

If America Had Canada's Stumpage System

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Abstract: The North American lumber market is integrated and, under normal conditions, provides unhindered access to all suppliers. North American log markets, in contrast, function on different principles: in one principle, a profit allowance for the wood processor plays a role in timber pricing, whereas in the other it is a byproduct of the give-and-take of arm's length market negotiations. Under the first system, markets are characterized by high elasticities of price transmission and, at times of market weakness, by low elasticities of product supply. Under the second system, the opposite of these benchmarks prevails. This can result in asymmetric supply responses in weak markets, to the detriment of U.S. producers. Whether this is a subsidy in the sense of conferring a direct financial contribution by the government or merely a more efficient pricing mechanism is beclouded by the dearth of market-based transactions. The challenge in the lumber dispute then is to devise a system of pricing in Canada that is more transparent in regard to the underlying valuation of timber. *FOR. SCI.* 52(4):443–445.

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IF AMERICA HAD CANADA'S STUMPAGE SYSTEM . . . there wouldn't be much of a dispute. But the reality is that there are two distinct models of timber valuation, and the core of America's complaint vis-&-vis Canada is that, as a result, there is an asymmetry in the market where the two sides compete: on the one hand, all producers have equal access under the same rules and standards to the U.S. lumber market, but at the timber supply level, a different and exclusionary Canadian timber pricing model provides wood at rates that disadvantage U.S. competitors. Canadians acknowledge that "Canada has a competitive advantage in the way it prices timber, but it's not a subsidy" [1].

Discussion

To better explain this central issue from the U.S. perspective, let us review market dynamics and industry trends from the viewpoint of a "typical" sawmill in, say, Georgia. Figure 1 shows quarterly unit gross revenues for such a mill over the last 5 years.

Using representative regional costs, let's deconstruct this figure into its component parts. Over this period, estimated variable costs (fully loaded labor, energy, supplies) accounted for about \$66 to \$78 per thousand feet (see Spelter 2005 for details of cost estimation). Fixed costs (administration, depreciation, overhead) accounted for a further \$28 to \$32. Granting this operation a 5% allowance for profit and risk, a key postulate in the process, takes out an additional \$15 to \$22.

Converting the remainder from lumber tally basis to log scale and subtracting the costs of harvesting and hauling

(\$87 to \$95) creates an estimate of the residual value of the wood on the stump ("stumpage"). Lag this by one quarter and you get an approximation of the way in which stumpage is determined in many Canadian jurisdictions (Figure 2) [2].

This system seems to be eminently fair. When lumber prices are up, stumpage is up, when they are down, stumpage is down. I cannot imagine many lumbermen, North or South, who, if given a choice, would not prefer such a stumpage pricing system over the uncertainties of competitive markets. Except that such a system is generally not available to U.S. producers, where timber is scattered across a wide range of ownerships and sold at arm's-length auctions.

When we compare these residual stumpage values to actual market prices [3], we find significant and sustained differences between them (Figure 3). Now imagine two mills, identical in every way except in timber procurement. One mill gets its timber from a single supplier priced according to the model described above on the basis of the mill's costs; the other procures timber at prevailing open market rates. To see how each would fare, consider the percentage differences in timber costs (Figure 4).

Over the entire 5-year period, the two prices are essentially the same (i.e., within the margin of error). This perhaps generates the claim that Canadian timber is not subsidized. But even if so, in 11 quarters of a 13-quarter period, stretching from the fourth quarter of 2000 to the fourth quarter of 2003, the market-dependent mill would have incurred cost disadvantages of up to 25% in timber. If reserves (or the tolerance of lenders) allowed, over the 5-year period the mill would make up these losses. Even

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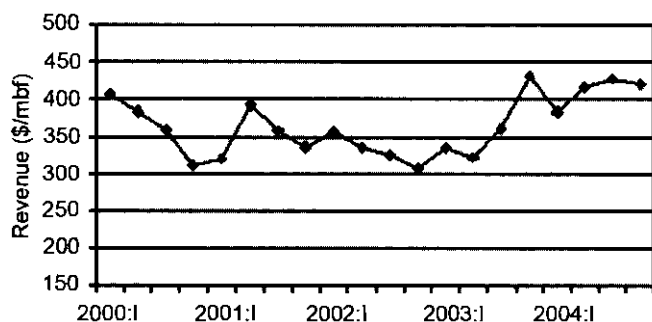


Figure 1. Gross revenue of “typical” mill in Georgia.

then, however, consider which mill owner would be in the stronger position to make capital investments to stay competitive and which would more likely shoulder the burden of curtailments in weak markets. This, in my view, is the crux of the difficulty in having two different stumpage systems, one which embeds a profit margin for the processor and the other in which profit results from the ebb and flow of market transactions.

