

If the U.S. Had Canada's Stumpage System...

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Abstract: North American log markets function on different principles - a profit allowance for the wood processor plays a role in timber pricing in Canada, while in the United States, it is a byproduct of the give and take of arm's - length market negotiations. The former is characterized by high elasticities of price transmission and, at times of market weakness, by low elasticities of product supply; the other, by the opposite of these benchmarks. 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 different 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 regarding the underlying valuation of timber.

Keywords: Timber pricing, subsidy, elasticity of price transmission.

¹²⁴The views expressed herein are those of the author and do not necessarily reflect official positions of the U.S. Department of Agriculture or any other branch of the U.S. government.

Background

If the United States 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 the U.S. complaint vis-&-vis Canada is that, as a result, there is an asymmetry in the market when 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."¹²⁵

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 past five years.

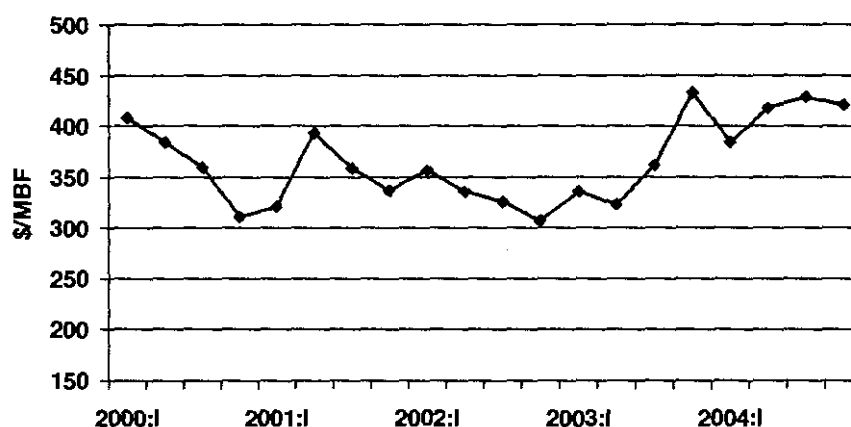


Figure 1. Gross revenue of typical mill, Georgia.

Using representative regional costs, let's deconstruct this into its component parts. Over this period, estimated variable costs – fully loaded labor, energy, supplies - accounted for about \$66 to \$78 per thousand feet (MBF) (see Spelter, 2005, for details of cost estimation).

Fixed costs - administration, depreciation, overhead –accounted for a further \$28 to \$32/MBF.

Granting this operation a 5 percent 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 MBF - creates an estimate of the residual value of the wood

¹²⁵ Quote attributed to forestry consultant Russell Taylor in article by Paul Marck, the *Edmonton Journal*, January 9, 2003.

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)¹²⁶.

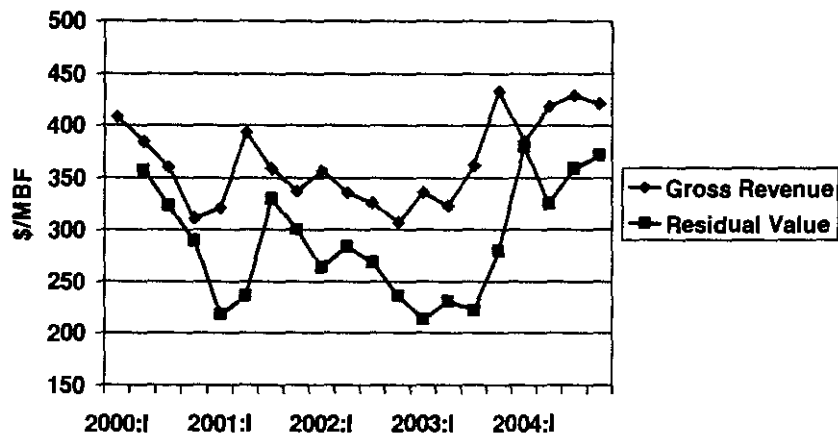


Figure 2. Residual stumpage value lagged one quarter.

