The Impact of Federal and State Income Tax Liabilities on Timber Investments in the Midwest and Northeast

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ABSTRACT

Federal and state income taxes are calculated for hypothetical forest landowners in two income brackets across 23 states in the Midwest and Northeast to illustrate the effects of differential state tax treatment. The income tax liability is calculated in a year in which the timber owners harvest $200,000 worth of timber. State income taxes ranged from highs of $13,427 for middle-income landowners and $18,527 for high-income landowners in Maine to no tax burden in New Hampshire and South Dakota. Calculated state and federal income taxes are based on 2004 tax regulations and rates. After-tax land expectation values calculated for a forest landowner in the Northern Lower Peninsula of Michigan illustrate the importance of tax planning on returns to a timber investment. The results support the need for adequate tax accounting.

Keywords: taxes, landowner, cost, rate of return, investment

In 2003, 753 randomly selected landowners in the Northeast and Midwest who were members of the American Tree Farm System were mailed a questionnaire that asked about both their awareness and their use of several federal income tax provisions that are available. Four hundred ten of the landowners in the sample responded. Of these 410 respondents, only 39% stated they were aware that timber revenues could qualify for capital gains treatment. Only 55% were aware that management costs could be deducted, and 17% were aware of the provision allowing for the amortization of reforestation costs (Smith 2004).

Results of the study indicate that many landowners throughout the Northeast and Midwest are not realizing the full financial potential from their forestland investments because of the lack of familiarity with current income tax provisions. Tax education programs must accompany tax measures enacted to encourage particular landowner behavior for the policies to achieve the desired effect.

Forest landowners must consider federal and state income taxes because they can significantly reduce net returns to forestland investments. The complexity of tax law challenges landowners who endeavor to develop a sound management plan that takes advantage of the various interacting state and federal provisions pertaining to forestry (Greene et al. 2004). Frequent changes to federal and state income tax legislation require constant monitoring to keep abreast of current provisions affecting forest management. Learning the relevant tax implications (Haney et al. 2005) for forest management decisions is both expensive and time-consuming. However, the consequences of failing to take advantage of the existing law can be even more costly (Bailey 1998).

Two examples showing the effects of federal and state income taxes on returns to timberland investors in the Midwest and Northeast are analyzed in this article. The first illustrates variances of the tax cost of a timber sale by state. The second examines the effects of various tax planning scenarios on land expectation value (LEV). LEV is the net present value of cash flows generated from an infinite series of identical even-aged timber rotations. Often, it is viewed as an estimation of the maximum bid price that an investor can afford to pay for a piece of bare ground and still earn a rate of return equal to the alternative rate of return (Gunter and Haney 1984).

A hypothetical taxpayer profile is used to examine the tax cost associated with a timber sale. The taxpayer invests in red pine (*Pinus resinosa*) forestland in the Midwest or Northeast. Red pine is selected as the species in the study because available yield and cost data facilitate financial analysis. This article focuses on tax implications of forest management decisions rather than the rate of return offered by specific commercial timber species. The principles of tax planning, therefore, are applicable to other species. The land is assumed to be of average quality (Site Index 65, Base Age 50), and management techniques that are common for the region are used. Important federal and state tax laws are examined before analyzing their combined effect on private forest landowners.

Important Federal and State Income Tax Laws

The 23 states analyzed in this section are Connecticut, Delaware, Illinois, Indiana, Iowa, Kansas, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, New Hampshire, New Jersey, New York, North Dakota, Ohio, Pennsylvania, Rhode Island, South Dakota, Vermont, and Wisconsin (Table 1). All except

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Table 1. General income tax provisions for Midwestern and Northeastern states.[a]

