Forest Research Group

Forest Research Notes

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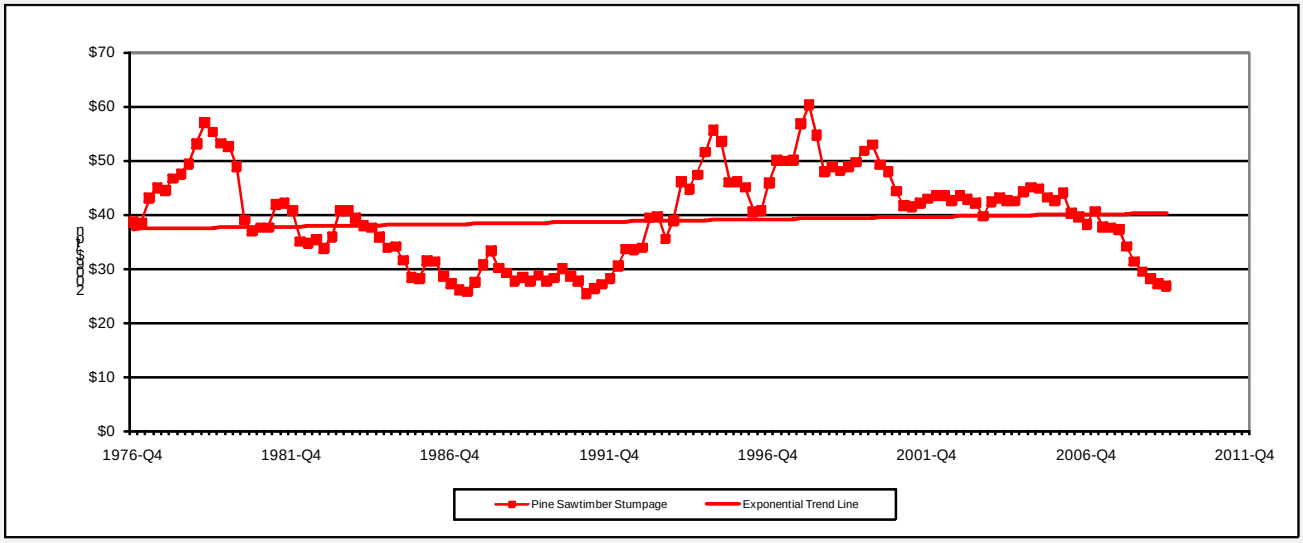
Timber Prices

US Housing starts are at historically low levels and struggling to end the year at about one-third of the historical annual average rate of 1.5 million units. This has sharply reduced demand for softwood lumber and softwood sawtimber. Retail sales are down, reducing demand for paperboard packaging. What has this meant for timber prices? In the two preceding Forest Research Notes, we showed that timber prices are not as strongly affected by end-use markets as might be supposed. But many timber price series are currently below their long-term averages.

Southern Pine Sawtimber

Figure 1 shows quarterly, real (2009$), southwide sawtimber stumpage prices since 1976. Current prices are about two-thirds of the long-term average. The long-term trend, as indicated by both the exponential and linear trend lines, is positive, though the lines are very weak statistically.

Figure 1. Southern Pine Sawtimber Stumpage



		Cur/Trend		Actual			10 Yr CGR		25 Yr CGR	
Current Reported $/ton	$26.75			Qtr	Ann	R2	Qtr	Ann	Qtr	Ann
Current Exponential Trend $/ton	$40.23	66.50%	Compound Growth Rate	-0.28%	-1.128%					
Current Linear Trend $/ton	$40.97	65.30%	Exponential Trend Change	0.06%	0.23%	0.0104	1.08%	4.41%	0.48%	1.95%
Series Average	$39.68	67.42%	Compound Growth Rate of Linear Trend	0.05%	0.20%					
Standard Deviation	$8.43		Linear Trend Change	$0.02	$0.08	0.0085	1.12%	4.56%	0.49%	1.99%
Coefficient of Variation	21%									

Source: Timber Mart-South

Additional analysis (not shown)[1] indicates that the sawtimber price series is mean-reverting. Based on historical performance, we can expect prices to recover to their long-term average. But, Figure 1 also shows that timberland owners can be subjected to price cycles that last decades.

