



Family forest owners and federal taxes

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ABSTRACT

Focus groups were conducted with family forest owners to investigate the effect of government tax policies on their decisions regarding their land. Two groups each were held in New Hampshire, South Carolina, Alabama, Wisconsin, and Washington, USA, one with owners enrolled in the state preferential property tax program for forested land and one with owners who were not so enrolled. Each focus group consisted of 8–10 owners and lasted approximately 2 h. Overall, only two beneficial federal income tax provisions (treatment of timber income as a long-term capital gain and timber depletion deductions) and five federal estate tax provisions (the effective exemption for estates, the annual exclusion for gifts, use of a will, the step-up in basis for inherited assets, and the effective exemption for gifts) were brought up in over half of the groups. Groups composed of tax program enrollees tended to discuss federal income tax provisions more distinct times than those composed of tax program non-enrollees, and tended to be familiar with more federal estate tax provisions; otherwise, there was little difference between them. Misconceptions about tax provisions were common. As well, groups in every region noted the negative effects of tax uncertainty and that not all professionals are knowledgeable about federal taxes as they apply to family forest owners.

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1. Introduction

The structure of taxes on forest-related income, forest land, and forest products can encourage or inhibit private investment in forest resource management. In financial analyses, taxes rank with harvest returns and rotation length as a key determinant of the viability of forest management investments (Gregory, 1972; Cushing, 2006). As such, they constitute an important part of the operating environment for owners and managers of family forest land, and at least in the long-term, a critical factor in determining the level of stewardship practiced and the types of products and services provided. The federal tax code includes a number of provisions that are beneficial to family forest owners; some are general provisions, available to all taxpayers, while

others are targeted provisions available only to owners of forest or agricultural land. Sidebars in Sections 1.1 and 1.2, respectively, summarize federal income and estate tax provisions beneficial to family forest owners.

1.1. The federal income tax

The federal income tax has the greatest potential of any tax to affect private forest owners (Duerr, 1960), because it applies to income from all sources and the rates are high compared with other taxes. Yet over a half-century of research has shown that income tax has little effect on short-term owner behavior (e.g., Stoddard, 1961; Ellefson et al., 1995; Brockett and Gerhard, 1999; Butler et al., 2012), that the chief effect of beneficial provisions is to enable owners who already use management practices to treat additional acres rather than to induce additional owners to manage (e.g., Royer, 1987; Bliss and Martin, 1990), and that many owners are unaware the provisions exist or lack understanding of how the provisions might benefit them (e.g., Yoho and James, 1958; McClay, 1961; Stoltenberg and Gottsacker, 1967; Koss and Scott, 1978; Greene et al., 2004).

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Sidebar 1

Federal income tax provisions beneficial to family forest owners.

General provisions beneficial to family forest owners:

1. Treatment of timber income as a long-term capital gain—Income from timber held over 1 year generally qualifies as a long-term capital gain, which is taxed to individuals at a maximum rate of 15% as opposed to 35% for ordinary income.
2. Annual deduction of management costs—Costs related to the income potential of the forest may be deducted in the year they occur rather than posted to a capital account until a harvest.
3. Loss deductions—Owners who hold forest land for investment or business purposes may recover their basis (investment) in timber lost in a casualty event, theft, or condemnation.
4. Depreciation and section 179 deductions—The cost of equipment bought to produce income, e.g., chainsaws or tractors, may be recovered through depreciation or section 179 deductions.

Targeted provisions developed to benefit owners of forest or agricultural land:

5. Timber depletion deductions—Owners may deduct their basis in harvested timber from their gross (taxable) harvest income.
6. Deduction for donating an interest in land—Owners may take a charitable deduction for donating an interest in land, e.g., by outright gift or contribution of a conservation easement.
7. Deduction of qualifying cost-share payments—A calculated part of payments from approved public cost-share programs may be excluded from gross income.
8. Reforestation tax incentives—Ordinary and necessary reforestation costs may be deducted or amortized (i.e., deducted over a set period) over the first few years of a new stand.

Advanced strategies beneficial to family forest owners:

9. Use of like-kind exchanges—The nontaxable exchange of property held for use in a business, or an investment, for “like” property, i.e., real-for-real, personal-for-personal, under section 1031.
10. Spreading timber income over 2 or more years—Owners can use installment sales, pay-as-cut sales, or other strategies to spread timber income, and the tax due on it, over 2 or more years.

