

An Examination of Appalachian Forest Products Exports

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(ABSTRACT)

The primary goal of this study was to identify value added export opportunities for the hardwood products manufacturing industry. By studying current industry practices and trends, we can better understand the opportunities hardwood lumber businesses have exploited in the past and could do so today. The study found that opportunities exist for businesses with the right initial mindset preparing them for exporting, the proper equipment, and the appropriate educational experience.

Surveys of hardwood lumber manufacturers in 1989 and 2002 addressed similar objectives and helped better understand export participation of hardwood lumber manufacturers in the Appalachian Region. The objectives of this research project included determining current export experience, access and use of export development programs, key export markets, and mill production, marketing, equipment, personnel and other attributes of the region's hardwood lumber industry. Other objectives included determining if any significant changes in the region's hardwood industry had occurred, and in particular, what was mill export market experience in the past 15 years. The key was to identify key factors that lead to export marketing participation.

This study showed that export market participation is growing as forest sector businesses consolidated during this period. Businesses were found to seek assistance from multiple government agencies, trade associations, and most importantly from their customers. While the largest export market continues to be Canada, little information is available on other businesses

purchasing Appalachian hardwood lumber, indicating the need for more research on markets and their size. Important species for exporting are red oak, yellow-poplar, white oak, and maple, and higher grades of hardwood lumber continue to be the top three. Owning a kiln is essential to exporting, and having an above average size marketing staff was found to be helpful. The most important attribute of exporters is an open-minded management that sees the benefits of exporting.

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CHAPTER 1: INTRODUCTION AND BACKGROUND INFORMATION

The hardwood lumber industry in the Appalachian region is facing many new challenges. Once made up of numerous small, family owned businesses, it has recently seen consolidation and increased competition resulting in larger and fewer businesses (Bowe et al. 2001). Investments in often expensive technologies are helping maximize production, utilization, and quality of lumber. U.S. Domestic markets have become extremely competitive and hardwood lumber businesses have become more creative in their marketing strategies and are striving to locate new profitable markets.

Many U.S. hardwood lumber businesses have looked outside U.S. domestic markets to find profits in the export market. Several studies of hardwood lumber exporters were conducted in the 1980's and early 1990's; a peak expansion period for U.S. forest products exports. This time period generated immense profits and growth for the forest products industry. As the turn of the millennium approached, new challenges have changed the forest products industry. Globalization occurred throughout the forest products industry and in other industries. International trade of forest products has become increasingly necessary to stay in business. These changes have created a need to better understand the hardwood lumber industry and how it's export marketing strategies have changed through time. By more fully understanding previous research conducted during peak period expansion, we can conduct new research providing essential temporal information.

This study is designed to assess the changes since 1989. In 1989, an extensive study was conducted by A.L. Hammett at the University of Georgia investigating the factors that lead to successful export of hardwood lumber products. Data from Hammett's study was preserved in excellent condition. By using that study as a foundation for this new research (2002), direct

comparisons may be made between exporters of 1989 and 2002. Furthermore, we can gain new valuable information regarding the differences between exporters and nonexporters through the turn of the millennium and changing business climate. Updated information will be useful to the hardwood lumber industry, support governmental organizations, and non-profit organizations focusing on hardwood lumber exporting.

CHAPTER 2: PROBLEM STATEMENT, GOALS, AND OBJECTIVES

New business challenges promote evolution within an industry. Companies manufacturing or selling hardwood lumber are seeking new market opportunities that have not been explored in the past. By looking beyond the domestic marketplace and broadening their markets, U.S. businesses are finding new markets where their products are welcomed and demanded. Furthermore, long-term business solutions and flexibility are being integrated by hardwood lumber manufacturing facilities to accommodate new markets and customers.

Domestic markets are increasingly competitive, and companies selling hardwood lumber are facing new competition. Plastic and composite cabinet components, millwork, molding, flooring, and furniture are replacing traditional solid hardwood lumber products. While the Appalachian region's domestic furniture industry has provided a large market for hardwood lumber producers in the past, U.S. furniture factories are slowly beginning to close their doors. Furniture manufacturers have been losing domestic market share to competitively priced furniture manufactured overseas and imported into the U.S. Furthermore, the wood products industry has been consolidating over the past decade, and many smaller enterprises have been acquired or have gone out of business.

The motivation and differences between hardwood lumber exporters and nonexporters may be understood by examining their marketing strategies, business practices, manufacturing equipment used, and how each mill develops export markets. This information will provide general guidance, direction, and purpose for entering the international marketplace. This project seeks to explain differences between exporters and nonexporters in 2002. Furthermore, data gathered in 1989 will be used to make direct comparisons of the changing business practices of the 1990's and the turn of the century.

The primary goal of this study is to identify management strategies that lead to export opportunities for the Appalachian hardwood products sector. To achieve this goal, the objectives of this research project include:

- 1: Determining current export experience, access and use of export development programs, key export markets, and mill production, marketing, equipment, personnel and other attributes of the region's hardwood lumber industry;
- 2: Determining significant changes in the region's hardwood industry in the past 15 years, and in particular mill export market experience, since the previous survey; and
- 3: Identifying key mill factors that lead to export marketing participation.

Before a comparison of exporters and nonexporters can be completed, background information of the hardwood lumber industry and other research conducted must be collected and reviewed. A literature review provides insight into the hardwood lumber industry and will identify variables potentially important to determine export participation.

CHAPTER 3: LITERATURE REVIEW

Current literature describing raw material resources, current hardwood lumber mill production practices, characteristics of hardwood lumber exporters and nonexporters, and important international markets will help explain how new research will provide deeper understanding of the industry's marketing and management strategies. The purpose of this literature review is to identify influences on hardwood lumber export participation.

First, background information is reviewed, including raw material resources and lumber output per state, and a description of the hardwood lumber industry is formulated. Previous export research is explored to develop an understanding of techniques hardwood lumber manufacturers and other industries use to export their products. Hardwood market trends are also explored to understand the international hardwood lumber market. Finally, conclusions reiterate the problem statement, justify the research, and set up dependent and independent variables for marketing strategies and export participation. It is necessary to understand the hardwood lumber industry and current export marketing experience to identify gaps where new knowledge and research are needed.

3.1 APPALACHIAN FOREST RESOURCES

Eastern U.S. forests have traditionally provided ample raw material for the hardwood lumber industry. By examining their characteristics, one can better understand the potential for sustaining this industry. This study will concentrate on ten states in the Appalachian region: Georgia, Kentucky, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, Virginia, and West Virginia. These states harbor hardwood lumber mills dependant upon Appalachian forest resources with a tradition of serving both domestic and overseas markets.

The most recent U.S. forest statistics were published in 1997, and describe timberland and volume estimates for a 10 year time span by individual states (Smith et al. 2001). There are nearly 139 million acres of productive timberland in the ten state region of the study (Table 1), available for management and conservation. Recent forest inventory identifies approximately 427,468 million board feet (MBF) of available hardwood sawtimber in this region (Table 1).

To better understand forest statistics presented in Table 1, a few states in this region should be examined in detail to better understand the forest characteristics in the Appalachian region. Georgia has the most timberland of the 10 states, but has less hardwood timber volume (Table 1) due to the large acreage managed for softwood production. Pennsylvania has less timberland, but more high value hardwood timber including hard maple and black cherry. With the abundance of hardwood, this region has great potential for supplying export markets. Ohio and South Carolina have the least amount of timberland and hardwood sawtimber volume, hence the lower potential for hardwood lumber production.

The net growth to removal ratio may be used to indicate the sustainability of forests within a region. However, net growth to removal ratio should be used with caution, as growth to removal change through time and does not indicate which individual species has rapid growth or is mature or ready for harvest. Historically, it is important to understand that there is more timber available for harvest today than in 1900. In the late 1800's, the central Appalachian forests were harvested to clear farmland, and revealing a patchwork of forestland and agricultural areas. The growth to removal ratio has displayed a positive trend since the early 1900's when the U.S. Forest Service began the Forest Inventory and Analysis program (Hicks 1998). This indicates the forests of the Appalachian region are able to provide a raw material for the hardwood lumber industry.

Nearly all states in the region display a favorable net growth to removal ratio (Table 1). New York displays the largest growth to removal ratio compared to other states in the region, growing 4.51 thousand cubic feet for every one thousand cubic feet harvested or removed (Table 1). There is significantly more growth in the New York than removal. South Carolina is the only state showing a negative growth to removal ratio. This can be explained by the replacement of natural hardwood stands with pine plantations.

Table 3.1. General Characteristics of the Appalachian Region’s Forests, 1997.
(Source: USDA Forest Service 2001)

	Timberland (thousand acres)	Net Volume Hardwood Sawtimber (Million Cubic Feet)	Net Growth to Removal Ratio for Hardwood Species**
New York	15,406	17,461	4.51:1
Pennsylvania	15,853	23,485	2.79:1
West Virginia	11,900	19,970	3.03:1
Ohio	7,568	10,191	2.87:1
Kentucky	12,347	15,446	1.54:1
Virginia	15,345	21,924	1.59:1
Tennessee	13,265	15,387	1.71:1
North Carolina	18,639	22,108	1.36:1
South Carolina	12,419	9,787	0.79:1
Georgia	23,796	18,345	1.15:1
Total	146,538	174,104	

** Net growth to removal ratio includes natural mortality.

U.S. Appalachian forests are able to produce raw materials for the hardwood lumber industry on a sustainable basis. The species harvested and utilized typically reflect the highest market prices available (Luppold et al. 2001). Species such as cherry, hard maple, and red oak typically bring more value than lower valued species, such as beech or gums. Cherry, red oak, and yellow poplar tend to be over-utilized in the eastern U.S. compared to lower value species, such as American beech (Luppold et al. 2001).

By examining the hardwood lumber output per state, one can understand the importance of the hardwood lumber industry in each state and how raw material resources are impacted. States located in central Appalachia that produce the most hardwood lumber are Pennsylvania, West Virginia, Virginia, and North Carolina (Table 2). New

Table 3.2. Total Lumber Production of Hardwoods by State in 2001 (U.S. Department of Commerce 2002)

	(MMBF)
New York	411
Pennsylvania	1081
West Virginia	705
Ohio	360
Kentucky	683
Virginia	855
Tennessee	860
North Carolina	692
South Carolina	137
Georgia	431

York, Kentucky, Tennessee, and Georgia produce slightly less hardwood lumber, while Ohio and South Carolina produce very little hardwood lumber. There is little information available about the output of hardwood lumber species by state. States that manufacture larger quantities of hardwood lumber have greater potential to support exporting hardwood lumber.

Regardless of the location, there is great diversity in the volume produced by individual businesses in the hardwood lumber industry. Approximately 53% of the hardwood lumber produced in the eastern U.S. is manufactured by only 14% of the mills with production capacities of 5 million BF or more (Luppold 1995). More than 28% of the lumber manufactured comes from 4.3% of the mills, each producing 10 million BF or more (Luppold 1995). Even more significant, the rest of the manufacturers in the industry are considered to be small or family owned. Midwestern and northern states have many more small hardwood lumber mills producing less than 5 million BF per year (Luppold 1995). Frequently, smaller mills utilize logs that are unwanted by the larger sawmills. By understanding more about the industry, we can better capture the challenges they face when exporting their products.

The forest products industry is very dependant upon access to adequate supplies of raw material in the eastern U.S. Hardwood log consumption is very sensitive to market prices, and sawmills can impact the price of stumpage in a region depending on mill concentration and size. Larger mills are able to pay more for stumpage, which may drive smaller mills out of business (Luppold 1995). Frequently, hardwood lumber manufacturers must compete against other wood using industries when procuring wood. Forested areas that have mixed species stands can attract several different buyers, including procurement representatives from pulp and paper mills, pine sawmills, and hardwood lumber manufacturers (Luppold 1995). Stumpage costs can vary greatly depending upon the competition in the marketplace. Regional shortages may affect or impact the local industry, but in reality, multiple mills are just consuming more wood within the area. Some hardwood lumber mills have avoided exporting because of a lack of a high quality logs, when there is actually higher regional competition for certain types of species.

The hardwood lumber industry is dependant upon Appalachian forest resources which provide a sustainable raw material and long-term security for the lumber industry. Hardwood lumber is one of the most abundant wood products manufactured in the Appalachian region. Centrally located states manufacture the most hardwood lumber, although the species sawn reflect regional forest characteristics. Furthermore, stumpage costs can impact the profitability of hardwood lumber sawmills. The next section will develop a profile of hardwood sawmills in the study region.

3.2 EASTERN HARDWOOD LUMBER MANUFACTURERS

The hardwood sawmill industry in the eastern U.S. is made up of a diverse group of businesses, producing a variety of products. There are several products manufactured in addition to hardwood lumber, including low-grade lumber, railroad ties, component parts, and chips for

the paper industry. Hardwood veneer produced from larger logs of superior quality bring premium price. Secondary wood products manufactured in this region include furniture, pallets, moulding and millwork, flooring, and cabinetry. The hardwood lumber industry is subject to changing demand in secondary industries. Furthermore, the demand for secondary wood products can create fluctuations in sawmill production.

The hardwood lumber industry has undergone consolidation through the late 1970's, 1980's, and 1990's. Tennessee, Kentucky, and Pennsylvania increased productive capacity from 1975 to 1992 to much higher levels than other states in the Appalachian region (Luppold 1996). West Virginia, North Carolina, and Ohio remained fairly constant through this time period. The number of mills decreased in all states except Tennessee and Kentucky, and the percentage of total capacity in large mills increased in all eight states. Hardwood lumber sawmills have become larger and sparser. The next sections explore changing mill characteristics in light of the evolving industry.

3.2.1 Mill Size and Equipment Adoption

The hardwood lumber sawmills of Pennsylvania, New York, and Ohio, are on average much smaller than hardwood sawmills located in the south. Some attribute the average small size to Amish lumbermen and furniture manufacturers, who have established long-term businesses in this region. By the nature of their unique lifestyle, these businesses continue to remain small (Luppold 1995). Georgia hardwood lumber sawmills may be more production oriented and hence better utilize their resources and are in a better position to compete (Luppold 1995).

There are many benefits of being a small business. Smaller businesses require lower capital investments, are usually family owned, and often are specialized and non-commodity

oriented selling in niche markets. They may be able to utilize smaller resources within local regions more efficiently than a larger business. A small sawmill may be more flexible, able to utilize lesser-used species, and market them to specialized businesses (Luppold 1995). For example, a small sawmill located in central Pennsylvania has access to a few persimmon logs, and is able to establish a relationship with a small Amish furniture manufacture that is interested in such species. The sawmill can offer this product along with higher demand products such as red oak. One delivery trip can be made and a long-term relationship is established. Product diversity is effective when exporting hardwood lumber, and a small sawmill may be able to fill specialized orders needed by overseas buyers when a larger sawmill cannot.

Smaller mills face different challenges than larger companies when conducting business. Small companies are usually family owned, and expansion or integration of new technology may be dependent upon the acceptance and knowledge of technology, credit of the owner, and overall income. Bove et al. (2002) found that cost issues may not be as important when payback periods are short or return on investment is profitable. Larger companies are able to absorb the costs of new technology equipment much faster, because they are volume oriented and see investments differently (Bove et al. 2002). Only 15% of small hardwood lumber manufacturers have invested in high technology equipment, while 53% of larger companies have optimizing equipment, grade mark readers, and lasers (Bove et al. 2001). These improvements have effectively helped larger companies produce high quality products in greater volumes while increasing revenue. Small business must compete with these large manufacturers. A survey of NHLA members found over 73 percent of sawmills felt scanning and optimizing technology would help their mill, even though only 10 percent actually have the technology (Bove et al. 2002).

3.2.2 E-Commerce and the Hardwood Lumber Industry

The forest products industry has been slow to adapt to on-line technologies. E-commerce became a trendy practice beginning in the late 1990's for many industries, but not for the forest products industry. The industry is slow to adopt online technologies to sell their products. Marketing hardwood lumber online "provides a more effective means of processing orders, building stronger relationships, providing greater access to product information and specifications, improves response time to requests, handles customer complaints, and lowers prices" (Smith 2002; Vlosky et al. 2002). E-commerce provides value-added services to customers (Smith 2002). Approximately 80 percent of the forest products industry was using the Internet in 1999, although most of the use was for company advertisement or e-mail (Pitis and Vlosky 2000; Smith 2002).

E-commerce is viewed by the secondary forest products industry as a way of promoting customer relations (Smith 2002). Typically, hardwood lumber companies are willing to provide information on their inventory by grade and species, but are not able to take orders without the use of a phone. One reason why the Internet has not been used by the hardwood lumber industry is the importance it holds of personal relationships when selling wood products (Pitis and Vlosky 2000).

Hardwood lumber exporters may save money by using electronic integration between exporters, freight forwarders, and the carrier. Using paper methods to handle product shipments cost about \$7.00 per shipment, but may be reduced to between \$0.50 to \$1.00 using electronic integration (Pitis and Vlosky 2000). Online inventory information may also help facilitate efficient marketing of hardwood lumber products. Although, these benefits have not been widely recognized by exporters.

3.2.3 Education of Sawmill Managers

Another challenge to hardwood lumber marketing is the level of education obtained by sawmill managers. Only 22% of hardwood lumber sawmill managers have a bachelors degree (Bowe et al. 2001). The remainder have less formal training, or have completed technical programs. 36% have completed only high school (Bowe et al. 2001). Positive correlations have been derived between education level and the use of high technology equipment (Bowe et al. 2001). A less educated manager may not have skills needed to make important marketing decisions or an appreciation for the need to access new markets overseas.

3.2.4 Grading and Other Value Added Services

There are several value added services common in the hardwood lumber industry. There are two types of value added activities, which including upstream value added activities such as manufacturing or research and development, and downstream value added activities such as marketing, services, and distribution (Bradley and Gannon 2000). Bowe et al. explored downstream value added activities. NHLA grading was offered by 63 percent of the companies surveyed in his study of NHLA members (Bowe et al. 2001). Products that meet the NHLA grading standards were sold for higher values because they are certified to meet a set of quality criteria. 88 percent of larger lumber manufacturers were found to be members of NHLA and sell grade lumber. 65 percent of the small manufacturers surveyed were not members, and may not be selling grade lumber (Bowe et al. 2001). End coating was offered by 55 percent of the companies, and air-drying was offered by 51 percent of the companies as value added services (Bowe et al. 2001). Kiln-drying and custom grading were offered by about 40 percent or more of the hardwood lumber businesses in the eastern U.S. Surfacing and dimension manufacturing are done by a little more than $\frac{1}{4}$ of the industry (Bowe et al. 2001). Previous studies emphasized

the importance of manufacturing kiln dried grade lumber for international customers (Hammett et al. 1991). Research conducted by Bowe et al. (2001) indicates there is high potential for U.S. hardwood lumber exports because mills here can offer the products internationally desired.

3.2.5 Downstream Market Focus

Downstream value added activities include a marketing focus on customer-oriented methods for identifying and measuring customer value (Idassi et al. 1994; Bradley and Gannon 2000). On an individual basis, close working relationships are developed with clients (Idassi et al. 1994). Secondary manufacturers view accurate communication, personal relationships, supplier's reputation, promptness of delivery, and competitive pricing as the most important service attributes from suppliers of hardwood lumber (Idassi et al. 1994). Customer value in the hardwood lumber industry includes more than just product attributes alone; it is a multidimensional concept including all aspects of lumber creating a package (Idassi et al. 1994). Hardwood lumber businesses must offer outstanding customer service in addition to a high quality product. Customer demands and market pressures are important to understand when identifying key factors leading to export participation. If a business does not adhere to these values, it will be difficult meeting the expectations of international customers.

3.2.6 Summary

The hardwood lumber industry in the eastern U.S. is diverse in ownership and manufactured products. Most hardwood lumber businesses are small, although there are a few larger businesses producing large volumes of lumber. The success of a sawmill is directly proportional to a mill's ability to change with market forces and fill specific niches. They are slow to adopt to expensive new technologies because profit margins are slim, and certain value added services are important to fill customer desires. Sawmill owners are educated by

experience rather than formal education; known as the school of hard knocks. In summary, the demographics of hardwood lumber mills allows us to better understand the average hardwood business. If exporters are profiled, we can understand how they differ from the rest of the sector. The next section will explore marketing and exporting concepts important in the forest products industry.

3.3 FOREST PRODUCTS MARKETING AND EXPORTING

A mill's marketing skills are essential to successful export participation. Marketing can be stated as "bringing a product to a customer bringing full satisfaction while making a profit" (Sinclair 1992). Standardized marketing contains four basic elements called the "marketing mix", including product, distribution, pricing, and promotion (Sinclair 1992; Smith and Olah 2000). The standardized marketing perspective is an excellent beginning for any company interested in exporting hardwood lumber, although new research cautions against unconditional adaptation of this theory. Standardized marketing has only been proven to enhance industries in which competition is global in scope (Zou and Cavusgil 2002). As explained in the previous section, few hardwood lumber businesses are truly global in scope. Exporters must go beyond the standardized marketing mix to develop market plans targeting regions or countries where they wish to sell their product.

3.4 EXPORT DEVELOPMENT AND FOREIGN MARKET ENTRY DECISIONS

Hardwood lumber exporters did not suddenly decide to export their products. They went through a developmental period, exploring options and understanding the logistics of exporting. In a study of furniture and computer manufacturers, only one third of managers in a recent study indicated they had reviewed alternative market entry options (Bradley and Gannon 2000). The average hardwood lumber company equally does not review their market entry options. Most

lumber sales people are order takers, not marketers. They invest little thought in market entry or product promotion beyond word of mouth sales and close relationships that have been established for years. Bradley and Gannon (2000) warn managers “that poorly considered, ad hoc foreign market entry search strategies based on activities such as trade fair participation or responding to advertisements seeking suppliers generally result in exchange relationships being formed with low-return trading companies, rather than with more profitable risk-taking merchant distributors” (Bradley and Gannon 2000). When seeking to enter the export market, managers must go beyond passive methods to become successful. Managers may profit from a more strategic approach to enter a foreign marketplace by learning more about market segments and specifically targeting them (Bradley and Gannon 2000).