It is important to keep in mind that sawtimber in 2009 is not exactly the same as sawtimber in 1976. Differences in logging technology and processing technology have resulted in current log specifications that are different now than they were thirty years ago. The lowest quality sawlogs in 1976 were larger and straighter than the lowest quality sawlogs in 2009. Chip N Saw (CNS) technology[2] is one example of the change. Timber Mart-South did not report CNS prices until 1980, which indicates the market for CNS logs was not well-developed until then. If we looked at stumpage prices only for material that met the 1976 sawlog specification, we might find that current sawtimber prices would be higher.

Southern Pine Pulpwood

Southwide pine pulpwood prices have not fallen during the recent economic crisis. There have been pulp mill and panel plant closures, so why haven't pulpwood prices declined? Pulpwood roundwood competes with (and complements) sawmill chips as fiber for pulp mills. The number of sawmill closures has severely reduced the volume of sawmill chips available for pulp mills, so they have had to increase the volume of pulpwood roundwood they have consumed.

Keep in mind that "pulpwood" is no longer just wood used in making pulp. Panel plants such as those that make Oriented Strand Board (OSB) consume logs that could just as well be used by a pulp mill. Many of these mills have cut back production or closed as a result of the collapse in housing starts as housing is an important consumer of these panels.

There is also a growing demand for wood-based energy in the South, and some of the fiber consumed by power plants and pellet plants would also meet "pulpwood" specifications. These wood consumers can also take branches and tops and very poor quality material that the pulp mills and panel plants cannot use.

In summary, "pulpwood" prices have been relatively level since 2001 and this is due in part to changing end-use markets for this material.

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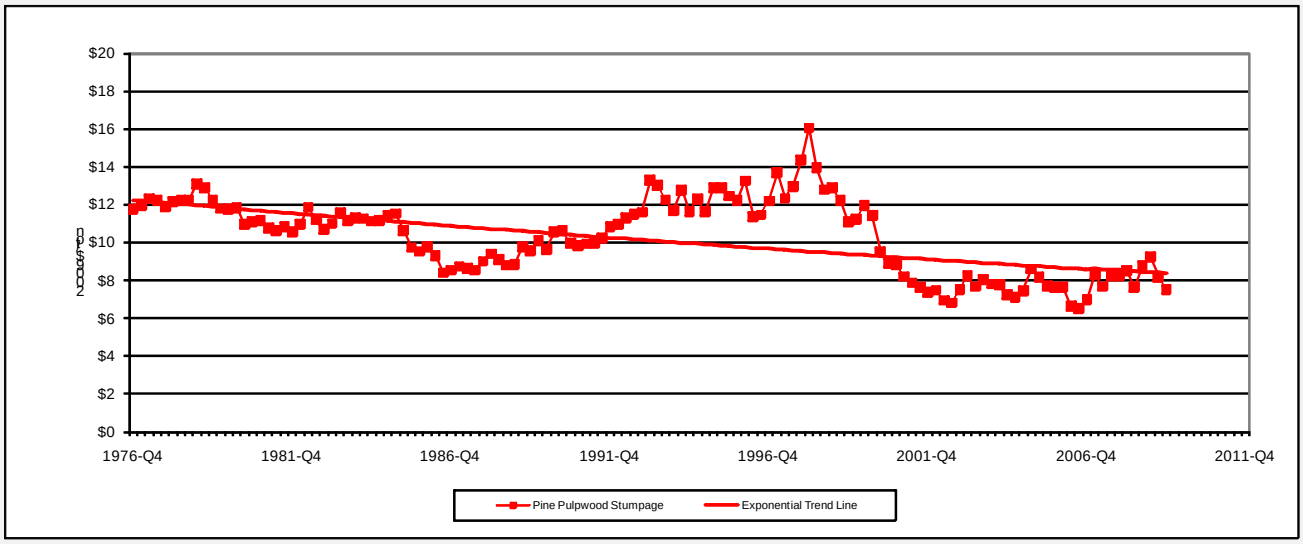
[1] See *Southern Pine Sawtimber Price Trends*, Forest Research Notes Vol 1 No 2.

