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Motivations, business structures, and management intentions of large family forest landowners: A case study in the U.S. South

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ABSTRACT

A case study approach was used to better understand the characteristics of large family forest landowners in the U.S. South. In particular, this study examines these landowners' business structures, extent of ownership, and management objectives. Large family forest landowners were defined as families or family businesses owning large tracts of forested land. Using the theoretical framework of the socioemotional wealth model, we identified and interviewed 36 family forest landowners with large landholdings (a total of 1.37 million acres and an average of 37,000 acres per owner), recorded and transcribed discussions, and analyzed the results using a grounded theory approach. Findings suggested that in addition to financial benefits, the landowners derived socioemotional benefits from the land, such as a sense of identity associated with the land and its history and the value of passing it on to future generations. These nonfinancial benefits coupled with large landholdings could lead to the adoption of business structures to maintain the land as a consolidated unit. The results of this study show that business structures of large family forest landowners may indicate motivations for managing the land and intentions for long-term ownership of the land.

1. Introduction

U.S. family forest landholdings were traditionally consolidated into large tracts, but over the last few generations, they have been broken into smaller parcels among many landowners with varying objectives (Kaetzel et al., 2012). Because of the volume of owners and the major changes in land ownership over the past several decades (Li and Zhang, 2014), concerns have been raised about potential threats of land conversion and fragmentation (D'Amato et al., 2010). Family forest landowners own 58% of the private forest land (122 million acres) in the U.S. South,[1] more than in any other U.S. region (Butler et al., 2016). Family forest landowners not only control the majority of forest land in the U.S. South, but have been shown to have varied values and motivations, making it challenging to examine them as a homogenous group (Bengston et al., 2011). Previous studies, however, have found that larger landowners are different from smaller ones (Arano and Munn, 2006; Lidestav and Ekström, 2000; Majumdar et al., 2008). These studies found that larger owners tend to have economies of scale, greater amounts of timber investment, increased management intensity, increased frequency of harvests, and longer duration of ownership than smaller landowners. In addition, larger landowners are more likely to have profit maximization as a primary goal, and tend to have multiple objectives and an increased frequency of harvesting timber (Conway et al., 2003). A better understanding of large family landowners' motivations, management intentions, social values, and business structure decisions should provide insight on future land fragmentation and ownership changes.

There have not been many studies examining large family forest owners' business structures and these structures' implications on forest management (Henderson et al., 2018). However, family business literature suggests that large family owners tend to have formal planning processes in place and rely on a wide variety of finance options than smaller owners (Romano et al., 2001). Does the increased probability of having planning processes in place and accessing leverage outside of family loans apply to large family forest landowners? Business structures such as Limited Liability Companies (LLCs), corporations, and partnerships could be an indicator of having formal planning processes. Table 1 describes legal entities that are available to all landowners and

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[1] A region in the southeastern part of the United States comprising the states of Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia. The forests in this region cover 245 million acres and account for 32% of U.S. forests. These forests supply 55% of U.S. roundwood production and 74% of U.S. pulpwood production (Hoyle, 2017), which places the U.S. South among the world's most important wood supply regions. Private landowners account for the vast majority of timber harvested (Butler and Wear, 2013).

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Table 1
Common business structures.

Unincorporated structures	
Individual/Joint	The most basic way to own property in the United States is through individual ownership or jointly with others.
Partnership	A partnership is an unincorporated business with two or more people who share the ownership. There are three general types of partnerships: General Partnerships, Limited Partnerships (LLPs), and Joint Ventures.
Family Limited Partnership	A structure that pools family assets into one partnership allowing members to own shares, which can be gifted to other family members.
Trust	A trust is a structure where a trustee(s) (may be an individual or a company) carries out the business on behalf of the trust's members (or beneficiaries) and are legally liable for the debts of the trust and may use its assets to meet those debts. A trust is not a separate legal entity and is set up through a trust deed with either discretionary or unit trusts.
Incorporated structures	
Limited Liability Company (LLC)	An LLC is designed to provide the limited liability features of a corporation and the tax efficiencies and operational flexibility of a partnership. Unlike shareholders in a corporation, LLC members report profits and losses on their personal federal tax returns, just like the owners of a partnership would.
C Corporation	C Corporation is a corporation that sells shares of stock to shareholders who become owners of the company. The profit of a C Corporation is taxed to the corporation when earned, and then is taxed to the shareholders when distributed as dividends. This creates a double tax. The corporation does not get a tax deduction when it distributes dividends to shareholders. Shareholders cannot deduct any loss of the corporation.
S Corporation	S Corporations is a corporation that elects to pass corporate income, losses, deductions, and credits through to shareholders for federal tax purposes. Shareholders of S corporations report the flow-through of income and losses on their personal tax returns and are assessed tax at their individual income tax rates. This allows S corporations to avoid double taxation on the corporate income. S corporations are responsible for tax on certain built-in gains and passive income at the entity level.

any business. Unlike an unincorporated ownership structure, an incorporated structure separates the owners from the business as distinct entities. Therefore, owners in an incorporated structure would not be personally liable for debts or lawsuits against their business. Tax entities are offered by the Internal Revenue Service (IRS) and generally fall under *C Corporation, S Corporation, or Partnership*. These are tax classifications only and are not the same as a legal entity. Employing business structures not only requires specialized legal and accounting services, but also time to discuss options and come to a collective agreement among family owners. These costs, however, may be offset due to the economies of scale that exists with larger landowners (Hatcher et al., 2013). The benefits that outweigh the costs may include streamlining ownership and estate planning among family members, reducing tax burdens, increasing the likelihood of maintaining ownership in the same family, and increasing the probability of keeping the landholding intact.

