



# **TIMBER PRICES: SUPPLY, DEMAND AND EXTENUATING CIRCUMSTANCES**

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FOREST  
LANDOWNERS  
HAVE GROWN  
ACCUSTOMED  
TO FLAT PRICES  
FOR TIMBER IN  
RECENT YEARS.  
BUT THE REASON IS  
NOT ALWAYS AS  
SIMPLE AS SUPPLY  
AND DEMAND.



**U**nderstanding how timber prices are formed is crucial for forest stakeholders including landowners, investors, forest product industries, and timberland appraisers. That's because timber prices are one of the most important factors in timberland valuation and investment as well as in planning forest operations and silvicultural activities.

In this article, we will explain the details that drive timber prices, specifically factors influencing timber prices in the South. Let's borrow a basic economic concept to define price. The price of any commodity or service, whether it is a grocery store vegetable or a share of a company stock, is determined from the interaction of demand for and supply of that particular commodity or service.

The laws of supply and demand describe the relationship between the price and quantity of a product. In a normal situation, supply and price have a positive relationship, meaning that, all else being equal, the quantity supplied of the product rises as its price increases. Similarly, price and demand for the product have an inverse relationship, suggesting that, all else being equal, an increase in the price of a product leads to decrease in quantity demanded.

Both the demand and supply curve indicate the quantity of timber that will either be in demand by mills and timber buyers or supplied by timberland owners at a given price. As the price increases more timberland owners will be willing to sell their timber and the quantity sold will increase. Conversely, as the price of timber increases the amount that mills and timber buyers are willing to purchase will decrease and quantity sold will

decrease. An intersection of the demand and supply curves results in equilibrium price and quantity of the product in the market.

In terms of the timber market, forest owners and mills are the primary suppliers and demanders of timber, respectively. Timber prices are therefore a result of interaction between forest owners and mills based on the relationship between supply and demand factors. Other market participants like consulting foresters and loggers often facilitate the timber sales process. Timber prices are local in nature, as they differ from one specific region to another even within a state.

Supply and demand interacts against each other until the market reaches an equilibrium price. A number of factors could affect supply and demand, shifting them upward or downward. Demand for timber is mostly a function of the lumber market, national economy, housing markets, timber and manufactured forest product import/export, and federal and state policies governing natural resources.

Similarly, timber supply is a function of weather, timber inventory, and the price of substitute goods. Let's look at a recent real-world example of how the closing of a paper mill impacted the pulpwood price in a nearby timber market.

In September 2013, International Paper (IP) announced the closing of its paper mill in Courtland, Alabama. This mill competed for pulpwood with Packaging Corporation of America (PCA), a containerboard mill in Counce, Tennessee. Both mills took in a substantial and comparable volume of wood each day.

Typically, the wood procurement radius for a pulp mill is about 75 to 100 miles depending upon the level of competition

and resource availability. Assuming that the market is competitive and at the market-clearing price, what changes could be expected in this market? All other things equal, or assuming nothing on the supply-side moves, we would expect a smaller market due to decreased demand. Consequently, there should be a corresponding lowering of price for pulpwood in that market along with the quantity of pulp consumed. Evidently, pulpwood prices in the North Mississippi timber market, as reported by Timber-Mart South, were down by about 33 percent during that period.

Demand for wood products is undergoing rapid changes right now. While recent national and international economic events and federal and state policies such as economic recession, housing starts, and the U.S.-Canada softwood lumber dispute are thought to affect prices, in reality they have little to do with stumpage prices for landowners.

Southern yellow pine lumber prices continue to rise while delivered prices (those received by the logger) and stumpage prices (those received by the landowner) were flat and even down slightly in 2017 in many markets. Mostly, local site-specific factors primarily make supply or demand curves shift, resulting in fluctuating prices in a specific wood basket region in a particular time period. Let's take a look at the current state of some of those local timber market forces.

One of the major factors affecting timber price is mill competition. The wood procurement regions of the mills are pre-specified, as mills prefer to procure wood from as close as possible to limit transportation costs. The higher the competition between mills in a specific wood basket, the higher the demand that ultimately results in higher timber prices. Our earlier mill closure example explains it clearly. As our example illustrates, if one of the mills with overlapping procurement radii closes, then the mill left standing could shrink its radius, from say 75 miles to 50 miles depending upon wood fiber availability in that wood basket.