[2] Conventional sawmills *saw* the rounded parts off the log. These slabs are sent to a chipper for conversion to pulp chips. CNS mills *chip* the rounded parts off the log. CNS mills utilize smaller logs that produce only a 2x4 or two and a larger portion of chips than conventional mills.

Figure 2. Southern Pine Pulpwood Stumpage



		Cur/Trend		Actual			10 Yr CGR		25 Yr CGR	
				Qtr	Ann	R2	Qtr	Ann	Qtr	Ann
Current Reported $/ton	$7.50									
Current Exponential Trend $/tor	$8.39	89.31%	Compound Growth Rate	-0.35%	-1.379%					
Current Linear Trend $/ton	$8.59	87.27%	Exponential Trend Change	-0.30%	-1.18%	0.3149	-0.01%	-0.05%	-0.18%	-0.71%
Series Average	$10.31	72.71%	Compound Growth Rate of Linear Trend	-0.26%	-1.05%					
Standard Deviation	$1.99		Linear Trend Change	-$0.03	-$0.11	0.2701	0.00%	0.00%	-0.24%	-0.95%
Coefficient of Variation	19%									

Source: Timber Mart-South

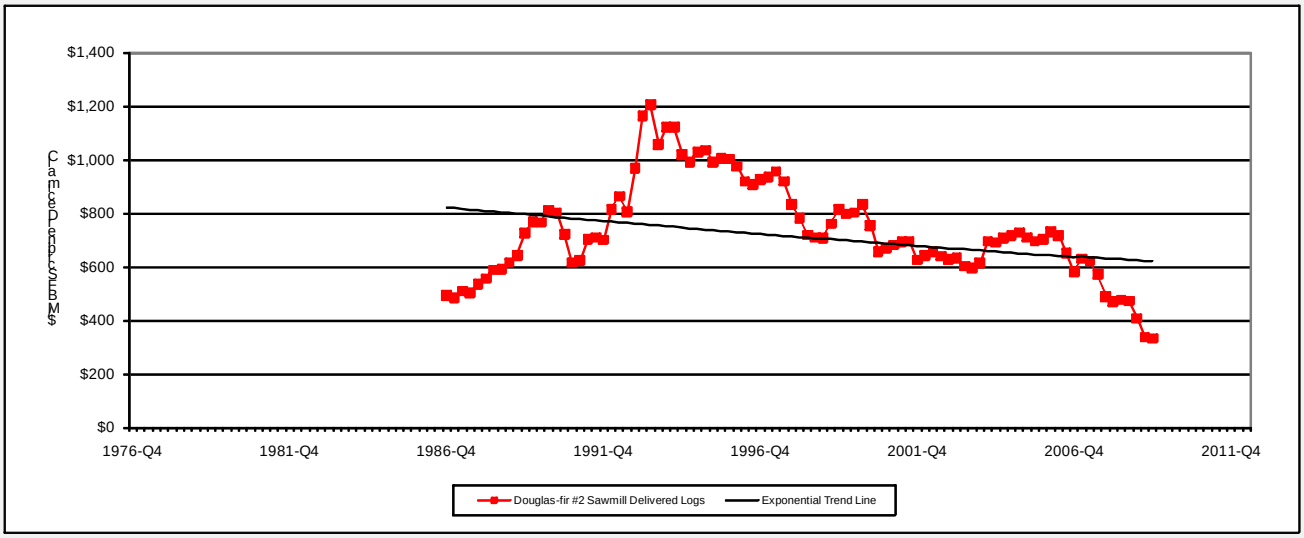
Douglas-Fir Sawlogs

Like southern pine, Douglas-fir sawlog markets have been shaken by the housing collapse and turmoil in global economies (Figure 3). Prices are at less than half of the long-term average, but this quarterly data set only goes back to 1986.