Understanding landowner business structures and relationships among family members within their communities, rather than only the characteristics of landowners could be important, since solutions regarding issues such as forest fragmentation require collective action among landowners (i.e. ecosystem management or landscape-level management). Research regarding social values in family forest landowner research has been recognized in the United States (Majumdar et al., 2009) and in Europe, including Sweden (Bjärstig and Kvastegård, 2016; Lidestav and Ekström, 2000) and in Finland (Tyrväinen et al., 2007). Examining why landowners maintain and manage large tracts of forested land under family ownership as well as what business structures they select would be helpful to understand the larger picture of family forest landowners in the United States and their role in forest management. Previous research on larger land holdings has generally focused on timber production for financial returns (Arano and Munn, 2006; Kaetzel et al., 2012). Studies generally have not identified the different business structures or why some landowners pursue them and not others. These issues are nested within broader questions about what motivates large family forest owners to continue to hold forest land as well as their forest management intentions.

The results of this study of large family forest owners should be informative and of interest to international readers. While much of the world's forests are in public ownership, about 20% of forests are private (FAO 2015). Private forest ownership can be found across the world, from North and Central America (particularly the United States, Costa Rica, and Nicaragua), to South America (Colombia, Paraguay, and Chile), and Oceania (New Zealand, Papua New Guinea). Private forest ownership is also common in several western European regions, including Scandinavia, German speaking countries, France, Portugal, and others. While information about the composition of private forest owners is limited, the Food and Agriculture Organization of the United Nations (2010) indicates that more than half of private forests are owned by individuals, followed by institutions and corporations.

The literature on private forest owners indicates that this is a very diverse category in terms of holdings, demographics, and management objectives (Butler and Wear, 2013; Hogl et al., 2005; Lönnstedt, 1997; Ní Dhubháin et al., 2007). Large private forest owners, similar to the ones considered in this study, are found in other regions of the world as well. While large owners in different geographies may experience different forest conditions, markets, and policy and regulatory environments, there are indications that they may face similar challenges. Consequently, the results of this study would inform those who want to better understand the role of large private forest landowners, along with the challenges and opportunities they face. To further investigate these issues, perhaps comparative studies similar to the one focused on small private owners' research in Sweden and the United States (Fischer et al., 2010) can be developed.

The reminder of this work is organized as follows. The next section describes the theoretical approach. It is followed by the presentation of methods and analyses, including sample design, respondents, and analytical design. The results section presents detailed findings, including themes related to family control, emotional attachment, and succession. These findings are discussed and conclusions drawn in the concluding section.

2. Theoretical approach

The theoretical background for this study lies primarily in research related to the socioemotional wealth model, which suggests that family firms are typically motivated by, and committed to, the preservation of their socioemotional wealth, referring to the nonfinancial aspects of family owners. These nonfinancial benefits have been studied in family business literature (Berrone et al., 2012; Gómez-Mejía et al., 2007). This term captures the social endowment of family owners, including the family's desire to exercise authority, enjoyment of family influence, maintenance of ownership within the family, retention of family identities, and continuation of the family dynasty. In this lens, gains and losses in socioemotional wealth represent a frame of reference where family-controlled firms make strategic decisions (Berrone et al., 2012; Gómez-Mejía et al., 2007).

The socioemotional wealth framework was applied to analyze the data, specifically focusing on how socioemotional wealth may drive

individual expectations for owning the land and how challenges to owning the land are perceived. When there is a threat to the socio-emotional wealth endowment, the family owners may be willing to make decisions that are not driven purely by economic objectives and, in fact, may make decisions that subdivide landholdings to preserve the endowment experienced by individual family members.

3. Methods and analysis

3.1. Case selection and sample

This study focused on 36 family forest landowners and decision-makers located in the U.S. South with 1000 acres or more of actively-managed forest land under majority family ownership (more than 50%) in the same family. Active forest management was defined as any time and money spent on activities including timber harvest, tree planting, thinning, herbicide application, road construction or maintenance, access control, survey and boundary maintenance, weed control, timber stand improvement, wildlife habitat management, and recreation improvement (Joshi and Arano, 2009). The 1000-acre benchmark has been used to differentiate large private forest landowners from smaller landowners who might have different characteristics (Daigle et al., 2012). Majority ownership is a common definition used to define family-owned businesses (Pindado and Requejo, 2015). This was verified by screening questions at the beginning of the interview, which were: 1) Is your forest land under majority family ownership? 2) How large is the ownership size in acres? 3) Is the land contiguous? To maintain anonymity, respondents were categorized into six acreage size categories: 1000–5000 acres, 5001–10,000 acres, 10,001–25,000 acres, 25,001–50,000 acres, 50,001–100,000 acres, and more than 100,000 acres. An attempt was made to elicit responses from all size categories.

The case study approach is effective in identifying and understanding the relationships and views of the subjects studied (Thacher, 2006; VanBrakle et al., 2013). VanBrakle et al. (2013) used this approach to evaluate the impact of management plans on best management practices (BMP) implementation. Riechman et al. (2014) used the case study approach to understand the issues driving landowners and stakeholders to use prescribed fire on their land and to identify the associated challenges they face.

The snowball sampling technique was employed, which is used for studying hard-to-find or hard-to-study populations (Bernard, 2006). This does not produce a random, representative sample. This method is used in political science and the study of most influential political actors whose identities are not always publicly known (Tansey, 2007). Gaining access to large family landowners poses challenges to those encountered when studying other landowners (Welch et al., 2002) because they are not publicly known and guard their privacy (Hertz and Imber, 1993). Tax records from counties may be used to locate these landowners, but not all county records are online, requiring researchers to travel to each individual county to look up records. For snowball sampling, key participants and/or documents are used to locate one or two people in a population. Those individuals are then asked to list others in the population and recommend someone from the list whom the researcher might interview. Initial participants were identified and selected based on known large family forest landowners from the Forest Landowners Association, state forestry associations, and TimberMart-South (a timber price reporting service in U.S. South) subscribers. Interviews were designed to identify as many attitudes and concerns as possible, while being mindful of the time and privacy of interviewed landowners.