State	AGI used as tax base	Federal income tax deductible	Personal exemptions[b] ($)	Standard deduction[b] ($)	Abbreviated tax rate schedule[b] From (%)	Of the first ($)	To (%)	Of the amount over ($)	Proportion of long-term capital gain taxable (%)	Maximum effective long-term capital gains tax rate (%)
Connecticut	Yes	No	24,000	—	3.00	20,000	5.00	20,000	100	5.00
Delaware	Yes	No	220[c]	6,500	0.00	2,000	5.95	60,000	100	5.95
Illinois	Yes	No	4,000[d]	—	—	—	3.00[m]	—	100	3.00
Indiana	Yes	No	2,000	3,880	—	—	3.40[m]	—	100	3.40
Iowa	No	Yes	80[e]	—	0.36	1,242	8.98	55,890	55[s]	8.98
Kansas	Yes	No	4,500[f]	6,000	3.50	30,000	6.45	balance	100	6.45
Maine	Yes	No	5,700	9,700	2.00	8,700	8.50	34,700	100	8.50
Maryland	Yes	No	4,800	4,000	2.00	1,000	4.75	3,000	100	4.75
Massachusetts	No	No	6,600[g]	—	5.30[n]	—	—	—	—[t]	—
Michigan	Yes	No	6,200	—	—	—	3.90[o]	—	100	3.90
Minnesota	No	No	6,200	9,700	5.35	28,420	7.85	112,910	100	7.85
Missouri	Yes	Yes	4,200	9,700	1.50	1,000	6.00	9,000	100	6.00
Nebraska	Yes	No	101[b]	8,140	2.56	4,000	6.84	46,750	100	6.84
New Hampshire	—	—	—	—	—	—	—	—	—	—
New Jersey	No	No	2,000	—	1.40	20,000	8.97	500,000	100	8.97
New York	Yes	No	—[i]	13,000	4.00	16,000	7.70	500,000	100	7.70
North Dakota	No	Yes	6,200	9,700	2.10	48,500	5.54	319,000	100	5.54
Ohio	Yes	No	2,600[j,k]	—	0.74[p]	5,000	7.50	200,00	100	7.50
Pennsylvania	No	No	—	—	—	—	3.07[q]	—	100	3.07
Rhode Island	Yes	No	6,200	9,700	—	—	25.00[r]	—	100[u]	7.00
South Dakota	—	—	—	—	—	—	—	—	—	—
Vermont	No	No	6,200	9,700	3.6	48,500	9.50	319,100	100	9.50
Wisconsin	Yes	No	1,400	14,330[l]	4.6	11,480	6.75	172,200	40[v]	6.75

[a] As of November 2005. The sources used in collecting this information were Curramengi et al. 2005 and phone interviews with the individual state tax offices.
[b] The personal exemption, standard deduction, and tax rate schedules are for married taxpayers filing a joint return.
[c] Delaware has a credit of $110/exemption in lieu of a personal exemption.
[d] Illinois gives a $2,000 personal state exemption per federal exemption.
[e] Iowa allows an $80 personal exemption credit for joint returns.
[f] Kansas gives a $2,250 personal state exemption per federal exemption.
[g] Amount shown is for 2003.
[h] Nebraska gives a credit for personal exemptions.
[i] New York awards personal exemptions as follows: $1,000/dependent only.
[j] A joint filing credit of up to a maximum of $650 is allowed if both spouses have more than $500 in wages.
[k] An additional exemption tax credit of $20 ($40/couple) is also allowed.
[l] For married filing jointly: $14,330 − 19.778% of Wisconsin AGI over $16,100.
[m] A flat tax across all income tax brackets.
[n] Has several tax rates pertaining to individual income. Interest and dividends are taxed at 5.3%. Short-term capital gains are taxed at 12%. Wages and trade or business income is taxed at 5.3%. Long-term capital gains are taxed at 5.3%.
[o] Michigan has a flat tax rate.
[p] Actual lower bracket rate is 0.743% on the first $5,000.
[q] A flat tax across all income brackets.
[r] Rhode Island tax rate is 25% of the federal tax rate that was in effect before the Federal Economic Growth and Tax Relief Reconciliation Act of 2001.
[s] Iowa allows a partial capital gain deduction for timber held by a taxpayer for at least 1 year. The previous $17,500 limitation for this provision has now been removed.
[t] Capital gains in Massachusetts are covered under class C income. Percentages of gains or losses are recognized and taxed according to a table. Table rates drop bases on time length the asset is held.
[u] For tax years after 2007, the capital gains rate for assets held more than 5 yr is 0%.
[v] Except on certain types of income, Wisconsin taxes only 40% of capital gains. Ordinary income tax rates are used.