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. 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 prices¹²⁷, we find significant and sustained differences between them (Figure 3). Now imagine two mills identical in every way except in their timber procurement. One gets timber from a single supplier priced according to the model described above on the basis of the mill’s costs; the other, at prevailing open market rates. To see how each would fare, consider the percent differences in timber costs between them (Figure 4).

Over the entire five years, 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 percent in timber. If reserves (or the tolerance of lenders) allowed, over the five-year period the mill would make up these losses, but even then consider which mill owner would be in the better 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 stumpage systems, one which embeds a profit margin for the processor, the other in which profit results from the ebbs and flows of market transactions.

¹²⁶ Specific stumpage prices actually involving an exchange of funds at time of harvest include explicit or implicit deductions for costs that leaseholders incur in managing their leases, including road building, reforestation, silviculture and harvest planning.

¹²⁷ Reported by Timber Mart South.

The dynamics of prices between a dominant (i.e., lumber) and a derivative market (i.e., 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 (i.e., less than 1), a result confirmed here also

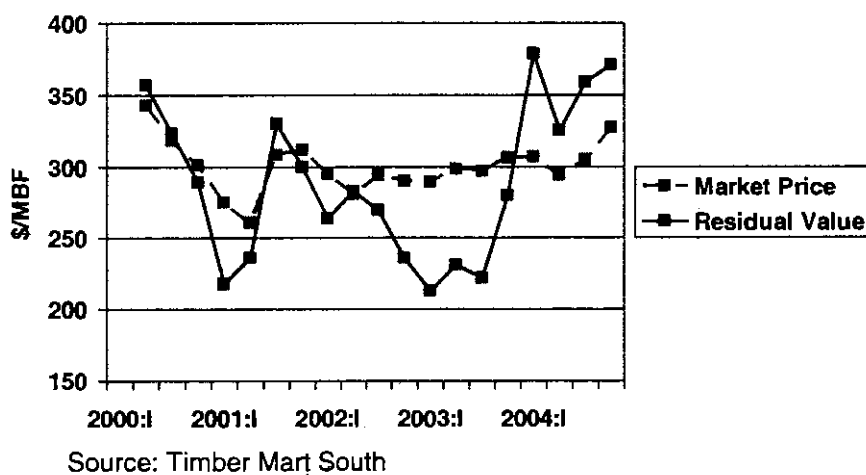


Figure 3. Residual stumpage value versus market stumpage price.

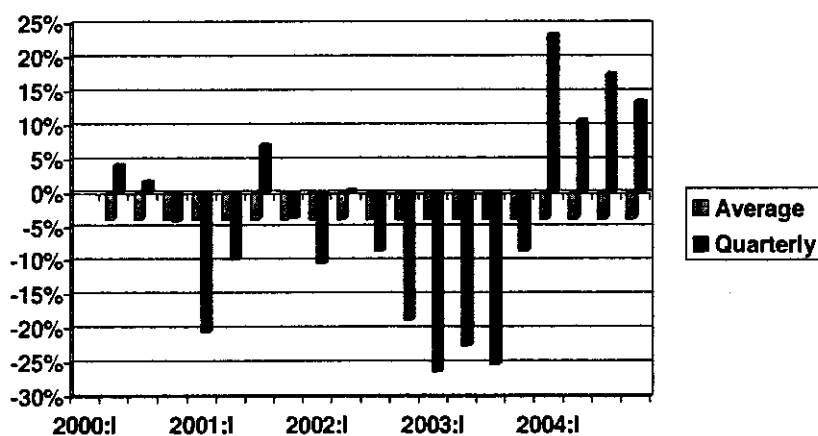


Figure 4. Average and quarterly differences residual value versus market.