During the fall of 2014, respondents received an e-mail message detailing the purpose and methods for the study, a consent form, and an interview guide with questions and topics prior to the scheduled interviews. The interview guide (Appendix) provided a means for comparing survey data with data elicited from interviews, as well as for comparing informants with other private family forest landowners. This is the type of interviewing most often used with influential members of a community (Bernard, 2006).

Cases involving the forest managers were developed based on interviews. Participants are referred to as aliases to protect individual identities. They are referred to throughout the paper as “Landowner” or “Land Manager” followed by an assigned number. The interviews were semi-structured, which encouraged participants to discuss topics of interest to them. They were directed as necessary to clarify points and ensure adequate coverage of essential topics such as forest management activities, future management plans, use of public forestry programs, and attitudes toward forests, forestry, and foresters.

3.2. Interviews

Thirty-eight individuals were interviewed, but two did not meet the study criteria, thus the final sample consisted of 36 observations. This sample size is consistent with other studies employing the case study and snowball sampling methodology (Andrejczyk et al., 2016; Baumgartner and Pahl-Wostl, 2013). The participants represented approximately 1.37 million total forested acres in ten southern states. All but two were family members themselves; and those two worked very closely with family members and intimately understood the history and challenges that existed among the corresponding subject families. About half of the participants had forest landholdings in Georgia. The other half had landholdings in Alabama, Arkansas, Louisiana, Maryland, Mississippi, South Carolina, Tennessee, Texas, and Virginia. Many of the landowners had land across multiple states, making it difficult to disaggregate acres among the different states.

Transcription of interviews produced more than 100 pages of text. The recordings were erased after notes were transcribed and individuals were assigned aliases to keep identities confidential. Basic questions were asked of each landowner participant, including general demographic information, what business structure they employed on their family land and why, history and ownership structure, land management practices, and challenges to ownership. The respondent's age and percent of income directly derived from forest land may indicate the importance of income generated from the forest land, which may increase management intensity (Joshi and Arano, 2009). Likewise, the number of owners weighted by the ownership acres may dictate the level of management intensity needed for each owner to receive revenue from the land. The number of years the land has been in the same family is important because it could be an indicator of how much noneconomic emotional benefit is derived by the family (Zellweger et al., 2012).

Many past family forest landowner studies have relied on traditional survey techniques for data collection, generally limiting respondents to multiple-choice questions on reasons for owning forest land (Beach et al., 2005; Binkley et al., 1996; Kaetzel et al., 2012). Qualitative techniques can increase crucial information to help interpret quantitative data. Previous studies have found that information taken from surveys alone were not reliable indicators of how lands are managed (Bliss and Martin, 1989; Dutcher et al., 2004; Egan and Jones, 1993; Rickenbach and Reed, 2002). Studies employing qualitative methods have included focus groups of U.S. forest landowners (Andrejczyk et al., 2016), interviews of Swedish forest landowners (Hugosson and Ingemarson, 2004; Lönnstedt, 1997), qualitative literature reviews (Fischer et al., 2010; Silver et al., 2015), meta-analyses of landowner research (Bliss and Martin, 1989), and a mixed methods study (Kelly et al., 2016).

3.3. Analysis

The data were analyzed using the grounded theory approach to determine themes in land ownership practices. Grounded theory is a qualitative approach of text analysis used to identify categories and concepts that emerge from the text and to link the concepts into

substantive and formal theories (Bernard, 2006). The key to this iterative process is identifying themes and coding the text for the presence or absence of those themes. The transcriptions were analyzed and coded into themes as the interviews were completed using a qualitative data management program called MaxQDA. As new topics emerged, the topics were asked in subsequent interviews. Interviews were performed until theoretical saturation occurred, meaning new categories or relationships among categories were not discovered. *t*-tests were used to determine whether there were differences in the means of certain variables between the smaller and larger acreage landowners.

Respondents were asked what factors would lead them to acquire or sell their landholdings, a potential indicator of future forest conversion and fragmentation. We asked if the family would divest their land because of external market condition reasons (e.g., regulatory burden, loss of markets) or for hardship reasons only (e.g., bankruptcy, health issues, family disagreement). If respondents were willing to divest in the presence of hardship conditions only, then this could indicate the presence of very strong emotional attachment, or socioemotional wealth.

The number of years the land has been in the same family measures the extent of existing family control, a necessary condition for a family to possess noneconomic goals (Zellweger et al., 2012). The ability to pass the land onto progeny was used to measure the intentions for transgenerational control, which could be an indicator of importance attached to family-centered noneconomic goals in family firms (Chrisman et al., 2012). The age of the respondent may affect perceptions of firm value among the family members within the firm (Zellweger and Astrachan, 2008).

Respondents were also asked questions regarding the ownership structure, longevity of ownership, forest management goals and practices, forest management plans, hunting leases, conservation programs, and where they received forest management information. Rather than only asking the landowner to quantify how many years s/he has held onto the land (longevity of ownership), asking how many years the landholding been in the same family and what generation the landowner represents may be an important factor in a landowner's decision to maintain and manage the forest land. There is evidence showing that tenure (Zhang and Pearse, 1996), the presence of a forest management plan (Joshi and Arano, 2009), hunting leases (Barlow et al., 2007), conservation programs (Nagubadi, 1996), and how they receive forest management information (Rickenbach, 2009) are related to increased forest management investments.

