Delivered Price Benchmarks Sharpen Sawmill Performance

By Peter Coutu

In a manufacturing process in which more than 75 percent of the cost of the finished product can be attributed to raw material costs, constant attention to the details involved in procuring those raw materials is imperative. For a modern wood-products operation, this raw material cost comes in the form of harvested timber that has been delimbed and transported to the mill facility as logs on logging trucks. Since these truck deliveries keep the mill's equipment busy—while representing an enormous investment—procurement and supply-chain operations can make or break a facility's profitability.

For instance, in a streamlined sawmill operation, the key to managing the high cost of raw materials while maximizing output is buying the right-size log at the right price. Each mill has an ideal log size, which is a specific diameter and length, and is ideally suited for the mill's unique processing setup and the market conditions. When the mill saws logs this size, it runs at maximum efficiency. Going one step further, minimizing variability in the ideal log size is also vital to maximizing outputs and profits.

While my colleague Joe Clark notes that growing square trees would make life much easier for any sawmill [see tinyurl.com/gv3udb3], the reality is that managing a mill's supply-chain cost with quality data is the next best solution for running as efficiently as possible. Forest2Market's Delivered Price Benchmarks are built upon a bedrock of transaction-based data, providing a high level of detail into mill raw-material costs, as well as individual cost components and their variables.

These benchmarks provide a wealth of information that allows a wood-consuming facility to compare its raw-material cost to regional competitors and begin the process of identifying areas where supply-chain value can be increased. It is important to note that increasing supply chain value is different than simply lowering price; improving the supply chain implies that most, if not all, members of the supply-chain (landowner, logger, trucker, and mill) will benefit from the increased efficiency.

Using the Benchmark

Here's how to use the Delivered Price Benchmark:

Analyze raw material costs and individual cost components: The raw-material comparisons are initially done geographically by region, and the number of comparable mills within the study area may vary depending upon competitor density. The benchmark also addresses log-size variability and haul distance, as well as other variables to meet a facility's unique operations.

The benchmark delves into individual cost components by mill and creates a weighted average, as well as area regional averages for total delivered wood costs. This allows for a much more granular view of the many moving pieces that make up the total raw-material cost. In the example in Figure 1, pay close attention to Mill 6; while it is not leading the pack, it is outperforming the area average. Two components immediately stand out: Its stumpage costs are some of the highest in the entire area, and its cut-skid-load, freight, and commission costs are some of the lowest. If this mill were to rein in its high stumpage costs alone—even in line with the area average—it would likely become the top performing mill in the area.

Analyze log sizes and costs; In the chart in Figure 2, each of the mills average wood costs by pounds per lineal foot (PLF) is plotted against the market average (red line). While a few mills fall pretty close to the market average cost, many do not; they are either beating the market or paying above market price when measured in PLF.

As previously noted, running the ideal log through a mill ensures that it operates at peak-efficiency and paying a higher price for this ideal log may ultimately ensure mill profitability. Another factor to consider is haul distance. Since Forest2Market collects origin and destination data, mileage calculations will tease out nuances in mill performance. Note the dot at the highest point in Figure 2, which represents a mill's average wood cost by PLF at nearly $47/ton. While that is the highest price in the study area, it could 1) represent the ideal log size for that mill, 2) include additional freight charges associated with long haul distances, or 3) represent an area that needs substantial improvement to bring costs back in line with the market average.

Analyze all cost components with variables: Figure 3 provides a full-spectrum view of all cost components and variables for the example mills in the area; some of these items stand out and allow us to draw certain conclusions from the data. For instance, Mill 1 has the lowest total wood cost per ton. Its PLF, or log size, however, indicates it is running very small logs, which may limit the number and type of products it can saw and sell on the market. At the other end of the spectrum, Mill 16 has the highest wood cost per ton but also has a substantially higher average PLF, which means that Mill 16 should have more product flexibility. Because it is running much larger logs through the system, this mill may change saws or setups to create a number of lumber products.

Does mill flexibility lead to profitability? Not necessarily. As stated above, a number of operational factors must be taken into consideration, because each mill is unique. But the data show these individual supply-chain cost components, which provide a distinct view into area and regional competition.

