



Hardwoods Don't Get No Respect

Or, at least, they don't get as much interest from institutional investors

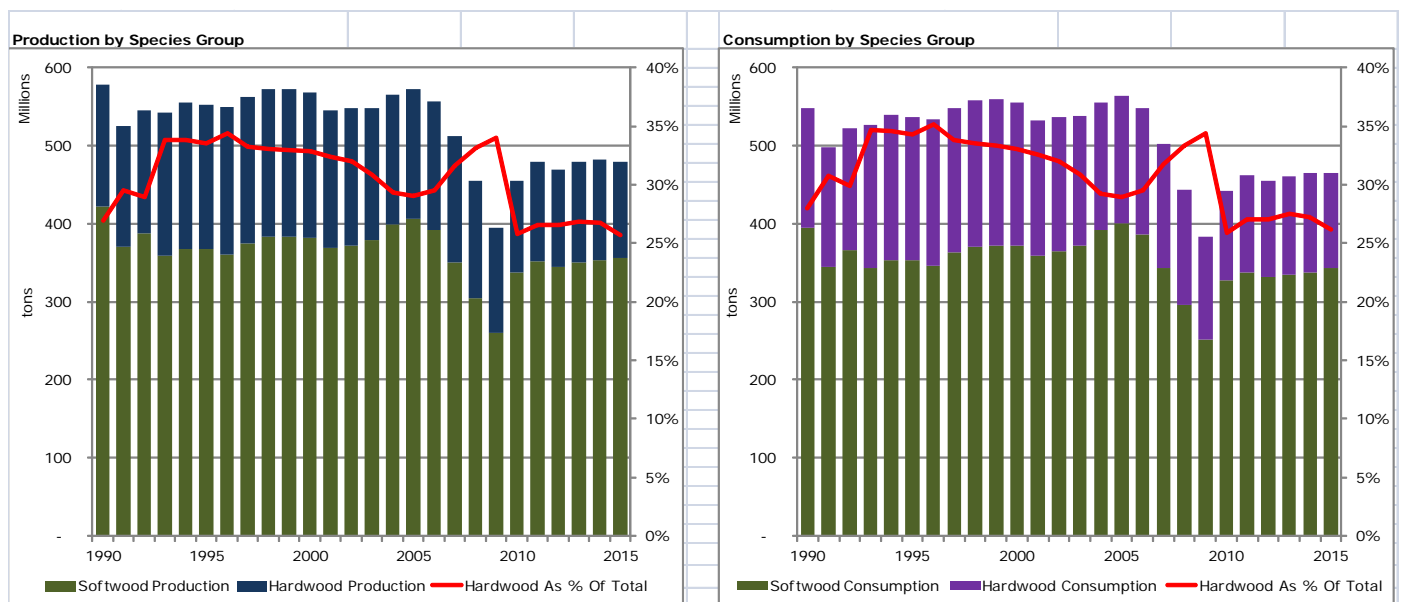
The majority of the institutional timberland investment is in softwoods--and most of that is in softwood plantations. There is much less institutional investment attention paid to temperate hardwoods like those found in North America and Europe. (The many species of eucalypts are hardwoods and are often grown in plantations, but they are a special case that will require a separate *Research Note*.)

Hardwoods in northern temperate regions are usually grown in naturally regenerated stands. (There *are* some hardwood plantations--particularly along the lower Mississippi River valley. There is also a 25,000 acre poplar plantation in Oregon that has been sold to companies that are going to clear that forest and replace it with dairy cattle and irrigated crops (Plaven 2016).