There are several steps in the export market development process. Leonidou and Katsikeas (1996) reviewed several models that describe the export development process, and concluded there are three general phases. The first phase is the pre-engagement phase, and includes businesses engaged only in domestic sales only with no interest in exporting. The next stage is the initial stage in which the company begins to export sporadically, possibly from international businesses seeking their product. Businesses that are unsure about the profitability of exporting and may drop out are included in this phase. The third stage is advanced, where a company is actively planning for exporting their product and has developed experience and is continuing the growth process.

The critical driving variable in export initiation is the awareness of international opportunities (Ellis and Pecotich 2001). They are determined by the degree of social contact between U.S. managers and counterparts abroad (Ellis and Pecotich 2001). Once a business has become aware of an opportunity, there are four possible export initiation scenarios in small to

medium sized businesses. They include seller initiated (exporter's initiative), buyer initiated (an unsolicited order), broker initiated (sponsored by an entrepreneurial mediator or agency), or initiated as a result of a trade fair (Ellis and Pecotich 2001). In small and medium sized businesses, such as many of the hardwood lumber mills found in this region, buyer initiated exports are the most predominant, closely followed by seller initiated exports, and third parties and trade fairs (Ellis and Pecotich 2001). Understanding the export development process is essential when trying to understand how hardwood lumber mills might begin to explore exporting their products.

Ellis and Pecotich (2001) also explained the importance of the network of contacts established by business managers of an exporting company. Such a network plays a very important role in export initiation. Contacts abroad or knowing key individuals can assist in finding customers and increase interest in exporting. In the hardwood lumber industry, these individuals might work with an export promotion program offered through a state government. They can oftentimes provide trade leads overseas. The more cosmopolitan the business manager, the more likely they are to use their social network to initiate exporting activities. The most common are connections made through the other networks of existing customers and suppliers. The internationalization of a domestic customer may also lead to the initiation of export activities. Contacts made in previous places of employment or family connections of an export initiator are also important.

Once a business has decided to participate in exporting activities, there is great potential to develop into an international firm. Exporting is viewed as the initial stage in internationalizing a firm (Kwon and Hu 1995). Few hardwood lumber companies may be considered truly international in scope, because they do not own manufacturing facilities

offshore. It is doubtful that any hardwood lumber business would consider building a sawmill offshore, unless close to an assured steady raw material resource. There are opportunities for hardwood lumber companies to expand into tropical hardwood forested regions, as it would lead to increased export participation.

This section explored the development process of nonexporters into exporters. By understanding this process, we can now see there are few reasons holding a company back from exporting. Managerial attitudes towards international activity may be the most important factor when considering exporting. The next section will profile hardwood lumber exporters and nonexporters based on past research.

3.5 HARDWOOD LUMBER EXPORTERS

This section will explore previous literature studying the differences between exporters and nonexporters, and how their business works differently. What motivates exporters to sell overseas and why do some businesses stop? What export promotion programs are used by exporters? What products do exporters sell internationally? How do they market their products differently? Do they manage their business differently? What are the reasons for not exporting? All these questions and more will be addressed and explored through relevant literature. International hardwood lumber sales can be a profitable venture, and this section will explore what separates exporters from other hardwood lumber businesses.

3.5.1 Export Market Entry Challenges of Hardwood Lumber Businesses

As described in the previous section, there is a process by which companies begin to explore exporting. There are no recent publications applying the development process to the hardwood lumber industry. Although, we know hardwood lumber companies may not have the resources to generate accurate and timely market information to plan their exporting into key

countries, and rely on other sources to provide them with market scanning factors (Belich and Dubinsky 1998). Understanding business practices, economic data, insurance needs, import restrictions, tariff regulations, promotion practices, and pricing practices is very important when initiating export activities (Belich and Dubinsky 1998).

The greater the perceived market distance, the more managers will rely on outside agents for advice and assistance to reach those markets (Belich and Dubinsky 1998). This supports the need for state, federal, and private organizations to provide market information to forest products companies seeking export assistance.

3.5.2 Use of Export Assistance and Promotion Programs

Export assistance programs offered by several state, federal, and private organizations help U.S. businesses develop international markets and skills needed to serve them. The preferred source of export sales assistance has been state economic development departments, used by 46 percent of hardwood lumber mills in 1989 (Hammett and DeForest 1993). Although, public sources of assistance were perceived to be the least helpful (McMahon and Gottko 1989). Lumber manufacturing or trade associations were used by 45 percent of mills in 1989 (Hammett and DeForest 1993). State forestry departments and other financial institutions were used the least, but have provided assistance to some mills in the past (Hammett and DeForest 1993).

The more useful the information provided by export assistance programs, the more businesses will come back for more help. Businesses most often received trade leads, overseas market information, trade contacts, and logistics information from export promotion programs (Hammett and DeForest 1993). Financing and insurance assistance were used the least (Hammett and DeForest 1993). Export trading companies and agents have usually been the most

helpful to companies that export (McMahon and Gottko 1989). It is important to determine how export promotion programs impact export participation by the hardwood lumber industry.

Small hardwood lumber producers in the eastern U.S. are unaware of many programs available to help firms overcome export trade barriers. Ifju and Bush (1994) studied the awareness, use, potential use, and the perceived benefit of export program services among businesses that fit this profile. The researchers categorized twenty-one of the services that export promotion programs offer into five general categories. The five categories include importer information, promotion, physical exporting, financial and legal, and marketing information. Hardwood lumber producers in the eastern U.S. are most aware of marketing information services. These services include general export counseling, assessment of market potential in specific countries, seminars on the basics of exporting, toll-free numbers for export information, contacts with experienced exporters, and information on doing business in a foreign country.

Many exporters also know about promotion programs available through government agencies, which include the arrangement of international trade shows, overseas trips to meet potential buyers, and the general promotion of U.S. products overseas. However, exporters perceive a low level of benefit of these services. Promotion services might be more likely to benefit the U.S. lumber industry, rather than benefit an individual company. Promotion should be product and market specific for the country and business in which exporters are looking to gain access (Hammett et al. 1991). Firms perceived little benefit would come from physical exporting services as companies already have the ability to consolidate shipments and determine transportation arrangements needed. Services providing information about foreign importers are rated very high on a perceived benefit scale, especially those providing credit information on foreign buyers (Ifju and Bush 1994). Since few businesses were aware of these services,

informational campaigns would help match companies with appropriate and needed assistance services (Ifju and Bush 1994).

Financial and legal services are needed by exporters to guarantee loans, transfer funds from foreign buyers, guarantee payments by foreign buyers, and handle of all financial aspects of the sale. They also provide general legal advice and assistance. These services are least known by businesses, but the perceived benefit is very high, especially those that guarantee payment by foreign buyers and transfer funds from foreign buyers (Ifju and Bush 1994). Hardwood lumber producers desire reduced transaction risk for foreign sales.

Competition, manufacturing, and management challenges have troubled the hardwood lumber manufacturers in the Eastern U.S. These challenges alone may prevent companies from exporting, although there are many successful businesses thriving because they diversified their customers and are open minded about new markets. Learning more about their motives to enter overseas markets will help us better understand the export development process.

3.5.3 Motivational Factors to Export

There are many reasons why a hardwood lumber company would be interested in exporting. Potential for additional profit has been identified as one of the key motivators (McMahon and Gottko 1989; Ifju and Bush 1993). Exporting companies are lead to participate by overseas inquiries, while nonexporters are motivated by a loss of domestic market share. The top three reasons for exporting hardwood lumber products were supplementing domestic sales, it contributed to the long-term expansion of the firm, and it disposed of excess products (McMahon and Gottko 1989). Stabilizing seasonal market fluctuations and reducing risks by selling to diverse markets were ranked low as motivational factors to export. Export stimulants are

independent of company size and exporting activities (Ifju and Bush 1993). Therefore, forest products businesses of all sizes feel similar motivations to export their products.

Exporters regarded pre-export conditions such as equipment owned, species sawn, and quality of grade produced to be important (Hammett et al. 1991). Potential exporting companies and domestic sales oriented companies may be distinguished because they differ by managerial opinion, not size, production, or sales of the company (Ifju and Bush 1993). The potential exporter views market information as a major barrier, not personal or equipment limitations. In order to determine key export firm attributes, the next section will review past studies that identified characteristics of exporters and nonexporters.

3.5.4 Characteristics of Exporters and Nonexporters

There are several mill production factors that differentiate exporters from nonexporters. Generally, exporters are larger businesses because they have more employees and produce more lumber (McMahon and Gottko 1989; Hammett et al. 1991; Ifju and Bush 1993). Previous studies confirm other attributes including access to technology, such as fax machines and other forms of communication (Hammett et al. 1991). Smaller firms tend to be experimental exporters, and once medium sized businesses export, they tend to be experienced with limited scope (Dickerson and Stevens 1998). Dickerson and Stevens found younger firms tend to export more products, which is a contradiction with Hammett et al. (1991). Hammett et al. (1991) described exporters as well established businesses, being operational for a longer period of time.

Dickerson and Stevens found younger firms might have advanced technology and invested in equipment better suited to export products, such as dry kilns and planers. This agrees with the study conducted by Hammett et al. (1991) which showed exporters are better equipped

to produce high quality exportable lumber products by owning bandsaws, dry kilns, and predryers.

Mills located in the southern and Appalachian regions export a larger volume of hardwood lumber, although there are fewer businesses exporting than mills located in Northern states (Luppold et al. 2000). Northern businesses in New England, Pennsylvania, and New York may be strategically located next to Canada, our largest customer, and important ports for shipment overseas (Luppold et al. 2000). Furthermore, a large percentage of firms from the eastern coastal states have exported lumber because of their strategic location, while fewer businesses located in the Appalachian region and lake states export (Luppold et al. 2000).

3.5.5 Hardwood Lumber Products Exported

A firm's ability to modify products and packaging to suit specialized needs of foreign buyers indicates flexibility and ability to fill international markets. Veneer, millwork, component parts, and flooring are other hardwood products being exported. The more experienced an exporting firm, the higher the percentage of production is exported and the more products they offer to foreign buyers. Experienced exporters may sell as much as 30-45 percent of their total production overseas (Dickerson and Stevens 1998).

Exporting mills produce higher percentages of high quality lumber, which is very important for the hardwood lumber manufacturer (Hammett et al. 1991). Approximately 30 percent of FAS grade lumber production, 20 percent of No. 1 Common, and 4 percent of Grade Two were being exported from mills in 1989 (Hammett and DeForest 1993). Less than 1 percent of Dimension, Grade Three, or other grades of lumber were being exported in 1989 (Hammett and DeForest 1993).

Species popular overseas in the early nineties were yellow-poplar from southern Appalachia, white oak from north and south-central regions, and western red alder (Luppold 1992). Red oak and white oak species are also in high demand overseas, and companies exporting in 1989 manufactured higher quantities of these two species (Hammett et al. 1991). By producing a wider variety of hardwood lumber species, companies are able to adjust to changing markets and needs of international buyers.

Many hardwood lumber sawmills producing commonly traded products feel they must accept market prices for their product. Mills can differentiate themselves by offering proprietary grades or better customer service (Luppold 1995). Companies adding less value to the product have higher percentages of exports than those adding more value (Dickerson and Stevens 1998). For example, rough lumber may be preferred over planed lumber. The next section will discuss marketing and management practices commonly found with exporters.

3.5.6 Marketing and Management Practices of Exporters

Another key indicator of export participation is marketing and management practices of exporters. Hardwood lumber exporters are uniquely different than nonexporters in their marketing and management practices. Larger companies have aggressive target sales levels and sell larger volumes, export on a regular basis, and produce nearly twice as much lumber per year (McMahon and Gottko 1989; Hammett et al. 1991; Ifju and Bush 1993; Dickerson and Stevens 1998; Ambler et al. 1999). Hardwood lumber exporters also have more employees on average, and have one additional sales person on their staff (Ifju and Bush 1993; Dickerson and Stevens 1998). Exporters also have younger sales managers with better technical training in forestry and business (Hammett et al. 1991). Sales managers of exporters have larger marketing territories and are more likely to sell products outside their own region or state (Hammett et al. 1991).

Prevalence of advertising and the number of medias used for advertising are important to exporters (Hammett et al. 1991).

Hardwood lumber is most frequently exported through agents or brokers. Very few mills sell directly to the consumer overseas (Dickerson and Stevens 1998). Furthermore, very few hardwood lumber mills use U.S. based foreign trading companies, similar to other small to medium sized businesses in other industries (Hammett et al. 1991; Dickerson and Stevens 1998; Ellis and Pecotich 2001).

Travel overseas seems critical to overseas marketing. In Michigan, over one third of hardwood lumber manufacturers have a unique sales position designated to handle export sales, and 85 percent of these export sales managers have traveled to foreign countries on organized sales missions (Dickerson and Stevens 1998). This shows management's overall commitment to exporting, a key variable in export participation (Gray 1997; Ambler et al. 1999). Overseas sales trips were found to increase export sales by 42% of Michigan hardwood forest products exporters (Dickerson and Stevens 1998). Very few export sales managers have worked overseas for an extended period of time, and likewise, very few speak foreign languages.

As identified previously, the manager's attitude towards exporting is very important to the overall success of international sales. There are three major clusters of marketing managers in the business world identified by Gray (1997). The "International Achiever" welcomes international business opportunities with a positive attitude and "above average aspirations for company growth and profits". The second cluster of managers are "International Strivers", who only have moderate levels of "awareness and commitment to exploiting international business opportunities". "International Strivers" have weak marketing and international business knowledge and skills. The third cluster of marketing managers are the "International

Pessimists”, that have little interest in becoming an international company. Gray suggests this group may have more international business knowledge, which may have lead them through a negative export sale experience, creating a pessimistic view of international sales. There is a need to define similar categories of marketing managers in the hardwood lumber industry.

Dickerson and Stevens used Return on Investment (ROI) and several indicators of investment to determine the managerial commitment to exporting by each firm. Most experimental exporters with limited dedication to exporting activities were interested in a short term ROI of up to 2 months. Experienced exporters with a broader scope were willing to wait up to 6 months and longer before achieving success. Dickerson and Stevens also measured the level of resources available to international business activity to determine managerial commitment to exporting. Most firms dedicated one employee on a part-time basis to export marketing, but this level of commitment would not allow adequate market penetration, nor meet the needs of current export customers. Only one third of experienced exporters were found to dedicate one person on a full-time basis to exporting, but these businesses also had twice as many sales people as the average mill.

Hammett et al. (1991) studied export sales methods, including selling direct to the customer, selling through an agent or broker, and selling to a trading company, or other methods. Dickerson and Stevens (1998) developed three categories to define export market channels, including domestic middlemen, foreign middlemen and foreign product distributors, and direct sales to overseas customers. Both researchers seem to identify the importance of these marketing channels. In 1991, Hammett et al. found the most frequently used method of exporting was selling through an agent or broker, as 77% of businesses in their study indicated this method. The second most frequently used method was selling direct to the customer.

Dickerson and Stevens (1998) explored export marketing channels in greater depth. They found experienced exporters utilized combinations of at least two of the market channels, favoring direct sales and the use of foreign middlemen. Lesser-experienced exporters preferred foreign middlemen and domestic middlemen, while experimental exporters commonly dealt with unsolicited orders. Less experienced exporters want to use multiple intermediaries, while the most experienced exporters wanted to decrease the use of middlemen, selling direct to capture more value in their products. Businesses adding the least value, such as planing and sorting, preferred direct sales channels, while companies manufacturing higher value added products preferred the use of foreign middlemen.

One of the goals of this study is to determine how hardwood lumber exporters marketing strategies have changed since 1989. Previously, this section described past studies of marketing and management practices. Hardwood lumber exporters usually sell their products with very little investment in marketing planning. Strategic planning can help a business penetrate export barriers and build customer relationships. A potential solution needs to be explored, because other industries have taken proactive roles in their export marketing practices. A potential solution is the Global Marketing Strategy, proposed by Zou and Cavusgil (2002). It is “the degree to which a firm globalizes its marketing behaviors in various countries through standardization of the marketing-mix variables, concentration and coordination of marketing activities, and integration of competitive moves across the markets”. Hardwood lumber exporters might benefit from the Global Marketing Strategy. The overall goal is to enhance a company’s overall performance on a worldwide basis. The Global Marketing Strategy integrates standardized marketing, configuration and coordination of a firm’s value-chain activities, and an

integrated view of participation in all major world markets to gain competitive leverage and effective integration across these markets.

By integrating the use of a Global Marketing Strategy, hardwood lumber manufacturers and distributors involved in international sales may positively and significantly influence a company's strategic performance and financial performance in a global market (Zou and Cavusgil 2002). Furthermore, hardwood lumber businesses can “respond to external and internal challenges with several strategic levers, including standardization of marketing programs, concentration and coordination of marketing activities, and integration of competitive moves” (Zou and Cavusgil 2002). Hardwood lumber exporters should plan an aggressive strategy into the global marketplace, and the Global Marketing Strategy may be the solution.

Marketing and management practices of exporters are unique because they reflect the developmental process of exporting and managerial commitment to international sales. The next section will discuss the origin and destination of exported wood products.

3.5.7 Origin of Exported Wood Products

When domestic price differences between two regions are greater than the transportation costs associated with delivering logs and other primary products to market, international trade will occur (Perez-Garcia 1995). It is meaningful to understand what regions of the U.S. are exporting and are important to international markets. In the past, north-central states and western states were important regions for European importers of U.S. hardwood lumber (Hansen et al. 1991). European importers did not rely on northeastern regions, although this region supplied more hardwood lumber than any other region during the 1980's (Hansen et al. 1991). There was a decreased dependence upon the northeast region, from 60 percent in 1981 to 40 percent in 1990 (Hansen et al. 1991). Furthermore, reliance upon western states to supply hardwood lumber to

Europe was derived from an increased interest in red alder from Italy and Germany during the 1980's (Hansen et al. 1991). There are no recent studies exploring the international importance of different U.S. regions, although it may be presumed that certain secondary industries are dependant upon specific species. Of course, there are regional differences in the species composition of forests and the production of mills.

Exported wood products can be traced back to their original state using five different sources. This information allows state agencies and forest based industries to better understand the dependence upon the forest resource, and may allow for businesses to plan long-term hardwood lumber exporting strategies. Data from the Annual Survey of Manufacturers, the Census of Manufacturers (for census years), Shippers Export Declaration, Ship Manifest, or Canadian Customs Coding Forms all the provide basis for hardwood lumber export examination (Hansen and West 1999). No one individual source is able to consistently identify original state of origin, although the upcoming Analytical Report Series will be able to identify the value of all wood products exports from each state (Hansen and West 1999). U.S. Customs Districts document the origin of log and lumber by species, although inland would not be credited for many exports as they have no port facilities (Hansen and West 1999).

Bar-coding and other improved inventory methods may help more accurately determine better point of origin information. Such information will be provided through time, as certified forest products become more important to the industry.

3.5.8 Reasons for Ceasing Exporting

Economic issues are the most frequently cited reason to cease exporting operations (McMahon and Gottko 1989). Other reasons for stopping export activities include (in decreasing importance) market related issues, raw material suitability or availability, and distribution

problems (McMahon and Gottko 1989). In a recent study, 86% of small companies surveyed (mostly furniture manufacturers) use a low control mode for foreign market entry, which avoids resource commitment and frees them to change partners easily as decisions seem fit (Bradley and Gannon 2000). Low commitment to exporting is manifested by a lack of managerial support when beginning to enter foreign markets to a specific region, later causing businesses to cease exporting after failure has been determined (Bradley and Gannon 2000).

3.5.9 Reasons for Not Exporting

Why would a business decide not to export? Hardwood lumber manufacturers with potential to export feel they lack information about foreign markets (Ifju and Bush 1993). Often small domestically oriented businesses feel their size does not favor exporting (Hammett et al. 1991; Ifju and Bush 1993). Dickerson and Stevens surveyed nonexporters to determine their reasons for not exporting. Sufficient domestic markets were the top reason for not participating in export activities. Strategic disadvantages included inadequate inventory, lack of dry kilns, expense of containers and loading equipment, and high transportation costs. Very few cited a negative previous experience as reason to reduce their participation.

The previous nine sections summarized literature on hardwood lumber exporters. Export market entry challenges were reviewed, and export assistance and promotion programs were determined to be important to the hardwood lumber industry. Motivational factors to export were explored to learn more about the reasons why businesses export. Characteristics of exporters and nonexporters were described, identifying marketing, management, and business practices common to exporters. Hardwood lumber exports were reviewed to learn more about which products are shipped overseas. The origin of hardwood lumber exports were identified to learn more problems associated with documenting export volumes and product sources. Reasons

for ceasing exporting and reasons for not beginning exporting were also reviewed to learn more about nonexporters. The next section discusses important sources of overseas market information to help identify those countries and regions interested in importing Appalachian hardwood lumber.