4. Results

Land size categories ranged from 1000 acres to more than 100,000 acres (Table 2). The average ownership size across all respondents was 37,000 acres of forest land. All landholdings were inherited except for one. The number of owners per landholding was on average 12, but when the size of holdings was considered, the average number of landowners in the larger size categories of 25,001-50,000, 50,001–100,000, and more than 100,000 was the largest. The average length of time the land had been in the same family was 106 years. An independent *t*-test was run to determine if there were differences in the smallest size categories versus all others with the number of owners and the number of years in the same family. Both groups consisted of 18 owners. The results for the number of owners showed that owners in the 1000–5000 acres size category had statistically significantly fewer number of owners (4 ± 1 owner) compared to owners in all other size categories (20 ± 5 years), $t(34) = -3.616$, $p = .001$. The resulting number of years showed that owners in the 1000–5000 acres size category had statistically significantly higher years of ownership (124 ± 13 years) compared to owners in all other size categories (89 ± 8 years), $t(34) = 2.298$, $p = .028$.

Table 2
Number of interview participants and size categories based on timberland acreage owned.

Size category	Size	Number of owners	% Total owners	Acres	Percent acres
1	1000–5000	18	50	37,841	2
2	5001–10,000	5	14	37,500	3
3	10,001–25,000	4	11	63,216	5
4	25,001–50,000	2	6	97,042	7
5	50,001–100,000	4	11	278,000	20
6	More than 100,000	3	8	856,889	63
Total		36	100	1,370,488	100

The major themes that emerged throughout the interview process were feelings of history and pride, maintaining property rights and investment income, preserving a family legacy, and continuous learning. Most of the themes were nonfinancial in nature and could be viewed as benefits to owners keeping the land in the same family.

4.1. Family control

Family control and influence is a key dimension in socioemotional wealth theory and it refers to the control and influence of family members, which is a key characteristic that differentiates family ownership over nonfamily ownership (Zellweger et al., 2012). The family's control through ownership is crucial to creating and maintaining socioemotional wealth. Three aspects of control include the extent of current control, the length of time or duration of control across multiple generations in the same family, and the intention for transgenerational control. Transgenerational control refers to the perpetuation of family ownership over future generations. Family control and influence affects the family landowner's goals for socioemotional wealth creation and preservation.

Ascertaining the length of land tenure for each of the land managers was difficult because ownerships tended to be held within the same family for multiple generations with varied and multiple ownership structures in place. All managers were able to trace the ownership to the approximate year that the original tract of land was held in the family. The shortest length of time was about 20 years and the longest was about 240 years. On average, the original tracts of land have been maintained by the same family for 158 years. Excluding the land managers who are not family members themselves, the average length was 24 years. There were landowners with as few as 2 years to as much as 50 years of tenure. The number of owners in the family ownerships ranged from two to 60. On average, each ownership had about 11 owners.

Timberland management was seen as a mechanism to generate income, which was important to maintain control of family ownership. Timberland management was a top priority for the majority of landowners (84%) and wildlife or hunting was typically a secondary priority. The remaining 16% of the land managers stated that wildlife or hunting was the top management priority with timber management as a secondary priority. This is consistent with research that found inheritors place a greater emphasis on the production of timber than noninheritors (Majumdar et al., 2009) and that regular cash flows from the timberland are more important for the large family forest landowners than smaller ones (Butler et al., 2016). Offsetting property taxes was also important. Sixty-seven percent of respondents in this study cited property taxes as a primary challenge to owning their land.

All land managers had harvested timber within the past 5 years and planned to harvest additional acres over the next 5 years. Several of the respondents used different approaches interchangeably depending on what is most favorable during the current market conditions. Although timber was not the primary land management goal for each landowner, timber revenue was important to all the respondents. This is consistent with previous research which showed that land inheritors were more likely to actively manage their land (Kaetzel et al., 2012). Furthermore, more than 90% of respondents lease out their hunting rights. Leases are

Table 3
Categories of timberland management intensity based on respondents perception.

Management intensity	Number of owners	% Total owners	Acres	Percent acres
Low	7	19	15,368	1
Medium	9	25	126,073	9
High	10	28	330,082	24
Very High	10	28	898,965	66
Total	36	100	1,370,488	100

a source of revenue to offset property taxes and other expenses associated with land management. The remaining 10% of the land managers use the land exclusively for personal and family hunting and recreation.

Management intensity and practices reported by the respondents were ranked as being low, medium, high, or very high (Table 3). Levels of intensity can differ depending on definition and individual perceptions. These responses were subjective, based on respondents' perception of current management intensity on forest land, but in general, the highest intensity consisted of mechanical site preparation[2] with improved seedlings and herbicide and fertilizer applications. Seven respondents reported low intensity, nine respondents reported medium intensity, ten respondents reported high intensity, and ten respondents reported very high intensity. The acreage amounts increase with each step higher in intensity, which suggests that the larger the landholding, the more important it is to produce timber income and hence, the willingness to increase capital spent on intensive management practices.

Regeneration practices varied depending on the species and markets. All hardwood stands were managed with natural regeneration. The planted pine tracts were managed much more intensely with standard practices of chemical site preparation, machine or hand planted improved seedlings, herbicide, controlled burning, and thinnings. Depending on the site, two- or three-pass mechanical site preparation, mid-rotation releases, and fertilizer application were also performed. A few landowners were experimenting with varietal seedlings.

Land managers were asked if they considered perpetual conservation easements[3] on their land (Table 4). Nine land managers stated they already had easements on some or all of their land holdings. Nine landowners were actively considering perpetual easements, but were looking for the right opportunity with the right financial incentives. The primary reasons were to maintain the ownership while lowering the tax basis on low production land, to prevent land from being subdivided in the future, and for the financial incentives. Supportive comments included, “a lot of landowners with multiple generations have split up their property… [a perpetual easement] will prevent any kind of bickering”, “this is one thing I wanted my family and me to be involved in – where we would set something aside forever and still receive a little income from it” and “[I want to] continue to sustainably manage the forest in a way that they are doing currently in perpetuity and get financial benefit for the easement.”