Prices in the US Pacific Northwest have been more volatile than those in the US South for the past forty years. The region has a more developed log export market than the South, which provides higher prices when export markets are good, but adds to price volatility as these markets cycle. In addition, a significant portion of the PNW region is under federal ownership and the timber harvesting programs and policies of the various agencies can also generate uncertainty. Figure 4 shows annual Douglas-fir stumpage prices from 1945, based on US Forest Service timber sales. Note the price bubble that began in 1970, the result of USFS timber sale procedures and lumber producer expectations of future lumber and log values.

Based on this data set, current Douglas-fir timber prices are about two-thirds of their long-term average, about where southern pine sawtimber prices are in relation to their long-term average. The long decline in real prices since 1993 has brought prices back to a level where they might have been without the USFS timber price bubble and the spotted owl bubble of the late 1980s and early 1990s.

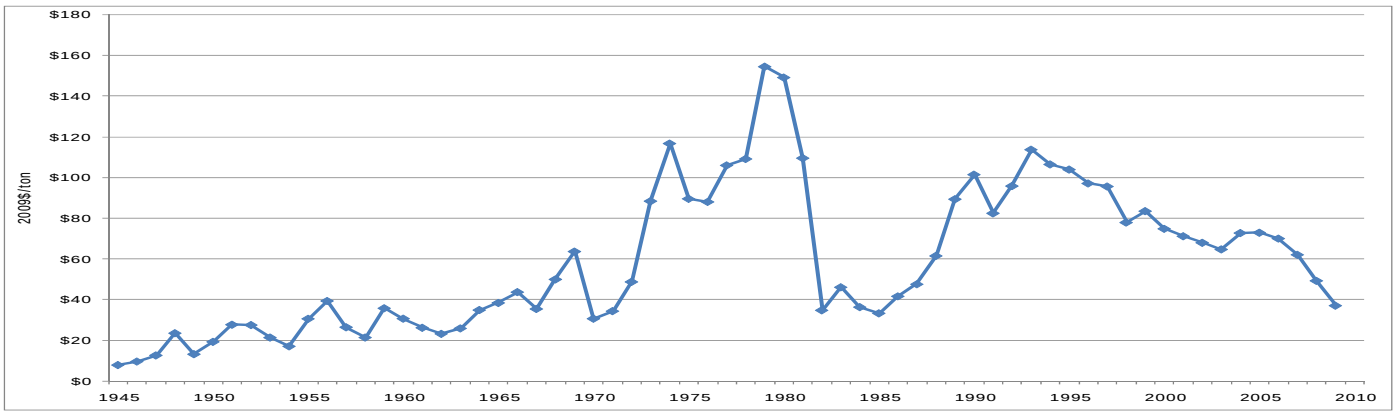
Figure 3. Douglas-fir #2 Sawlogs



		Cur/Trend		Actual			10 Yr CGR		25 Yr CGR	
				Qtr	Ann	R2	Qtr	Ann	Qtr	Ann
Current Reported $/ton	$332.50									
Current Exponential Trend $/ton	$619.98	53.63%	Compound Growth Rate	-0.44%	-1.741%					
Current Linear Trend $/ton	$638.78	52.05%	Exponential Trend Change	-0.32%	-1.28%	0.1077	1.25%	5.07%	0.33%	1.32%
Series Average	$734.52	45.27%	Compound Growth Rate of Linear Trend	-0.30%	-1.18%					
Standard Deviation	$184.05		Linear Trend Change	-$2.23	-$8.91	0.1021	1.26%	5.16%	0.26%	1.03%
Coefficient of Variation	25%									

Sources: Oregon Department of Forestry, Log Lines, Pacific Rim Wood Market Report

Figure 4. Annual Douglas-fir Stumpage Prices (2009$/ton)



Sources: Oregon Department of Forestry, Log Lines, Pacific Rim Wood Market Report, US Forest Service

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