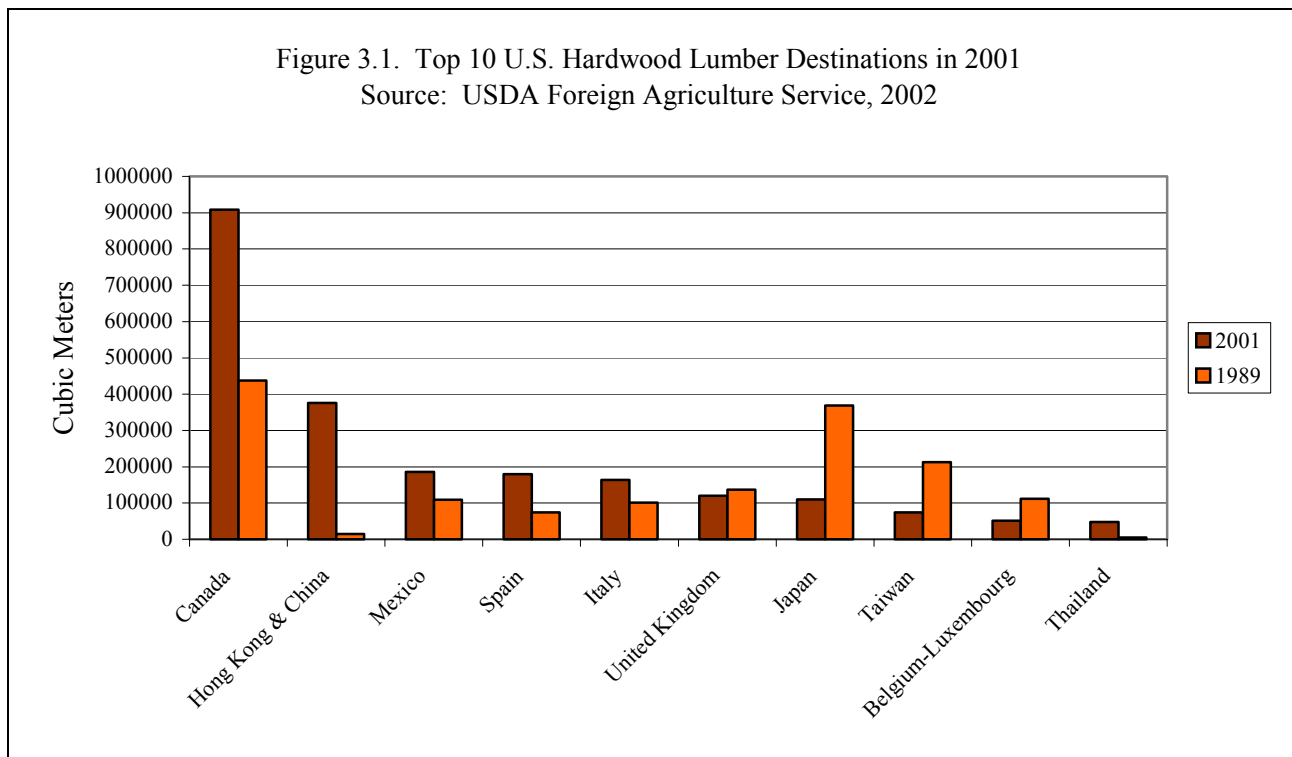
3.6 INTERNATIONAL MARKETS SEEKING U.S. HARDWOOD LUMBER

Identifying key international markets for hardwood lumber exporters allows us to understand trade occurring with international customers. By reviewing literature on this topic, we can determine historically important markets and hope to identify emerging markets. Furthermore, we can explore new country markets and identifying key export markets to fulfill one of the objectives of the study.

3.6.1 Canada

The most important U.S. hardwood lumber market is Canada, the largest importer of wood from the Appalachian region. Hardwood lumber sold to Canada is frequently re-exported to Europe or other regions of the world. Luppold analyzed data from the International Trade Division of Statistics Canada to determine how hardwood lumber is exported from the U.S. for transshipment or re-exporting to Europe (Luppold 1992). Data was used from the Journal of Commerce Product Import Export Reporting Service (PIERS), and the U.S. Department of Commerce, Bureau of the Census to estimate the amount of hardwood lumber exported directly to Europe or transshipped through Canadian ports. Luppold concluded that Canadians had favorable trade status with the UK and France because of the cultural links between the countries (Luppold 1992). Hardwood lumber shipped to Spain and Italy was shipped from U.S. ports, although the port of Montreal offered cost savings in the form of lower union work rules and lower freight rates (Luppold 1992).

Research conducted by Armstrong (1993) indicated 98.7 percent of U.S. hardwood lumber volume exported to Canada was shipped to the metropolitan Toronto area and the St. Lawrence River valley of Quebec. The largest purchasers of U.S. hardwood lumber are brokers, agents, and wholesalers, which account for 47.5 percent of the volume purchased in Canada. They are most interested in purchasing yellow-poplar, red and white oak, and are most likely to re-export the lumber. Armstrong found the Canadian hardwood flooring industry, moulding, and millwork manufacturers import a large percentage of lumber for their manufacturing process. Cabinet manufacturers, furniture, and dimension manufacturers import less hardwood lumber than other secondary industries, but still a significant amount of wood.



Armstrong (1993) also found Canadian lumber buyers are purchasing wood from many places around the world. For U.S. hardwood lumber manufacturers or distributors to improve their market share against the international competition in Canada, they should address product quality issues such as assuring accurate grading and maintaining consistent moisture content.

Timeliness of delivery is also a very important selling point for U.S. businesses because they are strategically located. With competitive transportation businesses in the U.S., there may be several opportunities for delivery.

Canada continues to be the largest importer of hardwood lumber manufactured in the U.S. Figure 3.1 displays the countries purchasing the largest amounts of U.S. hardwood lumber in 2001. Exports to Canada have nearly doubled since 1989. It is presumed that Canadian businesses are continuing to remanufacture and export this lumber as they build their brokerage and distribution chains in Europe and abroad. Furthermore, we know that in some cases Canadian businesses are adding value to this U.S. processed hardwood lumber and re-exporting to the U.S. There are opportunities to learn more about their distribution network and reapply their strategies to the U.S. hardwood lumber industry. This area presents the largest opportunity for growth.

3.6.2 Japan

The second largest importer of U.S. hardwood lumber in 1989 was Japan (Figure 1). Japan was considered a rapidly expanding market in the 1980's for U.S. hardwood lumber, growing from 6 MMBF in 1982 to more than 135 MMBF in 1989 (Hansen and Luppold 1992). Japanese GNP grew by 90 percent in the 1980's, and for every 1 percent increase in GNP, hardwood lumber imports from the U.S. grew by 2.5 percent (Hansen and Luppold 1992). Also, the U.S. dollar devalued by 50 percent against the Japanese yen in the 1980's, making U.S. hardwood lumber more affordable to the Japanese (Hansen and Luppold 1992). Tropical lumber prices in the 1980's increased by over 21 percent making U.S. hardwood lumber very attractive (Hansen and Luppold 1992). There was a huge drop of U.S. hardwood lumber exports to Japan

in the late 1990's. Japan was severely impacted by the Asian economic crisis that began in the 1998, and has not yet shown any signs of recovery (Bumgardner and Hansen 2001).

Japan imports most of the wood products they consume from several different regions of the world (Puttock et al. 1994). Japan's wood products industry has traditionally purchased roundwood and manufactured panels, lumber, and other products on their soil. More recently, they have been forced to purchase the manufactured products due to log export restrictions in the Philippines and Indonesia (Puttock et al. 1994). Knowledge of this and other changes may help U.S. exporters position themselves to increase markets in Asia.

3.6.3 China

U.S. hardwood lumber exports to China and Hong Kong (Figure 3.1) over the last 13 years have shown a market shift. Since governmental reforms in 1978, China's working class income has been growing at a rate of 10% per year (Zhang et al. 1997). As the average annual income per capita continues to rise in China, consumption per capita will grow and the Chinese people will become more affluent. One estimate predicts roundwood consumption of China in 2010 to be close to roundwood production of the U.S. in 1992 (Zhang et al. 1997). Most of the growth in China's marketplace occurred after the 1998 Asian economic crisis, as their GDP remained stable through the period (Bumgardner and Hansen 2001). China was able to take advantage of the economic crisis and further develop many of their industries, including furniture manufacturing. Furniture manufacturers demand high quality hardwood lumber for their raw materials, and Appalachian hardwood lumber manufacturers can take advantage of their increased demand.

Many furniture manufacturers moved their production facilities from Japan and Taiwan to China or other southeast Asian countries because they offer cheap labor (Bumgardner and

Hansen 2001). Dongguan, China has begun developing the international reputation of the “Capital of Furniture”, and imports a great deal of the wood that is used for furniture through Hong Kong (Bronson 2002). Guangzhou, China, is one of the large industrial regions, manufacturing many products. One of the products manufactured in this region is furniture. Guangzhou is situated on the Pearl River of China, accessible by port (Bronson 2002). Shanghai and Beijing are also very important cities for furniture manufacturing, and these are important markets for U.S. hardwood lumber manufacturers.

China importers desire different hardwood species than importers located in Japan, Korea, and Taiwan. Furthermore, the Chinese command much lower prices (Sun et al. 1999). U.S. species exported to Asian countries show an increase of red alder (a western U.S. species) and yellow-poplar, and a decrease in red oak, white oak, ash, and hard maple (Bumgardner and Hansen 2001). Western red alder is a popular substitute for black cherry, and competition with this substitute product may be large for Appalachian hardwood lumber manufacturers (Bumgardner and Hansen 2001). Once stained, only a very discerning eye can notice the difference between the two species. Yellow-poplar is frequently used for interior parts, or can be stained to look like other species. Although, red oak, white oak, ash, and hard maple will continue to be important species for U.S. businesses exporting to the Asian market because they command higher premiums. Chinese businesses have indicated that price is the most important driver for buying hardwood dimension lumber (Sun et al. 1999). The best Chinese furniture manufacturers to target are located in the south, and are small to medium sized firms (Sun et al. 1999). U.S. businesses should keep this in mind when exporting to China.

China exports a great deal of furniture to the U.S. and Japan, and some is made with U.S. hardwood lumber species. Chinese businesses have been selling products that are more

competitively priced in these important markets (Bumgardner and Hansen 2001). This has caused displacement in the U.S. furniture industry. The furniture industry in the U.S. is struggling to compete with imports in domestic sales. Most of the competition in the furniture market is in less expensive product lines, where tropical hardwood species are popularly used by the Chinese. The U.S. imports negligible amounts of primary tropical hardwood products (Smith et al. 1995). Furthermore, the U.S. furniture industry uses only about 1.2 percent tropical species when manufacturing furniture (Smith et al. 1995). The Chinese have a competitive advantage due to cheaper labor and raw material costs. Hence, some U.S. furniture manufacturers are attempting to tighten up production costs and lower prices. Others are closing their factories and have begun working as marketing agents for the cheaper imported products (Miller 2002). Furthermore, there are fewer furniture factories operating in the U.S.

The Chinese have a very limited supply of raw materials due to overcutting and now a logging ban has further constrained local wood supplies. Hence China must import increasingly larger amounts of logs, lumber, and other forest products (Hammett et al. 2001). China's furniture industry uses equal amounts of particleboard and MDF with hardwood lumber and dimension products in the southern region of China (Sun et al. 1999). Hardwood lumber and dimension are purchased in the Northeast in much larger quantities, indicating the use of China's port Tian Jin for a great deal of hardwood lumber imports (Sun et al. 1999). Understanding important ports will help exporters in the U.S. understand the local customs for delivery of products.

Asian countries are frequently seen as very distant and different from U.S. markets, as traditions, religion, political systems, languages spoken, and business practices are very different than western businesses. Psychological distance creates a disturbance of the flow of information

between companies and markets (Dow 2000). For example, U.S. businesses are physically close to countries such as Mexico, although there are psychological distances due to cultural and language barriers. Psychological distance may impede managers efforts to export, but decreases with experience in international sales (Dow 2000).

3.6.4 Europe

In the past, appalachian hardwood lumber exporters most frequently sold to Europe (75 percent) or the Pacific Rim (65 percent) (Hammett and McNamara 1991; Hammett and DeForest 1993). These regions produce many fine secondary products that require the high quality of hardwood lumber manufactured in the Appalachian region. The region's wood products firms have been able to capture value through the increased export market entry, and serving these profitable markets will continue to be profitable because of ample and improving timber resources (Hammett and McNamara 1991). During the 1980's, hardwood lumber exports increased to European countries by nearly 2 ½ times according to U.S. Department of Commerce ship manifest data (Hansen et al. 1991). Furthermore, the value of Appalachian hardwood exports climbed from 1980 to 1988 by 289 percent (Hammett and McNamara 1991).

By 1990, the U.S. shipped over 250 MMBF of hardwood lumber per year to European countries. White oak exports were more than 3.5 times greater than red oak exports (Hansen et al. 1991). For example, 80 percent of Spain's hardwood imports are White Oak. Yellow poplar was seldom exported in 1981, but accounted for 10.2 percent of total hardwood lumber shipments to Europe by 1990. Several countries imported large volumes of non-oak hardwood species as well, all showing great potential for exports to the region.

Individual countries in the European market have different demands for hardwood lumber species and regional dependence. While the German imports grew slower than the rest of

Europe because of their vast domestic hardwood forest resources, the United Kingdom and Spain experienced rapid growth through the 1980's. Spain's entry into the European Community resulted in decreased trade barriers and increased imports of U.S. hardwood lumber.

Europe has a segregated region of consumers (U.K, Germany, and France) and suppliers (Scandinavia) (Puttock et al. 1994). Currency fluctuations can affect the competitiveness of U.S. wood in their marketplace. Although, several countries in Europe have switched to the Euro, which is valued similarly to the U.S. dollar. The European market is mature; growth paralleling with population growth (Puttock et al. 1994). Russia exports large quantities of wood to Japan, although there are limitations to logging in Siberia, where the majority of their resource is located (Puttock et al. 1994).

The next section will present information hardwood lumber mills need to understand when beginning or continuing to export products. International trade policies affecting hardwood lumber exporters need to be identified and explored, so that mills are fully aware of the international trade environment.

3.7 INTERNATIONAL TRADE AND THE U.S. FOREST PRODUCTS INDUSTRY

The international trade of forest products can be very confusing to the average Appalashian hardwood lumber sawmill. There are many variables impacting successful exporting. These differ between regions due to macroeconomic factors, such as per capita GNP, interest rates, exchange rates, tariff and non-tariff barriers (Puttock et al. 1994). Without understanding these factors, hardwood lumber mills may not consider exporting.

Domestic policies affecting international trade of forest products may be categorized into the following groups: timber pricing policies, health and environmental policies and standards, regional development and taxation policies, export restrictions, and product standards (Puttock et

al. 1994). These trade barriers are viewed as legitimate concerns by most. Subsidization of the forest products industry can create unfair price advantages for competitors (Puttock et al. 1994). Tariffs promote domestic industries limiting free trade. Although, these trade barriers are not promoted by free trade agreements, which exist throughout all regions of the world for general prevention.

Understanding regional trade zones with bilateral and multilateral trade impact would be helpful to potential hardwood exporters. The largest free trade agreement is the World Trade Organization (WTO), which was established in 1994 during the Uruguay Round of the General Agreement on Tariffs and Trade (GATT). The WTO administers and implements multilateral trade agreements for 132 countries legally bound to the WTO agreement. The Uruguay Round heavily impacts the forest products industry, because member nations were required to phase out tariffs on pulp and paper, and reduce tariffs on solid wood products by 50 percent (Ruddell et al. 1998). The Uruguay Round also addressed non-tariff trade barriers important to the forest products industry, the Agreement on the Application of Sanitary and Phytosanitary Measures, and the Agreement on Technical Barriers to Trade (Ruddell et al. 1998).

New international agreements will develop as world trade continues to grow. Of note is the continual increase in certified forest products, leading to increased recognition by consumers. Hardwood lumber manufacturers will be challenged to continually strive to understand and comply with these trade policies as they develop new and enlarge previously established export markets.

3.8 SUMMARY

Exporting can benefit economies by “enriching foreign exchange reserves, provide employment, create backward and forward linkages, and ultimately lead to a higher standard of

living” (Leonidou and Katsikeas 1996). There is great potential to bring these benefits to rural locations in the Appalachian mountains through hardwood lumber exports.

This review has confirmed key areas that need focus during this study. Background information on the hardwood lumber industry in the eastern U.S. revealed ample raw material resources and lumber output per state to support export market growth. The general description of the hardwood lumber industry can help us prepare an exporter profile. Previous export research helped to develop a better understanding of techniques hardwood lumber manufacturers and other industries use to export their products. Business and production characteristics of hardwood lumber manufacturers influencing export marketing. Past research showed hardwood lumber exporters exceeded nonexporters in production volume, number of employees, quality lumber grades, production of red and white oak species, and product line diversity of species. Management characteristics of exporters indicate the age and education of sales managers, presence of communication equipment, level of advertising, and diversity of products and helped them meet customer demand, especially outside their immediate region. Hence, they were more likely to export.

Nonexporters were determined to have a significant barrier to accessing the export market. Nonexporters have apprehensive managers, unaware of benefits from exporting and entering international markets. To better promote exporting, businesses need product and market specific information on foreign markets.

Important hardwood lumber export markets are Canada, Japan and China, and several European countries. Knowledge of trade agreements and how to cope with trade barriers will help exporters compete.

By reviewing literature in this chapter, I have identified influences on hardwood lumber export participation, but there is limited information on the management and marketing strategies of hardwood lumber manufacturers in the Appalachian region. Hence, more information needs to be collected to meet the objectives of this research. Most notable information gaps include knowledge of current export experience, level of access and use of export development programs, current key export markets, and mill production, marketing, equipment, and personnel attributes of the region's hardwood lumber industry. A great deal of information exists regarding exporting in general, little information provides a temporal analysis of hardwood lumber exporters and nonexporters. While the literature review identified general changes in the region's hardwood industry, we need more detailed current information about the industry so we may make comparisons with previous data. Mill export market experience needs to be determined since the previous survey in 1989. I must also identify key mill factors that lead to export marketing participation.

New information gathered will help to fill these information gaps and show how businesses have responded and changed since the last survey. Previous research indicates mill characteristics, marketing factors, and products of sawmills to be important deciding factors in export participation (Hammett et al. 1992). These variables will be explored in depth. Other specific variables will include the marketing and management techniques of exporters through time, the size of the business, equipment used or needed to export products, and identifying regions of the world that Appalachian hardwood lumber companies identify as important markets. The methods section will describe how these variables will be determined.

CHAPTER 4: METHODS

In 1989, a survey was conducted to learn more about hardwood lumber exporters in the southern Appalachian region. This data was preserved and shall be used to track changes in the region's hardwood lumber industry. As mentioned in the introduction, this study will be used as the foundation for current research to quantify objectives. The original study sample was conducted in West Virginia, Kentucky, Virginia, Tennessee, North Carolina, South Carolina, and Georgia. Based on the request of the USDA Forest Service, the study region has been expanded from seven southern states in the Appalachian region to include Ohio, Pennsylvania, and New York. The northern states have several important exporters of hardwood lumber products, which were important to capture in this study.

By conducting a survey across the region, specific questions could be asked of a cross section of the sector to determine current export experience, access and use of export development programs, key export markets, mill production, marketing, equipment, personnel and other attributes of the region's hardwood lumber industry. Furthermore, by using a questionnaire similar to the previous study in 1989, direct comparisons can be made about specific companies and changes throughout the region.

The 1989 questionnaire was revised and updated based on the Tailored Design Method (TDM), a newer, revised and improved version of the Total Design Method (Dillman 2000). The TDM method is a proven strategy to improve response rate and quality of data gathered through mail surveys, and it has been developed by a social scientist specializing in mail survey methods. The TDM is accepted in current forest products marketing research (Bowe et al. 2001). Previous hardwood lumber exporting research used the Total Design Method, published by Dillman in

1978 (McMahon and Gottko 1989; Hammett et al. 1991; Dickerson and Stevens 1998; Pitis and Vlosky 2000; Vlosky et al. 2002).

There were many changes made to the 1989 questionnaire that reflect Dillman's improved methods for collecting data. There were a few questions in the 1989 survey in a "circle all that apply" format, which has been proven recently by Dillman and others to create a primacy effect. The respondent circles a few answers without addressing each selection criteria. Therefore, the formats of the questions were changed to check boxes with a "yes" and "no" column. Several questions from the 1989 survey were reformatted to be less confusing. For example, some questions asked for a percentage of total mill production. The Virginia Tech Center for Survey Research reviewed the old questionnaire and pointed out that some respondents will not add the percentages to 100%. The investigator would have to interpret responses before using them. Most questions from 1989 were used in the 2002 questionnaire to enable direct comparisons between years. These improved survey methods allow us to design the new questionnaire in a manner that will better represent the true capabilities, attitudes, and mill equipment found in Appalachian hardwood lumber manufacturers today.

The 1989 survey was conducted using several modes of inquiry, including mail, fax, and phone call follow-up. New research reveals an increased chance for error is introduced when multiple modes are used to gather information (Dillman 2000). The new questionnaire was designed for delivery by mail only, and other modes of inquiry were not included. The Tailored Design Method is the basis for the following procedure for implementing this survey:

1. Brief pre-notice letter sent 2 days before questionnaire.
2. Questionnaire mailing including a detailed cover letter.
3. Thank you postcard sent a few days to a week after questionnaire.

4. Replacement questionnaire is mailed 2-4 weeks after first, urging response.
5. Final contact made by phone, Federal Express or Priority Mail used to send questionnaire to mills willing to respond.

In the 1989 study, 2,225 businesses were identified as hardwood sawmills. 890 firms were surveyed, creating a 40% total weighted sample. A weighted sample for each state was determined by hardwood sawtimber volume available from USDA Forest Service Forest Inventory and Analysis data (FIA). For the 2002 data, the same 40% weighted sample was used to select the sample, although I used total lumber production per state instead of FIA. This information is available through the U.S. Department of Commerce in the Census Bureau (U.S. Department of Commerce 2002).