Logs

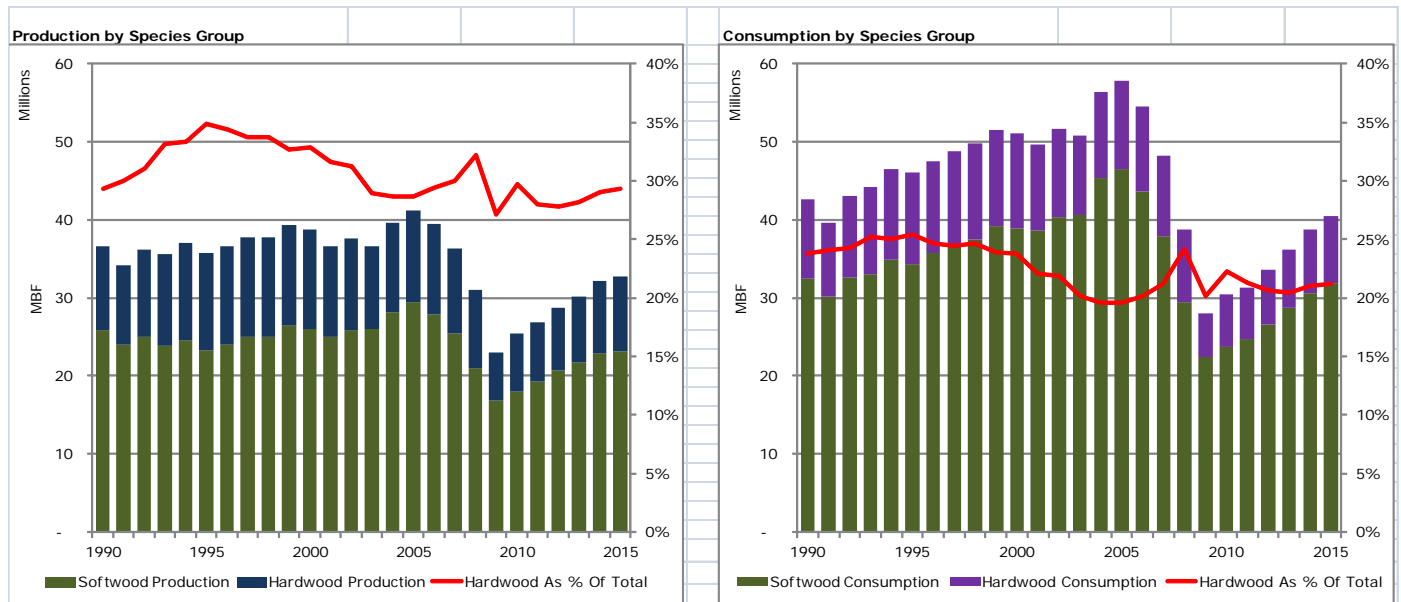
Figure 1 shows the production and consumption of hardwood and softwood logs in the US from 1990 through 2015. The two charts look very similar because the US exports and imports only small volumes of hardwood logs. These data include pulpwood as well as sawlogs, and are from the US FAO ForeSTAT database. (The export and import volumes are slightly different from those reported by the US Department of Commerce.) Between 1960 and the mid-1990s (not shown in Figure 1), hardwoods accounted for just under 25 percent of the log production and consumption in the US, then jumped to nearly 35 percent until the great housing crash in 2009.

Figure 1. US Industrial Roundwood (Log) Production and Consumption by Species Group



Source: UN FAO

Figure 2. US Sawnwood (Lumber) Production and Consumption by Species Group



Source: UN FAO

Lumber

But, logs are only part of the picture. Figure 2 shows US lumber production and consumption. Hardwood lumber accounted for 30-35 percent of all production over the past 25 years, but only 20-25 percent of consumption. The difference is due to the large volume of softwood lumber imports. Softwood lumber imports—largely from Canada—have made up an average of 33 percent of all lumber consumed over the past 25 years, while hardwood imports have made up less than 5 percent of hardwood lumber consumption.

Hardwood Management

While hardwoods and softwoods are trees, there are some big differences between the two groups:

Where they grow Different species prefer different soil types (e.g., sand vs. clay, dry vs. wetter) and aspect (e.g., northern side of a hill vs. southern slopes). Southern pines are planted on dryer ground, while the river bottoms—which are subject to seasonal flooding—are left to the hardwoods

How they grow Almost all softwoods have a *terminal leader*, so they grow straight up, with branches growing out in horizontal whorls. Most hardwoods grow in a less organized fashion and

mature hardwoods usually have wider crowns than do softwoods.

A large softwood tree is usually a sawtimber tree. Given the branching patterns of individual trees and the relative lack of ability to control genetic quality, species, and spacing in naturally-regenerated hardwood stands, a large hardwood is not always of high enough quality to be a sawtimber tree—some are just very large pulpwood trees.

Silviculture: Few hardwoods are planted in the northern hemisphere. Hardwood stands are usually regenerated naturally and the harvest operation can be a major influence on the subsequent stand. Large disturbances (clearcuts) will favor species (such as paper birch or aspen (Figure 3)) that like lots of sun. Small disturbances (selection or group selection) will favor species that are more shade tolerant (such as yellow birch or sugar maple).