(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 pricing model will produce unitary or higher elasticities, meaning more stable profitability. For example, for the period 1999:04 to 2004:09, 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 with the more inelastic response of Canadian producers east of the Rockies. The divergence in total domestic U.S. supply vs. imports from Canada was even sharper. Year 2000 price elasticities of

supply by various regions are listed in Table 3 and are lower for Canadian regions. This means that Canadian mills were able to produce under low prices longer, 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.¹²⁸

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

Region	Elasticity of price transmission	source
Southern pine	0.64	Haynes
Southern pine	0.60	Holley cited in Haynes
Southern pine	0.36	Adams cited in Haynes
Georgia	0.36	Spelter
Alabama	0.35	Spelter
Texas	0.30	Spelter

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

Region	Elasticity of price transmission	source
Western lumber	0.45	Haynes
West Coast lumber	0.38	Haynes
Rocky Mtn. Lumber	0.35	Adams cited in Haynes
West Coast lumber	0.36	Vaux cited in Haynes
Oregon	0.27	Spelter
Montana	0.42	Spelter

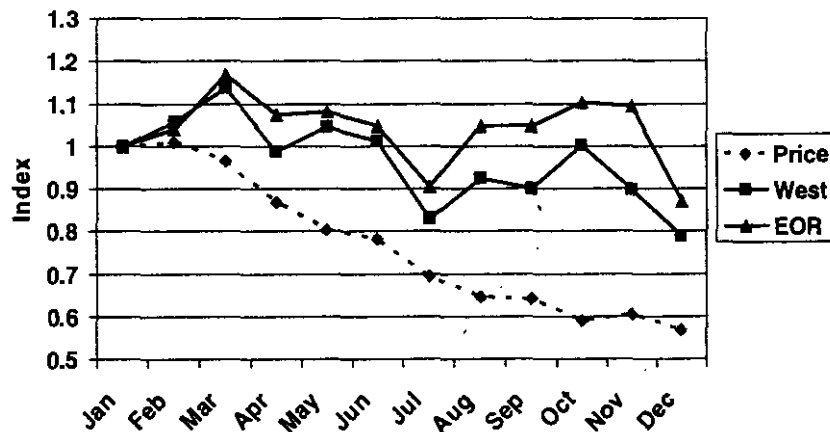


Figure 5. Spruce price in 2000 compared with supply responses in U. S. West and Canada EOR.

(Source: WWPA)

¹²⁸ The “use or lose” quota system in place at the time under the Softwood Lumber Agreement was another element in Canadian decision making favoring sales.

Table 3. Estimated response of production to price in five North American regions, 2000.

Canada EOR	Br. Columbia	U.S. South	U.S. North	U.S. West
0.09	0.22	0.26	0.30	0.36

Source: Spelter, 2001.

Other Considerations

One difference between U.S. and Canadian timber markets that this presentation points out is the 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 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 if this is a subsidy in the sense that NAFTA and WTO agreements were meant to deal with—i.e., direct financial aid furnished by a government.

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

Canadians respond by pointing out that their stumpage system revolves around a general arrangement of licenses in which the license holders bear much of the burden of forest management costs that is absent for their 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 onto 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 apples-to-apples comparisons is that this system is opaque. Silvicultural, reforestation and road-building charges can occur before, during and after a sale, so it is hard to match ongoing expenditures 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 “forest renewal” charge as timber is taken.

But even if timber costs prove to be lower in Canada, Canadians argue that that in and of itself is not sufficient to prove subsidy on the basis of economic considerations. Timber valuations vary depending on local demand-supply balances. Timber cost disparities exist within U.S. regions, too, and sawmill capacity continually exits and enters regional timber baskets as relative valuations shift. A government subsidy becomes most clearly 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 of Canada against which government stumpage charge policies can be compared. The counterfactual analysis contained 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 at

least 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.

Summary

In summary, the North American lumber market is integrated and under normal conditions provides unhindered access to all suppliers. North American log markets, on the other hand, function on different principles in which a profit allowance for the wood processor plays a role in timber pricing in one market, while in the other it is a byproduct of the give and take of arm's-length market negotiations. The first is characterized by high elasticities of price transmission and, at times of market weakness, by low elasticities of product supply; the other, by the opposite of these benchmarks. 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 regarding underlying valuation of timber.

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