In 2002, a database of contact information on hardwood lumber manufacturers from the study region was built using published state wood using directories. Extensive research was conducted to gather the names, addresses, and contact information for all hardwood lumber mills. In all, 2120 hardwood sawmills were identified across the 10 state region. All hardwood lumber mills were included in the population except for portable sawmills, which were not considered commercially viable. As mentioned earlier, the previous study did not survey New

Table 4.1: Sampling Distribution

State	Lumber Production (MMBF) in 2001	% Weighting Percentage	Total Population	1989 Sample	Random Sample	Total Sample
PA	1081	17.4	307	0	148	148
TN	860	13.8	361	26	91	117
VA	855	11.3	186	31	65	96
WV	705	13.7	189	8	108	116
NC	692	11.1	150	41	53	94
KY	683	11	228	24	69	93
GA	431	6.9	102	25	34	59
NY	411	6.6	303	0	56	56
OH	360	5.7	246	0	48	48
SC	137	2.2	48	26	0	26
	6215	100%	2120	181	672	853

York, Pennsylvania, or Ohio. These states are important regions for this study, and were included because they are expected to show interesting trends regarding their exporting practices. For the 1989 study, a 40% sample was randomly selected of the population. This study uses the same sample size. 40% of the total population of sawmills in the 10 state region is 848 businesses.

Individual sample size per state was determined by estimating the fraction of total production for the 10 state region. Table 4.1 describes the sampling distribution. For example, Pennsylvania manufactured the most lumber in the study region in the year 2001, approximately 1081 MMBF according to the U.S. Census Bureau. 1081 MMBF was divided by the total lumber production in all states (6215 MMBF) to determine the individual state weighting percentage, which was 17.4%. The total sample was 848, and 17.4% of 853 is 147.552; rounded up to 148. Therefore, 148 mills were randomly selected in the state of Pennsylvania. Several states were rounded up for their sample, creating slightly more than a 40% total sample of 853 businesses. There were no identified respondents from the 1989 study, because Pennsylvania was not included. Businesses responding to the questionnaire in 1989 were selected for the sample first. If more companies were needed to meet the total sample for the individual state, they were randomly selected from the appropriate state directory and added to the sample. In this way, the sample was weighted to reflect the true aspects of the Appalachian hardwood lumber industry as a whole. There are targeted businesses in the sample that will provide the study important information necessary to meet the objectives. After rounding up the sample size for some states, the total sample was 853 hardwood lumber mills.

The businesses responding to the 1989 and 2002 study have been operational for an extended period of time, through changing economic conditions and vast consolidation in the

industry. They have constant competition in a business introduced to new technology and improved processing. Furthermore, because they responded in 1989, they are more likely to answer to questionnaires repeatedly. It may be possible to consider this sample of the population as significantly different from the rest of the population. Although, these businesses were randomly selected in 1989. There are other large players in the hardwood lumber industry that are not part of this sample and have similar characteristics. We may support the assumption for randomness in the sample by assuming these businesses randomly responded in 1989, and randomly are still in business today.

Two analyses were conducted using the data obtained from the 2002 study and 1989 study to learn more about exporters and nonexporters. First, the data was analyzed from the current findings in the 2002 study. Information gathered in the 2002 survey will help fulfill objective #1: determining current export experience, access and use of export development programs, key export markets, and mill production, marketing, equipment, personnel and other attributes of the region's hardwood lumber industry. Data on exporters and nonexporters was separated and descriptive statistics were calculated. Further analysis was conducted to determine significant differences and associations between exporters and nonexporters. Chi square tests were used for nominal data association and t-tests were used for nominal and interval data association. Results from this analysis are in chapter five.

Second, exporters that responded to both surveys in 1989 and 2002 were analyzed to learn how exporting businesses have changed through time. By analyzing these businesses, objective #2 can be fulfilled: determining significant changes in the region's hardwood industry in the past 15 years, and in particular mill export market experience, since the previous survey. Again, descriptive statistics were calculated between the exporters in 1989 and 2002. Because

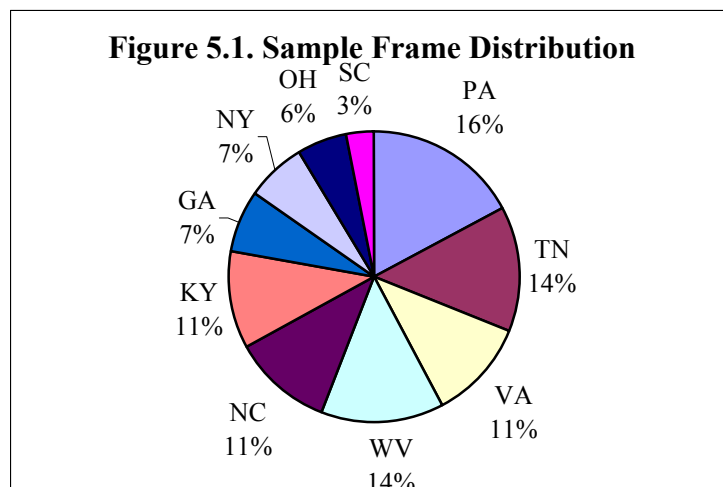
the sample is the same businesses in two different times, different statistical tests for data association must be used. For nominal data association, the McNemar exact estimate of p will be used. The sample size is smaller than 30, and I calculated the exact estimate of p using the McNemar test. If the sample size was larger than 30 businesses, the McNemar test would use a chi square estimation to estimate p. For nominal and interval data association, paired t-tests will be used to test for significance. Results from this analysis are in chapter 6. Both analyses will help fulfill objective #3: identify key factors that lead to export marketing participation. This objective will be discussed in chapter 5 and 6.

CHAPTER 5: RESULTS AND DISCUSSION

Data collection was conducted across the ten state region according to the methods section. This chapter discusses the results of the survey conducted in 2002, identifying key variables that are significant indicators of export participation. Of the 853 mills that were sent a survey, 57 were returned due to bad addresses, 13 businesses indicated they had gone out of business, and 69 businesses indicated they do not sell hardwood lumber. There were 214 businesses that responded to the questionnaire. The adjusted response rate is 29.97%.

Respondents to the 1989 survey were matched with their current address and phone numbers found in the most recent state directories. From the 493 respondents in 1989, 181 respondents were identified, in a similar location, with the same name today. The rest of the original respondents may have changed ownership, closed, changed names, or otherwise lost. The 181 identified mills were extracted from the new and updated database of hardwood lumber manufacturers. These businesses were targeted to meet the second objective: to determine significant changes in the region's hardwood industry in the past 15 years, and in particular mill export market experience. By collecting two sets of data for the same business, changes in their business and marketing practices can be determined.

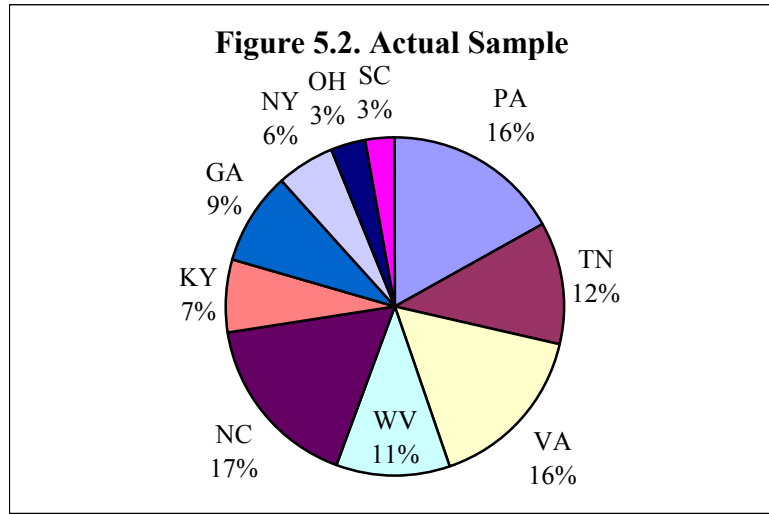
As mentioned earlier, the sampling distribution was weighted according to the annual hardwood lumber volume production per state in 2001. The total hardwood lumber production per state was



calculated and totaled, and the sample frame distribution is represented in Figure 5.1.

Pennsylvania (16%), Tennessee (14%), and West Virginia (14%) manufactured the most lumber in 2001, therefore they were weighted heavier. South Carolina (3%), Ohio (6%), New York (7%), and Georgia (7%) manufactured the least and were weighted lighter than other states.

The actual sample is fairly close to the intended sample frame distribution, shown in Figure 5.2, varying by only a few percentage points for each state sampled. A word of caution should be mentioned, because the actual sample reflects heavily on

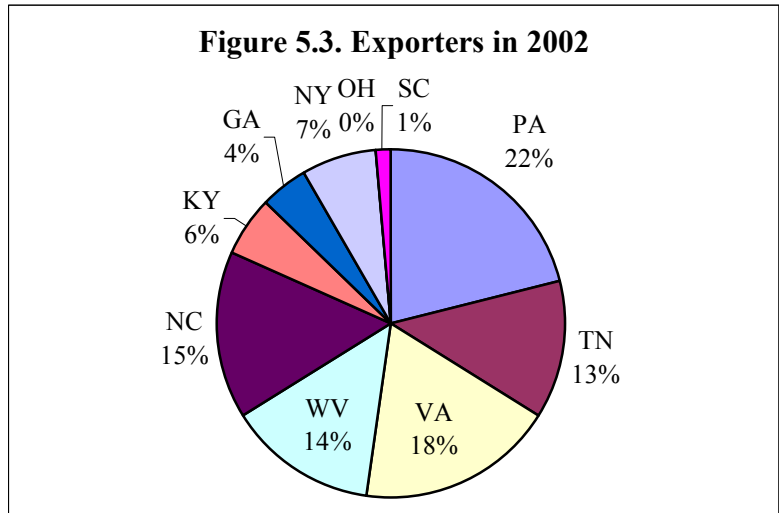


centrally located states in the Appalachian region. States lying on the edge of the Appalachian region, including New York, Ohio, Georgia, and South Carolina, did not represent a large portion of the actual sample.

Data from the 214 usable respondents were separated into exporters and nonexporters to analyze the data and determine export participation variables. There are 71 exporters and 143 nonexporters in the actual sample. Exporters represent 1/3 of the sample. A test of non-response bias was conducted to determine if the study truly captured a representative sample of the population. 30 businesses were telephoned and asked three questions: mill production size, number of employees, and export participation. Only 20% of the respondents in the test for non-response bias were exporters, a smaller fraction of exporters in the sample.

By creating pie charts of the exporters and nonexporters sampled, we can observe the sample exporters were most prominent in Pennsylvania, Virginia, West Virginia, North Carolina, and Tennessee. There were no exporters sampled in Ohio and only one in South Carolina. No hardwood lumber was exported from these two states, and the sample did not capture any businesses actively exporting. This does not indicate that Ohio and South Carolina do not have any hardwood lumber exporters.

Rather, it means the sample did not include any exporters. Because the sample is so heavily weighted in Pennsylvania, species and the grades sawn may reflect more northern species such as hard maple and cherry.



5.1 OBJECTIVE 1

5.1.1 Current Export Experience

One third of the businesses surveyed indicated they export hardwood lumber. The test for non-response bias indicated 25% of non-respondents were exporters. This close percentage suggests the survey accurately captured the population of hardwood lumber manufacturers in the Appalachian region, although no statistical tests were used to compare non-response bias.

5.1.2 Business Size

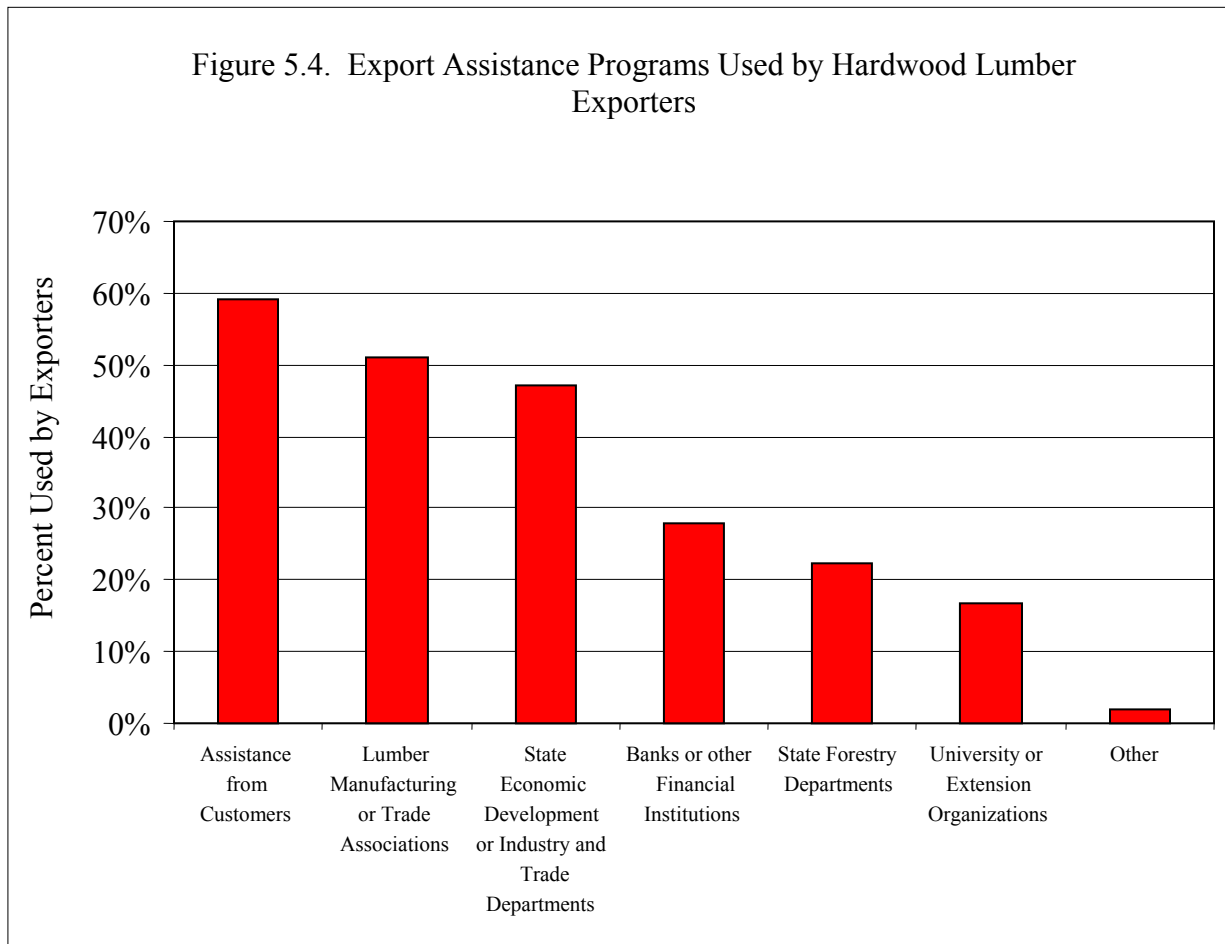
Table 5.1 Business Size

	Exporters			Nonexporters		
	N	Mean	SD	N	Mean	SD
Number of Mill Locations	69	1.8	2.1	142	1.1	0.3
Number full time production employees per mill	66	60.5	44.2	139	17.0	15.1
Years mill has been operational	69	39.4	24.8	140	32.6	19.5
Annual Mill Production (Board Feet)	70	11,890,385	10,542,783	129	5,500,303	11,035,452
Percent Kiln Dried	68	38.0%	32.4%	133	7.9%	24.2%

In general, exporters tend to be larger businesses, manufacture more lumber, have more mill locations, and more employees. Exporting businesses may be twice the size of non-exporting lumber companies, averaging 11.9 MMBF per year, and non-exporters averaged 5.5 MMBF annually. Exporters averaged nearly two mill locations, and non-exporters averaged close to one facility. In fact, only one non-exporter had more than one mill facility. Additionally, exporters averaged just over 60 employees, while non-exporters averaged 17 employees. This suggests the need for more salespeople and support staff for larger businesses.

Furthermore, exporters were more established businesses. Exporters had been in business 38.4 years, compared to non-exporting businesses averaging 31.6 years in business. Most hardwood lumber businesses are smaller, family owned businesses. If this is the case, the average hardwood lumber mill owner has worked nearly his or her entire career in the hardwood lumber business.

5.1.3 Access and Use of Export Development Programs



There are many different forms of export development programs available to hardwood lumber businesses. Previous research conducted in the late 1980's indicated public sources of export development programs to be used most frequently. For this study, the answer choices in the questionnaire were increased to include two new categories, as displayed in figure 5.4. Three types of assistance were used the most frequently by respondents: assistance from customers, lumber manufacturing or trade associations, and state economic development or industry and trade departments.

Nearly sixty percent of the businesses that responded to this study receive assistance from their customers. Perhaps foreign businesses may be familiar with local logistics within their own

countries, financing, and insurance. Overseas customers may be very specific about what products they desire and how a mill can help serve them better. Once a business has found a good hardwood lumber supplier that meets its needs, it may be more willing to return for repeat business.

Over half the businesses in this study use lumber manufacturing or trade associations, such as the National Hardwood Lumber Association (NHLA). The NHLA prepares directories of its members for international customers and a host of other services for their members. Furthermore, just under half the responding mills indicated they use state economic development or industry and trade departments. This source of assistance continues to be popular with hardwood lumber exporters. Less popular forms of export assistance include banks or other financial institutions, state forestry departments, and university or extension organizations.

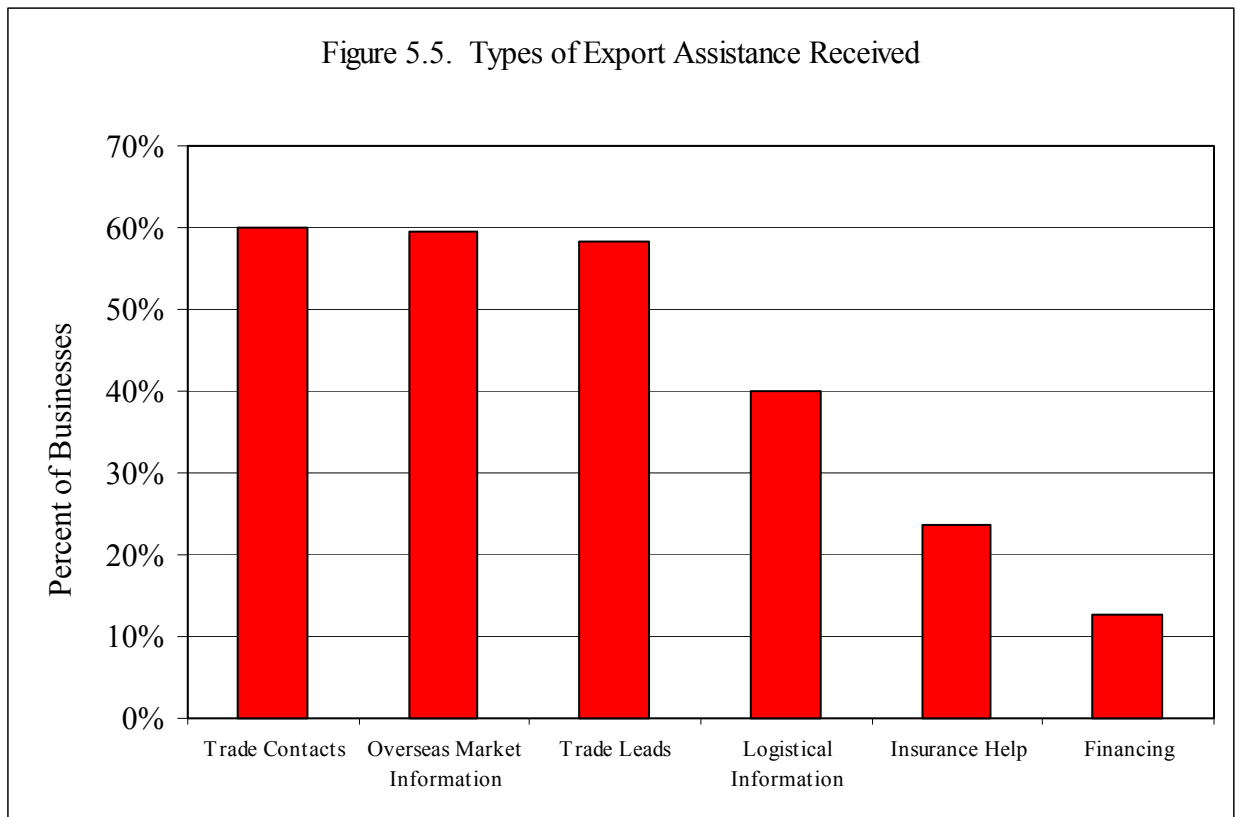
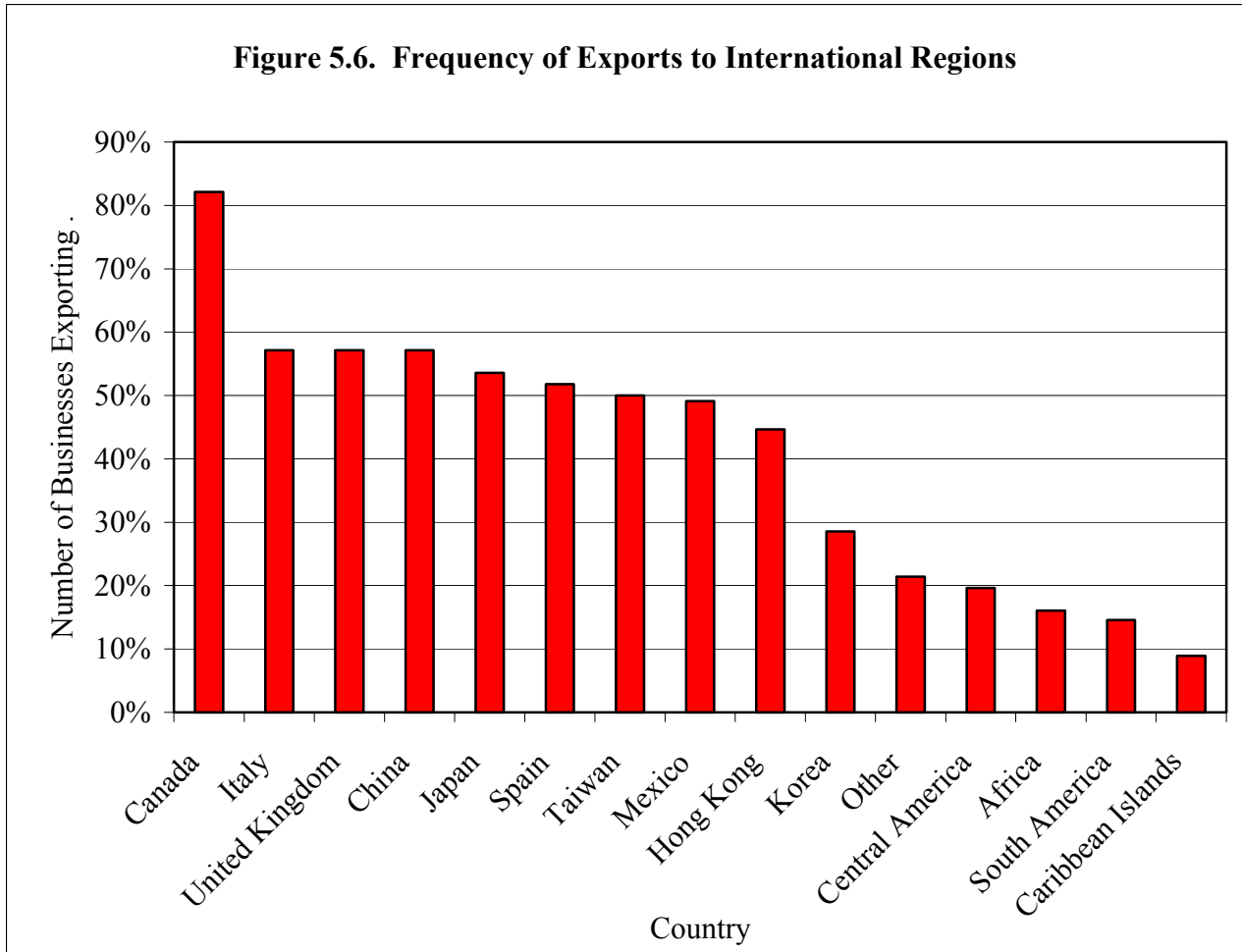


Figure 5.5 displays the types of export assistance received. The type of assistance most frequently received by 60% of the businesses was trade contacts, overseas market information, and trade leads. This is consistent with Ifju and Bush's findings (1994), as they were perceived to be the most useful types of assistance. Logistical information was received by 40% of the businesses, probably relating to information on domestic and international ports. Ifju and Bush (1994) determined U.S. hardwood producers usually do not need assistance with transportation routes or shipment consolidation. Insurance help was received by 25% of the exporters. Financing was not received as frequently by hardwood lumber exporters through available assistance programs. Perhaps they received this assistance through their preferred financial institution.

