Gathering, Analyzing Logging Business Metrics Effectively

Tracking costs and productivity by machine and operator doesn't have to be complicated or time consuming.

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When I started my career as a professional economist working in Washington, DC, I certainly never planned on owning a forestry software company in Hinton, Alberta. Yet as life would have it, that is precisely what happened. This has presented me with a fascinating, real-world-laboratory from which to watch microeconomics and the mechanics of capitalism in action every day. I see both the beauty and the brutality with which markets can work, and I get to observe how different entrepreneurs approach everyday business decision-making in the real world.

I've met some extraordinarily astute, successful logging and sawmill entrepreneurs in these last 15 years who could run circles around many of the multinational corporate professionals with whom I worked in my prior life. These entrepreneurs have figured out the business metrics they need to monitor in order to compete successfully, and they've implemented efficiency-enhancing data management tools to collect and deliver that data.

I've also met some very hardworking, successful forestry business owners who run their business mostly by "braille"—blind to their key business metrics. They work 10-12 hours a day, and operate on a hope and a prayer that their hard work will pay off, too short of time to keep an eye on their numbers. The last thing they have time to do is spend countless hours gathering data. But tracking your data doesn't have to be daunting if you approach it pragmatically.

And then, of course, I've met forestry business owners who love being in the woods, but aren't prepared for the business responsibilities that come along with making a viable livelihood out of their endeavor. All too often, their logging operation is nothing more than an expensive hobby at best, and at worst, a hobby that puts their livelihoods and their families at risk.

And so it seems my vocation in life was not to become a tax policy economist, as I aspired to do when laboring over econometrics text books, but rather to proselytize to forestry companies about the importance of tracking and analyzing the economics of their business so they can stay in business.

Key Logging Metrics

I interviewed a small handful of companies for this article from North and South, East and Midwest, and also reflected back on reports that various of our users have commissioned over the years. Based on that experience, I've listed my top five favorite business metrics for logging companies.

1. Average cost per ton (or MBF or cord or cubic meter) of wood
2. Ratio of volume produced to machine hour spent—ideally by phase of operation
3. Truck Cash Flow (Portion of revenue attributed to the hauling phase for the loads delivered by a given truck relative to the truck expenses for the same period, including driver wages, fuel, insurance costs, and major repair bills)
4. Major Equipment Expenses by Machine Unit
5. Truck Revenue per Driver Hour Worked and Per Loaded Mile Traveled

Developing representative cost and production data segments makes key business metrics tracking less burdensome.

Measure, Gather, Monitor

Gathering and analyzing data doesn't have to be that complicated, as long as you approach the task pragmatically and note the cost-benefit tradeoffs so you get to the finish line. Basic principles include:

- Rely on data to inform decision-making: I often ask clients and prospects about whether they know their average fuel consumption per hour for their various types of machines, or if they know how many hours or man-days it took to do the cutting, skidding, and loading on the last job they did relative to the volume they produced on that job. For every one who tells me of course they do, I probably have a dozen more who respond with a deer-in-the-headlights look. Thankfully, gathering data and making use of it doesn't have to be as daunting as it seems, which leads me to the next point.
- Use sampling to keep the data collection manageable: You don't have to commit to keeping detailed records on every single machine every day, or tracking every single machine expense down to the last penny in order to operate a data-driven business. But you should commit to tracking key data for discrete amounts of time to get some representative benchmarks in place. For example, you can commit to tracking fuel gallons consumed by a single logging crew for two weeks. During a two-week data gathering exercise, get your operators to mark down the hour meter reading at the start and end of that two week period, so that you can look at the gallons/hour each machine on that crew consumed. Figure out the average price per gallon during that two week period to get a reasonable estimate of the fuel costs associated with every hour you have your machine running.
- Sampling and estimating keep you focused on the forest, not tangled in trees: Accountants may need to track expenses down to the last penny, but economists don't and neither do you. For example, when tracking machine repairs and expenses, keep it simple. Focus on the big expenses that are over a certain cost threshold, and get your mechanic to at least approximate how many hours each day he spent doing what on each machine, then apply a wage rate to that time. If he's on salary, then assume he works 40 hours a week, and convert his weekly salary to an hourly rate. Sure, he'll work more than 40 some weeks, and less in others, but it's a reasonable assumption that makes the tracking manageable. Commit to doing it for 3 or 6 months, then use that portion of the year's worth of data to extrapolate to the whole year, excluding big things like new tires when you estimate the remaining year's worth of data.
- Monitor productivity: Most loggers are pretty good at tracking their output: They can usually tell you the loads each crew produces each week, and the corresponding tons or MBF or cords. What most are surprisingly bad at is tracking the inputs. And yet it is output relative to input that defines your productivity and plays a big factor in your cost structure. As one of my more astute business owners from northern Michigan (who does monitor his productivity on a job by job basis) said to me, "Knowing how many tons only tells me half the story – the other half is knowing how many hours it took my operators and my machines to do it!"