In an industry with very tight margins, reducing raw material cost is the key to competing in today's lumber market—especially in the current economic and trade climate, which is so immersed in uncertainty. A wood-consuming facility that understands total log cost, individual cost

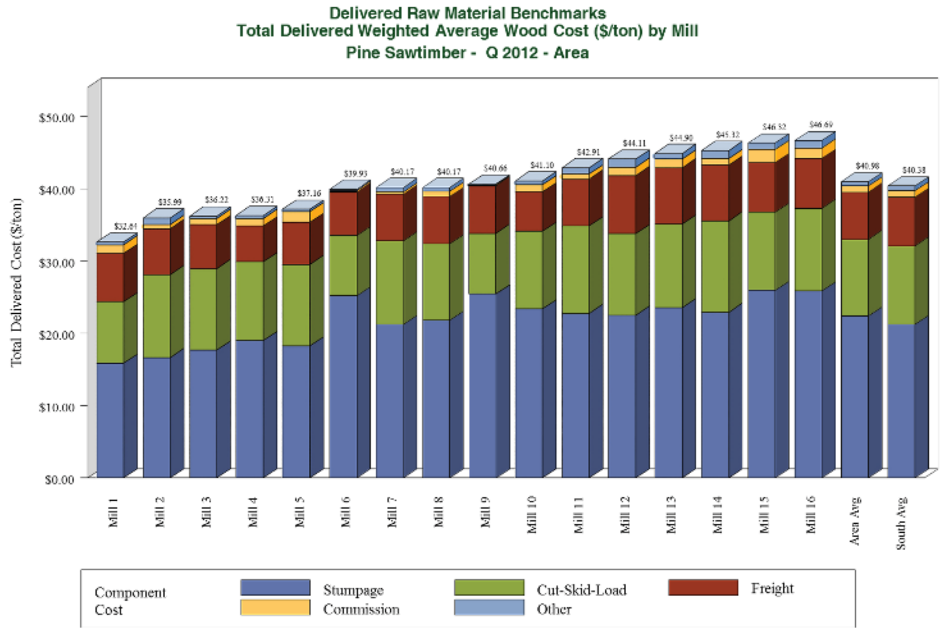

Figure 1. Although Mill 6 is not leading the pack, it is outperforming the area average. Note that its stumpage costs are some of the highest in the entire area, and its cut-skid-load, freight, and commission costs are some of the lowest. Source: Forest2Market.

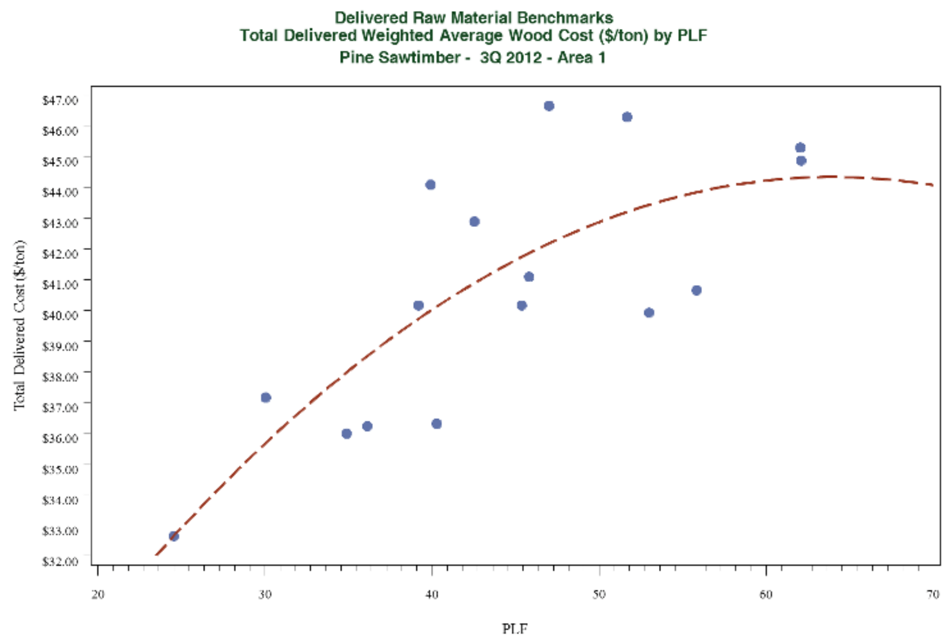

Figure 2. Average wood costs by pounds per lineal foot (PLF) plotted against the market average (red line). Source: Forest2Market.

Delivered Raw Material Benchmarks
Total Delivered Weighted Average Wood Cost ($/ton) by Mill Pine Sawtimber - 3Q 2012 - Area 1