New Hampshire and South Dakota have a comprehensive income tax. Fourteen of the remaining 21 states use federal adjusted gross income (AGI) as their tax base. Standard deductions, personal exemptions, tax rates, and long-term capital gains exclusions are detailed in Table 1. State income taxes are allowed as an itemized deduction on the federal return, resulting in an effective tax rate that is lower than the nominal rate. For example, a Connecticut landowner has a nominal state income tax rate of 5%. The effective state rate is $(1 - t) \times$ the state tax rate where t is the marginal federal rate (Haney and Gunter 1984). The landowner has an effective state rate of 3.6% ($0.05 \times [1 - 0.28]$). Thus, the combined effective federal–state income tax is 31.6% ($0.28 + 0.036$) rather than 33%. The combined effective rate is necessary to arrive at an appropriate after-tax discount rate for the land expectation analysis in Part II mentioned later.

Part I: Tax Costs of a Timber Sale

The hypothetical taxpayers are a husband and wife, aged 60 years with no dependents. US Forest Service research indicates that they are representative of general forest landowners (Thomas Birch, pers. comm., July 1997). The income tax effects are shown for a medium-income level of $60,000 and a high-income level of $120,000, before timber revenues. To maintain comparability across states, it is assumed that the landowners use the standard deduction. If itemized deductions are used, results would differ across states because of varying treatment of state income tax deductions on the federal return.

Operating as an active, unincorporated sole proprietorship, the owners purchased 300 ac of red pine timberland 10 years ago. Production of timber income is a primary objective. Other objectives include wildlife, aesthetics, and value appreciation.

A portion of the forest is thinned in the current tax year (2004 tax rates and law are assumed for this analysis). At the time, the owners make estimated tax payments based on the sale receipts. Expenses of sale for consulting forester fees command 6% of the gross sale price. This rate falls within the range of large sales, which generally command a fee of 4–8%. The owners have enrolled in the Michigan Commercial Forest Act program, which applies a statewide property tax rate to forest landowners of $1.10/ac. Thus, annual property tax for the landowners totals $330/year (300 ac × $1.10/ac). Annual management costs are estimated at $2,100 (300 ac × $7/ac). These annual costs are

fully deductible currently because the landowners are actively involved in managing the forestland as a business.

The timberland was purchased 10 years ago for $540,000, or $1,800/ac. It was stocked with red pine averaging 40 years old. The landowners allocated the purchase price (basis) between the land ($135,000, or $450/ac) and timber ($405,000, or $1,350/ac). [1] The growing stock at the time of purchase totaled 9,600 cords of pulpwood (32 cords/ac pulpwood) and 1,617 cords of sawtimber (5.4 cords/ac) amounting to 11,217 cords of merchantable volume. The landowners use cords for depletion unit purposes. All timber volumes are calculated with Resinosa 1.1 (Mack and Burke 2002).

The landowners make a pay-as-cut [2] [Internal Revenue Code (IRC) Sec. 631(b)] sale of $200,000 in the current year. As long as the greater than 1-year holding period is met, Sec. 631(b) provisions allow the net gain from the thinning to be taxed as long-term capital gain for a business. Because the timber sale income is treated as a capital gain, it is not subject to self-employment tax. In the sale, 114 ac are thinned, which produces 1,595 cords of pulpwood (14 cords/ac) and 1,088 cords of sawtimber (9.5 cords/ac) for a total of 2,683 cords harvested. The landowners receives $61.43/cord for the pulpwood and $93.81/cord of sawtimber (Michigan Department of Natural Resources [DNR] 2005).

Since the purchase of the land, growth of 6,903 cords increased the total growing stock from 11,217 to 18,120 cords at the time of harvest. The depletion unit is calculated by dividing the merchantable timber's adjusted basis by the total merchantable growing stock. Thus, the depletion unit for the landowners is $22.35 ($405,000 ÷ 18,120) per cord. Total depletion for the sale is $59,965 ($22.35 × 2,683 cords).