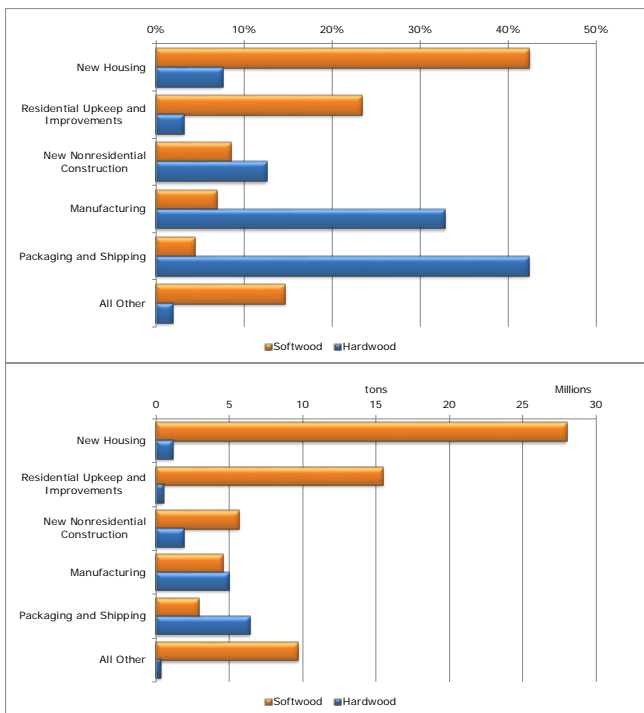
Most hardwoods will sprout from the stump (or from the root system) when cut. Most softwoods do not sprout.

Figure 3. Aspen Stand Regenerating from a Clearcut



A long series of silvicultural treatments may be applied to softwood plantations including site preparation, planting, weed control, hardwood control, fertilization (one or more) and thinnings (one or more). In contrast, there is not much done to naturally-regenerated hardwoods other than thinning to remove poorer quality trees and provide a little more room for the better trees.

Figure 4. U.S. Wood Uses, 2002



Source: Haynes et al, 2007, UN FAO

End Uses

In addition to growing differently, hardwoods and softwoods have different end-use markets. Softwoods are mostly used in construction (mostly housing), while hardwoods are used in consumer applications (furniture, cabinets), housing (floors, moulding) and industrial applications (truck beds, railroad ties, pallets). Figure 4 compares end-uses for the two species groups.

Diversification

The difference in the mix of end-use markets contributes to much-less-than-perfect correlations between hardwood and softwood log prices (Table 1 and Table 2.)

Table 1. Correlation Coefficients for Southern Sawtimber Stumpage Prices

	Southern Pine	Oak	Mixed Hardwoods
Southern Pine	1.0000	0.1565	-0.0846
Oak		1.0000	0.9414
Mixed Hardwoods			1.0000

Source: Timber Market-South

Table 2. Correlation Coefficients for New Hampshire Sawtimber Stumpage Prices

	Spruce/Fir	Ash	Red Oak	Red Maple	Sugar Maple
Spruce/Fir	1.0000	0.2243	0.4133	0.6533	0.7554
Ash		1.0000	0.0625	0.2831	-0.0074
Red Oak			1.0000	0.4812	0.5365
Red Maple				1.0000	0.7113
Sugar Maple					1.0000

