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The FRED® Blog

Logs of softwood lumber

Using the natural logarithm to clarify volatile prices

Posted on February 7, 2022
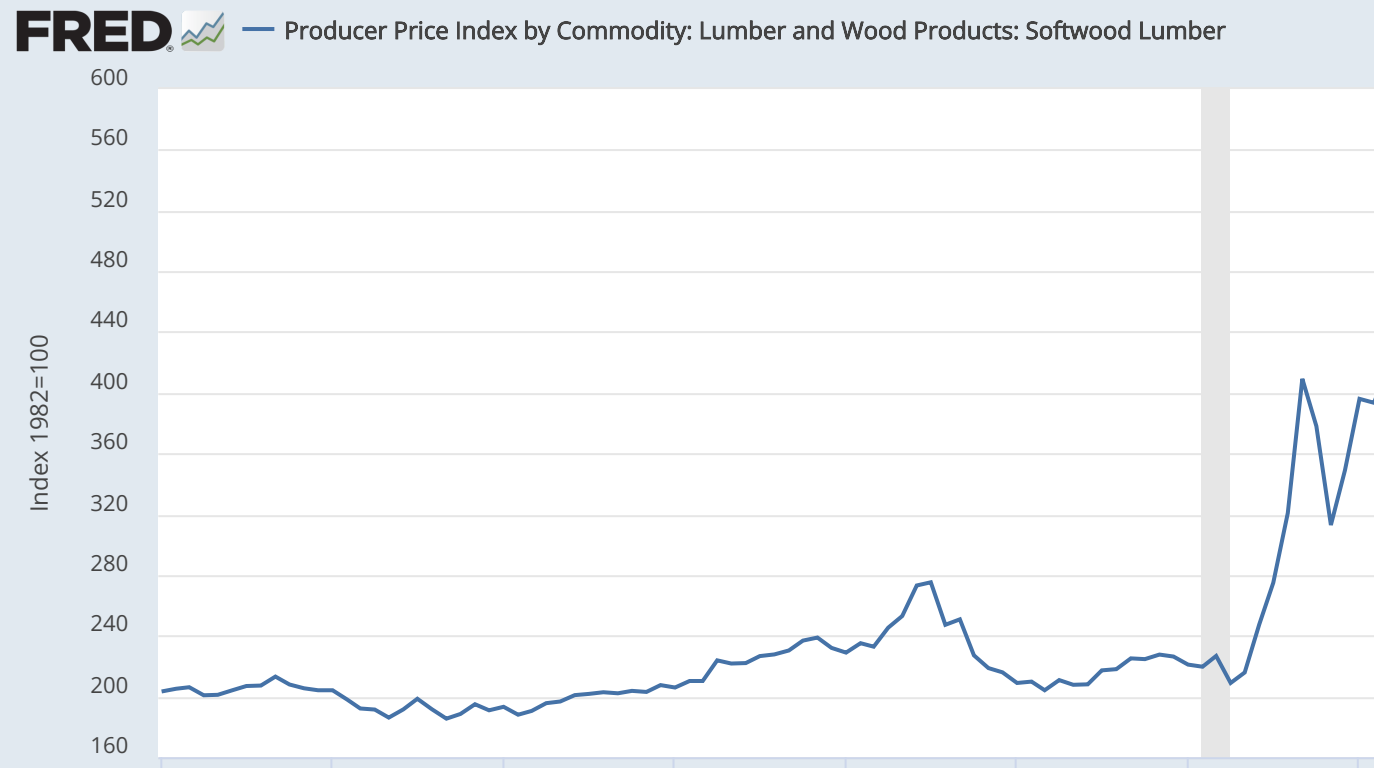
Some commodities have seen some wild price fluctuations during the COVID-19 pandemic. One that was much discussed in the news is softwood lumber. While FRED does not have data on its *retail* price, it does have the price that the producer gets: the Producer Price Index, formerly called the Wholesale Price Index.
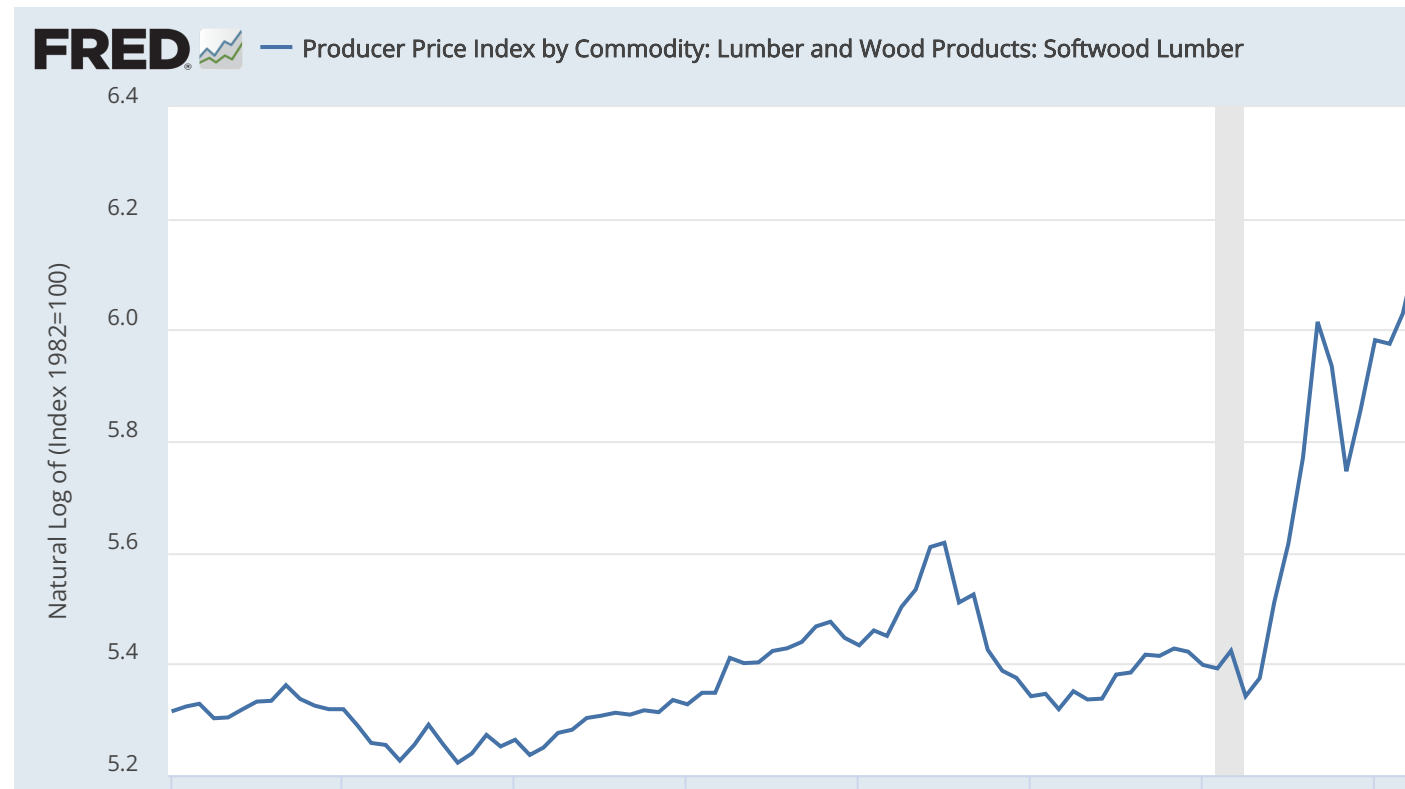
Our first FRED graph shows how unusual these price fluctuations have been. While the price stayed within a narrow band for years, it has suddenly spiked and plummeted in unprecedented ways since the middle of 2020. When data points rise or fall by multiples of their preceding values, it's useful to transform the data to ensure an accurate understanding. In this case, taking *logs* of lumber prices provides us with that clarity—and a nice pun!

Our second FRED graphs shows exactly the same data, except that we took logs (i.e., the natural logarithm). The advantage of such a graph is that a 10% price increase looks the same whether the price is high or low. And the graph confirms that even when the price was high, the fluctuations were proportionally (or in percentages) very large.

How these graphs were created: Search for "PPI softwood lumber," open the graph, and restrict the sample period to start in 2014 (due to preceding data interruptions). For the second graph, click on "Edit Graph" and set units to "Natural log" (last field).

Suggested by Christian Zimmermann.