Table 2. Federal income tax calculation for the hypothetical landowners in the Midwest and Northeast.[a]

Income			
Personal income		**$60,000**	**$120,000**
Business income or loss			
Revenue	$0		
Less costs			
Management costs	$2,100		
Property taxes	$330		
Business loss		**($2,430)**	**($2,430)**
Revenue from timber sale		$200,000	$200,000
Less deductions			
Expenses of sale		$12,000	$12,000
Depletion		$59,965	$59,965
Taxable long-term capital gain on sale		**$128,035**	**$128,035**
Total income		**$185,605**	**$245,605**
Adjusted gross income		**$185,605**	**$245,605**
Standard deduction		$9,700	$9,700
Personal exemption (phased down)		$6,200	$4,588
Taxable Income		**$169,705**	**$231,317**
Taxes			
Taxable income		$169,705	$231,317
Less taxable capital gain on sale		$128,035	$128,035
Ordinary income		$41,670	$103,282
Ordinary income tax		**$5,536**	**$19,296**
Taxable long-term capital gain on sale		$128,035	$128,035
Capital gains tax	5%	**$822**	**$0**
	15%	**$16,741**	**$19,205**
Total capital gains tax		**$17,563**	**$19,205**
Alternative minimum tax		**$0**	**$2,406**
Total federal income tax		**$23,099**	**$40,907**

[a] Calculations completed with BNA Income Tax Planner with 50 states.

Federal Tax Analysis

The calculation of the federal tax liability for the hypothetical landowners is summarized in Table 2. An after-tax net income model is used. Note that the personal exemption for the high-income level is reduced because part is phased out as the taxpayer's AGI reaches $214,050 for 2004. The personal exemption is completely phased out after AGI reaches $336,550 for 2004.

The long-term capital gains tax on the sale differs between the medium- and high-income landowners for two reasons. First, some of the capital gain is taxed at the 5% rate for the medium-income level taxpayer. This occurs because the lower 5% rate applies until the additional capital gains income moves the taxpayer into the 25% ordinary marginal federal tax bracket (over $58,100 for 2004) and into the corresponding 15% capital gains bracket. Second, the landowners in the high-income level are subject to the alternative minimum tax (AMT).

The AMT is a separate tax calculation with a proportional tax rate that is applied to a taxpayer's income. Certain tax adjustments and deductions are calculated differently for AMT purposes. If the deduction for regular income tax purposes exceeds that allowed for AMT purposes, then a liability for AMT may be incurred (Freid et al. 2005). The taxpayer pays the higher of the regular income tax or the tentative AMT. The AMT for individuals is calculated on Internal Revenue Service Form 6251. Under some circumstances the exposure to AMT can be eliminated by spreading the income over 2 or more tax years using an installment sale. This is permitted when the timber is sold lump sum (Haney et al. 2001).

State Tax Analysis

As noted previously, the hypothetical taxpayers elect to take the federal standard deduction on their tax returns. The use of the standard deduction holds the federal tax liability constant for the taxpayers in each state and makes the state income tax computations more comparable.

The amount of state tax the hypothetical landowner must pay on a timber sale varies greatly (Table 3). Taxable income, state income tax, and combined federal-state tax liability for the hypothetical landowners in each state are shown. For those states with an income tax, the landowners in the medium-income level have the highest state tax liability in Maine ($13,427) and the lowest in Massachusetts ($2,945). Maine's tax rates range from a minimum of 2% to a maximum rate of 8.5%, which contributes to the state's high tax liability. The lower tax liability in Massachusetts is a result of exclusion of the long-term timber capital gains from state taxable income (Bureau of National Affairs 2005).

For the high-income landowners, Maine remains the state with the highest tax liability ($18,527) and Massachusetts remains the state with the lowest tax liability ($6,125). Maine landowners also incur the highest combined federal and state tax burden: $36,526 for medium-income landowners and $59,434 for high-income landowners.

Personal exemptions (Table 1) vary widely by state. Connecticut has the highest personal exemption ($24,000) and other states such as Pennsylvania have no exemptions. New York offers exemptions of $1,000/dependent only. Because the landowners in the given scenario have no dependents, no exemption would be allowed in New York. However, other states such as Delaware offer a $110

Table 3. Federal and state income tax for landowners in the Midwest and Northeast.[a]

