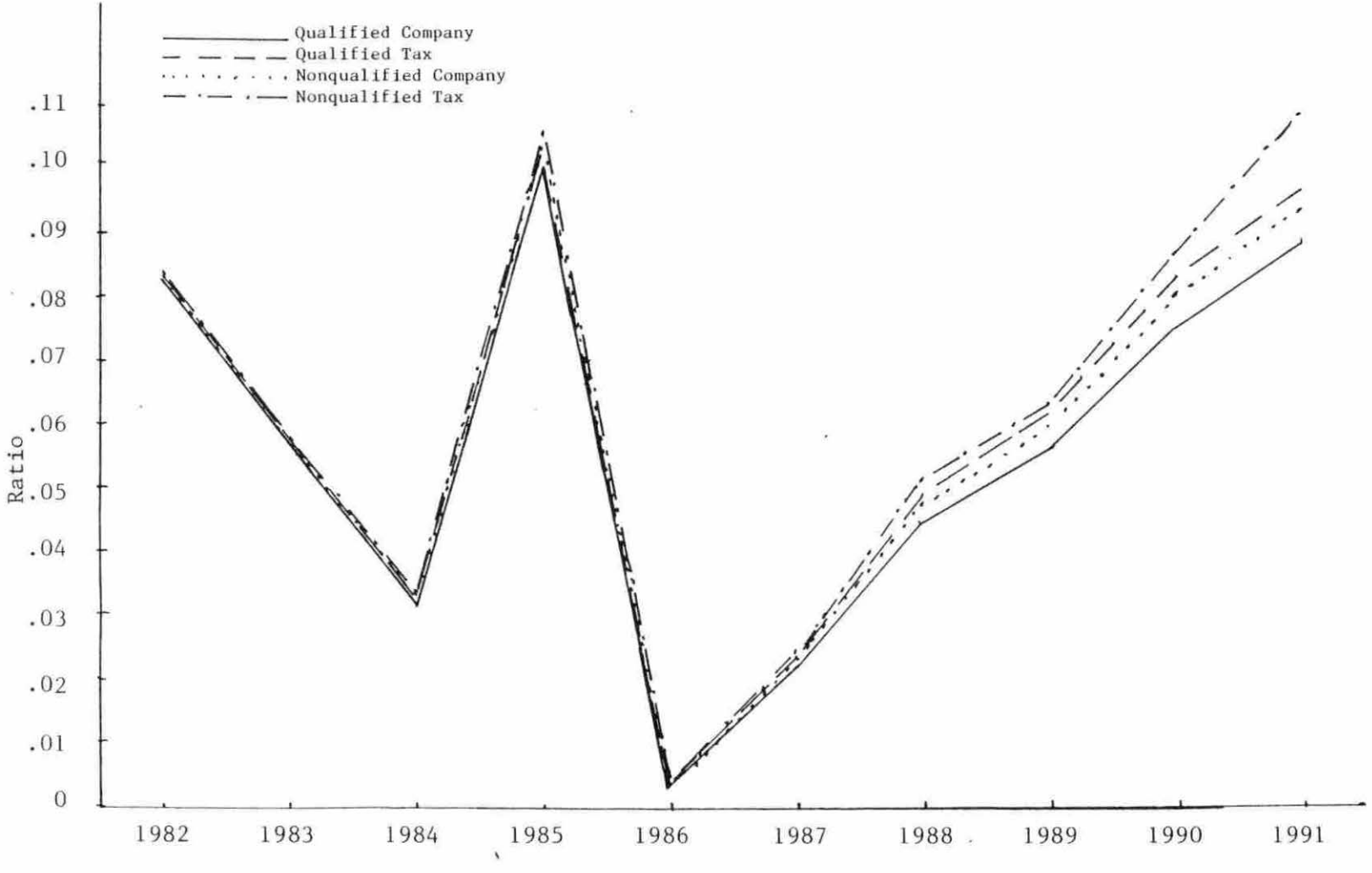

Figure B.45 Indiana, Long Term Debt to Member Equity Ratio, 30% Cash Patronage

Figure B.46 Indiana, Long Term Debt to Member Equity Ratio, 40% Cash Patronage