A small number of studies have analyzed the effect of current or proposed income tax provisions on financial returns to hypothetical family forest owners (Klemperer, 1989; Bailey et al., 1999; Straka and Greene, 2007). In two other studies researchers surveyed owners randomly selected from forest owner association mailing lists to assess their knowledge and use of beneficial federal income tax provisions. They found that owner knowledge of general provisions ranged from 78% in the South to 39% in the North, while knowledge of targeted provisions developed to benefit owners of forest or agricultural land ranged from 55% in the South to 17% in the North (Greene et al., 2004; Smith et al., 2007, 2008). Additionally, Uusivuori and Kuuluvainen (2008) used a utility maximization model to simulate the effect of an income tax on a forest owner's decision to harvest timber, concluding there is little effect, particularly if the owner places high importance on amenity values.

1.2. The federal estate tax

Little information is available about the effect of the federal estate tax on family forest owners. A handful of case studies have used hypothetical owners to investigate aspects of the transfer of forest land from one generation to another, including the size of a forest that could be transferred without incurring estate tax (Sutherland, 1978), the effect of estate tax on returns to forest management (Sutherland and Tedder, 1979), the effect of using special use valuation on the net value of a forest estate (Gardner et al., 1984), and the interaction between the federal estate tax and state estate or inheritance taxes (Walden et al., 1987; Peters et al., 1998).

Sidebar 2

Federal estate tax provisions beneficial to family forest owners.

General provisions beneficial to family forest owners:

1. Effective exemption for estates—A credit against the estate tax, which shields part or all of an estate from tax; in 2010, the year of the study, the estate tax was temporarily repealed.
2. Annual exclusion for gifts—Individuals may make lifetime gifts up to the annual exclusion amount to as many recipients each year as they wish, without using the effective exemption for gifts (see below); in 2010, the year of the study, the annual exclusion for gifts was \$13,000.
3. Use of a will—Permits individuals to distribute their estate to meet the needs of family members, provide for continuity of a family enterprise, and minimize tax and probate costs.
4. Step-up in basis—A beneficiary's basis in an inherited asset is its fair market value on the valuation date; this generally results in a “step-up” from the basis in the decedent's hands.
5. Effective exemption for gifts—A credit against the gift tax, which shields part or all of gifts over the annual exclusion from tax; in 2010, the year of the study, the effective amount of the exemption was \$1 million.
6. The marital deduction—An unlimited deduction for the value of property passed from one spouse to the other, whether through lifetime gifts or at death.
7. Disclaimer—An unqualified and irrevocable refusal by a beneficiary to accept property passing to them by will or state law, so the property goes to the next eligible beneficiary.

Targeted provisions developed to benefit owners of forest or agricultural land:

8. Special use valuation—Permits an executor to value assets used for farming (including forest land) or a business at their value in use for estate tax purposes rather than their fair market value.
9. Exclusion for land in a conservation easement—Permits an executor to exclude a calculated part of the value of land in a qualified conservation easement from the taxable value of an estate.

Advanced beneficial to family forest owners:

10. Use of trusts—Individuals may transfer the title of property to a person or institution (the trustee) to manage according to the terms of the trust instrument, for the benefit of the trust beneficiaries; only an irrevocable lifetime trust removes the property from the donor's estate.

Sidebar 2 (continued)

11. Use of a form of business—Individuals may use a form of business as a means to transfer ownership of an enterprise to other family members and engage them in its operation; forms of business include corporations, family limited partnerships, and limited liability companies.
12. Combinations—Use of the annual exclusion for gifts (see above) in combination with a trust or form of business, which can both facilitate the transfer of ownership to beneficiaries (trusts), partners (FLPs), or members (LLCs) and reduce gift or estate taxes.
13. Use of life insurance—Individuals may purchase life insurance equal to the expected tax on their estate, to protect against the need to sell other estate assets in order to pay estate tax.
14. Retained life estate—Individuals may transfer the title of property to another, reducing its value in their estate, but retain the right to use the property for a set term of years or for life.
15. Conservation easements—Donation or sale of one or more attributes of land ownership, e.g., the right to subdivide, which typically results in lower property and estate taxes; there also are income and estate tax incentives for the donation of a permanent easement (see above).