It seems obvious, right? Revenue is driven by output, but costs are driven by inputs. Yet surprisingly few loggers really know their tons/hour statistics by crew, let alone by job. In preparing this article, I worked with two successful, established companies in the South who do a great job of tracking their production by crew, their average load weights, their stumpage costs and their trucking costs. Yet when it came to their harvest crew productivity metrics, they struggled. Come to find out, both had data that they had collected in the last year that would allow them to at least make an educated guess about their output to input ratio (tons/hour). Yet neither of them, until the writing of this article, had ever thought to use the data they had collected to look at their tons per hour ratios.

18				
19	**Cost, Vendors**			
20	Sub Contractors, Load Pay			
21	STUMPAGE	$88,933.46		
22	TRUCKING	$21,288.82		
23	Total Sub Contractors, Load Pay:	$110,222.28		
24				
25				
26	**Total Cost:**		$135,102.78	
27				
28	Total Profit:		$1,180.39	
29				
30	Activity	Total Cost	$/TON	TON/Hr
31	FALLING	$8,248.50	$3.82	36.89
32	LOADING	$7,843.50	$3.63	34.26
33	SKIDDING	$8,788.50	$4.07	34.26
34	STUMPAGE	$88,933.46	$41.21	0
35	TRUCKING	$21,288.82	$9.86	0
36	**Totals**	**$135,102.78**	**$62.60**	**11.7**
37				
38	Tract Start/End			
39	Start:	2/10/2022		
40	End:	2/25/2022		
41				

Understanding the Productivity of your Crews and Your Job Profits is Critical to Survive and Thrive in Competitive Logging Markets

The first did not keep time sheets for their operators (though interestingly they do for their truck drivers). But they do keep records on the hourly meter read on each machine each week. By looking at the machine hour read at the beginning of the year, and at the end of the year on each machine in the crew, they were able to approximate the number of machine hours it took to produce the tons attributed to that crew during that same year period. Obviously, every hour that the machines were running were not actually productive hours, so using this data overstates the real productive hours. But if you back off at least an hour a day per machine to factor in lunch and breakdowns, then you have at least a reasonable approximation of productive hours. Is it exact? No. Does it need to be? No.

The second company actually kept time sheet records in our software as well as all their load ticket data, tracking both the operator and the machine on each job—a rare thing in the South! With this data, I was able to point them to a report in the system that let them see the total tons produced on the job, relative to the hours spent on bunching versus skidding versus loading.

Carrying this method of analysis one step further, we ultimately built up to an estimate of what it cost per productive machine hour for the crew to produce a ton of wood. With just a bit of algebra applied, we determined the costs per volume for the whole crew, which is really what you want to know, given that your revenue is generally earned per volume of production.

The bottom line? Given that you invest hundreds of thousands of dollars or more in equipment, it's imperative to invest some time in understanding the economics of your business to help guide your decision-making. Otherwise, you may just have an expensive hobby on your hands. **TH**

Teresa Hannah is owner of Caribou Software and she extends a big "Thank You!" to Reid Logging from Georgiana, Ala., St John Forest Products from Spalding, Mich., Usher Land and Timber from Chiefland, Fla., Khiel Logging from Denmark, Maine, Shelby Taylor Trucking from Sheridan, Ark. and many other loggers over the years who have contributed to this article directly or indirectly.