5.1.4 Key Export Markets

In the past, Europe has been considered one of the hottest markets for U.S. hardwood lumber. Today, over 80% of exporting businesses sell some lumber to customers in Canada (Figure 5.6). In 2001, the U.S. sold over 900,000 cubic meters of wood to Canada (U.S. Department of Agriculture 2002). This is more than twice the volume exported to any other country. As identified in the literature review, almost half of the customers in Canada were brokers, agents, and wholesalers in 1993 (Armstrong et al. 1993). These traders are able to repackage, refinish, or market the products differently and more effectively to markets in Europe and abroad. Although no analysis was conducted on regional exports, Canadian exporters may be concentrated in the Northern areas surveyed in this study, close to the U.S. – Canada border. Furthermore, they may be smaller manufacturers that are unable to provide the same marketing services of larger brokers and traders.

Figure 5.6. Frequency of Exports to International Regions



The literature review indicated the second largest consumer of U.S. hardwood lumber was Hong Kong and China. Results from this study are consistent with data from the USDA Foreign Agriculture Service. Of the businesses that responded to this study, 34 of 56 businesses export to Hong Kong or China. This is a large shift in hardwood lumber exporting, and it continues to become one of the largest growing markets. China's average household income continues to grow as the citizens elevate from a third world country into an industrial manufacturing empire. A large portion of U.S. hardwood lumber is re-manufactured into furniture in Asia and exported to the U.S. or Europe. It is unknown how much of the finished product is being consumed in Asia or is being re-exported out of the country, perhaps to the U.S.

The results in this study indicate a grouping of export frequency to countries after Hong Kong and China. About 50% percent of the respondents export to Italy, the United Kingdom, Japan, Spain, Taiwan, and Mexico. Volume data from the USDA FAS indicates Mexico is the next largest consumer (U.S. Department of Agriculture 2002). Although significantly less volume is exported to these countries than to Canada, Hong Kong, and China.

This study also gathered information about export distribution channels, which is displayed in table 5.2. One third of the businesses in this study sell products indirectly using a U.S. based agent or broker. These are probably smaller businesses with less marketing resources. Some businesses have found foreign brokers work just as well; 21% sell indirectly using a foreign based agent or broker. These agents or brokers have a large advantage, with networks overseas and language skills to be able to negotiate with buyers and sellers. Most businesses start exporting by using brokers, because they don't have to worry about gaining the skills necessary for successful transactions. Brokers alleviate a certain amount of risk associated with exporting. The manufacturing mill does not have to worry about documentation, insurance, ports, or trade barriers. Interestingly, there has not been any information published on this group of forest products exporters.

Table 5.2 Average percentage of export sales volume through distribution channels

	Exporters		
	N	Mean	SD
Sell indirect using a U.S. based agent or broker	55	33.1%	40.9%
Sell direct to the customer	54	29.1%	34.7%
Sell indirect using a foreign based agent or broker	54	21.4%	30.5%
Sell to a foreign trading company	54	6.5%	19.8%
Other method	54	0.9%	5.5%

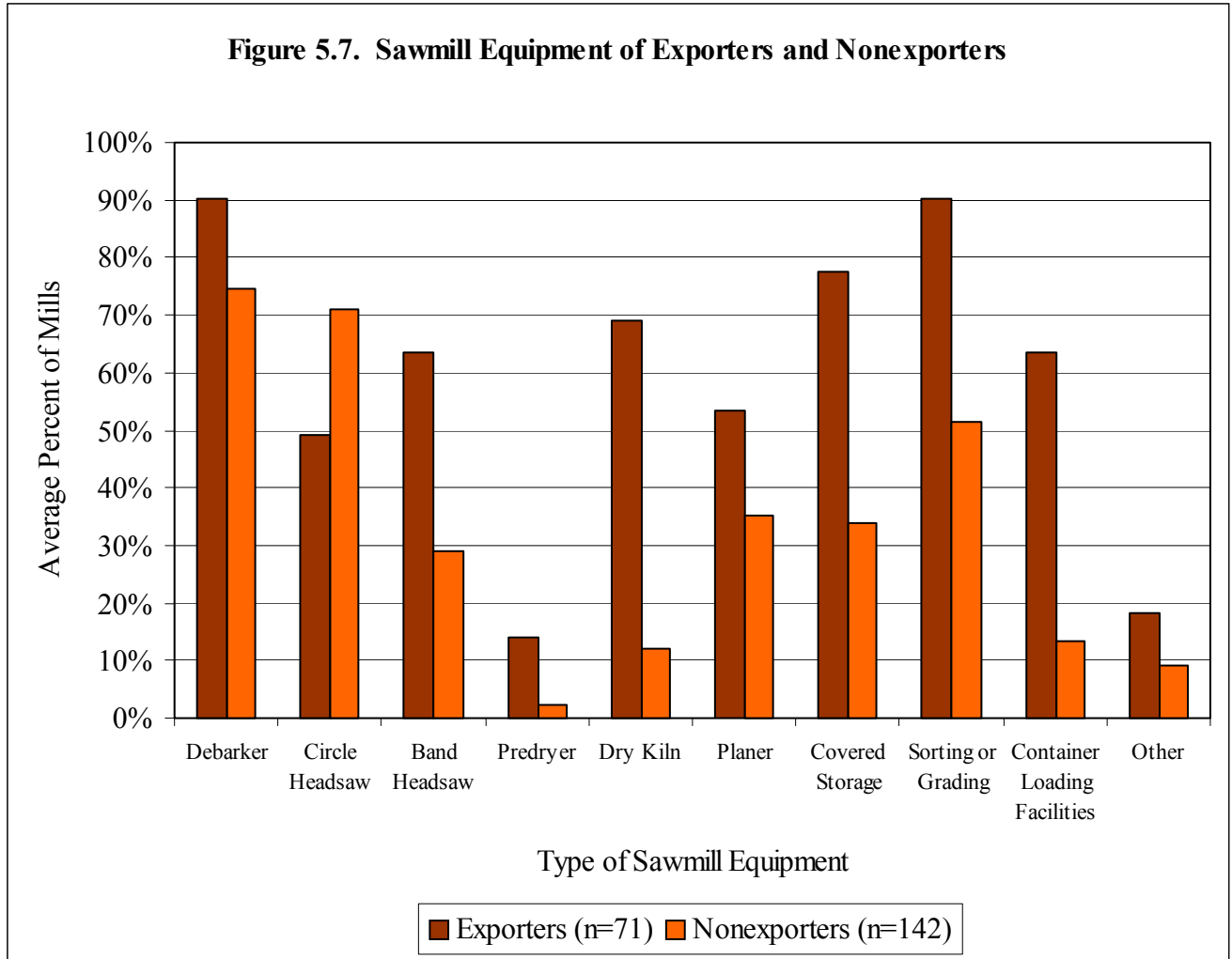
Only about 20% of the businesses sell directly to the overseas customer. These are probably large companies with experienced international marketers, such as Georgia Pacific, Allegheny Wood Products, and Baille Lumber company. This distribution channel is most favorable because the hardwood lumber mill is able to capture the most value by selling their product further down the marketing chain and cutting out intermediaries. Previous studies showed a desire for businesses to sever the ties with brokers and sell their products directly to the end user (Dickerson and Stevens 1998). As businesses become more comfortable with exporting, they begin to take on the intermediaries responsibilities and more often deal directly with their overseas customers.

A very small percentage of hardwood lumber mills use a foreign trading company. An example of this type of business is the Japanese *sogoshosha*. These businesses import, export, counter-trade, invest, and manufacture (Czinkota and Ronkainen 2002). Most importantly, they operate at very low profit margins, and specialize in trading large volumes of products. Previous studies from the late 1980's and early 1990's indicated foreign trading companies were not used by hardwood lumber exporters. Although, the 1990's was a growing time period for Japanese firms, as they began to set up global networks by trading between other countries and establishing joint ventures in rapidly newly developing markets (Czinkota and Ronkainen 2002). Since only 7% of respondents in this study use foreign trading companies, this indicates a shift from use of such export intermediaries.

5.1.5 Mill Production, Marketing, Equipment, Personnel, and Other Attributes

Previous studies indicated exporters were differentiated from nonexporters by mill production factors, marketing, equipment, personnel, and other attributes. This study was

interested in determining current use and interaction with each of these variables. Several questions were asked in the survey to determine current association or differentiation.



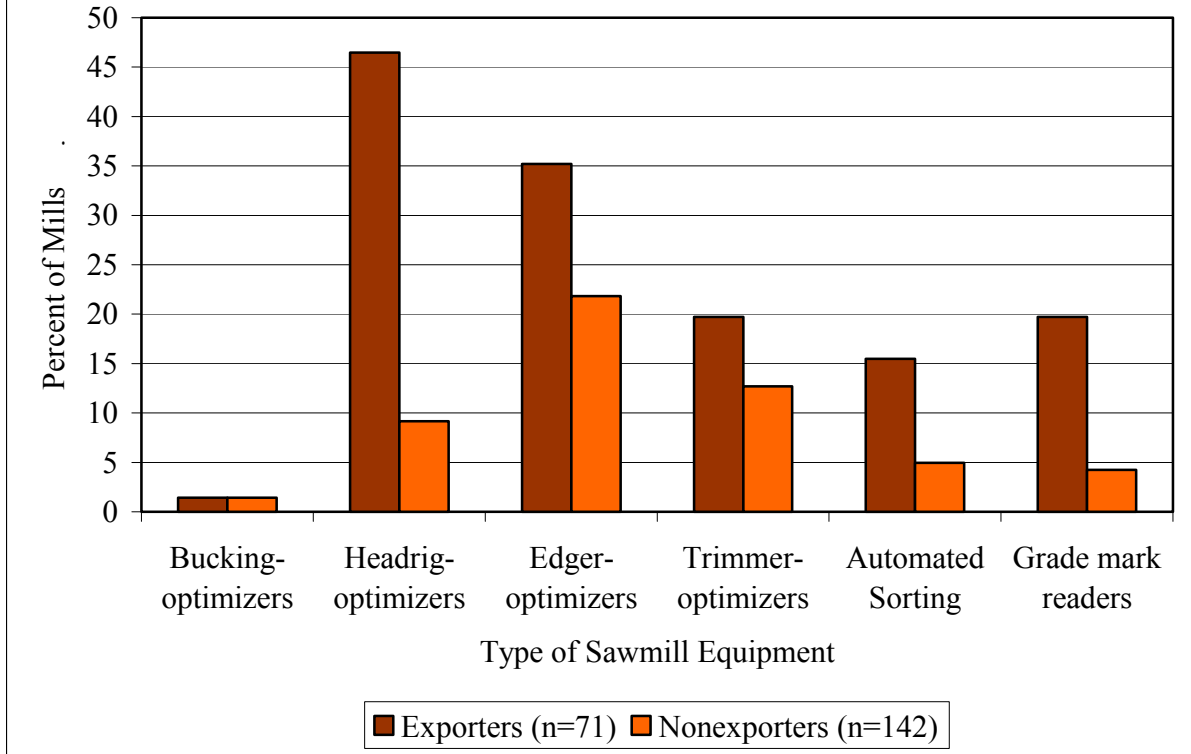
Businesses were asked to indicate the types of sawmill equipment they owned and used to manufacture hardwood lumber. Figure 5.7 displays a comparison of equipment used by exporters and nonexporters. Two important differences can be noted. The first is that more exporters use band headsaws than circle headsaws. Exporters seek maximum efficiency in the manufacturing of their products, reducing kerf and yielding higher volumes from their raw material resource. The second key differences in exporters is more finishing services, such as

drying, planning, sorting and grading, storing, and shipping. When hardwood lumber is shipped overseas, it must be dried and graded. If a hardwood lumber company ships green lumber, it would be severely stained and warped due to extreme conditions at sea. However, green lumber manufactured in New York may be shipped by truck to Canada, where it is dried, graded, and used or re-exported. Exporters usually sell graded and sorted lumber because customers require such product. NHLA grading standards are frequently used when selling abroad, although there are opportunities for proprietary grades in certain markets.

A chi square test was used to measure association between sawmill equipment and export participation. The null hypothesis in a chi square test is “no association”, and the alternative hypothesis is “some association”. Using $\alpha = 0.05$ and $df = 1$, we reject the null hypothesis if $X^2_{obs} > 3.841$. All X^2_{obs} were greater than 3.841, therefore we reject the null hypothesis and accept the alternative hypothesis. There is an association between sawmill equipment listed in Figure 5.7 and export participation. Exporters have specific equipment that non-exporters may not find necessary in their manufacturing processes.

Businesses were also asked to indicate if they owned and used high technology optimizing sawmill equipment. Figure 5.8 displays over 45% of exporters in this study indicated they have headrig optimizers. Furthermore, a higher percentage of exporters use optimizing equipment than nonexporters. This helps support other observations related to processing efficiency. Exporters invest more in their equipment to yield and optimize their raw material resource.

Figure 5.8. High Technology Sawmill Equipment of Exporters and Nonexporters



The same chi square test was used for the high technology optimizing sawmill equipment as the other standard equipment. Association exists between export participation and ownership of headrig-optimizers, edger-optimizers, automated sorting, and grade mark readers. There is no association between export participation and ownership of bucking-optimizers and trimmer-optimizers. Since so few respondents indicated they have bucking optimizers, it may be irrelevant to the study.

Another important aspect of mill production is the grades manufactured. Individual mill production was calculated for each grade, and average volumes are displayed in table 5.3. Exporters average production is much larger for higher grades of lumber, including FAS / 1-Face or Selects, No. 1 Common, and No. 2 Common. Furthermore, pallet stock was manufactured by

nonexporters in much larger quantities. To compare the means between exporters and nonexporters, independent t-tests were used to determine significant relationships.

Table 5.3 Total average volume of hardwood lumber grades manufactured per mill

	Exporters			Nonexporters			tobs	p-value
	N	Mean Volume		N	Mean Volume			
		MMBF	SD		MMBF	SD		
FAS / 1-Face or Selects	44	3.6	3.4	124	0.6	0.8	8.61	0.00
No. 1 Common	44	3.3	3.0	124	1.0	1.7	6.79	0.00
No. 2 Common	44	2.3	2.7	124	0.8	1.2	5.29	0.00
No. 3 Common	44	0.9	1.0	124	0.5	0.9	3.26	0.00
Wood Components	44	0.1	0.4	124	0.1	0.4	0.12	0.91
Pallet stock	44	1.8	4.5	124	2.5	10.6	-0.63	0.53
Other	44	0.2	0.3	124	0.2	0.8	-1.08	0.28

Although, as explained earlier, exporters manufacture much larger quantities of hardwood lumber than nonexporters. It helps to evaluate this information by calculating the percentage manufactured by each grade for exporters and nonexporters. This allows an evaluation of production regardless of the boardfeet that are actually manufactured. Table 5.4 displays the percent volume of each grade manufactured. Over 75% of the volume manufactured by exporters is in the top three

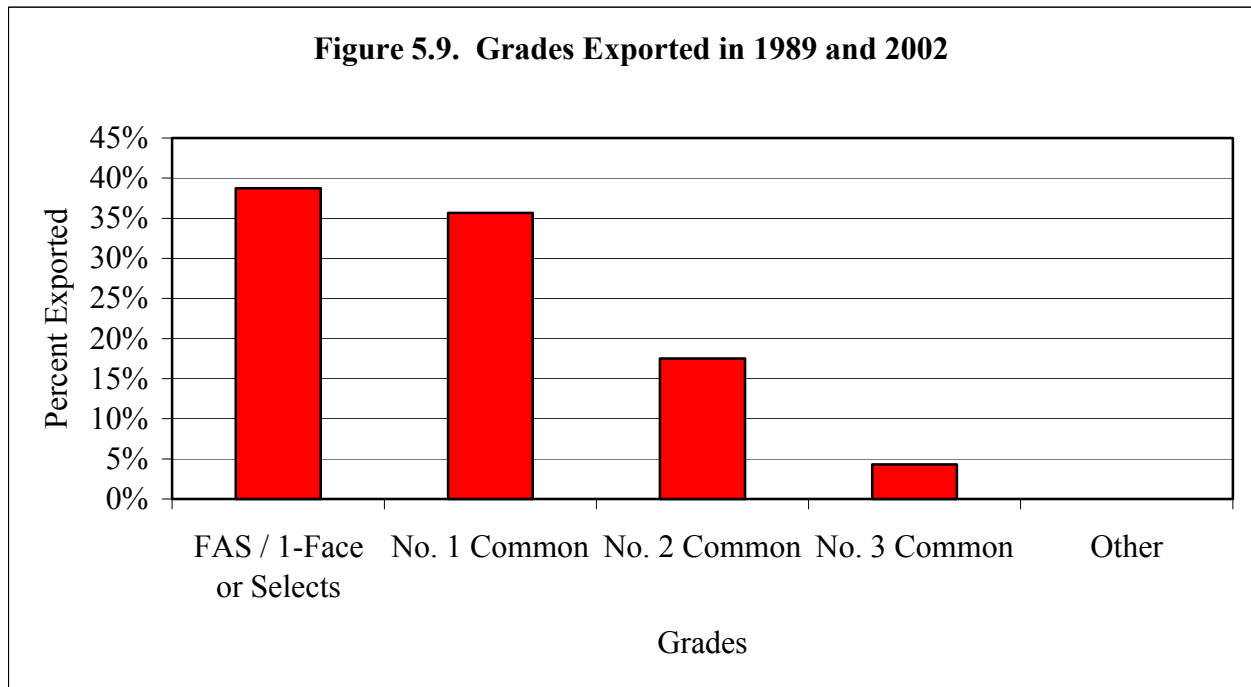
grades. Nonexporters manufacture smaller percentages of the higher grades, but most of the volume manufactured is pallet stock. When the percentages of the top three grades are added together,

Table 5.4 Percent volume of each grade manufactured

	Exporters	Nonexporters
FAS / 1-Face or Selects	29.5%	11.2%
No. 1 Common	27.1%	17.4%
No. 2 Common	19.0%	14.2%
No. 3 Common	7.2%	8.0%
Wood Components	0.8%	1.6%
Pallet Stock	15.0%	43.4%
Other	1.3%	4.2%

the sum is less than the percentage of pallet stock manufactured for nonexporters. This agrees with the information presented in table 5.3.

Most of the hardwood lumber exported is graded FAS / 1-Face or Selects and No. 1 Common. The questionnaire provided an opportunity for respondents to indicate if they exported wood components, pallet stock, or other products. None of the mills indicated any additional exports from these categories. Figure 5.9 displays this information.