In a study initiated in 1999 researchers surveyed owners of family-held forests and farms in the USA to investigate and compare the effect of the federal estate tax on these two groups. The study found that forest and farm owners are many times more likely than taxpayers in general to incur the federal estate tax. Among forest owners, the study further found that in 42% of cases where estate tax was due, timber or land was sold to pay part or all of the tax, with over one-fourth of the acres sold converted to more developed uses (Greene et al., 2006).

The objective of this study was to investigate the effect of federal, state, and local tax policies on family forest owners' decisions regarding their land. This paper summarizes the study findings with respect to the federal income and estate taxes.

2. Methods

2.1. Data collection

Data for the study were collected using focus groups of family forest owners held at five locations in the USA: Manchester, New Hampshire; Columbia, South Carolina; Calera, Alabama; Wausau, Wisconsin; and Olympia, Washington. The states were selected to represent a range of state and local tax policies as well as the broad geographic regions of the country. The particular site selected in each state was a city with a substantial amount of privately-owned forest land located nearby, which also was subject to significant development pressure.

Two focus groups were held at each location, one with forest owners who were enrolled in the state preferential property tax program for forested land and one with owners who were not so enrolled. Lists of owners with between 10 and 999 acres of forest land were compiled from the property tax rolls at the assessor's office in each location. The lists were randomly sorted, then recruiters used owner responses to a series of screening questions to ensure that each group included a mix of forest holding sizes; owner age, gender, and level of education; timber harvesting experience; and whether or not the holding was inherited. All of the focus groups were facilitated by the same qualitative research professional. Each group consisted of 8 to 10 owners and lasted approximately 2 h. To build rapport and promote discussion of taxes the facilitator led each group through a series of other topics before raising the subject of taxes, asking them to describe their land, the values they

held for it, the challenges they faced as landowners, and their vision for the land after they no longer owned it.

2.2. Data analysis

Transcripts of the focus group discussions were analyzed both quantitatively and qualitatively. For the quantitative analysis, numerical summaries of the focus group discussion on each federal tax were developed as an aid in comparing the responses from focus groups of state preferential property tax program enrollees and those of tax program non-enrollees. The numerical summaries also were tested for statistically significant differences between tax program enrollee and tax program non-enrollee focus groups, using the Kolmogorov–Smirnov two-sample test at the $\alpha = 0.05$ level of significance.

It was necessary to use a non-parametric test for the quantitative analysis because the study data were on an ordinal scale rather than an interval or ratio scale. The Chi-square test was not suited to the data since, due to the small sample size, well over 20% of the expected values were less than 5 in all of the contingency tables. In contrast, the Kolmogorov–Smirnov two-sample test was well-suited to the data, because it can be used with small sample sizes and is sensitive to any difference between the distributions of the samples being tested (Siegel, 1956; College of Saint Benedict and Saint John's University Physics Department Web site, 2013).

Eight tests were conducted for each federal tax:

- Whether group members initiated discussion of the tax before the facilitator raised it;
- The number of distinct times group members discussed the tax before the facilitator raised it;
- The number of distinct times group members discussed the tax after the facilitator raised it;
- The total number of distinct times group members discussed the tax independently of the facilitator;
- The number of general tax provisions members of a group discussed;
- The number of targeted tax provisions members of a group discussed;
- The number of advanced tax strategies members of a group discussed; and
- The total number of tax provisions and strategies members of a group discussed.

The qualitative analysis followed the method described by Daniels and Walker (2001). The transcript for each focus group was analyzed to identify findings and themes, without comparison with the other groups. The initial analysis was done by a single research team member and sent for comment and discussion by the entire team. Then the individual group findings were compared to identify common findings and themes.

3. Results

3.1. The federal income tax

3.1.1. Quantitative analysis

The focus group members spent a mean of just 6.4% of their overall discussion on the federal income tax. The amount of discussion varied widely from group-to-group, from a low of 1.5% in a group of state preferential property tax program enrollees to a high of 15.0% in a group of tax program non-enrollees. In five of the ten focus groups—four of tax program enrollees and one of tax program non-enrollees—group members initiated discussion of the income tax before the facilitator raised it. The number of income tax provisions discussed in a group ranged from 0 to 5, with a mean of 2.9 provisions discussed (Table 1a).

The most frequently-discussed income tax provisions were treatment of timber income as a long-term capital gain, a general provision,

Table 1
Numerical summary of focus group discussion on the federal income tax.