State	State taxable income		State income tax		Combined state and federal income tax	
	Medium-income level	High-income level	Medium-income level	High-income level	Medium-income level	High-income level
	($)					
Connecticut	185,605	245,605	8,880	11,880	31,979	52,787
Delaware	179,105	231,317	9,810	13,380	32,909	54,287
Illinois	181,605	241,605	5,448	7,248	28,547	48,155
Indiana	183,605	243,605	6,243	8,283	29,342	49,190
Iowa	102,291	144,483	7,619	11,407	30,718	52,314
Kansas	175,105	235,105	10,349	14,219	33,448	55,126
Maine	171,755	231,755	13,427	18,527	36,526	59,434
Maryland	176,805	236,805	8,346	11,196	31,445	52,103
Massachusetts	55,570	115,570[b]	2,945	6,125	26,044	47,032
Michigan	179,405	239,405	7,086	9,456	30,185	50,363
Minnesota	169,705	231,317	11,935	16,772	35,034	57,679
Missouri	163,505	225,905	9,585	13,329	32,684	54,236
Nebraska	181,756	245,605	11,304	16,579	34,403	57,486
New Hampshire[c]	—	—	—	—	23,099	40,907
New Jersey	185,605	243,605	7,781	11,475	30,880	52,382
New York	171,005	231,005	12,385	17,037	35,484	57,944
North Dakota	131,294	192,906	4,323	7,097	27,422	48,004
Ohio	183,005	243,005	10,334	14,732	33,433	55,639
Pennsylvania	185,605	245,605	5,698	7,540	28,797	48,447
Rhode Island	171,255	232,867	7,891	12,412	30,990	53,319
South Dakota[d]	—	—	—	—	23,099	40,907
Vermont	118,491	180,103	6,801	12,046	29,900	52,953
Wisconsin[e]	107,384	167,384	6,722	10,622	29,821	51,529

[a] Calculations completed with BNA Income Tax Planner with 50 states.
[b] Timber sale revenue is excluded from state taxable income.
[c] New Hampshire has no state income tax.
[d] South Dakota has no state income tax.
[e] Wisconsin taxes on 40% of long-term capital gains.

credit/federal exemption rather than a personal exemption plus $110 extra if the taxpayer is age 60 years or older. In this case, the landowners, age 60 years, benefit from the credit. Standard deductions at the state level (Table 1) also vary widely. Several states have no personal exemption. Other states have a fixed standard deduction. Wisconsin, which applies the highest standard deduction of all states to married couples filing jointly ($14,330), is reduced by 19.778% of Wisconsin AGI over $16,100. The combined effect of personal exemptions and standard deductions gives landowners in some states a comparative advantage in terms of timber management profitability.

Part II: LEV Analysis—Michigan Northern Lower Peninsula (NLP) Study

Long-term income tax issues that landowners might encounter while managing forestland are examined using LEV methodology. LEV is a useful tool for estimating the maximum bid price for bare forestland for any given set of parameters (Gunter and Haney 1984).

The analysis continues with the hypothetical landowner profile developed in Section I. However, the scope of the analysis is now limited to the NLP of Michigan to accurately model all costs and revenues, and it is constrained to only one income level. In addition, the assumption is made that the landowners begin with 120 ac that have been recently harvested. For this analysis, the time period covers the year subsequent to the final harvest timber sale and all subsequent rotations. The landowners are assumed to have a taxable income of $150,000/year for each year of the rotation. This places them in the 28% federal marginal tax bracket for ordinary income.

The landowners use a red pine management regime (Table 4). It was created with information and recommendations gathered from the Michigan DNR (Scott Throop, Michigan Dept. of Natural Resources, pers. comm., October 2005), the University of Minnesota College of Natural Resources (Ron Severs, University of Minnesota Forestry Extension, pers. comm., Apr. 2003) and a consulting forester (Timothy Mack, pers. comm., October 2005). They prepare a 120-ac site and plant with red pine seedlings. The landowners use a chemical release in the 3rd year of the rotation. A thinning in year 30 produces about 13.2 cords of pulpwood per acre.

Table 4. Forest-related costs, revenues, and management regime used in LEV analysis of federal–state income taxes in the Midwest and Northeast.[a]

Forest-related costs	
Chemical release cost	$57.00
Sale administration cost	6% of stumpage price
Property taxes	$1.10
Annual management expenses	$5.00
Forest-related revenues	
Pulpwood stumpage price	$61.43/cord[b]
Sawtimber stumpage price	$209/mbf[c] (International ¼-in. Log Rule)
Forest management regime	
Year 1: Reforest stand	$195.00
Year 3: Herbicide release spraying	$57.00
Year 30: Commercial thinning	13.2 cords
Year 45: Commercial thinning	10.5 cords/ac pulpwood
Year 60: Commercial thinning	4.7 mbf/ac sawtimber
Year 70: Final harvest	2.7 cords/ac pulpwood
Site index 65, base age 50	8.2 mbf/ac sawtimber
Initial planted trees per acre = 680	3.3 cords/ac pulpwood 21.3 mbf/ac sawtimber

[a] Forest management regime and costs based on interviews with Heym (2005), Throop (2005), Severs (2003), and Mack, TJ, consulting forester, Ranier, MN, pers. comm. Oct. 2005.
[b] The International -in. Log Rule is used for board foot volumes.
[c] Timber prices for pulpwood and sawtimber taken from Michigan DNR (2005).

