Wisconsin Forest Practices Study
Project Summary

January 2015

Project Title

Wood Supply Chain Component Cost Analysis; Cost Comparison of WI and U.S. Regional Costs.

Executive Summary

This study compared wood fiber supply chain costs in Wisconsin to those in other U.S. regions using delivered fiber supply costs collected and compiled by Forest2Market (F2M). Wisconsin and the U.S. Northeast had greater total delivered pulpwood fiber costs compared to the South, due largely to differences in seasonal climatic impacts on operability, such as prolonged spring breakup periods, along with other unique forest and operational characteristics. Wisconsin also has challenges inherent in the industry that appear to increase freight and "Other" costs[1]. Lowering costs or, minimally, being mindful of issues that increase these costs, such as restrictions limiting activity to winter months, will be a factor in maintaining Wisconsin's position in the U.S and global timber industry.

Overview

This research evaluated costs of each link in Wisconsin's wood fiber supply chain (Stumpage, Harvesting, Freight and Other) and compared these costs to those in three other regions in the United States. of the study also examined why cost factors may exist, options to potentially address differences between other U.S. forest industry regions with regard to delivered fiber cost, and timber availability and supply chain considerations for the eastern Canadian provinces. Detailed comparative analysis was based on the following U.S. regions - the Northeast, Lake States, Pacific Northwest, and the South (Figure #1).

Figure#1 – Reporting Regions

[1] Other Costs – costs associated with wood procurement, wood yard expense, and wood transfer.

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Methods

This work utilized delivered fiber supply costs collected and compiled by Forest2Market (F2M). F2M maintains a complete and highly accurate delivered price database that is one of the most extensive and credible wood product benchmarks in the industry. The F2M data is based on actual delivered raw material costs and component costs through the supply chain.

Actual transactions between buyer and seller for the species/species group of aspen, hardwod and conifer pulpwood was querried from the Forest2Market (F2M) database and aggregated by quarter for all of 2013 and the first half of 2014.

The data set used in this report included all F2M reporting mills in Wisconsin, as well as border mills that procure material from Wisconsin forests. This representation of the Wiscsonin marketplace is referenced as Wisconsin or the Lake States region throughout this report.

Key Findings

Total delievered wood fiber costs is dependent upon many factors, as the forest industries of each region have characteristics that directly impact the supply chain components. Factors such as harvest

methodology, Logging contractor population and business size, transportation details, and seasonality are examples of characteristics this study evaluated. Below is a Regioanl Market Summary of the market factors for the regions analyzed.

Regional Market Summary

Market Parameter	Lake States	Northeast	South	Pacific Northwest
Harvest Source	60% small NIPF[2] 30% Public 8% TIMO[3]/REIT[4] 2% Tribal	Small NIPF TIMO REIT	Large NIPF TIMO REIT	Large private and public
Harvesting System	Cut-to-length	Whole tree	Whole tree	Whole Tree
Product	Shortwood	Longwood	Longwood	Longwood
Transportation	Truck w/loader Rail	Tree Length truck	Tree Length truck	Tree Length truck
Loads/Day/Crew	2-5	5-10	10+	10+
Contractors - Size	Small	Mid-sized	Large	Mid-sized to Large
Stumpage	Contractor purchases (80%)	Marketed by TIMO and REIT Contractor purchases	Mills Broker Landowner direct	Mills Broker Landowner direct
Average Haul Distance (miles)	Conifer-106 Hardwood-114 Aspen-72	Conifer-78 Hardwood-84 Aspen-76	Conifer-54 Hardwood-66	Conifer-48 Hardwood-41
Forest Management	Even-aged/ Uneven-aged	Even-aged/ Uneven-aged	Even-aged	Even-aged
Harvest - Species Mix	High percentage mixed hardwood	50/50 hardwood/softwood	Mostly softwood	Mostly softwood

[2] – Non-Industrial Private Forest Owner

[3] – Timber Investment Management Organization

[4] – Real Estate Investment Trust

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Cost Components as a Percent of Total Delivered ($/ton)

