

Implications of Book versus Tax Based Patronage in Agricultural Cooperatives

Introduction

A book tax difference (BTD) is the difference between book income and taxable income in a given period. BTDs arise from various accounting items that are recognized differently depending on the income basis in consideration. Taxable income represents the amount of income that is subject to taxation in accordance with IRS tax code and other statutes. Book basis income refers to the income resulting from revenues and expense are calculated in accordance with Generally Accepted Accounting Principles (GAAP). Because book income and taxable income having differing regulatory standards, some accounting items are recognized differently on a book or tax basis. BTDs can be temporary or permanent depending on the accounting item. Temporary BTDs results when an accounting items is recognized within both book and tax methods but the recognition of that item occurs at different times. A temporary BTD reverses itself once full recognition has happened on both book and taxable income basis. Permanent BTDs occur due to special accounting items that

are only recognized on either a book income or taxable income basis. BTDs can also be classified as favorable or unfavorable. A favorable BTD increases the amount of a deductible expense and decreases taxable income.

BTDs occurring within investor-owned firms have been examined for a variety of reasons. BTDs are considered to be informative on current and future earnings of a firm (Hanlon, 2005). BTDs can also signal information like the accounting conservatism or aggressiveness of a firm. Much research has considered the relationships between BTDs

EDITOR

Barbara A. Wech, Ph.D.
 Department of Management,
 Information Systems, and
 Quantitative Methods
 University of Alabama at
 Birmingham
 COLLAT School of Business
 710 13th St. South
 Department of Management,
 Information
 Systems, & Quantitative Methods
 Birmingham, Alabama 35233
 bawech@uab.edu

GUEST WRITER

Phil Kenkel
 Regents Professor and Bill
 Fitzwater Cooperative Chair
 Oklahoma State University
 Agriculture Economics, 516 Ag
 Hall
 Stillwater, OK, 74078
 (405) 744-9818
 phil.kenkel@okstate.edu

Amanda Higgins
 Research Assistant
 Oklahoma State University,
 Agriculture Economics, 516 Ag
 Hall
 Stillwater, OK, 74078

Rodney Jones
 Oklahoma Farm Credit Professor
 of Agricultural Finance,
 Department of Agricultural
 Economics,
 Oklahoma State University,
 (405) 744-6173
 rodney.jones@okstate.edu



and earnings management, quality, and forecasts in relation to investor-owned firms (Atwood, 2011). The relationships between BTDs and earnings are a part of a broader discussion surrounding the idea of book-tax conformity. There is still an on-going debate as to how BTDs effect the quality of earnings reporting (Atwood, 2011).

While there has been research about BTDs in relation to investor-owned firms, we are unaware of any consideration for BTDs within cooperative business structures. BTDs could be particularly important in cooperatives since book-based patronage can differ significantly from tax-based patronage. BTDs can also shift income, and thus patronage, temporally which could result in benefits being distributed to different sets of members. The Tax Cuts and Jobs Act of 2017 (TCJA) has resulted in higher potential BTDs in agricultural cooperatives. That makes it particularly important to examine the implications of book or tax-based patronage in agricultural cooperatives.

The most apparent potential BTDs in agricultural cooperatives are accelerated depreciation, the receipt of non-qualified equity patronage and the Section 199 deduction. Depreciation on a book basis is based on the matching principle in accounting and is typically calculated on a straight-line basis over the life of the asset. Tax depreciation refers to the amounts reported on the company's income tax returns and in the U.S. the tax depreciation is based on the regulations of the Internal Revenue Service (IRS). The tax regulation allows for accelerated depreciation (such as modified accelerated cost recovery system MACRS) which shifts the largest portion of the depreciation expense to the earliest years of an asset's life. Accelerated depreciation methods create a favorable temporary BTD since it reduces income and patronage in the more current years and increases income and patronage in later years.

Many agricultural farm supply and

marketing cooperatives are members of regional cooperatives and receive cash and equity patronage from those firms. Due in part to the reduction in the corporate tax rate from the TCJA, some regional cooperatives have distributed non-qualified equity patronage. This creates another potential BTD for the local cooperative. If the local cooperative calculates patronage on a book basis the regional non-qualified patronage would become part of the local cooperatives income in the year the equity patronage was issued. Local cooperatives calculating patronage on a tax basis would not include the regional non-qualified equity as patronage in the year the equity was issued but would instead recognize the income when the equity was redeemed by the regional cooperative.