If a mill reopens nearby, the existing mill wouldn't necessarily have to compete for that wood where their procurement baskets overlap. They would have to increase past 50 miles, as supply is abundant they would avoid the higher prices in the overlap areas and shift toward the less competitive portion of their range. They would have to go further for wood. But those higher costs would be offset by the lower stumpage price they'd pay in the non-competitive portion of their wood basket.

Since the 2007-2009 recession, we've seen a number of mills close across the South and those that remain open have grown larger. Since 2010, total capacity of the top 10 operators has increased by more than 3.0 billion board feet (bf) or 32 percent. Also, average capacity has increased across the board. The telling statistic is average mill capacity, which has nearly doubled over this period – from 43 million bf in 1999 to 80 million bf in 2017.

Despite having larger capacity and soaring lumber prices for Southern Yellow Pine, many mills have larger capacity and are still not operating full capacity. Anecdotal reports indicate that some mills operate only four days a week. Mills, at full capacity, can operate all week at three shifts.

Mill inventory is another important factor driving timber prices. Mill inventories reportedly remain full most of the time. If a mill reaches full capacity and lowers its purchase of timber then that effectively results in a downward shift of demand curve for that local market, which would reduce price and quantity. Mills usually have timber-supply contracts, agreements, and quotas with a number of large timber suppliers.

Loggers throughout the South are on quota most of the time and the only times they are not on quota are when weather events choke off typically available supply. When mills remain full, there is no place to deliver harvested timber, which creates oversupply in the particular market. Consequently, the supply curve shifts outward, resulting in lower timber prices. With the rise of the Timberland Investment Management Organization (TIMO) and Real Estate Investment Trust (REIT) properties, mills can lock in prices for timber and the institutional investment vehicles (TIMOs and REITs) get a stable return for shareholders and investors.

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Local weather also is an important site-specific factor affecting the timber market. Wet weather makes loggers' job quite difficult, which curtails timber supply, resulting in higher timber prices. An excessive dry period over a span of time can essentially result in an outward shift in the supply curve for timber, which lowers prices and increases quantity. Timber prices could also be varied by the season of a year.

Tract variables and quality of the timber stand also affect substantially in timber pricing. Like in other businesses, the location matters. The size and accessibility of the tract affect the prices significantly. Buyers tend to pay more for tracts with more volume and acreage, as it reduces the expensive for loggers to move logging equipment to another tract. Likewise, distance to the market and accessibility of public roads are also counted while pricing a particular timber stand.

Larger logs usually get a higher price per ton. Similarly, the price premium is higher for well-managed forests from a silvicultural standpoint. In other words what kind of seedlings were planted, how well were silvicultural treatments (prescribed fire, herbicides, thinning and pruning) applied throughout the life of the stand because these factors can impact pricing substantially. The lower the timber stand quality, the lower the price that will be offered by mills and wood buyers.

Macroeconomic indicators and federal and state policies also have crucial implications for the local timber market. Several economic events like economic recession and economic growth rate also significantly impact forest product markets.

The rate of U.S. housing starts is considered as one of the major drivers, which influences the demand side for forest products. Similarly, several federal and state policies pertaining to natural resources affect the timber market over time. For example, the 1990s federal policy of reducing timber harvests in the Pacific Northwest region in order to protect spotted owl habitat noticeably impacted timber prices all across the country. Moreover, the U.S-Canada softwood lumber dispute indirectly affects the timber market, as it substantially alters the domestic softwood lumber market in the United States.

Meanwhile, despite the restrictions on Canadian lumber, we still have large quantities of lumber entering the United States from other countries, many of which have taken up the slack from Canada. Brazil, Romania, Sweden, and China have been big winners with the restrictions, in terms of increased imports of softwood lumber to the United States.

Changes in timber prices can be demonstrated from an interaction of supply and demand curves of timber products. The timber price varies, as several supply and demand factors cause the supply and demand curves to shift which results in new equilibrium price and quantity. It is always worthwhile for landowners to understand these supply and demand factors and their impacts on timber prices. ■

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