Source: New Hampshire Timberland Owners Association

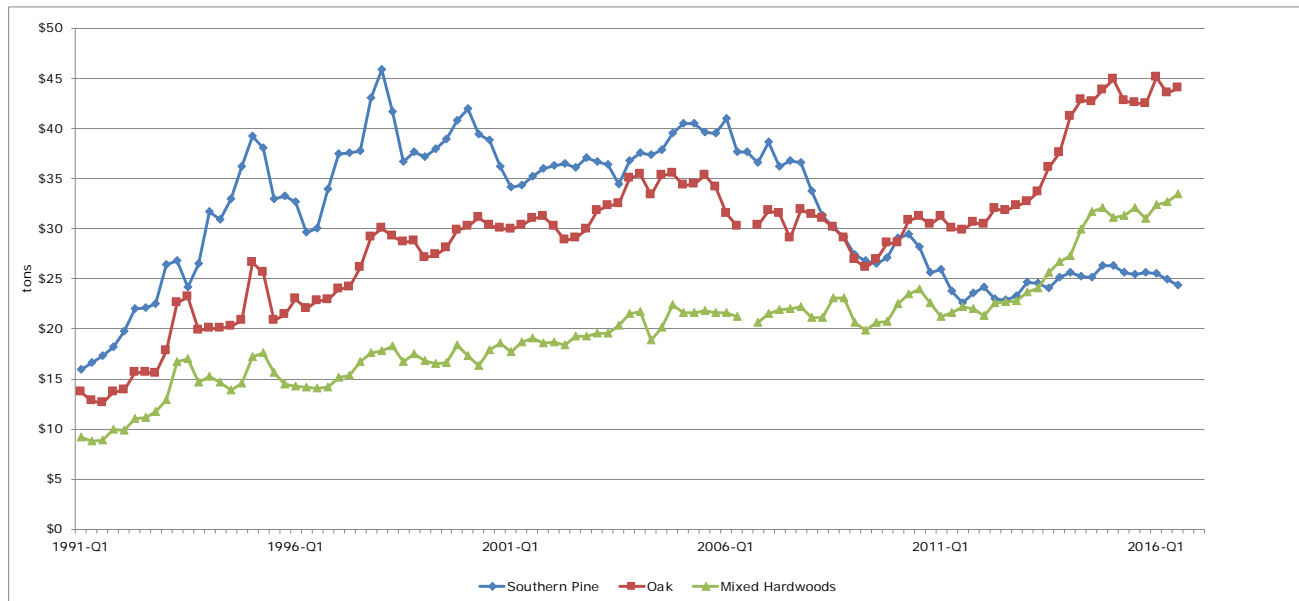
Values

Hardwood log prices can be higher than softwood log prices. This has not been the case until recently in the South (Figure 5), but has been true for some hardwood species in New Hampshire since the 1990s (Figure 6).

Summary

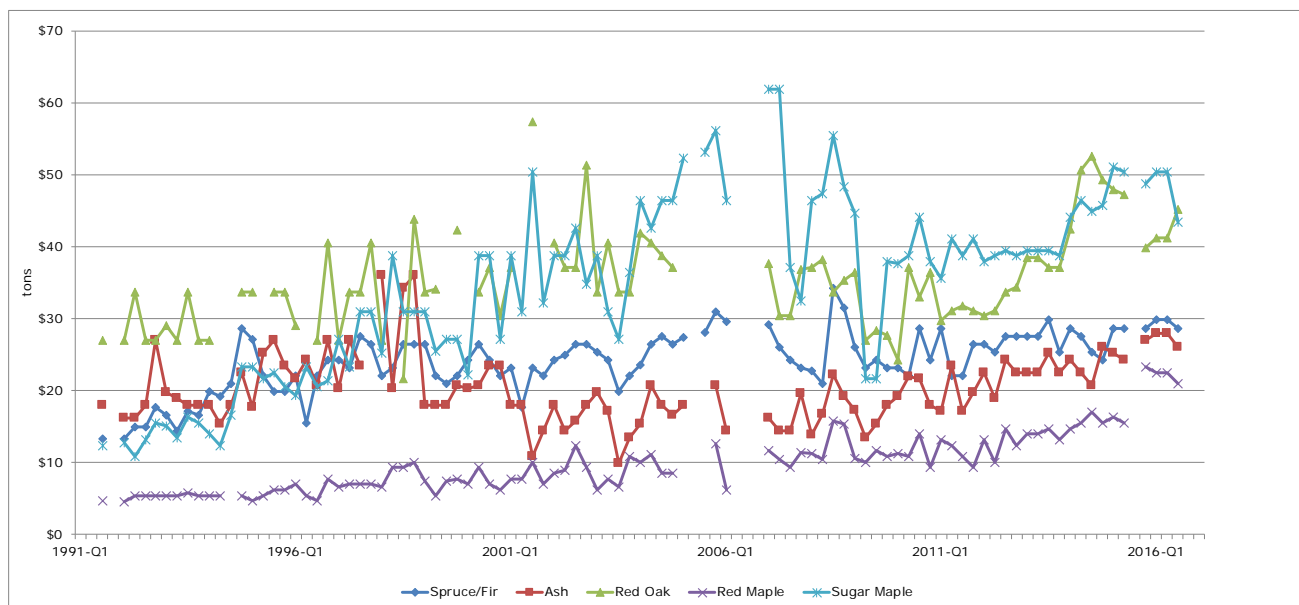
Hardwoods are a smaller component of wood production and consumption in the US, but provide diversification due to differences in end-uses and can produce some high-value timber.

Figure 5. Southern Sawtimber Stumpage Prices



Source: *Timber Mart-South*

Figure 6. New Hampshire Sawtimber Stumpage Prices



Source: *New Hampshire Timberland Owners Association*

References

Haynes, Richard W., et al, 2007, *The 2005 RPA Timber Assessment Update*, PNW Research Station, General Technical Report PNW-699

Plaven, G., 2016, *AgriNorthwest to buy Boardman Tree Farm*, Capital Press.com

Forest Research Notes, Vol. 13, No. 2
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