	Overall	Tax program enrollees	Tax program non-enrollees
<i>a. Focus group statistics</i>			
Mean number of words on the federal income tax	975	971	979
Mean percent of focus group discussion	6.4%	6.0%	6.8%
Group members initiated discussion of the tax	5	4	1
Facilitator initiated discussion of the tax	5	1	4
Mean number of tax provisions discussed	2.9	2.8	3.0
Range	0–5	0–4	1–5
Mean number of advanced strategies discussed	0.4	0.6	0.2
Range	0–2	0–2	0–1
<i>b. General provisions discussed</i>			
Treatment of income as a long-term capital gain	7	3	4
Annual deduction of management costs	5	3	2
Loss deductions	2	1	1
Depreciation and section 179 deductions	2	0	2
<i>c. Targeted provisions discussed</i>			
Timber depletion deductions	7	3	4
Deduction for donating an interest in land	5	3	2
Deduction of qualifying cost-share payments	1	1	0
Reforestation tax incentives	0	0	0
<i>d. Advanced strategies discussed</i>			
Use of like-kind exchanges	2	1	1
Spreading timber income over 2 or more years	2	2	0
<i>e. Income tax myths and misconceptions</i>			
Timber income added to ordinary income	4	0	4
No tax on timber held more than X years	1	1	0
No tax on timber income below \$X	1	1	0

and timber depletion deductions, a targeted provision, each brought up in seven of the ten focus groups. Next-most frequently discussed were the annual deduction of management costs and the deduction for donating an interest in land, each brought up in five focus groups. Loss deductions and the depreciation and Section 179 deductions each was brought up in two groups, and deduction of qualifying cost-share payments was brought up in one group. The reforestation tax incentives were not discussed in any of the groups (Table 1b).

In five focus groups, group members were aware that beneficial income tax provisions exist, but were not at all clear about what they were:

Participant 1: ... That's why I said earlier that you need to have your tree basis—whatever the technical thing is called. Because now your land is valued less because you took \$40,000 worth of pulp off of it.

Participant 2: Yeah, but they didn't lower the taxes.

Participant 1: No, I know. But your land now is—I mean, there might have been a way of depreciating something. (Wisconsin tax program non-enrollees)

In three focus groups—two of tax program enrollees and one of tax program non-enrollees—group members also brought up more advanced income tax strategies, including use of like-kind exchanges

and spreading timber income over 2 or more years (Table 1c). In six focus groups, however, group members expressed as fact beliefs better described as myths or misconceptions. Members of four tax program non-enrollee groups believed that timber income is taxed as ordinary income, and members of two tax program enrollee groups believed that there is no tax on income from timber held more than a certain number of years or on timber income below a certain amount (Table 1d):

Participant 1: Something ... makes me think that if you own it for a certain amount of time you're not subject to

Participant 2: Capital gains? Oh yeah. (New Hampshire tax program enrollees)

I've cut mine. I didn't [report it]. No more than I had—anything under \$10,000 you can (Alabama tax program enrollee)

The results of the Kolmogorov–Smirnov two-sample tests showed that members of tax program enrollee groups were significantly more likely than members of tax program non-enrollee groups to initiate discussion of the federal income tax before the facilitator raised it, and to discuss the tax more times before the facilitator raised it, and to discuss the tax more times independently of the facilitator (Table 2). In general, the tax program enrollee groups tended to loop back, returning to

Table 2
Results of Kolmogorov–Smirnov two-sample tests of study findings on the federal income tax.

Finding tested	Tax program enrollees	Tax program non-enrollees	Test result
Whether group members initiated discussion of the federal income tax before the facilitator raised it	4	1	**
Number of distinct times group members discussed the income tax before the facilitator raised it	4	1	**
Number of distinct times group members discussed the income tax after the facilitator raised it	6	3	–
Total number of distinct times group members discussed income the tax independently of the facilitator	10	4	**
Number of general income tax provisions members of a group discussed	0–3	0–4	–
Number of targeted income tax provisions members of a group discussed	0–2	1–2	–
Number of advanced income tax strategies members of a group discussed	0–3	0–1	–
Total number of income tax provisions and strategies members of a group discussed	0–6	1–5	–

** Significant at the $\alpha = 0.05\%$ level.

discuss income tax provisions two or more times, while tax program non-enrollee groups tended to move from one provision to the next, without returning.