Both exporters and nonexporters were asked to identify the products they sell. Some of the businesses may trade additional products not manufactured at their facility, or the question may not have been worded properly. A chi square test was conducted to determine the association between products sold and export participation. Table 5.5 presents the results from the data collected and the statistical analysis. A chi square test was used to measure association between the products sold and export participation. The null hypothesis in a chi square test is

“no association”, and the alternative hypothesis is “some association”. Using $\alpha = 0.05$ and $df = 1$, we reject the null hypothesis if $X^2_{obs} > 3.841$. X^2_{obs} were greater than 3.841 for rough kiln dried lumber, planed lumber, and millwork.

Table 5.5. Product Descriptions of Appalachian Hardwood Lumber Mills

	Exporters		Nonexporters		X^2_{obs}	p-value
	N	Mean (%)	N	Mean (%)		
Products sold						
a. Rough green lumber	70	95.7	140	89.3	2.46	0.12
b. Rough kiln dried lumber	70	71.4	140	13.6	70.81	0.00
c. Veneer	70	28.6	140	32.9	0.40	0.53
d. Planed lumber	70	62.9	140	29.3	21.83	0.00
e. Pallet stock	70	81.4	140	73.6	1.59	0.21
f. Component parts / Dimension	70	25.7	140	17.1	2.14	0.14
g. Railroad ties	70	51.4	140	48.6	0.15	0.70
h. Millwork	70	21.4	140	10.0	5.12	0.02
i. Flooring	70	25.7	140	25.0	2.58	0.28
j. Pallets	70	20.0	140	21.4	0.06	0.81
k. Other products	70	11.4	140	10.0	0.92	0.63

The level of marketing experience at a business was measured by the number of sales people in a business, the education level of the primary sales people, and the number of years of experience in hardwood lumber sales. The average number of sales people per business is significantly higher for exporters than nonexporters in this study. On average, the number of salespeople is 3.5 people for exporters, and only 1.8 for nonexporters. These findings are similar to those of previous studies (Ifju and Bush 1993; Dickerson and Stevens 1998).

The education level of the primary salesperson was shown in previous studies to be a very important aspect of differentiating exporters from nonexporters (Hammett et al. 1991). Several education categories were used, ranging from less than high school to a bachelors degree in forestry or another discipline. Exporters more frequently have completed a bachelors degree,

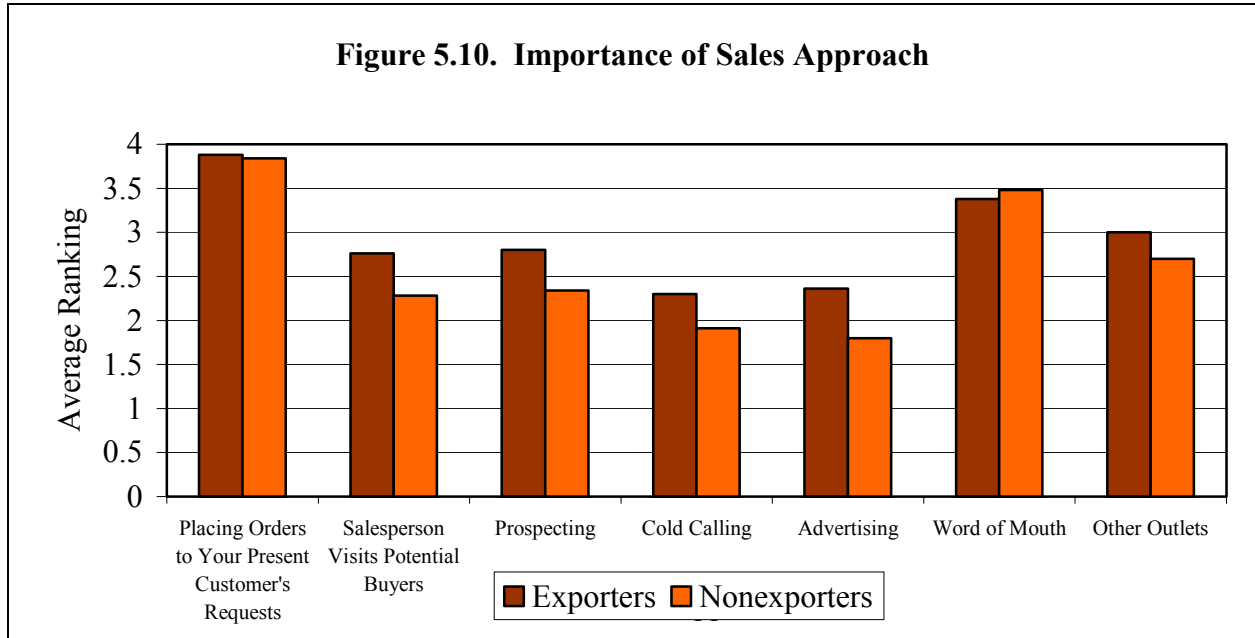
and nonexporters more frequently completed only a high school education or technical education. Exporting companies may place more emphasis on formal advanced education than nonexporters.

The number of years of selling experience is important when selling and marketing hardwood lumber products. Both exporters and nonexporters indicated the primary salesperson had much experience. The average for exporters and nonexporters was very similar – both having more than twenty years experience. It is possible that the increments used in the questionnaire did not capture the level of advanced experience.

Businesses were asked to indicate the manufacturers they sold to in the previous year by the percent of total sales. This question was asked to determine the importance of different markets for exporters and nonexporters. The most important markets for exporters were other distributors, brokers, pallet mills, flooring, millworkers, and furniture manufacturers. For nonexporters, the most important markets were pallet mills, brokers, distributors, furniture manufacturers, and flooring manufacturers. This confirms exporters sell to higher value markets.

Businesses were asked to rank the importance of several different selling techniques on a four point scale, one was the least important and four was the most important. The most important selling technique for both exporters and nonexporters was placing orders to meet current customer's requests, followed by word of mouth. This sales technique suggests most hardwood lumber businesses are passive order takers instead of proactive marketers. Figure 5.10 shows this relationship between exporters and nonexporters. Another relationship exists with 4 other categories, which may be considered aggressive sales approaches. When a salesperson visits potential buyers, is prospecting, cold calling, or advertising, they are going out of their way to sell their products.

T-tests were used to compare equality of means, to determine statistically significant variables for export participation. Salesperson visiting potential buyers, prospecting, cold calling, and advertising were all found to be significantly more important variables when determining export participation. Therefore, multiple sales techniques are more important to exporters than nonexporters.



A very important asset to hardwood lumber companies is a skilled sales staff. Almost 30% of exporters have a separate sales position in charge of export accounts. Furthermore, very few companies have salespeople with multiple language skills. One company in particular had an extensive sales team with the abilities to speak Mandarin, German, Spanish, and Japanese. This language capability is rare in the Appalachian region. As mentioned previously, exporters have larger sales staffs, and export almost 20% of their total production. Yet very few businesses indicated staff spoke languages other than English. Furthermore, 94.7% of all export sales managers speak English as their native tongue.

5.1.6 Summary

The results from the questionnaire allowed us to fully meet objective one. Current export experience, access and use of export development programs, key export markets, and mill production, marketing, equipment, personnel and other attributes of the region's hardwood lumber industry were all explored and identified.

In the next section, we will explore the data to determine significant changes in the industry and mill export experience by evaluating data collected in 1989 and comparing it with data collected in 2002. This unique research opportunity is possible because mills that responded in 1989 were targeted in the 2002 study.

5.2 OBJECTIVE 2

There were three major objectives outlined in the beginning of this study. The first objective was determining current export experience, access and use of export development programs, key export markets, and mill production, marketing, equipment, personnel and other attributes of the region's hardwood lumber industry. The results that met this objective were described in the previous chapter. However, this chapter will provide further insight into these results, while determining significant changes in the region's hardwood industry in the past 15 years.

The previous study was conducted in 1989 at the University of Georgia. There were 488 mills that responded, of which 351 responses were usable. A search was conducted in state wood using directories on the 351 respondents to determine if they were still in business. In the year 2002, 181 businesses were identified, and were specifically targeted in the sample for the current study. By creating a temporal set of data for each business that responded to the questionnaire in 1989 and 2002, we are able to capture information on exporters changing

through time. There are 26 businesses that exported within the last 5 years that answered to both surveys. These businesses were directly compared using descriptive and nonparametric statistics.

There are four advantages of using nonparametric statistics in this research study. They require few assumptions about the populations. They forgo the assumption of a normal population. They enable us to obtain exact P-values for tests, and they are easier to apply and understand. Two types of nonparametric statistics were used; McNemar's exact estimate of P and paired T-tests. McNemar's exact estimate of P was used for nominal or categorical data, which is based upon dependant samples. The same subject is measured at two different times. McNemar's test was used instead of Chi Square because there is a nominal data association. It's more appropriate to use this test for "check all that apply" formats commonly used in this questionnaire. The paired T-test is used for nominal and interval data association. It is appropriate to use this type of test when a sample is not independent, and two sets of observations relate to the same respondent. Questions were evaluated by respondents at two different times, so a paired T-test was more appropriate than a regular T-test.

The 2002 questionnaire was slightly different than the 1989 questionnaire. Some questions were added and slightly changed from the questionnaire used in 1989. Therefore, we understand more detailed information about exporters today. In the tables, there are some places where missing data occurs. This simply means that the question was not asked in 1989.

The exporters of 1989 and 2002 are well established because they have stayed in business for the last 13 years, through consolidation and difficult market circumstances. They have domestic and international customers, and are innovative in their sales approach. Although a sample of 26 businesses is rather small, the exporters in the study of 1989 and 2002 are some of

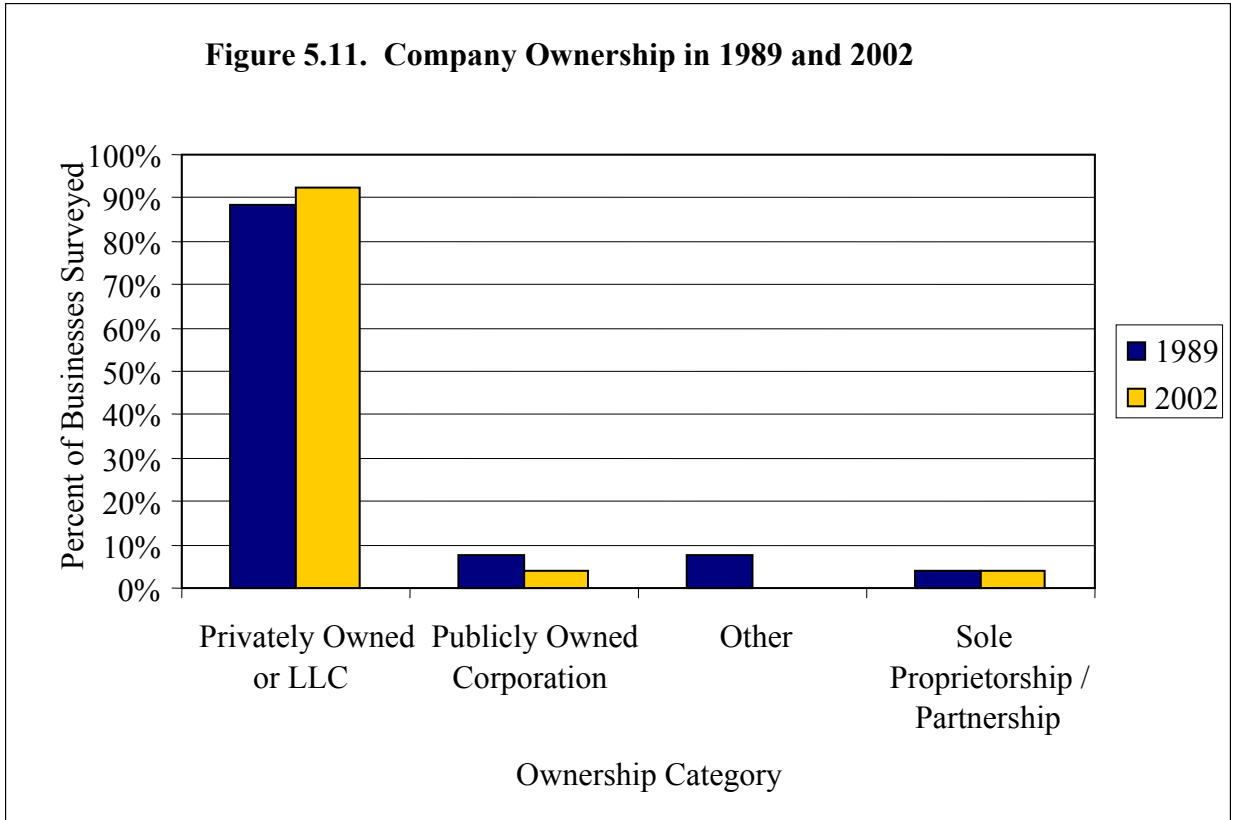
the largest businesses in the hardwood lumber industry. The answers received are probably more dependant upon business size and experience than export participation.

5.2.1 Major Conclusions in 1989

Several important conclusions were determined by researchers in 1989. Hardwood lumber mills are more likely to export for several reasons. Exporters produce more lumber. They produce more high grade lumber and less lower grade lumber. Mills manufacturing pallet parts don't usually export. Exporters manufacture more red and white oak. They have covered storage facilities. The mill manager or salesperson has completed a bachelors degree. Finally, a hardwood lumber mill would be more likely to export if they are publicly owned. Likewise, hardwood lumber mills are less likely to export if they are privately owned, they manufacture other products than hardwood lumber, they manufacture more lower grade lumber, or pallet products.

5.2.2 Company Ownership

In 1989, most of the businesses sampled were privately owned corporations or Limited Liability Corporations (LLC). In 2002, even more of the same businesses were privately owned corporations or LLC, indicating an increase in incorporation, as shown in figure 5.11. The category "other" dropped from few responses in 1989 to no responses in 2002. These businesses probably became sole proprietorships or partnerships. Furthermore, some of the businesses that were sole proprietorships or partnerships in 1989 probably became incorporated as a privately owned corporation or LLC in 2002. There are many tax benefits for smaller businesses to incorporate and become public businesses. As older generations retire and inherit the family business, there are no inheritance taxes associated with this transaction, but rather, the younger family member becomes the new chairperson of the corporation.

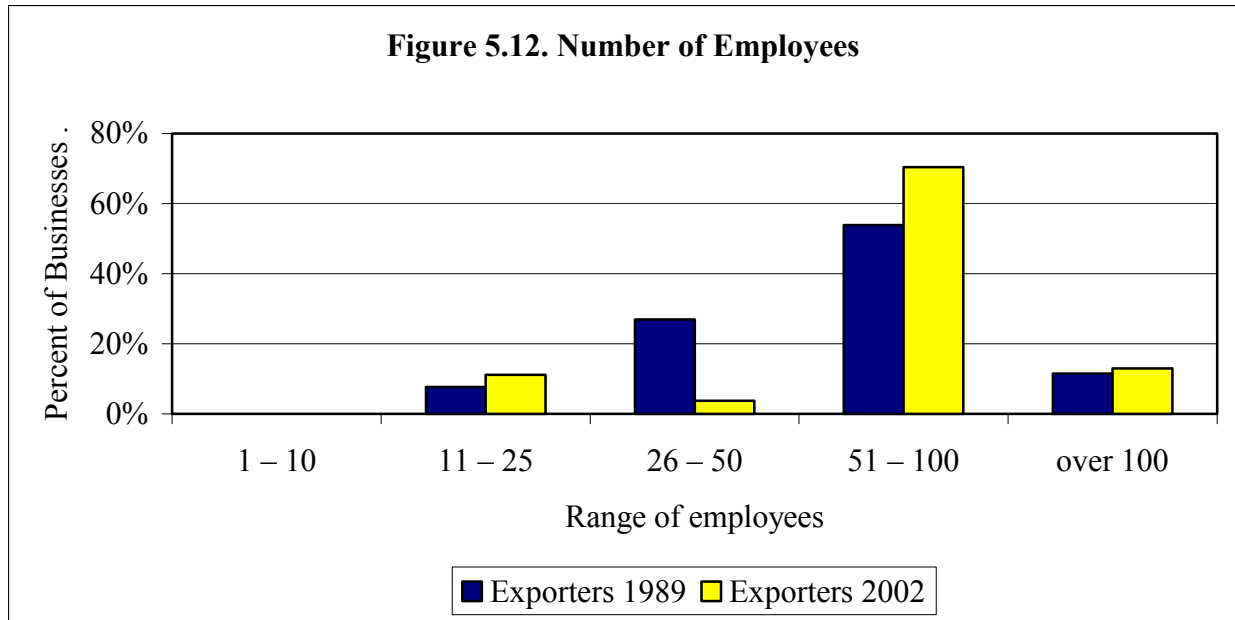


5.2.3 Manufacturing Changes

The number of mill locations can be used to describe a couple different attributes about a business. It helps identify the willingness to generate greater volumes of lumber. It also describes the managerial commitment to long-term expansion and growth. In this comparison of the 26 replicated businesses, the average number of mill locations for exporters in 2002 was 2.7 per business (n=26, S=2.97). This is much larger than the comparison of exporters and nonexporters of 2002, as exporters had an average of 1.8 per business. There is a simple reason for this large discrepancy. There are fewer businesses included in the comparison of exporters in 1989 and 2002, and one major respondent had 15 mill locations across the east coast. If this business is excluded from the data or drowned out by other smaller businesses (increasing n), the average drops significantly. When this business is excluded from the 26 replicated businesses, the average number of mill locations drops to 2.3 per business (n=25, S=1.63).

5.2.4 Number of Employees

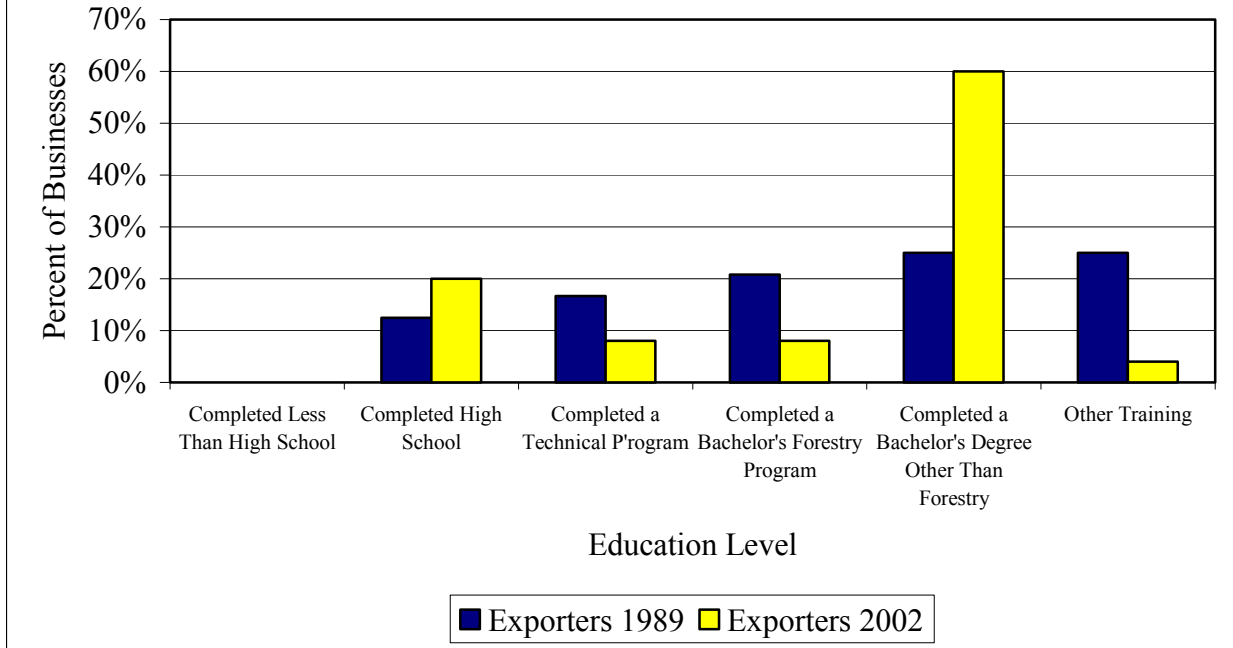
The number of full time employees has also grown indicating consolidation in the industry and more mill locations for each firm, as shown in figure 5.12. The number of employees has grown significantly over the last 13 years. Clearly, exporters grew and needed to hire more employees.