The remaining 19 land managers were not seeking perpetual easements and do not expect to do so in the future. One manager cited the inability to obtain a perpetual easement because of C Corporation status. The other land managers' reasons for not pursuing perpetual easements included not wanting to bind future generations, not wanting to give up control, thinking that perpetuity is too much of a restriction, and a distrust of organizations involved with perpetual easements. Comments revealing the negative sentiment included: “the problem is that you are binding future generations with what you thought was a good idea”, “I wouldn't say I would ever get one, but I would never put one on a piece of productive forest land for legacy purposes because I don't know what the needs of my children or grandchildren might be”, “easements are cumbersome and tend to not work out like you think they should”, and “you will lose control of the land forever and you never know who is going to be in power.”

Table 4
Perpetual easement placed on land tract(s).

Perpetual easement	Number of owners	% Total Owners	Acres	Percent acres
No	29	81	1,205,688	88
Yes	7	19	164,800	12
Total	36	100	1,370,488	100

4.2. Emotional attachment

The socioemotional wealth dimension of emotional attachment refers to the role of emotions in a family business context (Berrone et al., 2012). Shared experiences, knowledge, and history can influence forest management decisions of family forest landowners. These linkages can be positive and in certain circumstances, family members are more likely to be altruistic with each other, but they can also be negative, leading to dysfunction.

We examined the factors leading owners to acquire or sell their landholdings by asking questions related to why landowners chose to keep land under family ownership. Previous research showed that while U.S. inheritors were more likely to be active forest managers, they were significantly less likely than other forest owners to purchase additional forest land within the next 5 years (Majumdar et al., 2009). However, in this study, 25 landowners were actively seeking to acquire additional acres in the near future with reasons such as it being “a good investment”, “getting into more commercial timber operations”, “we don't sell land; we buy land”, “for additional road access”, “when the price is right”, or “for protection from liability issues.” Some landowners have purchased stakes from other family members or were interested in buying other family members out in the future. One owner purchased back land that was sold by a previous generation because of the emotional attachment to the land.

Nine managers were actively planning to sell parcels of their acres in the near future. Six of these were interested in selling parcels that were acquired for investment purposes and to obtain better or more productive parcels elsewhere, and the other three stated they will probably need to sell some tracts because of disinterest from other family members in owning the land or the need to pay off debts. Landowner 4 said that “there doesn't seem to be a forester coming in our line for a while” as a reason for selling land in the future. All managers who were looking to sell planned to keep core acres, which are tracts with special characteristics, or acres for which sentimental attachment exists.

When pressed with the question of what would it take for the manager to want to divest completely out of forest land, comments focused around financial needs and sentimental attachment, including “unless it were to become a financial burden, and then we would sell it in pieces”, “unless I needed money, or if I were unable to manage it properly”, “if we were going broke, we probably would sell it, but that would probably be the only way”, “unless all the owners were to

[2] Mechanical site preparation can include the activities of slashing, shearing, piling/raking, and chopping/crushing, disking, bedding, and ripping. Techniques used can range from simple chopping to a three-pass system of shearing, bedding, and raking.

[3] In the United States, conservation easements are voluntary legal agreements between a landowner and an eligible organization to permanently restrict or limit future activities on the land and to protect conservation values. A landowner receives tax advantages from entering into the agreement (Ma et al., 2012).

become completely bankrupt simultaneously; it has too much historical significance", "if hardship were created for the next generation and generate the need for liquidity, that could drive us to sell", and "not unless someone made us some fabulous offer we couldn't refuse." Land managers with larger landholdings had more flexibility in acquiring or selling land due to increased access to resources and economies of scale than the managers with smaller landholdings in this study.

Land managers were asked about sources they used for assistance in their land management. There was a heavy emphasis on formal and informal education. Many land managers had forestry education or had a family member who had a forestry education. The land managers who did not have a forestry background themselves or within the family often used the assistance of consulting foresters, word-of-mouth through peers, and through forestry networks, conferences, and workshops. Some were members of research cooperatives, which helped them with intensive forest management decisions. Other land managers mentioned cost share programs that have been helpful in offsetting costs of replanting or with other conservation activities.

Land Manager 24, who is focused on wildlife objectives stressed the importance of cost share programs:

> The government programs through NRCS[4] have been beyond helpful for us. If we were footing 100 percent of the bill, I am not sure if we could have made such a difference in the land. Converting the land back has taken some intensive work and the programs have helped with some of the financial burden. We have worked very closely with the local NRCS office.

All of the land managers were members of a forestry-related group or association. The most frequently referenced was state forestry associations and the Forest Landowners Association (Table 5). The "Other" category included the Association of Consulting Foresters, Forest Landowners Tax Council, Longleaf Alliance, National Alliance of Forest Owners, National Woodland Owners Association, and the Society of American Foresters. One landowner said:

> It's so easy to find out what you need to know. The main thing is going to meetings and getting to talk to others who are in the same boat that I'm in.

4.3. Dynastic succession

Dynastic succession refers to the intention of passing the land onto future generations. From the perspective of the family owner, the land is not just an asset that can be easily sold, but it symbolizes the family's heritage and tradition. Consequently, the family owners view the land as a long-term investment that can be bequeathed to descendants. In family business literature, this is often a key goal in family firms (Zellweger et al., 2012).

Table 6 shows that the most popular business structure is the LLC (33.3%), followed by S Corporation (25%) and Individual/Joint ownership (19%). It is important to note that more than one structure could be applied on different tracts within the same landholding depending on ownership among family members. The prevalent reasons given for pursuing various business structures were for liability protection, decreasing the tax burden, streamlining ownership among multiple family members and simplifying transfers to future generations. Landowner 28 described the structure related to the significance of the land to family history:

> We keep it despite all these challenges because it's worth it and it's a generational thing…It's something special to know that my grandfather plowed the land into row crops, and sometimes barefoot with a mule. It's special to walk out there and know that he walked on the same land. Our grandkids have some trees that they have identified as their own. Those will one day be harvested, but replaced, and that is one thing we want them to understand. We want them to inherit the land, which is part of the reason for the LLC.