Supply Chain Cost Component (%)						
Aspen Pulpwood						
Region	**Total Delivered**	**Other**	**Harvesting**	**Freight**	**Margin**	**Stumpage**
Lake States	$ 43.83	4%	37%	27%	4%	28%
Northeast	$ 53.86	2%	38%	25%	6%	29%
Hardwood Pulpwood						
Region	**Total Delivered**	**Other**	**Harvesting**	**Freight**	**Margin**	**Stumpage**
Lake States	$ 47.16	13%	34%	26%	4%	23%
Northeast	$ 50.57	4%	41%	25%	4%	27%
South	$ 40.38	5%	31%	25%	12%	28%
Pacific Northwest	$ 39.94	26%	47%	21%	3%	3%
Conifer Pulpwood						
Region	**Total Delivered**	**Other**	**Harvesting**	**Freight**	**Margin**	**Stumpage**
Lake States	$ 46.83	10%	35%	27%	5%	23%
Northeast	$ 43.69	3%	48%	30%	4%	15%
South	$ 33.29	2%	36%	25%	5%	32%
Pacific Northwest	$ 43.27	24%	39%	22%	4%	11%

When compared to the Northeast region, Wisconsin timber markets had lower total delivered costs for both hardwood and aspen pulpwood. Stumpage, Harvesting, and Margins occupied a smaller percentage of the total delivered cost for aspen and hardwood in the Lake States. However, Stumpage, Margin, and Other costs were higher in the Lake States for conifer pulpwood deliveries when compared to the Northeast. Product competition and the accessibility of pine harvest opportunities during wet months could be affecting conifer stumpage in the Lake States.

Differences in certain supply chain component costs between the Lake States and other regions suggest areas of competitive disadvantage for Wisconsin at a national level. The individual component cost and percent of total delivered cost for Freight and Other were higher in the Lake States than in the South. The Other category cost were high in Wisconsin due in part to harvesting methods and industry infrastructure, and lower in the South likely due to efficiencies in infrastructure and the prevalence of whole-tree harvesting. Freight costs in Wisconsin were higher than in other regions in part due to the burden of the on-board loader and the fact that less raw material can be hauled per load.

The Lake States region also has some of the longest haul distances in the nation which suggests that the average mill in this region may not be well placed, especially when compared to the South and Pacific Northwest. Strategic placement of new industry could reduce Freight and Other costs and be more competitive nationally.

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F2M Derived Average Haul Distance (miles) by Region and Product Grouping

	Average Haul Distance		
Region	**Conifer**	**Hardwood**	**Aspen**
Lake States	106	114	72
Northeast	78	84	76
South	54	66	-
Pacific Northwest	48	41	-

Addressing efficiencies in Freight and Other costs may be implausible due to the capital costs required to change infrastructure. However, efforts to facilitate delivering wood directly from the landing to the mill could minimize a portion of the costs included in the Other category. Different truck configurations might increase load capacity and minimize empty backhaul situations.

Wisconsin's Harvesting costs are reasonably competitive on the national level when looking at percent of delivered costs. Only hardwood pulpwood in the South had a more favorable ratio. However, production whole-tree harvesting, as is common in the hardwood type in the South, is not likely a method of harvest to be adopted in Wisconsin's quality hardwood stands.

Lake States stumpage rates were not identified as being unusually high or notably divergent from the other regions evaluated. Wisconsin did have the highest stumpage cost for conifer pulpwood, but only $0.24/ton higher than the South.

The conclusions of this study are based on a snapshot in time. Evaluation of the F2M data for a longer time period, provided that it is summarized in a similar manner, would provide a more conclusive and statistically significant data set. Results represent averages over numerous reporting mills and wood suppliers over broad regions and may not capture or recognize smaller scale individual market or mill situations.

A copy of the complete project report and more information about the Wisconsin Forest Practices Study can be found at http://study.wisconsinforestry.org.