A final common BTD effecting agricultural cooperatives is the Section 199 deduction which was part of the TCJA. While the nuances of the Section 199 deduction are complex it basically allows many agricultural cooperatives to deduct a portion of their income, subject to a limitation based on W-2 wages (KPMG, 2019). While Section 199A reduces taxable income, it is not recognized by GAAP and has no effect on book income. Section 199 therefore creates a permanent favorable BTD.

In this research, we used two tools to examine the impact of tax or book-based patronage on agricultural cooperatives and their members. A cooperative simulation model developed by Oklahoma State University Kenkel (2015) was used to model the effects at the cooperative level and the overall membership. The simulation program creates a 30-year time series of pro-forma financial statements. The long period for projections is necessary to reflect the impacts of revolving equity and the member's lifetime return from the cooperative. In addition to pro-forma profit and cash flow projections, the members' net present value (NPV) is calculated based on after tax portion of cash patronage and equity revolving payments. The calculated



member NPV can be used to analyze the impact of alternative profit distribution, equity management structures and, in this case, the choice of book or taxed based patronage.

The simulator results were further enhanced by creating a profile of patronage by age using data on the market value of agricultural products sold by age category that was obtained from the USDA 2010 Census of Agriculture (USDA, 2012). The profile of patronage by age was used to determine the NPV of member benefits of patronage and equity retirement benefits by beginning patron age over the 30-year simulation period. More information on the profile of patronage by age is available in Kenkel (2020).

Case Study Cooperatives

The first example cooperative was based on a Midwestern farm supply and marketing cooperative with \$58M in annual sales and \$99M in total assets. The cooperative marketed 35M bushels of grain and supplied 57,000 tons of fertilizer and 8M gallons of petroleum products. The cooperative had \$44M of net fixed assets, a fixed asset/total asset ratio of 45% and a debt to asset ratio of 53%. Personnel expense represented 37% of the cooperative’s gross margin and regional patronage represented 20% of farm supply margins.

The second example cooperative was based on a Southern Plains wheat marketing and farm supply cooperative with \$42M in sales and \$46M in total assets. The cooperative marketed 28M bushels of grain (primarily wheat) and supplied 38,000 tons of fertilizer and 10M gallons of petroleum products. The cooperative had 17M in net fixed assets, a fixed asset/total asset ratio of 37% and the debt to asset ratio was also 37%. Personnel expense represented 28% of gross margin while regional patronage represented 40% of farm supply margins.

While these cooperatives were typical for

their regions and also fairly similar to each other they provide some reasonable variation in key BTDs variables (Table 1). When measured as a percentage of earnings before interest, taxes, depreciation and amortization (EBITDA) the Midwestern cooperative had higher BTDs from depreciation, Section 199 and regional non-qualified patronage. That observation suggests that BTDs likely vary across cooperatives.

Table 1: Beginning Proportions of BTD Items to EBITDA

	Book	Tax
Section 199A Deduction:		
Midwestern	0.00%	12.21%
Southern Plains	0.00%	7.49%
Depreciation Expense:		
Midwestern	28.68%	40.98%
Southern Plains	12.87%	18.19%
Regional Non-Qualified Equity:*		
Midwestern	13.67%	0.00%
Southern Plains	8.79%	0.00%

**Book uses issued equity while tax uses redeemed equity*

The case study cooperatives were analyzed under two scenarios. In the first scenario each cooperative’s growth rate was maintained at the rate allowed by the book-based cash flows. The additional cash flow from tax-based patronage was simply retained as unallocated retained earnings. In the second scenario the cooperatives’ growth rates under tax-based patronage were based on available cash flows and thus exceeded the book-based growth rates. This procedure separated the initial effect of tax-based patronage in reducing and delaying patronage from the secondary effect of growing the cooperative and thus generating additional future patronage. Under book-based patronage, the growth rates of the Midwestern cooperative were 1.36% and 2.15% for the Southern Plains cooperative. Under tax-based patronage those growth