Owners under a C Corporation structure (8% of sampled ownerships) selected this structure because it was the only one available during the time of incorporation. During much of U.S. history, the only options for business entities with two or more owners were the partnership and the C Corporation. The S Corporation and LLC designations did not come into existence until 1950s and the 1970s, respectively (Godfrey, 2007; Kennard, 2002). As the number of family members increased, dividing up land interests became more complicated. Thus, owners without business structures were considering various structures to streamline ownership among family members.

When respondents were asked about challenges to land ownership, responses included concern over the availability of mills to process their wood and the decrease in logging capacity available to harvest land. Concern was also expressed over future tax increases, liability issues, family disagreements, and increased regulatory burdens that might put at risk their ability to continue managing their forests. The potential change in capital gains tax treatment for forest management is an added source of stress for land managers. Land Manager 25 explained that:

> They are looking at making us capitalize instead of expense[5] a lot of your operating costs. Things that we have been currently expensing on an annual basis would have to be capitalized. All of those things are critical to our business.

Landowner 27 also was worried about capital gains[6] and thought that more tax stability was needed for forest owners to continue to successfully operate:

> I really think that is unfair. If there's anything that's really a capital asset, it seems to me that a forest is. When you plop some money in the ground and wait 20 years at a minimum and 30 to 35 years for a lot of people, that certainly meets the definition of long-term, and it ought to qualify. We really need some sense of stability… what's the price going to be 30 years from now? If I knew that, I probably wouldn't have to bother growing trees.

Table 7 shows that the top perceived challenges were changes in taxes (67%), environmental regulations (50%), and family disagreements (42%). The challenge of markets represents the concern over loss of markets, including mills and processing facilities, that will purchase landowners' wood. Environmental regulations coming from the U.S. Environmental Protection Agency and the U.S. Fish and Wildlife Service were seen as a future challenge for forest land managers. This often was followed by remarks on concerns over increased government intrusion and the loss of private property rights. Landowner 22 warned that the consequences of poorly executed environmental regulations could have the opposite intended effect, particularly for parcels near urbanized locales and said that if there were "too many disincentives for forest management, then the manager will turn around and sell it to a realtor for housing or whatever." The challenge of managing family expectations was an important concern for land managers with the main concern being keeping current family members engaged and in agreement with management objectives. This problem is magnified as families reached four generations or more, leading to an increased number of family members involved. Land Manager 9 described how one family was taking a proactive approach through education of the next generation:

[4] Natural Resources Conservation Service

[5] Under U.S. Generally Accepted Accounting Principles (GAAP), expenses are recorded at the time of the expense is incurred. Capitalized expenses are amortized over an extended time period.

[6] The rise in value of real estate or other investment that gives it a higher worth than its purchase price.

Table 5
Respondents' Identification with Forestry Affinity Groups.

Affinity group	Number of owners	% Total owners	Acres	percent acres
State Forestry Association	26	70	1,238,400	57
Forest Landowner Association	24	65	583,200	27
Other	14	38	358,300	16

Table 6
Ownership and Business Structures on Family Forest Land.

Structure type	Number of owners	% Total owners	Acres	Percent acres
Individual/Joint	7	19	133,900	1
Family Limited Partnership	5	16	161,000	11
Trust	6	14	32,100	2
Limited Liability Partnership	4	11	29,800	2
Limited Liability Company	12	32	372,700	25
S Corporation	9	24	759,000	50
C Corporation	3	8	128,000	9

Table 7
Perceived challenges to timber management faced by respondents.

Challenges	Number of owners	% Total owners	Acres	Percent acres
Family	15	42	629,700	46
Liability	14	39	351,500	26
Markets	12	12	799,800	58
Regulatory – Environment	18	50	1,106,600	81
Regulatory – Taxes	24	67	1,066,900	78
Other	8	22	283,500	21

> One of the things we recently did last Christmas was that we had the family be broken up into groups. The generations we were targeting were the ages of 4 years old to 25 years old. We had those who were four-years-old out in the woods and made it a fun event where we spent time in the woods. The nine-year-olds were measuring dbh and identifying species and product class.

This proactive approach was echoed by Landowner 17:

> When I turned 21, one of my uncles drove me to a piece of property and said, 'I think this is yours.' He had no clue where the boundaries were or how big it was. You could tell from the tax statement, but that was it. It's hard when kids start that way. They got to be brought along to learn.

Liability concerns encompassed a wide range of issues, including natural and man-made fires, theft, trespassing, dumping, and lawsuits.

Concern over markets were in response to mill closures over the past several years as well as depressed prices for sawtimber. Landowner 27 summarized the situation:

> The biggest challenge right now is that we seem to have fewer markets than we used to. In the mid-1990s, it wasn't a big deal to send out a decent timber sale and have 10 to 15 bids. Now you get three to four or even two. We used to have five to six sawmills within a 50- to 60-mile range and now we have one. I think it has affected the prices.

The limited markets have gone hand-in-hand with a decrease in logging capacity. Landowner 37 described a challenging logging capacity issue:

> We are seeing less of loggers and are having a tough time finding them when we want to cut. When you get a good price, you can't get a logger to do the cut.

Other challenges cited by land managers included forest health concerns, some family members residing far from the land base, and balancing multiple objectives on the land.

Many of the families have organized into various legal business structures in order to address some or all of these challenges. The percent of personal income derived from forested land was found to be higher for owners with larger landholdings. However, very few family members received 100% of their income from their forest land and those who did were working full time for the family. When compared with other studies that have explored large family forest landowners, respondents in this study shared varied values and motivations (Bengston et al., 2011), more interest in timber production (Kaetzel et al., 2012), and more likelihood to participate in cost share, easement, and certification programs (Ma et al., 2012). However, the primary difference was that the majority of the respondents were incorporated under some business structure in response to their particular family needs.