The dynamics of prices between a dominant market (lumber) and a derivative market (timber) is captured in a statistic called the elasticity of price transmission (EPT). This has been estimated for southern pine at various times to be inelastic (less than 1), a result confirmed here as well (Table 1). Likewise, western U.S. regions showed inelastic EPT values (Table 2). This means that U.S. timber prices are “sticky” and are not fully responsive to swings in lumber prices. But, if they aren’t, then the difference must be made up elsewhere, which of course is in the bottom line (i.e., profits). By contrast, a pure residual value prining model will produce unitary or higher elasticities, meaning more stable profitability. For example, for the period of Apr. 1999 to Sept. 2004, I estimated the EPT for Ontario at 1.2.

This difference has real-world ramifications as illustrated by events in the year 2000 (Figure 5). Lumber prices started out high but fell as the year unfolded, ending at almost half their starting value. In response, western U.S. suppliers gradually reduced production. Compare that to the more inelastic response of Canadian producers East of the Rockies. The divergence in total domestic U.S. supply versus imports from Canada was even sharper. Year 2000 price elasticities of supply by various regions were lower for Canada (Spelter 2001): Canada east of the Rockies EOR

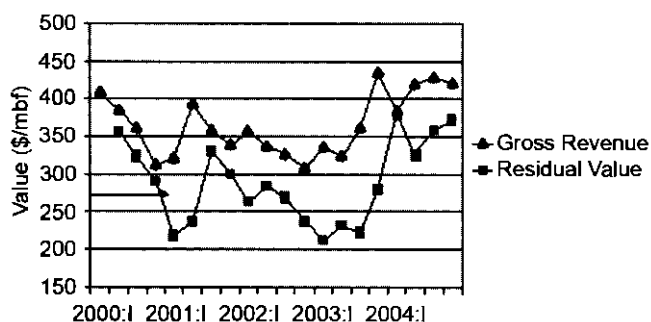


Figure 2. Residual stumpage value lagged one quarter.

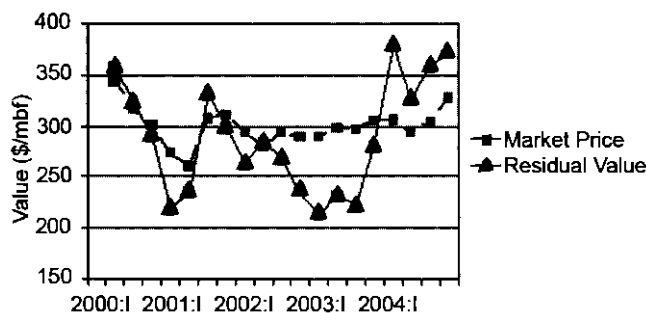


Figure 3. Residual stumpage value as a function of market stumpage price. Market price source: Timber Mart South (www.t-mart-south.com/tmart).

0.09, British Columbia 0.22, U.S. South 0.26, U.S. North 0.30, U.S. West 0.36. This means that Canadian mills were able to produce under low prices for a longer time, which is attributable in the first place to lower costs. An advantage in timber costs is one likely reason for this along with other factors, such as a low-valued Canadian dollar at the time [4].

Other Considerations

One difference between U.S. and Canadian timber markets is their relative responsiveness to changes in lumber prices. The systems set up in parts of Canada feature greater efficiency in responding to downstream market changes than do U.S. markets. This certainly “confers an advantage” in times of weak prices, but, because it cuts both ways when prices rebound, it is unclear whether this is a subsidy in the sense that the North American Free Trade Agreement and World Trade Organization agreements were meant to deal with, i.e., direct financial aid furnished by a government.

However, among the U.S. disputants, many maintain that not only is a cyclical advantage conferred on Canadian sawmills, but also a secular advantage, stemming from chronically below-market-value stumpage charges. This is indicated by prices that are purported to be continually lower than those for similar timber sold in the United States.

Canadians respond by pointing out that their stumpage

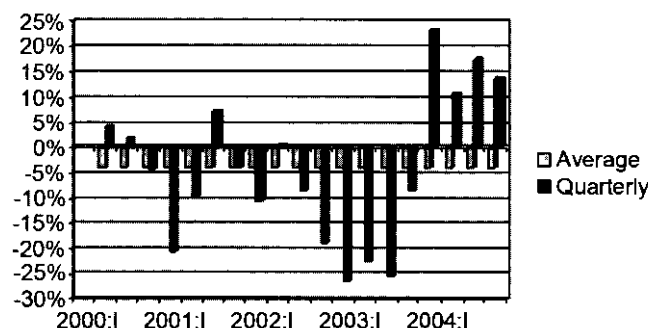


Figure 4. Average and quarterly differences in residual and market values.