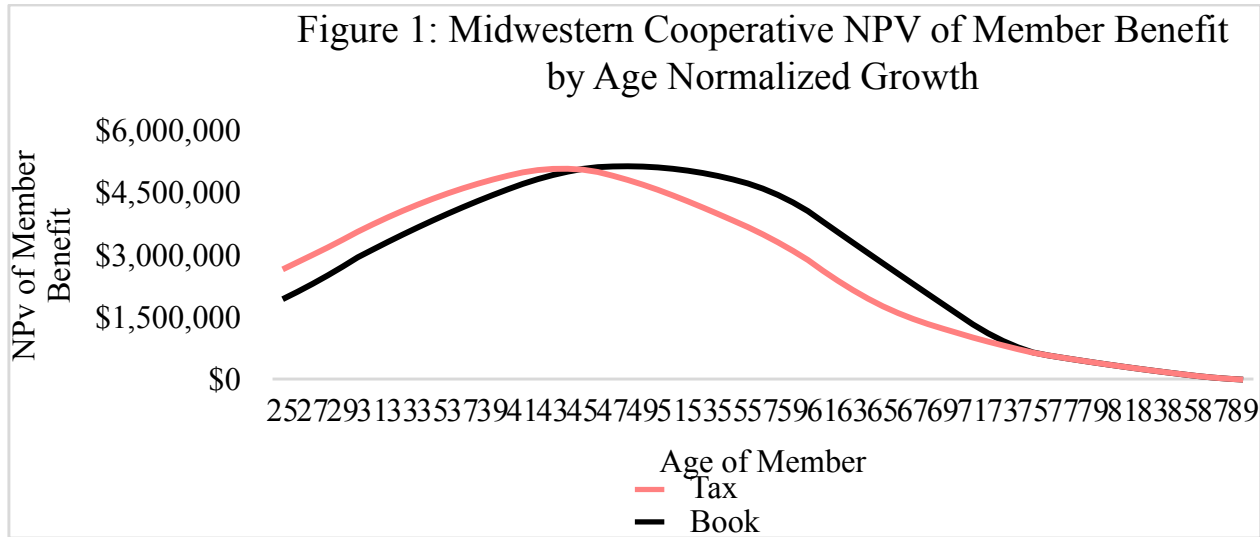


rates increased to 3.85% and 3.06% for the Midwestern and Southern Plains cooperatives respectively. The Midwestern cooperative had a greater growth effect from tax-based patronage due to the higher level of BTDs.

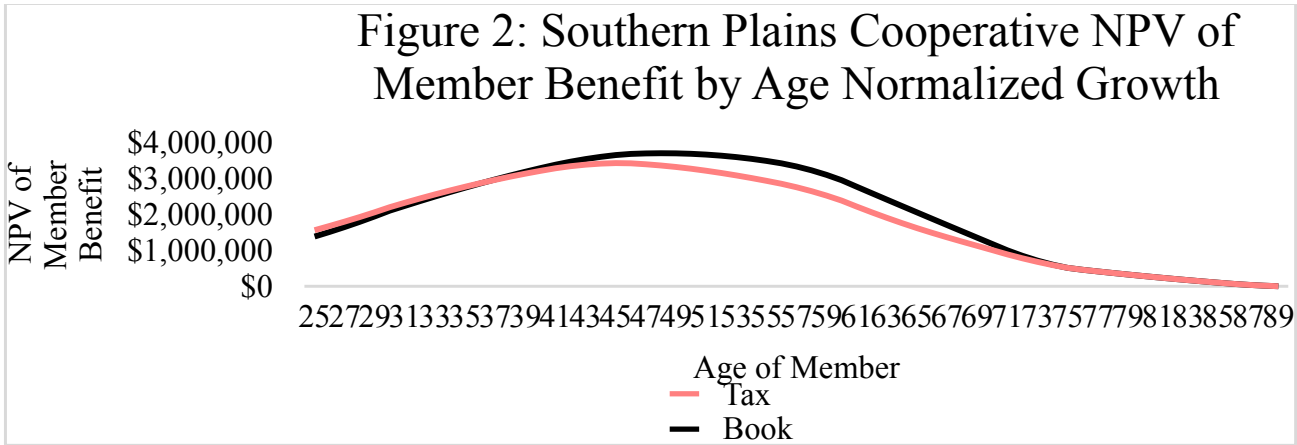
Results:

In the normalized growth rate scenarios, the aggregate member NPVs were higher for book patronage for both cooperatives. That result is not surprising. Our tax-based

patronage calculation involved temporary BTDs that moved patronage to future years and permanent BTDs that reduced patronage. The results are more interesting when analyzed by member age. While, in aggregate, the member’s NPV from the cooperative is higher under book-based patronage, younger members have slightly higher NPV with tax-based patronage. Younger members have fairly-low business volume and thus the younger age groups



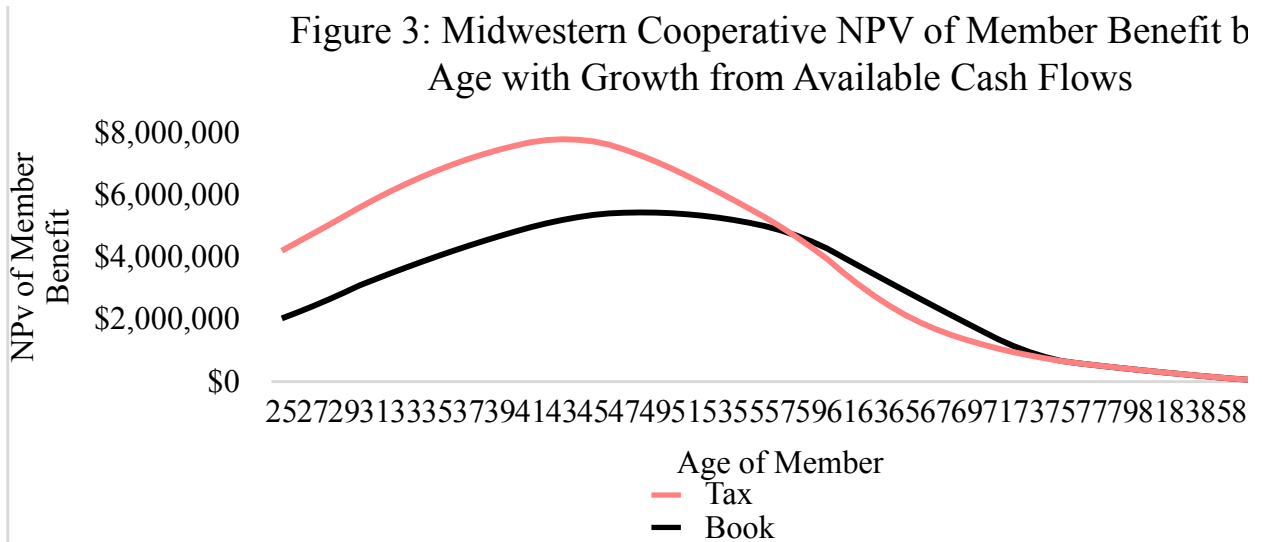
Aggregate Member NPV	
Book	Tax
\$186,772,479	\$171,177,690