5. Discussion and conclusion

Family forest ownership is common in many parts of the world as are family owned firms. Little attention has been given to determining whether theories developed in family business research are empirically adequate descriptions, explanations, or predictions of family forest landowner phenomena. International literature has demonstrated that family firms are more profitable in Chile (Martínez et al., 2007), Germany (Andres, 2008), New Zealand (Jaskiewicz et al., 2015), and in the United States (Villalonga and Amit, 2006). There are several dimensions in family business research that can be explored in family forest landowner research on an international level. Is the family landowning model similar to those found in family business research? Do they create more value or more success than private or public corporate landowning models? Family landowners in this study are shown to have objectives outside of short-term profit such as family control and influence, emotional attachment, and dynastic succession when viewed through the lens of a socioemotional wealth model. This model, borrowed from family business literature, helps explain many of the diverse motivations and attitudes found in family forest landowner research. Socioemotional benefits derived from owning the land help explain why these families wish to continue owning and managing their family forest land, and to pass it onto future generations within the family even when existing economic factors would suggest otherwise.

Most of the respondents were multi-generational family forest landowners, suggesting that family ownership is an effective organizational structure (Anderson and Reeb, 2003). Although comparing family landowners to public nonfamily firms like Anderson and Reeb

(2003) in the United States and Martínez et al. (2007) in Chile would be difficult, exploring the variables that might increase the success and duration of ownership for family forest landowners would contribute to the body of literature. Future studies should examine not only the income effect and the survival rate of family forests owners over time, but also whether an increased number of owners per landholding could increase the need to generate income, therefore increased management intensity, from the land due to disparate interests among family members. This is a similar concept discussed in Anderson and Reeb (2003), where the amount of fractional holdings of family members provides a measure of control exerted on management of operations. To understand whether increased socioemotional wealth truly contributes to landowners maintaining land in the same family, it would be important to not neglect examining the fractional holdings each family owner owns compared to his or her intentions to sell as well as former family forest landowners who divested entirely of their land, and the reasons for divestment.

The snowball sampling technique in this study may have contributed to bias from oversampling of more cooperative or successful ownerships (i.e. survivorship bias). In addition, the small number of observations (n) may limit the study results; however, the small n is consistent with other studies employing the case study and snowball sampling methodology (Baumgartner and Pahl-Wostl, 2013; Riechman et al., 2014). Nevertheless, the results should be used with caution. While sample size is an important consideration, it is as important to have a sample that can be generalized for other large family landowners, and this study covers a large proportion of land per owner, an average of 37,000 acres per landowner.

Based on this study's participants, large family forest owners tend to formally organize themselves under business structures to not only streamline ownership and increase financial benefits, but to maintain ownership for future generations. Assessing the prevalence of forest owners seeking and employing various business structures is helpful to understanding their underlying motivations and intentions of maintaining and managing forest land on a large scale in the U.S. South. Most owners had either organized landholdings under various business structures or were considering it. The owners with the largest landholdings seemed to operate much like other similar-sized business than ones with smaller landholdings. Since all ownerships had multiple owners, viewing large family landowners as family businesses may be more accurate as a unit of analysis than individual landowners. Although there was typically a primary decision-maker or CEO, multiple family members contributed to the decision-making where there was a principal (primary decision maker, whether hired or a family member) and stakeholders (all other family members). Not all of the respondents were incorporated, but those who were not were considering incorporating their landholdings in some way. Future studies could examine the prevalence of pursuing business structures, the efficacy of the structures in meeting family goals, and their contribution to the success of the ventures. Whether this is a growing trend should be further examined, as this may be an indicator of forest management intensity and intentions to keep forest land in the same family.

Many of the respondents indicated that organizing into various business structures helped respond to challenges being faced, suggesting that they are actively planning for the future management of their land. Owners without business structures in place are more likely to experience challenges in how to distribute timber income to current owners as well as how to transfer land to heirs. U.S. owners today have more choices in structures to employ than when a C Corporation was the only option. Unlike the very large corporate industry owners, large family owners still have strong sentimental ties to the land. The percent of personal income derived from forested land was found to be higher for owners with larger landholdings. However, very few family members received 100% of their income from their forest land, and those who did were working full time for the family business. Romano et al. (2001) suggest that larger family owners in Australia are more likely to use capital and retained profits to achieve growth. Examining business structures may provide insight into what incentives families need to operate under long-term conditions given the nature of forest land as a long-term asset. This study found that family forest owners with larger acreages more likely had both legal and tax structures in place and employed debt as a mechanism for growth. However, emotional and sentimental attachment may override the decision to maximize profits for economic benefit. This could encourage unsustainable forest practices, such as parcelization of the land, to maintain core acres or overharvesting forested acres to be able to pay for the continued carrying cost of the land. Smaller parcels may face a higher likelihood of conversion to non-forest land uses and management operations may become uneconomical.

Measuring socioemotional wealth and how much it contributes to individual landowners as well as does how socioemotional wealth is affected as the succession process moves farther away from the first-generation owner could reveal dimensions that could lead to divesting the family land or splitting up the family land, leading to parcelization. Ownerships that have more years under the same ownership are less likely to manage land intensely, suggesting other benefits are derived, like socioemotional wealth rather than financial, from the forest land as it moves from generation to generation of ownership. These ownerships were also smaller, suggesting parcelization over time. A study of Swiss and German family-owned firms and one on Spanish olive oil mills suggest that relationship between duration of ownership and perceived total value may only be observable when comparing family and non-family firms (Gómez-Mejía et al., 2007; Zellweger et al., 2012). Further study on how large family forest landowners select their CEO or principal decision maker could reveal additional preferences for land management goals.