	Reforestation costs			Management expenses & property taxes			Timber sale revenue treated as	
	Spread over two years. Expensed and amortized.[1]	All costs in first year with total amount capitalized.[2]	All costs in first year. Neither deducted nor amortized.	Deducted currently	Capitalized	Neither deducted nor capitalized	Capital gain	Ordinary income
Scenario 1	X			X			X	
Scenario 2	X					X	X	
Scenario 3		X			X		X	
Scenario 4			X			X	X	
Scenario 5	X			X				X
Scenario 6			X			X		X

1. Under IRC section 194, $10,000 of reforestation costs may be expensed each year. Any amount above this may be amortized over an eight-year period.
2. Reforestation costs are added to the basis and depleted when timber is harvested.

Figure 1. Summary of tax planning scenarios for LEV analysis of the Midwest and Northeast.

A second thinning in year 45 yields 10.5 cords of pulpwood and 4.7 mbf (International ¼ in. Log Rule) of sawtimber per acre. A third and final thinning at age 60 years generates 2.7 cords of pulpwood and 8.2 mbf of sawtimber per acre. The final harvest, in year 70 of the rotation, produces 3.3 cords of pulpwood and 21.3 mbf of sawtimber per acre (Table 4). Management costs were obtained from Ron Severs pers. comm., Aug. 2003, Scott Throop pers. comm., Oct. 2005, and the Michigan DNR (Doug Heym, pers. comm., October 2005). Past and current timber prices relative to the years included in the analysis were obtained from the Michigan DNR Forest, Mineral, and Fire Management Timber Sale Management System (2005). Assumptions related to LEVs are (1) revenues and costs are assumed to be constant and only increase with the 3% inflation rate assumed in the analysis, (2) tax laws and rates are assumed to be constant throughout the rotation, (3) an after-tax net income model is used, (4) two nominal (including inflation) interest rates of 6 and 8% are used in the analysis to account for risk in the model, and (5) two general state tax rates of 0 and 10% reflect the minimum and maximum state tax rates found in the region.

Table 5. LEVs and changes among tax planning scenarios, per acre.[a]

Tax planning option	6% Interest rate[b]		8% Interest rate	
	No state tax	10% State tax	No state tax	10% State tax
Scenario 1	$1,103	$983	$270	$224
Scenario 2	$1,035	$915	$220	$171
Change in value between 1 and 2	6%	7%	19%	24%
Scenario 3	$994	$880	$170	$127
Change in value between 1 and 3	10%	10%	37%	43%
Scenario 4	$980	$859	$164	$118
Change in value between 1 and 4	11%	13%	39%	47%
Scenario 5	$678	$558	$108	$62
Change in value between 1 and 5	39%	43%	60%	72%
Scenario 6	$555	$434	$2	($44)
Change in value between 1 and 6	50%	56%	99%	120%

Scenarios 2–6 are compared individually with scenario 1.
[a] Growth and yield calculations made with Resinosa 1.1 (Mack and Burke 2002).
[b] After-tax interest rates are nominal and include an assumed inflation rate of 3%.

Planning Scenarios

Six different tax planning scenarios are evaluated to determine the effects of tax provisions on LEV (Figure 1). The first scenario (base case) illustrates the effect of the maximum use of the currently available federal tax provisions. In each successive scenario, the landowners forego certain tax benefit(s) that, in turn, generally lower their LEV (Table 5). These reflect common omissions and mistakes made by typical forest landowners. Results from a nationwide survey in 2003 (Smith 2004) and previous studies (Greene et al. 2004) show low levels of landowner awareness of several income tax provisions available to them. Landowners unaware of these provisions will earn suboptimal returns from timber investments.