Table 1. Estimates of elasticity of price transmission for various southern regions

Region	Elasticity of price transmission	Source
Southern pine	0.64	Haynes (1977)
Southern pine	0.60	Holley (cited in Haynes)
Southern pine	0.36	Adams (cited in Haynes)
Georgia	0.36	Spelter (2005)
Alabama	0.35	Spelter (2005)
Texas	0.30	Spelter (2005)

system revolves around a general arrangement of licenses, in which the license holders bear much of the burden of forest management costs; this system is absent for U.S. counterparts. These include costs for the building of primary and secondary roads into essentially virgin terrain, harvest and forest management planning, reforestation, and other silvicultural tasks. Canadians maintain that, when such costs are added to direct stumpage charges and the total is properly converted from Canadian cubic scaling units to U.S. equivalents, the differences become insignificant.

One difficulty in making proper apple-to-apple comparisons is that this system is opaque. Silvicultural, reforestation, and road building charges can occur before, during, and after a sale, such that it is hard to match ongoing expenditure streams to point-in-time sales. One way to address this and make the system more transparent is to impute all estimated peripheral costs into timber volumes and to pay these at the time of harvest into an escrow account, from which costs are reimbursed as they are actually incurred. Such a system is in place in Ontario where timber buyers simultaneously pay both the stumpage and a "forestrenewal" charge as timber is taken.

But even if timber costs prove to be lower in Canada, Canadians argue that this in and of itself is not sufficient to prove subsidy based on economic considerations. Timber valuations vary depending on local demand—supplybalances. Timber cost disparities exist within U.S. regions as well, and sawmill capacity exits and enters regional timber baskets as relative valuations shift. A government subsidy becomes evident when prices set by governments are below those for similar timber available on open markets within the same timber basket.

This brings us to the essence of the dispute, which is a dearth of significant open market transactions in many parts

Table 2. Estimates of elasticity of price transmission for various western regions

Region	Elasticity of price transmission	Source
Western lumber	0.45	Haynes (1977)
West Coast lumber	0.38	Haynes (1977)
Rocky Mt. Lumber	0.35	Adams, cited in Haynes
West Coast lumber	0.36	Vaux, cited in Haynes
Oregon	0.27	Spelter (2005)
Montana	0.42	Spelter (2005)

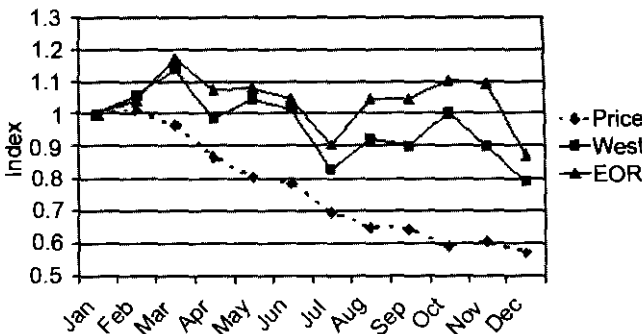


Figure 5. Price of spruce in 2000 compared with supply in U.S. West and Canada EOR. Source: Western Wood Products Assoc., Portland, OR (www.wwpa.org).

of Canada against which government stumpage charge policies can be compared. The counterfactual analysis presented here—contrasting different prices in Georgia—was possible only because there is a robust market consisting of many sellers and buyers conducting transactions that are tallied by an independent price reporter. The setting aside of a portion of Canadian government-owned timber to be made available to the highest bidders would be perhaps the surest way to clarify the issue, which otherwise is bogged down in often metaphysical arguments regarding what valuations are proper.

Concluding Remarks

The principles that govern North American log markets can result in asymmetric supply responses in weak markets, to the detriment of U.S. producers. The challenge in the lumber dispute is to devise a more transparent system of timber pricing in Canada.

Endnotes

- [1] Attributed to forestry consultant Russell Taylor in an article by Paul Marck in the *Edmonton Journal*, January 9, 2003.
- [2] Actual stumpage prices involving an exchange of funds at time of harvest are net of deductions for costs that leaseholders incur in managing their leases, including road building, reforestation, silviculture, and harvest planning.
- [3] Reponed by Timber Mart South (www.t-mart-south.com/tmart/).
- [4] The "use or lose" quota system in place at the time under the Softwood Lumber Agreement was another element in Canadian decision making that favored sales.

Literature Cited

HAYNES, R. 1977. A derived demand approach to estimating the linkage between stumpage and lumber markets. *For. Sci.* 23(2):281–287.

SPELTER, H. 2001. Why U.S. and Canadian sawmillers disagree. C.C. Crow Publications, Portland, OR., February 23, 2001

SPELTER, H. 2005. A review of alternative measures of softwood sawtimber prices in the United States. USDA For. Serv. Res. Pap. FPL-RP-629. 19 p.