Why do some landowners pursue business structures and not others? Findings from this study suggest that business structures of large family forest landowners may signal motivations for managing the land and intentions for long-term ownership of the land. Forest landowner research has examined what ownership means to an owner, which have been shown to be diverse in the United States (Bengston et al., 2011), in Nordic countries (Lönnstedt, 1997), and in Austria (Hogl et al., 2005), but research has not inspected who gets to be an owner and the varying ownership assumptions among family member owners. Failure to understand ownership options and assumptions can cause a loss in competitive advantage and family disputes that result in land sales. Participants in this study are skewed to those who are actively engaged, but did not review potential discord or resentment of “free-loading” family owners, those who may be uninterested or unqualified in forest management. Understanding each business structure's implications and trade-offs for family landowners can play an important role in keeping family members unified in managing forest land.

In conclusion, the results show that factors such as socioemotional benefits, number of owners in the ownership, the longevity of the ownership (years in the same family), and the desire to acquire more land could increase understanding of this subset of landowners. They also show that large family landowners tend to be more likely to actively manage forest land for timber income and are more likely to be formally educated and knowledgeable in forest management. Therefore, these landholdings are important to forest product markets and provide important amenities in large quantities across the U.S. South. It is possible that the current policies may not service the needs of larger landowners, particularly if the motivations and roles of owners with larger landholdings are not well understood. As better metrics are developed to understand the reasons why forested tracts are getting smaller or larger, better definitions will need to be developed to categorize forest landowners and how to study them.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix

Interview guide – landowners

Interview guide for large-scale family forest landowners in the United States

I would like to interview you on your role in the forestry sector and what challenges you experience as a family landowner in managing the land. Specifically, I would like to cover the following areas:

1) How and for what reasons have you structured your land holdings?
2) What are the motivations for you to keep land under family ownership?
3) What are the opportunities and challenges you see in owning the land?

This interview guide provides you an idea of some of the questions we might be asking you. The questions we ask could vary depending on your values, motivations, and reasons for owning and managing your family forest land. You may ask to skip questions you do not wish to answer.

History and ownership structure

- What is the ownership history of your land?
  - o Who started the land ownership?
  - o How long has the land been associated with your family (years and number of generations)?
  - o How has land use changed over time (conversion from rotational crops, pasture land, etc.)?
  - o How has the size of the holdings changed over time?
- How is your ownership structured?
  - o Corporate or business partnership
  - o Limited Liability Company (LLC)
  - o Partnership
  - o Trust or estate
  - o Other (i.e. individual, joint)
- Why is the current ownership structure in place?
  - o What historical and current policies or other events have influenced the way your land ownership is currently structured?
  - o What would you consider to be the ideal ownership structure for your forest land?
- How many owners are part of the ownership?
  - o Who are the primary land management decisions maker(s)?
  - o Do you manage your own land or hire a third party?
- What ownership rights are included (i.e. fee simple, surface, or mineral rights)?
- Do you have plans to acquire or sell forested acres throughout your tenure?
- Under what conditions, if any, would you sell the land?
  - o Would you consider selling pieces of the land or all of it?
- Have you ever been in forest products manufacturing?
  - o If so, what size and segment?

Land title encumbrances

- Do you have any debt or other encumbrances on the land title?
  - o If so, what are the reasons for employing debt?
- Do you participate in special state conservation programs, ad valorem tax incentives, or have easements on the land?
  - o What type of easement (e.g. conservation, transferrable development rights)?
  - o What portion of the land is under easement or encumbered?
  - o What are the reasons for putting an easement on land or any other encumbrance?

Land management

- What are your land management objectives (e.g. timber, wildlife, hunting, conservation)?
  - o How much of your land is managed or unmanaged (percentage or acres)?
  - o How much of your land is managed for timber (percentage or acres)?
    - ■ What are the primary timber species (e.g. acres of slash pine)?
    - ■ For what products are the timber species managed (i.e. pulpwood, sawtimber)?
    - ■ What is the management intensity of your timber land?
    - ■ What are you management practices (e.g.. planting, natural regeneration, site preparation, type of seedlings used, fertilization)?
- What are your expectations or reasons for owning the land?
  - o Timber income
    - ■ Primary source of income
    - ■ Secondary source of income (as an investment, or part of farm/ranch)

- o Nontimber income (i.e. pine straw, berries, other forest products)
- o Recreation (i.e. vacation home, hunting)
- o Future investment (i.e. land investment)
- o Other reasons (i.e. scenery, protect nature or biological diversity, water resources, wildlife, privacy, pass on to heirs, firewood)

- Do you have a forest land management plan?
  - o If so, how often is it updated?
  - o When did you have it written?
  - o Who developed the plan (i.e. consultant, in-house)?
  - o Do you have supply agreements?
- Do you need additional assistance now or in the future to manage your forest land? If so, what kind of assistance have you used or what kind is most needed?
  - o Technical, such as professional or educational
  - o Financial, such as taxes
  - o Other

Challenges

- What are the challenges that you have faced while owning the land? (Constraints could include access to capital, access to markets, liabilities, and property taxes)
- How have you addressed the challenge(s)?
- What are some of the future challenges?
- Why continue to keep the land despite the challenges?

Future plans

- What are some opportunities you see in owning the land?
- Where do you obtain information that is relevant to your forest management objectives (trade publications, federal or state publications, word-of-mouth)?
- What land management/estate plans are you making for the future generations of your family?

General and demographic information

1 What is the total number of acres in your ownership? acres (or select below)

□1000 acres or fewer	□25,001–50,000 acres
□1001–5000 acres	□50,001–75,000 acres
□5001–10,000 acres	□More than 75,000 acres
□10,001–25,000 acres	□Prefer not to respond

2 How old are you?

□18–34 years	□65–74 years
□35–44 years	□75–84 years
□45–54 years	□85 years or older
□55–64 years	□Prefer not to respond

3 a. What is or was your main occupation?

b. Are you retired?
□Prefer not to respond

4 What is your education level?

□ High school/GED	□ Advanced degree (graduate)
□ College (associate, bachelor)	□ Prefer not to respond

5 What is the average percent of your household's income derived from your forest land?

□%
□ Do not know
□Prefer not to respond

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