Under scenario 1 (base case), the landowners, who use cash basis accounting, pay $13,400 in reforestation costs the 1st year and another $10,000 the 2nd year. Thus, reforestation costs are spread over two tax years allowing the landowners to maximize their use of IRC Sec. 194, which allows up to $10,000 of qualified reforestation expenditures per year to be expensed. The remaining $3,400 ($13,400–10,000 allowable) that can not be expensed in the 1st year is amortized over an 84-month period as allowed by IRC Sec. 194. The landowners deduct their annual management expenses including the chemical release (assumes the stand is established and free to grow) and property taxes. Under current tax provisions, an active business is usually allowed to fully deduct all ordinary and necessary expenses from any current income. The owners sell the timber using a pay-as-cut contract [IRC Sec. 631(b)]. As long as the more than 1-year holding period has been met, Sec. 631(b) provisions allow the net gain from the thinning and clearcut harvests to be taxed as long-term capital gains. The timber sale revenue is business income that is reported on Form 4797 to be treated as long-term capital gain. It is not subject to self-employment tax.

In scenario 2, management expenses and property taxes are neither deducted nor capitalized (i.e., the otherwise allowable deductions are lost). Poor recordkeeping or ignorance of the tax rules often

cause a landowner to miss annual expenses deductions. Other variables remain the same.

Scenario 3 differs from scenario 1 in two respects. Management costs and property taxes and $23,400 in reforestation costs are capitalized rather than deducted currently. Thus, for tax purposes they are only recovered through depletion when the timber is harvested. Loss of tax benefits because of inflation over time result. Suspension (or capitalization) of such expenses is required if a landowner's business is classified as passive unless the landowner has offsetting passive income from all sources. This scenario represents the tax effects for a passive timber business that lacks passive income, when compared with an active business (base case).

In scenario 4, the owners spend all $195/ac on reforestation costs in the 1st year but fail to amortize or capitalize them. Similarly, the management expenses and property taxes are neither deducted nor capitalized. The provisions of IRC Sec. 631(b), however, allow the long-term capital gain treatment of timber sale revenues (Haney et al. 2001).

Scenario 5 is exactly the same as scenario 1 except that the sale revenue from the timber harvest is treated as ordinary income. Timber revenues often are treated as ordinary income if the landowner is unaware that the profit (net gain) qualifies for capital gain treatment. Treatment of timber profits as short-term capital gains (which are taxed at ordinary income tax rates) occurs when landowners fail to meet the more than 1-year holding period. When the sale revenue in this scenario is treated as ordinary income, the additional harvest income moves the landowners into the 35% tax bracket. Because of the uncertainty of future tax rates, however, the ordinary rate is held constant at 28%. The Medicare portion (2.9%) of the self-employment tax on ordinary income is omitted also from the analysis for purposes of consistency. Therefore, these results are conservative estimates under current law.

Scenario 6 illustrates an extreme case of accounting failure by the landowners to take advantage of favorable tax treatment. Scenario 6 is the same as scenario 4, except the timber sale revenue is treated as ordinary income rather than long-term capital gain.

Scenario 5 shows the failure to treat timber income as a capital gain to be the single-most costly mistake for timber investments in the LEV analysis. Scenario 6 reveals the cumulative negative impact on LEV of a total disregard for tax planning.

Effects of Poor Tax Planning on LEV

LEVs in the base case scenario range from $224 to 1,103/ac depending on the discount rate or presence of state income tax (Table 5); i.e., a timberland buyer would be willing to pay between $224 and 1,103/ac for bare land in the Lakes State region using the previously stated red pine management regime, depending on the circumstances.

LEVs in scenarios 2 and 3 range from $127 to 1,035/ac. Failing to deduct expenses (scenario 2) decreases the LEV between 6 and 24% depending on interest rates and state taxes. Similarly, capitalizing reforestation costs, management expenses, and property taxes in scenario 3 causes LEVs to decline 10–43% from the base case scenario.

Forest landowners who treat management expenses and property taxes as operating costs and who fail to deduct, amortize, or deplete reforestation costs can expect to lose between 11 and 47% of their LEV. LEVs in scenario 4 range from $118 to 980. These landowners are able to maintain a positive LEV because the timber income is treated as a capital gain.

LEVs drop substantially in scenarios 5 (failure to treat timber income as a capital gain) and 6 (total disregard for tax planning). LEVs range from −$44 to $678. Percentage decreases from the LEVs in scenario 1 range from 39 to 120%, depending on state taxes and interest rates.