Mill	Total	Stumpage	Cut-Skid-Load	Freight	Commission	Other	PLF	Miles	Total/PLF
Mill 1	$32.64	$15.84	$8.52	$6.67	$1.22	$0.38	24.55	45.05	$1.33
Mill 2	$35.99	$16.64	$11.48	$6.37	$0.59	$0.91	34.90	48.16	$1.03
Mill 3	$36.22	$17.67	$11.28	$6.07	$0.87	$0.33	36.14	42.48	$1.00
Mill 4	$36.31	$18.98	$10.94	$4.93	$1.03	$0.42	40.29	36.68	$0.90
Mill 5	$37.16	$18.27	$11.24	$5.82	$1.50	$0.32	30.05	40.52	$1.24
Mill 6	$39.93	$25.20	$8.33	$5.99	$0.27	$0.14	53.00	41.24	$0.75
Mill 7	$40.17	$21.25	$11.55	$6.42	$0.34	$0.62	45.38	44.17	$0.89
Mill 8	$40.17	$21.81	$10.59	$6.51	$0.77	$0.50	39.20	45.14	$1.02
Mill 9	$40.66	$25.45	$8.38	$6.62	$0.11	$0.11	55.85	43.96	$0.73
Mill 10	$41.10	$23.36	$10.75	$5.47	$0.94	$0.57	45.82	38.10	$0.90
Mill 11	$42.91	$22.77	$12.11	$6.47	$0.72	$0.84	42.55	45.21	$1.01
Mill 12	$44.11	$22.52	$11.26	$8.07	$1.16	$1.10	39.93	55.11	$1.10
Mill 13	$44.90	$23.52	$11.61	$7.79	$1.18	$0.80	62.11	54.50	$0.72
Mill 14	$45.32	$22.94	$12.61	$7.71	$0.93	$1.13	62.05	53.68	$0.73
Mill 15	$46.32	$25.95	$10.81	$6.84	$1.85	$0.87	51.69	46.08	$0.90
Mill 16	$46.69	$25.87	$11.41	$6.92	$1.43	$1.05	47.02	47.47	$0.99
Area Avg	$40.98	$22.37	$10.63	$6.52	$0.88	$0.58	43.85	45.17	$0.93
South Avg	$40.38	$21.26	$10.83	$6.72	$0.90	$0.67	40.57	46.46	$1.00

Figure 3. Cost components and variables for 16 example mills. Source: Forest2Market.

components, and the variable elements of these costs (haul distance, log size, etc.) is in a much better position to shape a successful strategy for log procurement efforts that will ultimately drive mill performance. With raw material being such a significant portion of the finished product cost, increasing supply-chain value is critical to success and profitability. FS

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TinyURL: Short Links

Ever wonder why *The Forestry Source* often prints so many website addresses that begin with tinyurl.com? In short, TinyURL LLC offers a service that lets you turn long website addresses into short (tiny) ones. Although other companies offer web-address shortening services for a small fee, TinyURL is free. *The Forestry Source* has made a small donation to TinyURL to support the service.

LETTERS TO THE EDITOR

Much Ado about Wildfire Trends

According to SAF's Code of Ethics, we pledge "to challenge and correct untrue statements about forestry." Therefore, I must challenge a statement made in the Science & Technology article on page 12 of the August edition of *The Forestry Source*, "Climate and Society Will Determine the Future of Wildfire in the South." Wildfires over the past decade are not "more frequent." Readers should examine the graph on page 5 (of August edition), read Karen Short's paper (tinyurl.com/jyvcgj9), and read my previous letter (November 2014 edition). In fact, declines in wildfire numbers have occurred in the South (tinyurl.com/z6p78sf) and even in California (tinyurl.com/juenf6x). The lowest year on record (for the South) was 2013, when fewer than 14,500 wildfires were reported by the National Interagency Fire Center (NIFC). I agree, when compared to nine other regions, there are more wildfires in the South (e.g., 46 percent of the 68,151 wildfires reported by NIFC for 2015). However, it would be wrong for readers to assume "more frequently in the South" means wildfire frequency in the South is greater now than in 1996.

I agree that for the Southern states, "compensating forces from relatively poorly constrained projections of climate changes (particularly precipitation), vegetation changes, and population effects cause much spatial heterogeneity in fire projections" (tinyurl.com/hdq44sf). I say the uncertainty is so great that no amount of simulations for the South will accurately predict (±5 percent) the number or area of NIFC wildfires for a (randomly selected) five-year period. For example, computer simulations might suggest a median value of 635,900 acres of human-caused wildfires in the South (2011–2015), while the NIFC mean is about one-third greater (851,965 acres). On the other hand, average wildfire size on national forests will likely increase if society continues to favor increasing fuel loads over time. Average size could also increase if more lightning-ignited wildfires are allowed to burn where feasible (a policy I favor; see page 4 of the August edition). Although I agree that increasing CO_2 will increase fuel loads slightly (i.e., CO_2 fertilization), many foresters know that forest management affects fuel loads to a much greater extent. Since there are problems with identifying the cause of wildfires, and even with determining the total number of wildfires (tinyurl.com/heey5f9), I am at a loss to understand why some experts want to convince the public that increasing CO_2 will increase the incidence of lightning-ignited wildfires. Especially when in the South (1992–2013) the ignition cause for about 25 percent of reported wildfires (1992–2013) is not defined (i.e., miscellaneous, missing, or undefined; tinyrul.com/ztyn4yv).

In my view, the August Science & Technology article demonstrates how far our profession has drifted away from science. Many now seem to ignore variability, historical data trends, and missing data, and are too willing to assume that commonly repeated guesses are facts. For example, the article states that a study "found that changes in climate will be

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