

Wood Supply Chain Efficiency and Fiber Cost: What Can We Do Better?

The forest products industry in the U.S. faces increased competition from every corner of the globe. For years the industry was a low-cost producer, benefiting from excellent infrastructure, productive forests on low-cost land, innovative logging contractors, and strong product markets. The U.S. South is no longer the lowest cost producer, however, even after discounting the impact of the recent weak dollar. Since fiber is the largest component of cash manufacturing costs in forest industries, fiber availability and cost can have a substantial impact on industrial profitability. To successfully compete in a global marketplace, our industry must continually evaluate how it supplies its mills and implements changes to keep it competitive. To address these questions, we examined: (1) the cost of doing business in the U.S. wood supply chain compared to foreign competitors, and (2) how the wood supply chain can be modified to improve its competitiveness in world markets.

We focused on four major wood supply regions. Brazil has 13 million acres of privately owned plantations. Eucalyptus, which accounts for more than 60 percent of planted area, has growth rates approaching 20 tons per acre per year. In total, Brazil harvests 110 million tons of plantation wood, half of which is used for pulp production. Sweden has long been recognized as a leader in technological innovation. Swedish forests, covering 57 million acres, produce nearly 70 million tons of wood annually. Unlike Brazil, growth rates are much smaller and rotations longer. Western Canada has 245 million acres of mostly Crown forests with an annual cut of 88 million tons. Catastrophic pine beetle damage results in massive salvage operations. Canada is the largest source of US lumber imports. Finally, Australia has about 4 million acres of plantations composed of both exotic (radiata pine) and native (eucalyptus) species. Plantations and natural forests produce 30 millions tons of wood. Australia positions itself for major presence in China and the region. In all regions forest certification is common, attesting high environmental standards in forest operations.

In terms of delivered pulpwood prices, the U.S. South was generally competitive with the rest of the world in late 2005 (Figure 1). The prices are lower in Brazil, but this gap has been narrowing recently. Brazil has the lowest wood delivery costs, largely because the wood comes from uniform plantations located close to the mill, low labor costs, and use of mechanized harvesting systems operating multiple shifts (Table 1). Furthermore, we find that comparative advantage and the competitive positions of the regions studied have become more changeable and temporal, indicating that global competition is increasingly intense. Exchange rate changes are responsible for a large part of the short-term change. Next come labor costs including benefits that frequently are the deciding factor in a region's ranking.

Major operational differences between the U.S. South and other major wood supply regions include truck payloads, scheduling and dispatching, contract hauling, cooperative maintenance, and logging contracts. Trucking in the major competing regions employs larger payloads than that allowed by gross vehicle limits in the U.S. South. Truck payloads reach 55 tons in Brazil on public roads, and as much as 66 tons on private roads. This is more than twice as much as currently allowed in the U.S. South (25-28 tons). On-board scales are uniformly used in most regions to ensure maximum payloads. Our competitors have also better scheduling and dispatching systems that allow eliminating much of truck wait time while loading and unloading. This, in part, is a result of a different approach to wood hauling, which is based on trucking contractors independent from wood harvesting operators. Multi-shifting is very common in Brazil. Our competitors benefit from longer

work contracts that can be used for financing their operations. Further, our competitors devote substantial resources to research, training, safety, and environmental compliance. Last but not least, our competitors benefit from the fact that forest management, logging, and wood manufacturing operations are closely integrated either through ownership or contracts.

To assess the prospective efficiency gains of fully loading our trucks more consistently, we analyzed 24 southern mills. The study found that ensuring maximum payloads and reducing load variability positively affects the wood supply system. In essence, more wood is transported in fewer trips. The resulting savings range from 4 to 13 percent, meaning that the southern wood supply system could save as much as \$100 million annually. We also evaluated the impact on trucking costs associated with higher payloads in the U.S. South by increasing the gross vehicle weight from 40 to 48.5 tons, as most highways are constructed to accommodate the increased weights. The potential cost savings reach 18 percent. The combined savings of fully loading trucks more consistently and implementing higher payloads could range from 20 to 30 percent.

The results indicate that the southern industry should consider at least some of the approaches implemented by our competitors to improve its own competitive standing. Clearly, the use of on-board scales to ensure full truck loading and higher payloads has the potential to reduce logging costs in the U.S. South. Unlike our competitors, our industry is very much disaggregated which makes planning and change implementation a much more challenging task. Further, we need to recognize that wood supply chain efficiency needs to be studied through to the final product. US paper mills as a group are no longer world-class, thus other regions are more competitive on a final product basis even though the US South is competitive at the raw material level. The US South does not have access to the well-funded, consistent research efforts that our competitors in Sweden, Western Canada, and Australia enjoy from Skogforsk, FERIC, and CSIRO. Until then, we will continue to watch other countries innovate in this area and adopt their technology after they have obtained the early and more profitable returns.

Figure 1. Delivered softwood pulpwood prices, 2005.

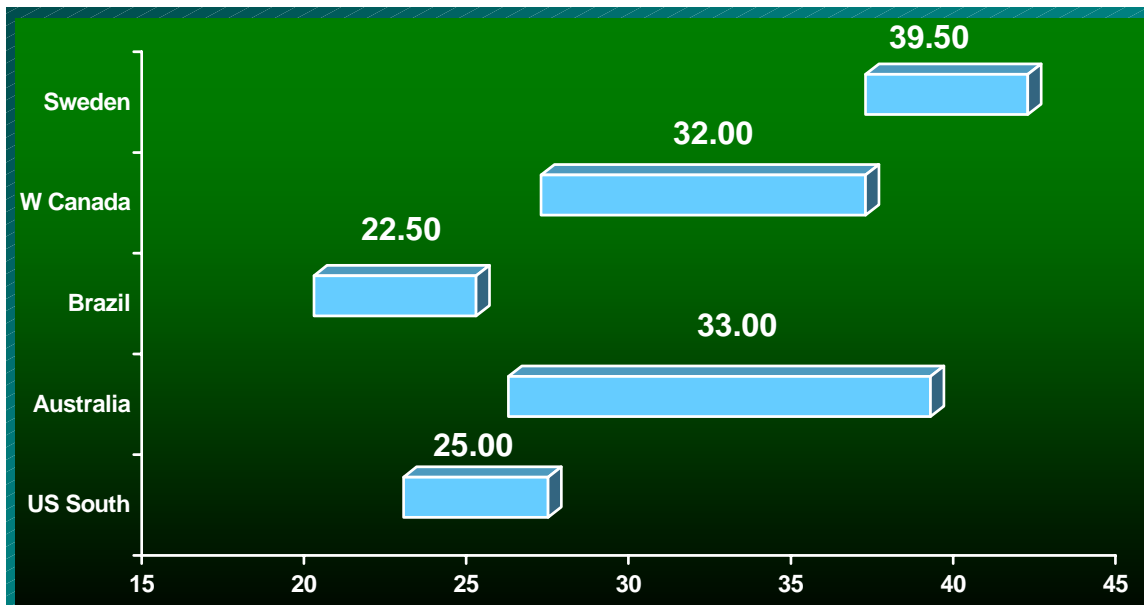


Table 1. Logging cost estimates, 4th quarter 2005.

	US South	Australia	Brazil	W Canada	Sweden
	\$US/green short ton				
Harvesting/Extraction/Loading	11 - 13	6 - 18	5 - 7	9 - 12	10 - 17
Hauling Rate	4 - 11	4 - 9	2 - 4	9 - 13	4 - 8
Total Cut-n-Haul	15 - 24	10 - 27	7 - 11	18 - 25	14 - 25

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