Conclusion

Forest landowners benefit from a working knowledge of the tax provisions affecting timberland. Those interested in tax planning should seek the professional services of an accountant familiar with forestry investments. Misunderstanding or ignorance of tax provisions often causes landowners to lose a significant amount of potential revenue from their investment. The results from this analysis show that income taxes can change a forest enterprise from a profitable endeavor to a losing proposition. Annually deducting management expenses and property taxes and ensuring capital gains treatment on timber sales prove to be crucial in ensuring landowners receive the highest possible returns on their timberland investment. Tracking the cost of management activities and good recordkeeping are essential for landowners.

Finally, several other federal income tax provisions that increase profitability of forest management currently available to landowners were not addressed. These include the Sec. 179 deduction for the purchase of business equipment used in forestry operations, depreciation of certain capital assets, exclusion of cost share payments from gross income, and casualty or business loss deductions. State income tax provisions that favor forest management vary from state to state. For example, several states offer tax credits for the establishment of streamside management zones. Local provisions at the county level also may be available to landowners. These include timber exemptions that lower property taxes and enrollment in programs similar to the Commercial Forest Program in Michigan that was part of the analysis. Although the focus of this article was on income taxes at the state and federal level, taxes at the state, federal, and local levels all have impacts on LEVs (Smith 2004). By investing in tax planning, landowners usually can increase their returns from timberland ownership.

Endnotes

[1] Allocation of purchase price to timber for purposes of basis establishment is based on Michigan DNR pricing information (Heym 2005).

[2] As of Dec. 31, 2004, Sect.631(b) is amended to also allow landowners operating as a business to sell timber under a lump sum agreement and qualify for capital gains treatment (Hoover 2005).

Literature Cited

BAILEY, P.D. 1998. *The impact of federal and state income taxes on forest landowners: An examination of tax liabilities and tax planning.* Thesis, Virginia Tech College of Natural Resources, Department of Forestry, Blacksburg, VA. 143 p.

BUREAU OF NATIONAL AFFAIRS (BNA), INC. 2005. *BNA income tax planner—federal and fifty states—version 2005.3.* Tax planning software. The Bureau of National Affairs, Washington DC.

CURAMMENG, J. JR., M. FAJARDO, AND S. LEVENTHAL (EDS.). 2005. *All states tax handbook 2005.* Thomson-RIA Publishing, New York. 407 p.

FREID, D., M. OVERTON, F. STEIN, AND S. WEINMAN (EDS.). 2005. *RIA federal tax handbook. 2005 edition.* Thomson-RIA Publishing, New York. 848 p.

GREENE, J.L., R.J. DEE, AND T.J. STRAKA. 2004. Nonindustrial private forest owner use of federal income tax provisions. *For. Prod. J.* 54(12):59–66.

GUNTER, J.E., AND H.L. HANEY. 1984. *Essentials of forestry investment analyze.* Oregon State Bookstores, Inc., Corvallis, OR. 334 p.

HANEY, H.L. JR., W.L. HOOVER, W.C. SIEGEL, AND J.L. GREENE. 2001. *Forest landowner's guide to the federal income tax.* US For. Serv. Agriculture Handbook 718, US Government Printing Office, Washington, DC. 157 p.

HANEY, H.L. JR., W.C. SIEGEL, AND L. BISHOP. 2005. *Federal income tax on timber: A key to your most frequently asked questions.* US For. Serv. R8TP34, Southern Region, Atlanta, GA. 23 p.

HOOVER, W. 2005. *National timber tax website*. Available online at www.timbertax.org; last accessed Dec. 2, 2005.

MACK, T.J. AND T.E. BURKE. 2002. *Resinosa 1.1.* A computerized density management diagram for red pine. Department of Forest Resources, Univ. of Minnesota, St. Paul, MN.

MICHIGAN DEPARTMENT OF NATURAL RESOURCES (DNR). FOREST, MINERAL, AND FIRE MANAGEMENT TIMBER SALE MANAGEMENT SYSTEM. 2005. *Average stumpage price report for July 1, 2004–June 30, 2005.* Michigan Department of Natural Resources. 30 p.

SMITH, N. 2004. *Federal timber income taxes and private forest landowners in the U.S.* Thesis, Virginia Tech College of Natural Resources, Department of Forestry, Blacksburg, VA. 245 p.