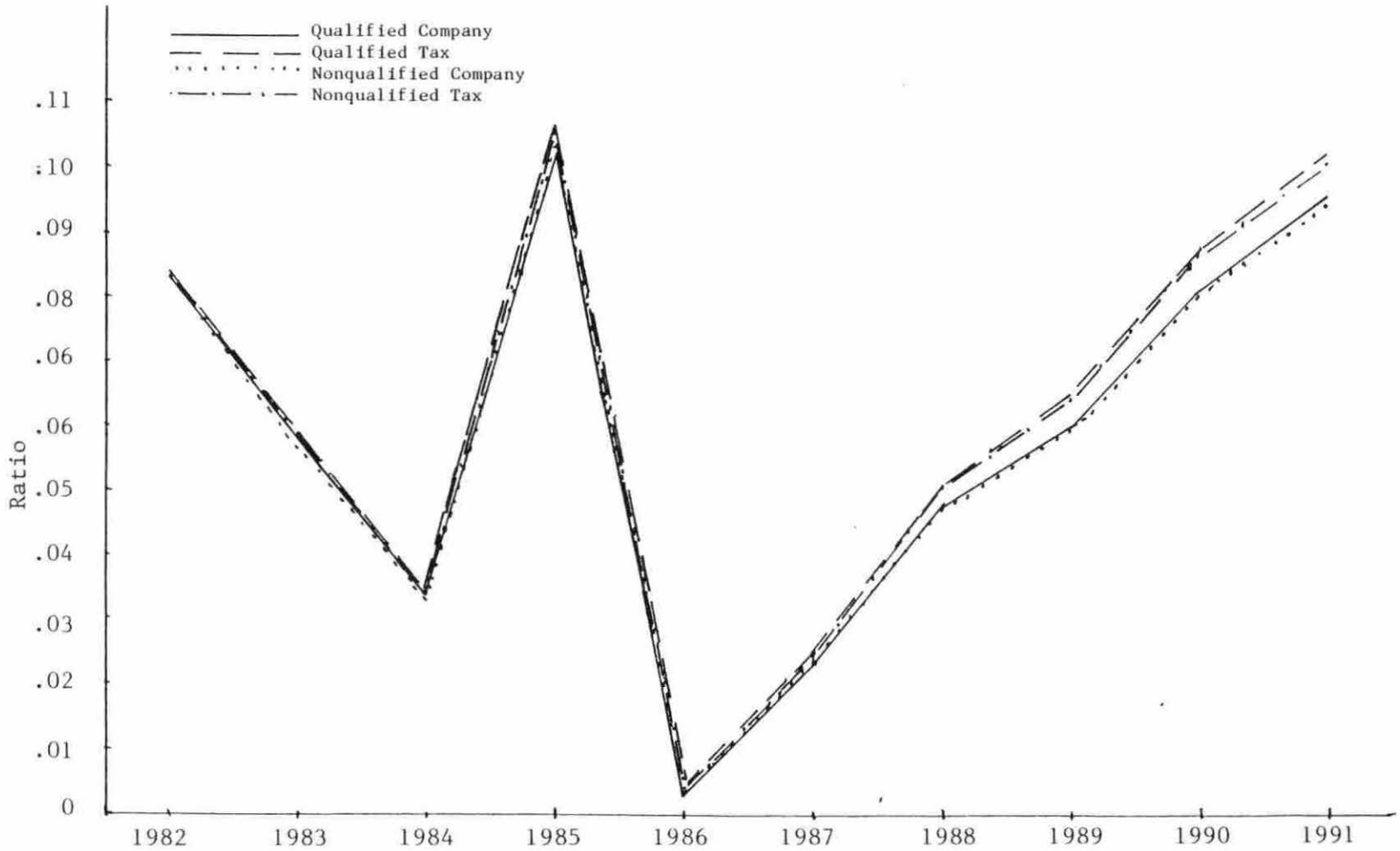

Figure B.47 Indiana, Long Term Debt to Member Equity Ratio, 45% Cash Patronage

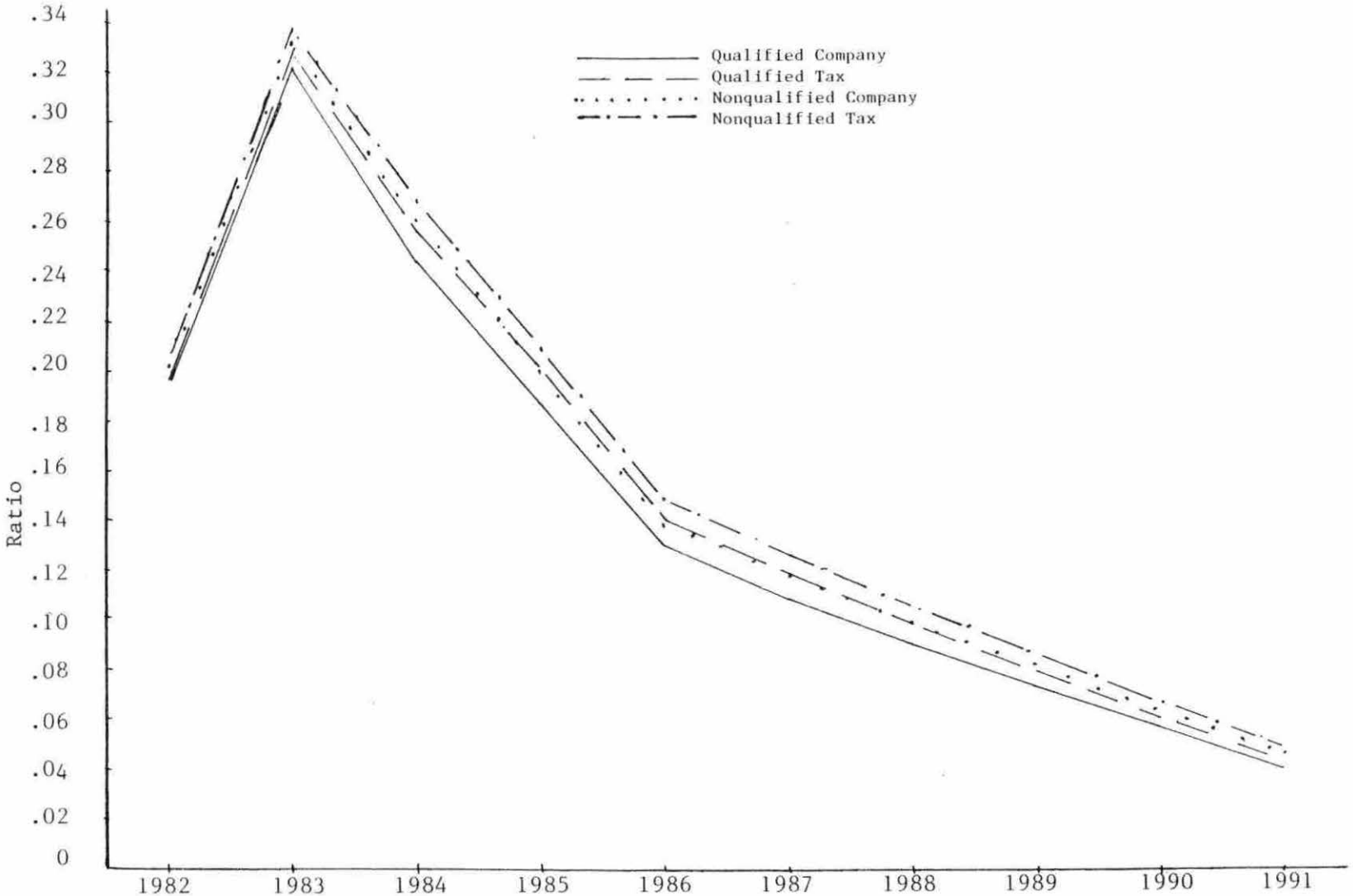

Figure B.48 Iowa, Long Term Debt to Member Equity Ratio, 30% Cash Patronage

Figure B.49 Iowa, Long Term Debt to Member Equity Ratio, 40% Cash Patronage

Figure B.50 Iowa, Long Term Debt To Member Equity Ratio, 45% Cash Patronage