3.1.2. Qualitative themes

In addition to the quantitative findings, three commonly-held themes about focus group members' experience with the federal income tax emerged from the discussion. The themes are listed below, each illustrated by two quotes from focus group participants:

- The negative effects of uncertainty arising from the almost annual changes in federal income tax provisions over the last 10 years.

And the other thing, if the capital gains [tax rate] goes back [to 20%] next year—like we have an offer now on some property that's way below what it should be. But we're thinking, gee, if we have to pay [higher] capital gains next year that we don't have to pay this year are we better off—(Alabama tax program non-enrollee)

One of the biggest issues I think ... is ... with growing trees, taxes are a moving target. You plant your trees ... [a]nd then later the whole picture changes and ... all of a sudden there may be a loss or less of a gain. So the way that taxes are a moving target is a real impediment to growing trees over the long run. (Washington tax program non-enrollee)

- The negative effects of uncertainty arising from the rancorous debate on taxes going on between the President and Congress at the time the study was conducted.

Since we don't know what they're going to do we'll never figure them out. You can predict all day and those people down in [Washington] will never do what you think they're going to do. (Alabama tax program non-enrollee)

But in the Obama administration they're talking about going from 15% up to what, 30% now? On any capital gains (Washington tax program non-enrollee)

- Not all accounting, legal, or forestry professionals are knowledgeable about the federal income tax as it applies to family forest owners.

My accountant added it to my income. (Alabama tax program non-enrollee)

Participant 1: ... I think a lot of accountants or CPAs are not into that woodlands effect of how they split the woods [and] land and what the value of the woods is. ... And our accountant I think had to almost go back to school to learn some of that technique of how they do it.

Participant 2: That's a very good point. That there are some folks that understand woodland taxing and some that don't. ... (Wisconsin tax program enrollees)

3.2. The federal estate tax

3.2.1. Quantitative analysis

Focus group members spent a mean of 13.2% of their overall discussion on the federal estate tax, roughly double that they spent on the income tax. Group-to-group variation in the amount of discussion was somewhat less than with income tax, ranging from a low of 5.4% to a high of 18.4%, both in state preferential property tax program enrollee groups. In nine of the ten focus groups—five of tax program enrollees and four of tax program non-enrollees—group members initiated discussion of the estate tax before the facilitator raised it. The number of estate tax provisions discussed in a group ranged from 2 to 7, with a mean of 5.4 provisions discussed in tax program enrollee groups and 3.6 provisions discussed in tax program non-enrollee groups (Table 3a).

Table 3
Numerical summary of focus group discussion on the federal estate tax.

	Overall	Tax program enrollees	Tax program non-enrollees
<i>a. Focus group statistics</i>			
Mean number of words on the federal estate tax	2101	2213	1989
Mean percent of focus group discussion	13.2%	13.9%	12.6%
Group members initiated discussion of the tax	9	5	4
Facilitator initiated discussion of the tax	1	0	1
Mean number of tax provisions discussed	4.5	5.4	3.6
Range	2–7	4–7	2–5
Mean number of advanced strategies discussed	2.7	3.0	2.4
Range	0–5	2–5	0–5
<i>b. General provisions discussed</i>			
Effective exemption for estates	9	4	5
Annual exclusion for gifts	9	5	4
Use of a will	7	4	3
Step-up in basis	6	4	2
Effective exemption for gifts	6	4	2
The marital deduction	5	4	1
Disclaimer	1	1	0
<i>c. Targeted provisions discussed</i>			
Special use valuation	1	1	0
Exclusion for land in a conservation easement	1	0	1
<i>d. Advanced strategies discussed</i>			
Use of trusts	8	5	3
Use of a form of business	7	3	4
Combinations: trust or business, plus gifting	4	2	2
Use of life insurance	4	3	1
Retained life estate	2	1	1
Conservation easements	2	1	1
<i>e. Estate tax myths and misconceptions</i>			
Putting children's names on a deed or account	7	4	3
Joint tenancy with right of survivorship	4	2	2
No need to worry about estate tax	3	1	2

The estate tax provisions most frequently discussed by focus group members were the effective exemption for estates and the annual exclusion for gifts, both general provisions brought up in nine of the ten groups. Some of the gifting strategies described were fairly sophisticated:

But anyway, ... I gifted [my daughter] \$10,000 of that piece of property, and I gifted her husband \$10,000. And that was in December, and then in January ... [I did] the same thing again. ... So that was \$40,000, \$10,000 for each one of them for 2 years. (South Carolina tax program enrollee)

Next most-frequently discussed was use of a will, a general provision brought up in seven groups. The step-up in basis and the effective exemption for gifts each was brought up in six groups, and the marital deduction in five groups. Disclaimer and special use valuation each was brought up in one tax program enrollee group, while the exclusion for land in a conservation easement was brought up in one tax program non-enrollee group (Table 3b).