5.2.5 Education Level of Primary Salesperson

The education level of the primary salesperson has significantly changed through time. In 1989, only 25% of businesses had primary salespeople with at least a Bachelor's degree, as noted in figure 5.13. In 2002, 60% of businesses had primary salespeople with a bachelor's degree. Furthermore, there was a large shift from Bachelor's of Forestry degrees to other Bachelor's degrees. Earlier it was determined the importance of Bachelor's of Forestry degrees were significant in hardwood lumber export participation, and obviously there is not as much

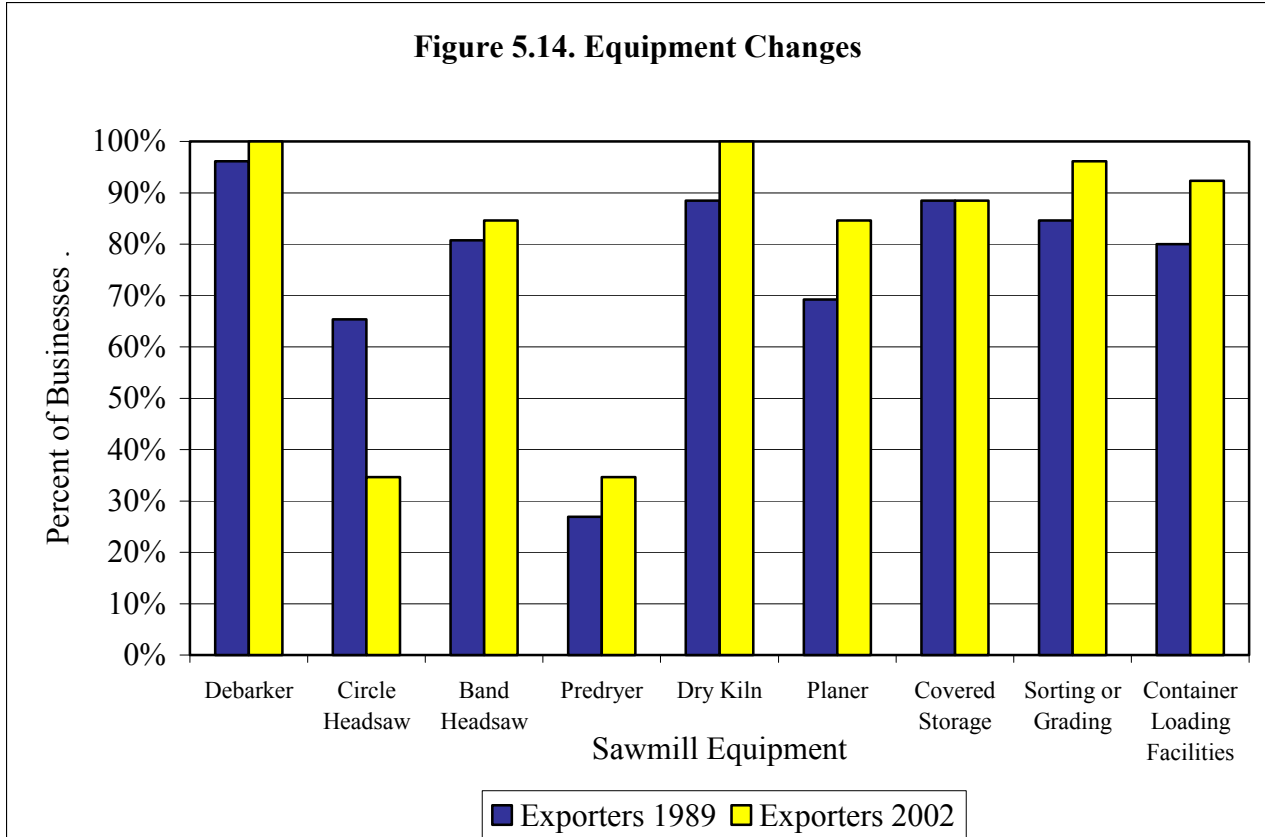
Figure 5.13. Education Level of Primary Salesperson of Exporters in 1989 and 2002



emphasis on these specific degrees for managerial positions within the hardwood lumber industry today (Hammett et al. 1991). Fewer primary salespeople are completing a technical program or other training.

5.2.6 Equipment Changes

Exporters were asked to indicate the types of sawmill equipment they own and use in 1989 and 2002. Nearly all businesses had a debarker in 1989, and 100% of them had a debarker in 2002, as shown in figure 5.14. The recent survey revealed more mills shifted from using a circle headsaw to a band headsaw. This trend may be caused by using band headsaws, and businesses want to maximize utilization of their raw materials. It is also interesting to note that 100% of businesses in 2002 have a dry kiln, and most maximize the finishing services they provide to their customers.



Using McNemar’s test, an exact estimate of p was calculated for sawmill equipment questions that were asked in both 1989 and 2002. The null hypothesis was no association between export experience and

specific types of mill equipment. Only one piece of equipment rejected the null hypothesis because the estimate of p was less than $\alpha=0.05$, and it was the circle headsaw. Therefore there is association between export

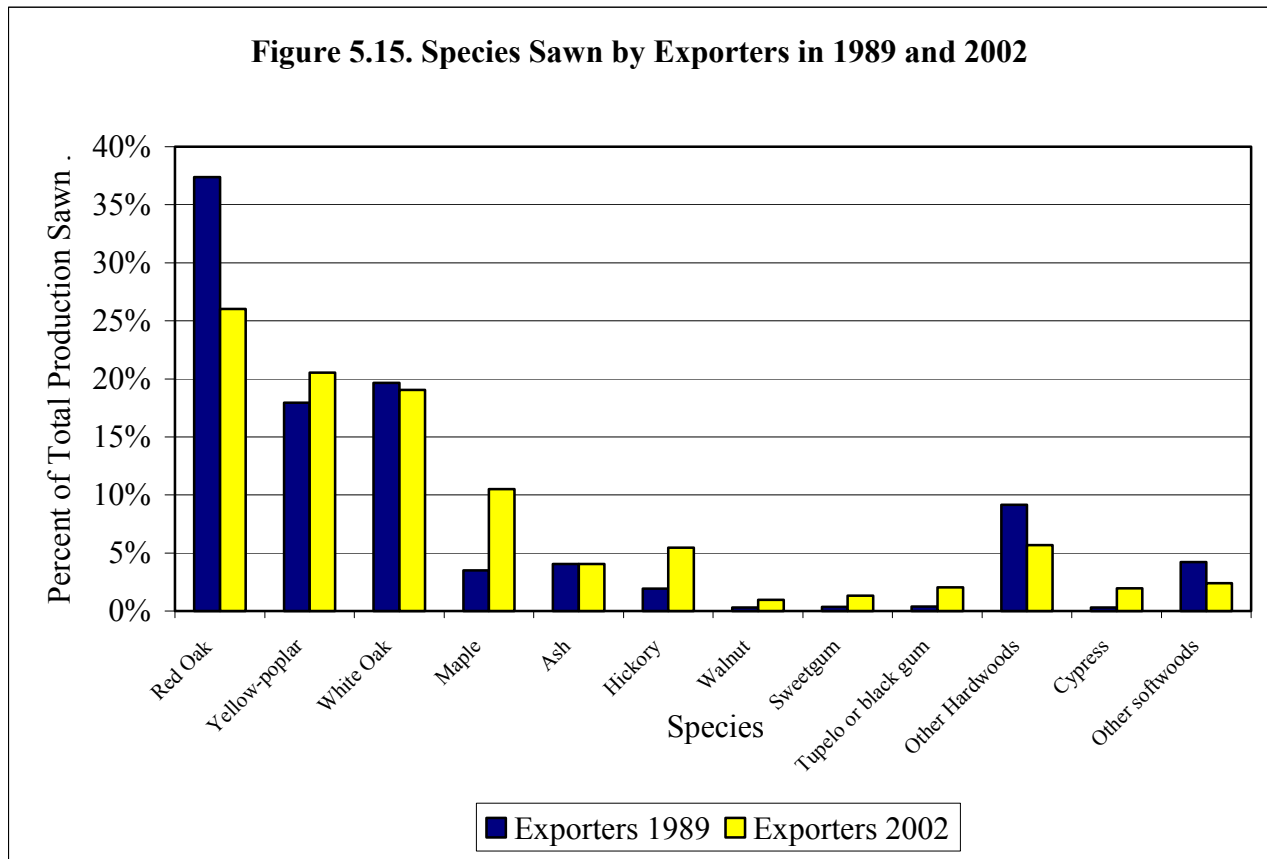
Table 5.6. Mill Equipment Used in 1989 and 2002

Sawmill Equipment	Exporters 2002	
	N	Mean
a. Bucking-optimizers	26	3.9%
b. Headrig-optimizers	26	80.8%
c. Edger-optimizers	26	65.4%
d. Trimmer-optimizers	26	38.5%
e. Automated Sorting	26	34.6%
f. Grade mark readers	26	42.3%
g. Other (some responded walnut steamer)	26	34.6%

experience and the use of a circle headsaw. Because the average exporter is less likely to have a circle headsaw, the association is negative. None of the other types of equipment showed a significant association.

Questions about the use of high technology equipment were asked in 2002 to learn if exporters are more likely to adopt improved processing systems. In general, more exporters use this type of equipment than nonexporters. For example, over 80% of exporters are using a headrig-optimizer, and 65.4% are using edger-optimizers, as shown in table 5.6.

5.2.7 Species Sawn by Exporters



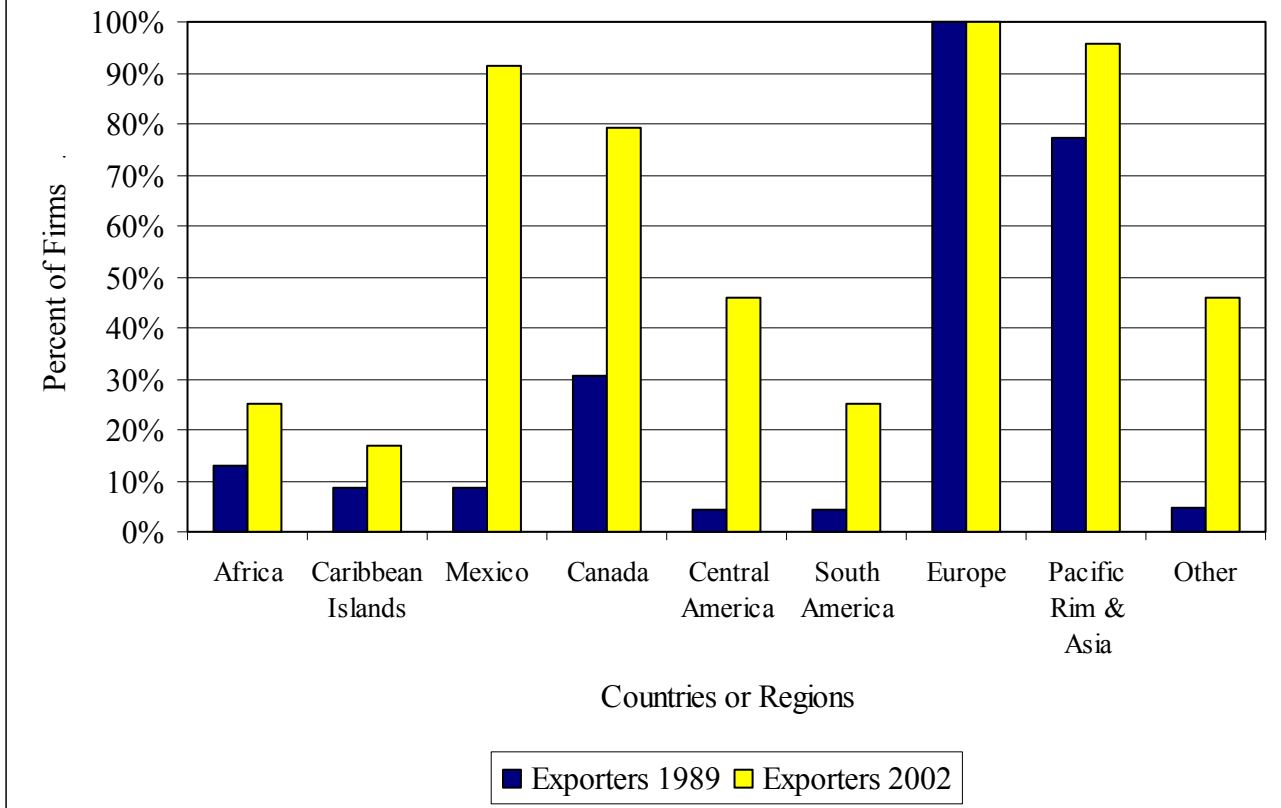
Previous studies have demonstrated the importance of manufacturing oak products to sell in the international marketplace (Hammett et al. 1991). In 1989, 37.4% of the products

manufactured were red oak, and 19.7% were white oak, as shown in figure 5.15. In 2002, the same exporters significantly decreased the amount of red oak they were sawing, and increased yellow-poplar, maple, hickory, walnut, sweetgum, tupelo or black gum, and cypress. Paired t-tests were used to determine a significant difference in the means of the paired samples for each species, and red oak, maple, hickory, walnut, and tupelo or black gum were determined to have different means at the $\alpha=0.05$ level. The results indicate these species are being manufactured by more mills in 2002 than in 1989, except for red oak. The results were significant showing exporters are changing and adapting their species mix to better accommodate the marketplace. Some businesses stated there is a decreasing amount of suitably large hardwood logs available. Supplies of raw material, including logs and rough lumber, are critical to export success. However, USFS studies have shown this is probably only a regional shortage and adequate supplies are dependant upon shifting mill procurement areas (Luppold 1995).

5.2.8 Hardwood Lumber Export Destinations

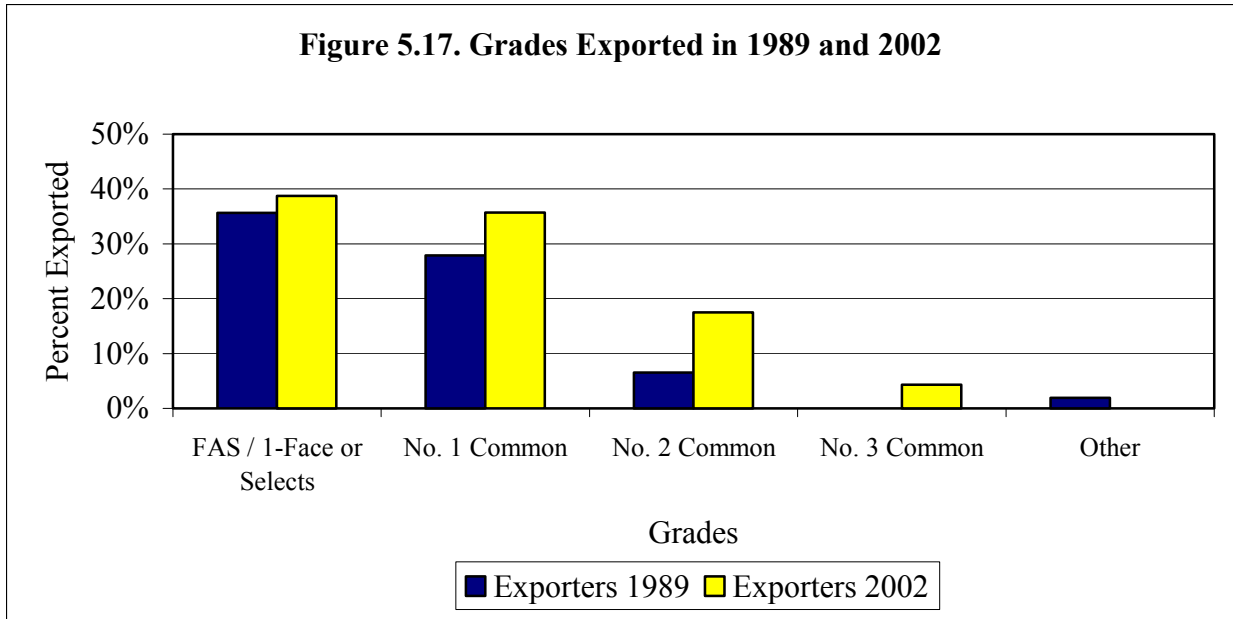
Very few of the markets for hardwood lumber have changed over the 13 year period since the first study was conducted. However, more firms are now exporting to Mexico, Canada, and Central America (Figure 5.16). McNemar's exact estimate of P was used to determine significant changes, and more exporters are selling to these regions in 2002. It is also important to note that 100% of firms exported to Europe in both 1989 and 2002. Once again, there is a large change in the "other" category, and future research should examine the reasons for this.

Figure 5.16. Destination of Hardwood Lumber Exports in 1989 and 2002



5.2.9 Grades Exported

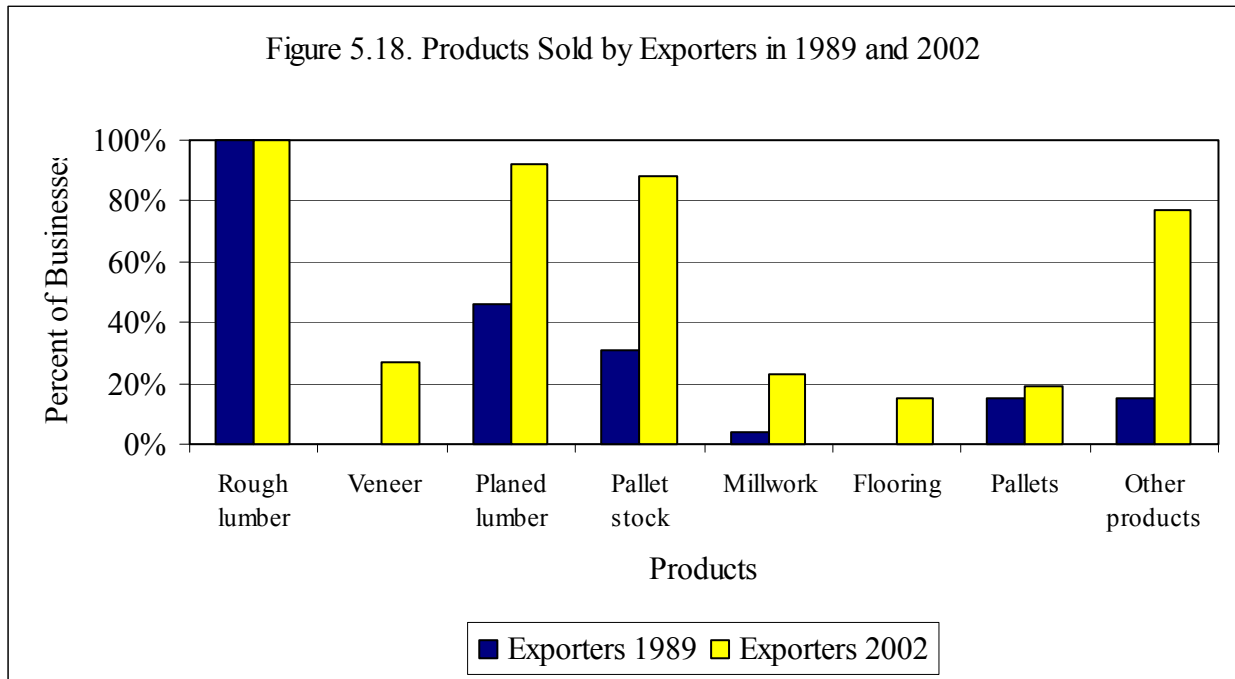
In 1989, exporters sold mostly higher grades of lumber overseas. Since then, businesses are now exporting higher percentages of no. 1 and no. 2 grades (Figure 5.17). Paired t-tests found significant increases in sales volume for grades No. 2 Common and No. 3 Common. As the total production of the exporters increased from 9.79 MMBF to 12.43 MMBF, so too has there been a dramatic increase in the overall export sales volume by grade.



5.2.10 Products Sold by Exporters

Previous research has examined the products being sold to determine any key products leading to export participation and success (Hammett et al. 1991). Since 1989, exporters have increased the types of products they can offer, as shown in figure 5.18. The McNemar test was used to measure the significance of key products manufactured by exporters in 1989 and 2002. Rough lumber was excluded from the analysis because 100% of the exporters in 1989 and 2002 manufacture rough lumber. Veneer, planed lumber, pallet stock, and other products were found to be significantly changed from 1989. Previous studies indicated a negative association between the manufacturing of pallet stock and export participation (Hammett et al. 1992). However, significantly more pallet stock is being manufactured by exporters than in 1989, although this probably is not being exported. This contradicts all studies explored in the literature review (Hammett et al. 1991; Hammett and DeForest 1993; Dickerson and Stevens 1998). Mills that are exporting are doing more to fully utilize logs producing more pallet stock, while taking out high quality lumber for export. There also are good growing markets for pallet

stock overseas. Future research should address which other products are being sold by hardwood lumber exporters, as other correlations may exist.



5.2.11 Summary

One objective of this study was to determine significant changes in the region’s hardwood industry that have occurred over the past 15 years. Direct comparisons of the same businesses in 1989 and 2002 show exporters have changed through time. These will be explored in the next chapter along with conclusions from this study.

5.3 OBJECTIVE 3

The third objective was to identify key mill factors leading to export market participation. This objective has been addressed throughout the previous two objectives. Although, there are two key factors that may be the most important. The owners and key management personnel of a hardwood lumber mill must be dedicated and committed to exporting for it to be successful. This will allow them to go the extra mile to build relationships with customers.

Secondly, a hardwood lumber exporter is significantly differentiated in manufacturing and marketing practices from nonexporting companies. They manufacture more lumber, have better equipment, and have invested more resources in marketing.

CHAPTER 6: CONCLUSIONS

6.1 RESEARCH SUMMARY

The primary goal of this study was to identify factors that influence export opportunities for Appalachian hardwood products manufacturers. By studying current industry practices and trends, we can better understand the opportunities hardwood lumber businesses have exploited in the past and continue to do so today. Opportunities exist for businesses with the right initial mindset preparing them for exporting, the right equipment, and the right educational resources.

By conducting a similar survey of hardwood lumber manufacturers in 1989 and 2002, we can document changes in export participation of hardwood lumber manufacturers in the Appalachian Region. This research project sought to determine current export experience, access and use of export development programs, key export markets, and attributes of the region's hardwood lumber industry. We also wanted to understand changes in the hardwood lumber industry over the past 15 years in hopes to help firms do a better job of export marketing.

6.2 OBJECTIVE #1

The study sought to determine current export experience, describe the access and use of export development programs, key export markets, and mill attributes of the region's hardwood lumber industry. This objective was met by conducting a survey of hardwood lumber mills in the Appalachian region. Descriptive results are in Chapter 5. Conclusions made from this study will be useful to mills considering entering or expanding export market activities.

Current exporting participation has been measured by the percentage of businesses exporting. One third of businesses sampled said they were exporters, although the test for nonresponse bias indicated only 25% of nonrespondents were exporters. Perhaps larger

businesses responded to the questionnaire, allowing us to get a more detailed examination of their operations.

The questionnaire sought to determine the extent of access to and use of export development programs. Most exporters indicated that they received key help from their customers and did not need access or formal programs. Customers may provide useful information about logistics and payment arrangements. However, half of the exporters surveyed received help from their trade or industry association, and slightly less than half used state economic development or industry and trade departments. Less than one quarter received export market help from state forestry departments, university or extension organizations, and banks or other financial institutions. Future research should focus on the importance of customer relationships in the international hardwood lumber market.