Aggregate Member NPV	
Book	Tax
\$135,278,202	\$124,193,097

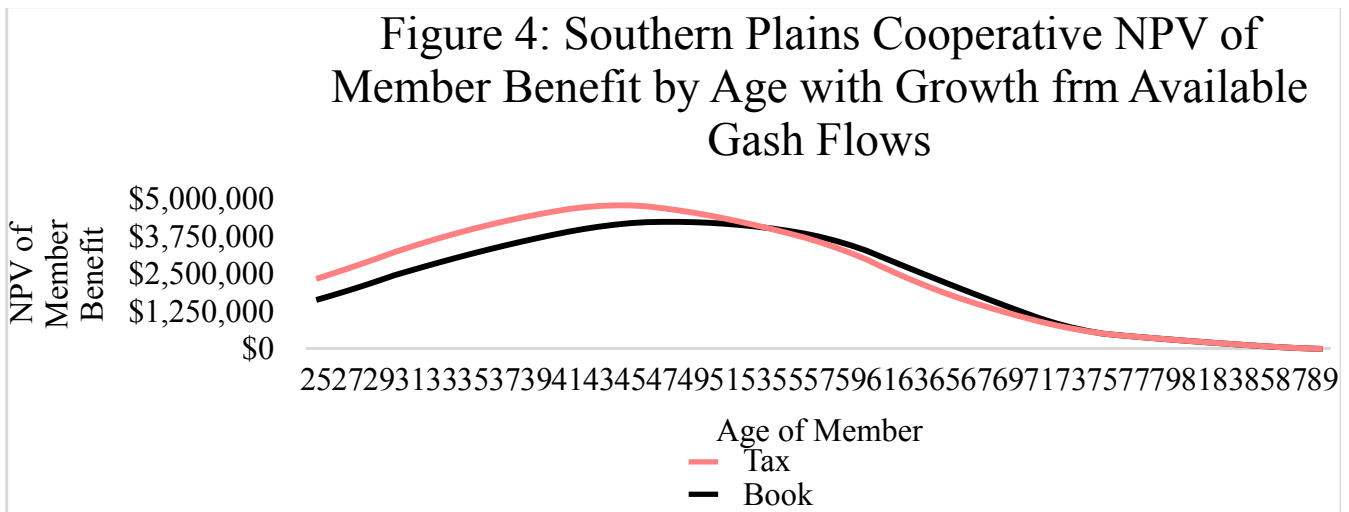


Figure 3: Midwestern Cooperative NPV of Member Benefit by Age with Growth from Available Cash Flows



Aggregate Member NPV	
Book	Tax
\$195,472,810	\$255,920,236

Figure 4: Southern Plains Cooperative NPV of Member Benefit by Age with Growth from Available Cash Flows



Aggregate Member NPV	
Book	Tax
\$152,680,914	\$166,387,499

receive a small share of total patronage. The patronage percentage for those younger age groups will increase over time and thus those members are benefited when the cooperative moves income and patronage into future years. In contrast, older members will have lower patronage in future years or may have discontinued using the cooperative. Older

members are disadvantaged when patronage is moved into future years.

Under the growth scenario the aggregate member NPV was higher under tax-based patronage for both cooperatives. In aggregate, the benefits of growing the cooperative and increasing future income and patronage outweighed the disadvantages of



delaying or avoiding some patronage due to BTDs. When the results are analyzed by member age, differential impacts were even more apparent. While it was still the case that younger members were advantaged by tax-based patronage and older members were advantaged by book-based patronage, the relative advantage of tax patronage for younger members increased and the member age at which book-based patronage was preferred increased. Younger members will increase their patronage over time, have a longer patronage lifespan with the cooperative and receive more benefit from a cooperative's growth. All of those effects contribute to their advantage from tax-based patronage.

Implications and Discussion:

The choice of book or tax-based income calculations impacts the level and timing of patronage payments and has significant impact on the member's return. It can also affect the cooperative's cash flows and its potential growth rate. Our results were based on a financial simulation model and case study grain cooperatives with the cash patronage rate held constant. We found that tax-based patronage had the direct effect of reducing member benefit by reducing and delaying patronage. However, that direct effect was offset if the cooperative is able to use the additional cash flows generated from tax-based patronage to grow the cooperative. That result is predicated on an individual cooperative's ability to generate additional revenues from its reinvested cash flows in its market area.

The patronage calculation method has differential impacts on members of different ages. Younger members are more likely to be advantaged by tax-based patronage because their share of total patronage will increase over time and because they have a longer timeframe to benefit from the cooperative's growth. That could have

implications for cooperatives who are trying to attract younger members.

BTDs varied across our two representative cooperatives and likely vary significantly across cooperatives. Growth opportunities are also firm specific. Many cooperative boards of directors have not considered how the choice of book or tax-based patronage impacts their cooperative and the members. Our research suggests that boards should work with their auditors to better understand this issue. The choice of book or tax-based patronage deserves the same attention and consideration as the more familiar decisions on cash patronage rates or equity revolving periods.

References

- Atwood, T., M. Drake, and L. Myers. 2010. "Book-tax conformity, earnings persistence and the association between earnings and future cash flows." *Journal of Accounting and Economics* 50:111-125
- Hanlon, Michelle L. 2005. "The persistence and pricing of earning, accruals, and cash flows when firms have large book-tax differences." *The Accounting Review* 80(1):137-166.
- Kenkel, P. 2015. "Profit Distribution Alternatives for Agricultural Cooperatives." *Journal of Cooperatives* 30:28-49
- Kenkel, P. 2020. "Understanding Cooperative Equity." Oklahoma Cooperative Extension Service. <https://extension.okstate.edu/fact-sheets/understanding-cooperative-equity.html>
- KPMG. 2019. "IRS updates FAQs, QBI deduction for cooperatives and patrons" <https://home.kpmg/us/en/home/insights/2019/06/tnf-irs-updates-faqs-qbi-deduction-for-cooperatives-and-patrons.html>