In nine focus groups—all but one tax program non-enrollee group—members also brought up more advanced estate planning strategies. Use of trusts or a form of business such as the limited liability company or family limited partnership were most commonly discussed, followed by use of a trust or form of business in combination with gifting, and use of life insurance to pay the estate tax. Least discussed were the retained life estate and conservation easements (Table 3c).

In six focus groups, however, group members again expressed myths or misconceptions as fact. Members of all six groups had used inherently risky estate planning strategies, such as joint tenancy with right of survivorship (an inherently unstable form of shared ownership) or simply adding a child's name to a property deed, bank account, or insurance policy (which carries gift tax implications).

Or ... they pass it on before they die. A lot of people do that. They put their kids' name on the property and just avoid the taxes. (Wisconsin tax program non-enrollee)

As well, members of three groups believed there was no need to worry about estate tax because their estate wasn't big enough or because strategies are available to avoid the tax (the difficulty being that it generally takes advance planning and action over several years to take advantage of them; Table 3d):

Participant 1: [I] don't worry about, I mean, there's so many different ways around ... it.

Participant 2: I want to say something to that, too, and I'm [in] the same place that you are. ... [T]here are a lot of ways around estate taxes. (Wisconsin tax program enrollees)

The results of the Kolmogorov–Smirnov tests showed only one statistically significant difference between the tax program enrollee groups and tax program non-enrollee groups: members of tax program enrollee groups were likely to discuss more general federal

estate tax provisions than members of tax program non-enrollee groups (Table 4).

3.2.2. Qualitative themes

Six common themes about focus group members' experience with the federal estate tax emerged from the discussion at each of the locations. Three mirrored the themes arising from discussion of the federal income tax, while three were unique to the federal estate tax. The themes are listed below, each illustrated by two quotes from focus group participants:

- The negative effects of uncertainty arising from the almost annual changes in federal estate tax provisions over the last 10 years.

And how many times it changes and whatever you have in place, you may have to see the attorney again to file an addendum to catch up with the new law they just made. And it's like it's such a (New Hampshire tax program non-enrollee)

Participant 1: Estate tax—if Congress doesn't do anything this year it will revert back to what it was like 15 years ago, which is 55% over the [effective exemption for estates]. And the only allowable exemption will be \$1 million per person, so for spouses that'd be an estate of \$2 million. And it's very, very easy to have estates in excess of \$2 million. ... And if that ... comes to pass that'll be devastating, devastating, for family forestland owners.

Participant 2: And small businesses, the same.

Participant 1: Farm, ag[riculture], everything. Yeah. (Washington tax program enrollees)

- The negative effects of uncertainty arising from the rancorous debate on taxes going on between the President and Congress at the time the study was conducted.

The legislative debates that are going on—that's one of the things that I've heard they're talking about ... eliminating is allowing this stepping up basis when it passes to heirs. Which would work to their disadvantage. (Washington tax program enrollee)

Participant 1: The highest estate taxes have ever been—historically estate taxes have been as high as 70%. I mean, God knows where they're going to go depending on how much our debt is at the end of this year.

Participant 2: I heard on public radio people were talking about this. And the amount that—if it goes back to what it's supposed to, et cetera—the amount yearly of people paying estate taxes into the U.S. coffers is just a fraction of what it costs for one year in Afghanistan. It's not a big deal for the country but it's a big deal with the guy who owns the business.

*Participant 1: But it makes a big impression politically. ... **** the rich.*

Participant 2: Sure, exactly. (Washington tax program non-enrollees)

- Not all accounting, legal, or forestry professionals are knowledgeable about the federal estate tax as it applies to family forest owners.

Table 4
Results of Kolmogorov–Smirnov two-sample tests of study findings on the federal estate tax.