Key distribution channels were explored to learn more about exporters marketing practices. I found the length or size of a mills' export distribution network may decrease or increase with the size of that firm's overseas business. The literature review indicated larger businesses prefer to sell their products directly to the customer, capturing the most value for their product. Less than one third of exporters sell directly to their international customer. Roughly one third of businesses use a U.S. based agent or broker to export. A little over 20% sell indirectly by using a foreign based agent or broker. Very few exporters sell their products using a foreign trading company. Therefore, the need for intermediary companies or services may be different for the hardwood lumber industry, or perhaps the need has changed.

Key export markets were found to be reflected in the trade statistics published by the U.S. Bureau of the Census. Mills identified Canada as the most frequently export market with Italy, Spain, the U.K, and China/Hong Kong clustered at the next level. However, if you combine

Hong Kong and China, the result is the second most frequent market for lumber. Exporting markets have not changed, except for a surge in market activity with China. With increased industrialization in Asia, it was surprising that India had not entered the mix, as they have become another large manufacturing country.

Exporting mills were found to be larger, having more mill locations, employees,, managers with marketing experience, and annual production than nonexporters. Perhaps due to export profits, these mills can afford to invest more money in equipment, manufacture larger amounts of high quality lumber, and risk utilizing more different species that capture the most value in the marketplace. Businesses indicated the percentage of their total sales exported averaged just under 20%, which is a fairly large market for their total production. The average percentage of kiln dried hardwood lumber exported was just over 25%. Most exporting mills are manufacturing mostly kiln dried hardwood lumber and are selling very little green lumber. It seems straight forward that exporters have larger sales staffs, more education, and more years experience. This proactive approach is confirmed by the multiple sales approaches. In short, nonexporters tend to stick to methods requiring little effort. In a rapidly changing marketplace, exporters need efficient communication tools and are more likely to do business online. It would be interesting to assess their web pages and determine their impact on sales.

6.3 OBJECTIVE #2

Significant changes in the region's hardwood industry have occurred in the past 15 years, and in particular mill export market experience, since the previous survey in 1989. In many cases, exporters participating in the study changed little since the previous study. The following conclusions were made regarding changes in exporting practices.

Export firms have grown considerably, increasing the number of employees and annual production. This may be a reflection of the overall consolidation occurring in the forest products sector. Exporters have converted their mills's headrig from circle headsaws to band headsaws, reflecting the need to better utilize resources and be more profitable. Several exporters invested in high technology optimizing equipment. Little change was seen in the need for drying, sorting, grading, and finishing services by exporters. This equipment and services increased from 1989 to 2002.

Hardwood lumber exporters increased the amount of higher-grade lumber they manufactured. There has also been a shift in the species they manufacture. Red oak is a smaller percentage of total lumber produced. However, since the annual lumber production per mill has increased one might believe that the same total amount of red oak lumber is being produced. Exporters increased production of other key species, including maple, hickory, walnut, and tupelo or black gum. Perhaps local markets for these species have improved. Veneer, planed lumber, pallet stock, and other products are being manufactured significantly more in 2002 than 1989. A key change is that pallet stock is a larger percentage of production than it was in 1989. Mills are being forced to add more product separation to increase returns on their investment and justify the new equipment purchased.

Exporters had larger sales staffs, indicating the need to monitor and service distance markets. Exporters in 2002 had several years more experience selling hardwood lumber, indicating the need for experience before entering export markets. Exporters adapted to new technology such as personal computers, and Internet access, and usage. Exporters were selling their products in a wider variety of domestic markets in 2002, probably because they have a

larger product line. Multiple sales methods are important to the exporter due to this wide range of products.

Almost a quarter of the exporters' annual production is sold overseas. Businesses preferred selling directly to the customer and increased this type of sale over time. Exporters are less likely to sell through U.S. based agents or brokers than in 1989, which shows an increased interest in selling direct. This is reinforced as more businesses hire export managers, and especially with language skills. A general trend has been occurring, as many developing countries have begun speaking English to seek U.S. business opportunities. Furthermore, exporters are selling their products to more diverse locations internationally.

Exporters traveled overseas more frequently than in 1989, reflecting the need to meet their customers in person and participate in international trade shows. These efforts helped encourage repeat business and meet new customers. The most significant assistance exporters were receiving in 2002 was insurance, either for shipping or payment. Perhaps this specific type of assistance is needed to reassure businesses selling to foreign customers. Many hardwood lumber salespeople that participated in this study indicated their fear of doing business with China, because they were never guaranteed payment.

Exporters feel strongly about exporting. It gives them a greater marketing base, higher growth in foreign markets, and allows them to sell excess production when domestic markets are slow. One sees the need for educating even forward thinking exporters about the dangers of depending on overseas markets for dumping excess product. This type of reactive marketing, which is common in the forest products industry, does not lend itself towards strong customer relationships. Such marketing is not customer oriented, it tends to be sales driven in nature.

Exporters have adapted over the past 13 years by changing business practices. Hardwood lumber mills can use electronic means to receive timely feedback from their overseas customers. This segment of the forest products sector is no different, where staying competitive requires firms to develop and maintain long-term relationships with their customers. The difference is that it takes a more educated sales force, increased investment in time and communication resources, and willingness to cater to often special needs of overseas customers.

6.4 OBJECTIVE #3

The study's third objective was to identify key mill factors that lead to export marketing participation. Chapter 5 explored the results from the survey, which identified key mill factors. The following conclusions were made regarding factors leading to export marketing participation.

Exporters often exhibit unique management techniques, as the opportunities to sell their product in diverse overseas markets requires a unique skills set. Nonexporters do not exhibit a similar managerial commitment to initiate or continue international sales, and don't understand the export process or logistics needed. Most of these differences can be overcome with educational interventions and assistance from export assistance programs. Exporters feel their international customers provide a greater marketing base for more and diverse markets. This message is lacking in the minds of nonexporters. Exporting provides higher profit margins, however financial motives are not the only benefit from exporting. The personal satisfaction of foreign travel and meeting foreign buyers may be just as important to these businesses.

6.5 IMPLICATIONS

This research is unique, but it has potential positive impact on three different interest groups. The first and foremost to benefit from this work is the hardwood lumber industry. Firms

interested in exporting need to use the results to identify key variables mission from their operation that will help them export their products. These key variables, including selection of new or upgrading mill equipment, identification of marketing and management practices, key export markets, and leads for information resources are all readily obtainable by most firms. Firms currently exporting may learn more about how to improve marketing practices and increase their overseas markets. Lastly, some firms not interested in exporting may learn about another potential market for their products, or they may seek advice that will improve their domestic sales.

The second group benefiting from this research is export promotion program administrators. This research identifies key factors important to nonexporters that may be considering exporting. Key information needs are logistics and insurance. Sources of assistance unknown to nonexporters may help economic development agencies place resources in these areas.

Lastly, another beneficiary group is other researchers interested in forest products marketing or economic development. This study has identified gaps needed to increase knowledge of export market participation. These areas will be explained in the limitations section. Further research is necessary to better understand changing overseas markets and how the hardwood lumber industry might react to take advantage of these changes.

To increase export markets, government agencies can offer the industry export planning and informational services. Using strategic planning as a foundation, businesses will benefit from expanding into export markets. A good place to start would be to make the results of this research available in relevant format to those at the local level who are in contact with hardwood lumber mills, such as extension agents or economic development agencies.

6.6 LIMITATIONS

This study did not intend to capture information on every business in the Appalachian region. Nor did it characterize a typical hardwood lumber mill. The sector members are too diverse. Many businesses did not participate in this study. From the test for non-response bias, we understand these businesses are smaller, manufacturing on average 4 MMBF per year, well below the average for those firms that answered the survey. However, the test for non-response bias also revealed 20% of the businesses that did not participate in the study export hardwood lumber.

It is important to target future research on smaller businesses exporting. They may face the largest challenge as an exporting business, as they may not possess the key export participation variables identified in this study. Furthermore, there is an important opportunity for smaller businesses to develop their export market to nearby countries such as Canada, Mexico, and the Caribbean, to take advantage of distribution channels which are similar to domestic markets.

Other research on hardwood lumber exporters identified another limitation. Some of the largest exporters are not individual mills, but a company with several mills. Brokers and distributors potentially are the largest group of hardwood lumber exporters in the U.S and are not included here. This research project did not intend to gather information on these businesses, although there is no previous research to explain their export marketing success. Future research may consider this group of businesses. There is a large domestic market that contributes to total exports. A survey of buyers or brokers who buy, consolidate, and prepare shipments for overseas customers may be needed. These firms often form the export department for many, often smaller, hardwood mills who most likely are not or would not export.

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APPENDIX 1: MILL QUESTIONNAIRE



Marketing Strategies of U.S. Hardwood Lumber Manufacturers



This questionnaire seeks to learn about the marketing of hardwood lumber manufactured in the eastern U.S. The information you provide will be confidential, and combined with other businesses in your region with everyone's identity hidden. Your confidentiality is strictly honored. **We will send you a final report of our findings, if you will please place your name and address on the last page of this questionnaire.** We are adding a number at the end of the questionnaire in order to keep track of who responded, so we won't bother you again with a reminder mailing. Thank you very much for your time.

Section I. Status

1. Does your company sell hardwood lumber products? (Circle one)

A. Yes

B. No

If no, please fold the survey, place a piece of tape on the edge, and drop it into any mailbox. The postage is paid, thank you for your time!

Section II. Company Profile

2. How many mill locations does your company own?

_____ Mills

3. Which of the following best describes the ownership of your company? (circle one)

A. Sole proprietorship / Partnership

B. Publicly Owned Corporation

C. Privately Owned Corporation or LLC

D. Other (please specify)

4. How many full time production employees worked at all of your facilities in the past year?

_____ Employees

5. In what year did your first mill begin operation?

_____ (year)

6. What is the approximate annual production of all your mill(s)?

_____ Board feet

7. What percentage of your total hardwood lumber production is kiln dried?

_____ % kiln dried

8. Do you have any of the following equipment at your mill(s)? (Please check yes or no for each)

	Yes	No
Debarker	<input type="checkbox"/>	<input type="checkbox"/>
Circle headsaw	<input type="checkbox"/>	<input type="checkbox"/>
Band headsaw	<input type="checkbox"/>	<input type="checkbox"/>
Bucking-optimizers	<input type="checkbox"/>	<input type="checkbox"/>
Headrig-optimizers	<input type="checkbox"/>	<input type="checkbox"/>
Edger-optimizers	<input type="checkbox"/>	<input type="checkbox"/>
Trimmer-optimizers	<input type="checkbox"/>	<input type="checkbox"/>
Automated Sorting	<input type="checkbox"/>	<input type="checkbox"/>
Grade mark readers	<input type="checkbox"/>	<input type="checkbox"/>
Predryer	<input type="checkbox"/>	<input type="checkbox"/>
Dry Kiln	<input type="checkbox"/>	<input type="checkbox"/>
Planer	<input type="checkbox"/>	<input type="checkbox"/>
Covered storage	<input type="checkbox"/>	<input type="checkbox"/>
Sorting or grading	<input type="checkbox"/>	<input type="checkbox"/>
Container loading facilities	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>
_____	<input type="checkbox"/>	<input type="checkbox"/>

9. What percent of the following hardwood lumber grades does your company sell? (Total should equal about 100%)

_____ % FAS / 1-Face or Selects

_____ % No. 1 Common

_____ % No. 2 Common

_____ % No. 3 Common

_____ % Wood Components

_____ % Pallet stock

_____ % Other (Please Specify)

_____ = 100% Total hardwood production

Section III. Product Profile

10. Please give the percent of your mill's total sales. (Total should equal about 100%)

_____ % Red Oak

_____ % Yellow-poplar

_____ % White Oak

_____ % Hard Maple

_____ % Soft Maple

_____ % Cherry

_____ % Ash

_____ % Hickory

_____ % Walnut

_____ % Sweetgum

_____ % Tupelo or black gum

_____ % Other Hardwoods (please specify)

_____ % Cypress

_____ % E. white pine

_____ % Other softwoods (please specify)

_____ = 100% Total Production

11. Do you sell any of the following? (Please check yes or no for each)

	Yes	No
Rough green lumber	<input type="checkbox"/>	<input type="checkbox"/>
Rough kiln dried lumber	<input type="checkbox"/>	<input type="checkbox"/>
Veneer	<input type="checkbox"/>	<input type="checkbox"/>
Planed lumber	<input type="checkbox"/>	<input type="checkbox"/>
Pallet stock	<input type="checkbox"/>	<input type="checkbox"/>
Component parts / Dimension	<input type="checkbox"/>	<input type="checkbox"/>
Railroad ties	<input type="checkbox"/>	<input type="checkbox"/>
Millwork	<input type="checkbox"/>	<input type="checkbox"/>
Flooring	<input type="checkbox"/>	<input type="checkbox"/>
Pallets	<input type="checkbox"/>	<input type="checkbox"/>
Other products (please specify)	<input type="checkbox"/>	<input type="checkbox"/>

Section IV. Marketing Profile

12. How many people are responsible for selling or marketing of your firm's products? (Please exclude clerical staff)

_____ (number)

13. Education level of your primary lumber sales person: (circle one)

- A. Completed less than high school
- B. Completed high school
- C. Completed a technical program
- D. Completed a Bachelor's forestry degree
- E. Completed a Bachelor's degree other than forestry
- F. Other training (please specify)

14. How many years experience does your primary sales person have selling lumber?

- A. 12 months or less
- B. One to two years
- C. Three to five years
- D. Six to ten years
- E. Eleven to twenty years
- F. More than twenty years

15. Does your company utilize any of the following? (Please check yes or no for each)

	Yes	No
Fax machine	<input type="checkbox"/>	<input type="checkbox"/>
Personal computer	<input type="checkbox"/>	<input type="checkbox"/>
Internet access	<input type="checkbox"/>	<input type="checkbox"/>
Local area network (LAN)	<input type="checkbox"/>	<input type="checkbox"/>
E-mail	<input type="checkbox"/>	<input type="checkbox"/>
Other computer equipment (please specify)	<input type="checkbox"/>	<input type="checkbox"/>

16. Do you have a webpage?

- A. Yes
- B. No – *Skip to question 18.*

17. Does your webpage serve any of the following purposes? (Please check yes or no for each)

	Yes	No
Product advertisement	<input type="checkbox"/>	<input type="checkbox"/>
Inform the public about the company mission statement	<input type="checkbox"/>	<input type="checkbox"/>
Inform the public about the company history	<input type="checkbox"/>	<input type="checkbox"/>
Provide personnel and contact information	<input type="checkbox"/>	<input type="checkbox"/>
Receiving orders (how many per month?)	<input type="checkbox"/>	<input type="checkbox"/>

Other (please specify)	<input type="checkbox"/>	<input type="checkbox"/>

18. Indicate the types of manufacturers you have sold your lumber to during the last year. (Give the percentage of your company's total sales for each, total should equal about 100%)

- _____ % Broker
- _____ % Distributor
- _____ % Millwork manufacturer
- _____ % Furniture manufacturer
- _____ % Cabinet manufacturer
- _____ % Component manufacturer
- _____ % Pallet mill
- _____ % Flooring manufacturer
- _____ % Inhouse use (please specify)
- _____
- _____ % Others (please specify)
- _____

_____ = 100% customer sales

19. How important is each of the following when you sell your product? (Check one box for each)

	Not Important	Slightly Important	Fairly Important	Very Important
Placing orders to your present customer's requests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Salesperson visits potential buyers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Prospecting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cold calling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advertising	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Word of Mouth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other outlets (please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

20. Do you currently export hardwood lumber? (circle one)

- A. Yes -- Please skip to question 25.
- B. No

21. Have you ever exported hardwood lumber in the past?

- A. Yes
- B. No – Please skip to question 23.

22. How long ago did you stop exporting? (circle one)

- A. Never have exported
- B. 12 months
- C. 2 years
- D. 3 years
- E. 4 years
- F. 5 years
- G. More than 5 years

Section V. Reasons for Not Exporting

23. To what extent did the following reasons prevent your company from exporting, or cause you to stop exporting? (Check one box for each)

	Not At All	A Small Extent	To Some Extent	Very Great Extent
Lack of trade contacts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of packaging knowledge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unsure of shipment, delivery or payment arrangements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of financial assistance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Insufficient raw materials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of adequate storage capacity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of dry kilns	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Difficulties in sorting lumber to export specifications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lack of information on overseas markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor previous export experience	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adequate domestic markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other reason(s) (please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

25. Would your firm like to begin or resume exporting products?

- A. Yes
- B. No
- C. Maybe

24. How important are the following factors when making a decision to begin exporting or restart exporting? (Check one box for each factor)

	Not Important	Slightly Important	Fairly Important	Very Important
Assistance in finding financing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Determining suitable credit terms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Help in finding overseas buyers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Learning what products will sell overseas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional capacity	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Additional equipment at your mill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Assistance in learning about shipment, delivery, or payment arrangements.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other reasons (please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section VI. Experienced Exporters

26. What percentage of your sales is exported?

_____ % Exported

27. What percentage of your kiln dried products is exported?

_____ % Kiln dried exported

28. Please give the percentage of **export** sales volume your firm makes using the following methods. (Total should equal about 100%)

- _____ % Sell direct to the customer
- _____ % Sell indirect using a U.S. based agent or broker
- _____ % Sell indirect using a foreign based agent or broker
- _____ % Sell to foreign trading company
- _____ % Other method (please specify)

_____ =100% total export sales

29. Do you have a **separate** sales person in charge of **export** sales? (circle one)

- A. Yes
- B. No – Please skip to question 33.

30. Does the person in charge of **export** sales speak a foreign language? (circle one)

- A. Yes
- B. No

31. If yes, which language(s)? (circle all languages that apply)

- A. German
- B. French
- C. Japanese
- D. Spanish
- E. Chinese
- F. Other (please specify)

32. Is English the export manager's first language?

- A. Yes
- B. No

33. To which countries or regions have you exported? (Check one box for each)

	Yes	No
Africa	<input type="checkbox"/>	<input type="checkbox"/>
Caribbean Islands	<input type="checkbox"/>	<input type="checkbox"/>
Mexico	<input type="checkbox"/>	<input type="checkbox"/>
Canada	<input type="checkbox"/>	<input type="checkbox"/>
Central America	<input type="checkbox"/>	<input type="checkbox"/>
South America	<input type="checkbox"/>	<input type="checkbox"/>
Spain	<input type="checkbox"/>	<input type="checkbox"/>
Italy	<input type="checkbox"/>	<input type="checkbox"/>
United Kingdom	<input type="checkbox"/>	<input type="checkbox"/>
Korea	<input type="checkbox"/>	<input type="checkbox"/>
Japan	<input type="checkbox"/>	<input type="checkbox"/>
Taiwan	<input type="checkbox"/>	<input type="checkbox"/>
Hong Kong	<input type="checkbox"/>	<input type="checkbox"/>
China	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>

34. What percentage of your company's total hardwood lumber sales is **exported** from the following grades? (Total should equal about 100%)

- _____ % FAS / 1-Face or Selects
 - _____ % No. 1 Common
 - _____ % No. 2 Common
 - _____ % No. 3 Common
 - _____ % Wood Components
 - _____ % Pallet stock
 - _____ % Other (Please Specify)
-
- = 100% Total hardwood production

35. Has a representative of your mill participated in overseas sales missions? (circle one)

- A. Yes
- B. No – *Skip to question 37.*

36. Did the overseas sales mission increase your export sales? (circle one)

- A. Yes
- B. No
- C. Don't know

37. Has a representative of your mill participated in an overseas trade show or fair? (circle one)

- A. Yes
- B. No – *Skip to question 39.*

38. Has the participation in these shows increased your export sales?

- A. Yes
- B. No
- C. Don't know

39. For each of the following types of export assistance programs, please indicate whether you have received help. (Please check yes or no for each)

	Yes	No
Lumber manufacturing or trade associations	<input type="checkbox"/>	<input type="checkbox"/>
State economic development or industry and trade departments	<input type="checkbox"/>	<input type="checkbox"/>
State forestry departments	<input type="checkbox"/>	<input type="checkbox"/>
University or extension organizations	<input type="checkbox"/>	<input type="checkbox"/>
Banks or other financial institutions	<input type="checkbox"/>	<input type="checkbox"/>
Customers	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>

40. What types of export assistance have you received? (Check one box for each)

	Yes	No
Overseas market information	<input type="checkbox"/>	<input type="checkbox"/>
Trade leads	<input type="checkbox"/>	<input type="checkbox"/>
Trade contacts	<input type="checkbox"/>	<input type="checkbox"/>
Logistical information	<input type="checkbox"/>	<input type="checkbox"/>
Financing	<input type="checkbox"/>	<input type="checkbox"/>
Insurance	<input type="checkbox"/>	<input type="checkbox"/>
Other (please specify) _____	<input type="checkbox"/>	<input type="checkbox"/>

41. Did your firm experience problems when you exported? Please list your top three problems.

1. _____
2. _____
3. _____

42. Did any of the above problems surprised you?

A. Yes

B. No – Please skip to question 44.

43. How were you surprised?

44. How important is each of the following factors to your mill regarding exporting? (Check one box for each)

	Not Important	Slightly Important	Fairly Important	Very Important
Greater marketing base (more and diverse markets)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Higher profit margins in foreign markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Elimination of cyclical production schedules	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Higher growth of foreign markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High competition in domestic markets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Personal satisfaction (travel, meeting foreign buyers, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sell excess production	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Customer requires exporting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Optional: Are there any other comments you care to make?

Thank you very much for your valuable assistance. If you wish to learn more about the information we gather in this survey, please print your name and address below, and we will gladly send you a summary report of this study's results.

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Please fold along this line and place a tape on the edge of the survey. Thank you very much for your time!