Finding tested	Tax program enrollees	Tax program non-enrollees	Test result
Whether group members initiated discussion of the federal estate tax before the facilitator raised it	5	4	–
Number of distinct times group members discussed the estate tax before the facilitator raised it	12	7	–
Number of distinct times group members discussed the estate tax after the facilitator raised it	2	2	–
Total number of distinct times group members discussed the estate tax independently of the facilitator	14	9	–
Number of general estate tax provisions members of a group discussed	4–7	2–5	**
Number of targeted estate tax provisions members of a group discussed	0–1	0–1	–
Number of advanced estate tax strategies members of a group discussed	2–5	0–5	–
Total number of estate tax provisions and strategies members of a group discussed	6–11	2–10	–

** Significant at the $\alpha = 0.05\%$ level.

Participant 1: My trust lawyer didn't know what his trust lawyer knew. Participant 2: And those trust lawyers are very expensive. Participant 1: And they're very, very expensive. That's right. (New Hampshire tax program enrollees). I'm working with my dad on it right now because ... all the loopholes and snags that are involved ... a lot of the attorneys don't even seem to know them all. (Wisconsin tax program enrollee)

- Children or other prospective heirs often have little interest in the family forest.

Oh no, no. She'll sell it (New Hampshire tax program non-enrollee) Each of the parcels that I mentioned [have] ... been in the family since the 1850s [But] I don't know that [the children will] ever come back. It may end up being sold. ... (Alabama tax program enrollee)

- The negative effects of a lack of estate planning or from leaving an undivided estate.

That happens to land in the South. A lot of kids split it up. That's why I only have 18 [acres]. My granddaddy had 130 acres. But it was split and there was 10 kids in my daddy's family. He was the oldest. So that still happens. That's why the land—it's getting smaller and smaller with each generation. (South Carolina tax program enrollee)

Participant 1: I know a man who lost as much as half of thousands of acres that he inherited in an [estate] tax. He had to sell about half of I don't know how many thousands of acres. You ever heard of [Name]?

Participant 2: Sure.

Participant 3: Oh yeah.

Participant 1: When his daddy died he lost about half of all that timberland they had. And it was thousands and thousands of acres. He had to sell just to pay the [estate] tax. (Alabama tax program enrollees)

- The difficulty of equitably dividing an estate consisting largely of forest land.

Participant 1: If there's only one son or one daughter it wouldn't be any problem. If there were more, then of course somebody would have to get paid out.

Participant 2: Let's say you had four daughters and a son. And the son's going to get the farm and yet the four daughters have to get their 20%. That has the potential to really get a little dicey. (Wisconsin tax program non-enrollees)

And we've done our wills ... to do it exactly even all the way around The money's all got to come out even. And unfortunately our net worth today is more than a third in our land and our timberland. So it makes it hard to kind of divide up in thirds (Washington tax program enrollee)

4. Summary and discussion

One clear finding of this study is that while family forest owners who participate in state preferential property tax programs may be somewhat more knowledgeable about federal taxes than owners who do not participate, there remains considerable room for improvement. Owner knowledge of federal tax provisions varied widely within each focus group, from well-informed to founded on myth and misconception. Overall, only two beneficial federal income tax provisions (treatment of timber income as a long-term capital gain and timber depletion deductions) and five beneficial federal estate tax provisions (the effective exemption for estates, the annual exclusion for gifts, use of a will, the step-up in basis for inherited assets, and the effective exemption for gifts) were brought up in more than half of the focus groups. This level of knowledge is lower than estimated by Greene et al. (2004) and Smith et al. (2007, 2008), which may indicate that estimates of owner knowledge of beneficial tax provisions based on surveys of

individuals randomly selected from forest owner association mailing lists overstate the level of knowledge among family forest owners in general.

A second finding is that tax uncertainty—whether it results from temporary provisions phasing in and out of effect or from rancorous political debate—negatively affects family forest owners' decisions about their land. Many other types of uncertainty affect family forest owners, including forest product markets, insect and disease outbreaks, catastrophic fire, and meteorological events. Nonetheless, change and uncertainty characterized federal tax law in the USA to a marked extent between 2001 and 2012. As described in Gregory (1972), a forest owner facing an immediate tax increase may opt to liquidate their timber before the increase occurs, while an owner expecting taxes to increase over a rotation length may opt to simplify their management plan. Each of these responses is reflected in the forest owner quotes at the beginning of Section 3.1.2.

A third finding is that not all forestry, accounting, and legal professionals are familiar with federal tax provisions as they apply to family forest owners. Foresters typically are most familiar with the biological or business aspects of their profession; foresters with knowledge about taxes may be reluctant to offer advice for fear of misinforming an owner, incurring a legal liability, or violating their code of ethics. Accountants and attorneys often are best informed about taxes as they apply to business or agriculture rather than family forests, as reflected in forest owner quotes in Sections 3.1.2 and 3.2.2. A fourth finding is that, because forest land is difficult to divide equitably and tends to comprise a large fraction of its owner's total assets, forest estates appear to be particularly susceptible to problems arising from inadequate planning or prospective heirs' lack of interest in the family forest, as reflected in forest owner quotes in Section 3.2.2.

Lack of knowledge and misconceptions about federal tax provisions among family forest owners are the weak links in the tax policy chain. Even the best-designed tax policy tools must fall short of achieving their potential effect if forest owners are unaware they exist or believe simplistic alternatives are just as effective.

5. Conclusions and recommendations

The focus group members were much like family forest owners in general, in that the great majority of them hold their land for purposes other than timber management. About 46% of family forest owners do harvest timber from their land (Butler, 2006), however, and it was clear from their discussion that many focus group members had harvested timber as well. When timber is harvested, or when forest land is transferred from one generation to another, lack of knowledge about beneficial federal tax provisions can easily result in overpayment of the actual tax due. As discussed in the preceding Section, such an outcome has implications for the levels of stewardship and sustainability practiced on family forest land.

The results from four recent studies of information exchange and decision-making among family forest owners provide a contextual background for developing recommendations from the findings of this study. Gootee et al. (2010) found that owners with backgrounds in fields other than forestry are inclined to discount information provided by foresters who rely on their professional credentials as experts, provide a one-way exchange of information, discredit owners' experiential learning, and fail to provide the rationale behind new concepts or requirements. They concluded that such a “transfer-of-knowledge” approach to forest owner education can be expected to have substantial negative consequences, both socially and ecologically (Gootee et al., 2010). Knoot and Rickenbach (2011) and Korhonen et al. (2012) investigated the role of social networks in forest owners' decision-making process. Knoot and Rickenbach (2011) found that increasing the size or heterogeneity of owners' personal networks to include natural resource professionals may improve the quality of the decision and the environmental outcome, but often at the price of making the process

more difficult and less satisfying for the owners. Korhonen et al. (2012) found that the social networks of the most-connected owners (termed “relationship builders”) often included an expert forest owner or a forestry advisor. Ma et al. (2012) reported on the early results of the Woods Forum program, a peer learning pilot program in Massachusetts. Among their findings are that program participants included both owners with forestry backgrounds and owners with backgrounds in other fields, that both groups rated their peer-to-peer experience positively, and that the approach improved participants’ retention of information and resulted in a strong willingness to spread the information they obtained (Ma et al., 2012).

Combined with the findings of this study, the above studies suggest potential avenues for improving efforts to inform family forest owners about the beneficial federal income and estate tax provisions available to them, or making the provisions themselves more inclusive. These include the following:

- Develop forest taxation and estate planning modules for inclusion in existing forest owner extension and technology transfer efforts, such as state Master Tree Farmer Programs;
- Develop and provide tailored professional continuing education credits in forest taxation and estate planning for forestry, accounting, and legal professionals;
- Use the principles of adult learning theory, e.g., empathy, mutual respect, two-way exchange of information, emphasis on experiential learning, and explaining the rationale behind recommendations, in tax extension and technology transfer programs;
- Simplify the requirements to qualify for beneficial tax provisions, and ensure that the provisions are available to owners of both agricultural and forest land;
- Coordinate the requirements to qualify for related income and estate tax provisions, for example, those pertaining to donation of an interest in land; and
- Foster extension and technology transfer approaches that emphasize peer-to-peer learning about federal taxes, or peer input in selecting knowledgeable tax professionals.

Finally, minority and limited resource landowners are arguably the most at-risk segment of family forest owners (Gan et al., 2005). The new North Carolina Farm Turnaround Team, sponsored by *Minority Landowner Magazine* (2013) is one effort to reach such owners. It will bring a team of experts in taxes, marketing, finance, and technical assistance to farm and forest owners in that state at the owners’ request. Associated organizations in Missouri, Mississippi, and Virginia have expressed interest in establishing similar groups in those states.

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