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COVID-19 and the U.S. Timber Industry

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SUMMARY

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COVID-19 and the U.S. Timber Industry

The timber industry is a diverse commodity industry, wherein cut trees (*timber*) are converted to a wide variety of articles made from wood (*wood products*). The largest wood product sectors in the United States are lumber, engineered wood products (such as particleboard and fiberboard), and pulp and paper products, such as cardboard, tissue, and printing and writing paper. The Coronavirus Disease 2019 (COVID-19) pandemic has impacted the timber industry by changing consumer and producer behavior and threatening the health of timber industry workers. Effects to the wood products supply chain have been spread unevenly across sectors and regions and have varied over time as the pandemic has progressed.

COVID-19 has affected demand for some wood products and disrupted wood supply chains. Impacts have differed greatly across sectors, due to the differing final uses of wood products. Overall U.S. demand for timber decreased in early 2020 compared with 2019, as did timber prices, but timber prices began to rise in late 2020 and 2021. Demand for lumber and engineered wood products is driven primarily by residential construction. Early in the pandemic, producers of these products anticipated a declining housing market and therefore lower demand. However, demand from the residential construction sector remained strong, resulting in shortages, and prices for some products rose to historically high levels. These price increases prompted concern about the costs of home construction and the effects to consumers and related businesses, although they led to increased margins for sawmills. Paper is a diverse sector, comprising products such as cardboard, bath tissue, and writing and printing paper, and demand comes from public places (e.g., offices and schools), home use, and shipping. Thus, although some disruptions to the sector have occurred, overall impacts have been minimal. Disruptions to the wood products sector as a whole likely will continue until the spread of the virus is contained, and these disruptions may evolve further along with economic conditions.

Congress has provided $200 million in assistance to specified timber harvesters and haulers through the FY2021 Consolidated Appropriations Act (P.L. 116-260). Other timber-related businesses may have received assistance under the provisions of other laws, such as the Coronavirus Aid, Relief, and Economic Security Act (CARES Act; P.L. 116-136), which provided general assistance to businesses and employees in the form of loans, advances, supplements to state unemployment benefits, tax relief, and paid leave. The U.S. Forest Service (FS) also has authorized additional time to harvest timber on federal lands for specified timber contracts.

Market disruptions have led some stakeholders to conclude that congressional action is needed to provide relief to producers and consumers along the wood supply chain. Although Congress has already provided some funding for specified industry sectors, some may support additional funding or different approaches to providing congressional relief to the timber industry. In the past, Congress has authorized relief for federal timber purchasers, such as contract buyouts, and relief for forest landowners. Congress may decide that further assistance to the timber industry is not warranted if, for example, existing assistance is considered sufficient, assistance to businesses generally is thought to cover the timber industry sufficiently, or impacts are seen as transient. Market disruptions also have led some stakeholders to express the view that federal action is needed to protect consumers from high commodity prices, particularly lumber prices. In general, such proposals have not identified specific congressional action but may identify either broad policy goals or potential actions by the executive branch. If desired, options for congressional action regarding lumber prices are varied, such as oversight of executive branch actions, authorization of market development programs, or regulatory reform. Alternatively, Congress may decide that action related to lumber prices is not desirable at this time, for example, if lumber price fluctuations and their effects on related industries are viewed as transient.

Contents

Figures

Tables

Contacts

Introduction

The Coronavirus Disease 2019 (COVID-19) pandemic has impacted the timber industry by changing consumer and producer behavior and threatening the health of timber industry workers. These effects have been felt throughout the supply chain, which includes timber landowners, timber harvesting and hauling businesses, timber processors and manufacturers, distributers, retailers, and consumers. The pandemic's impacts on the timber industry have varied according to regional differences in the industry, changing demand for different products made from wood, and the severity and timing of the pandemic's supply chain effects.

Impacts to the timber industry have been spread unevenly across sectors and regions and have varied over time as the pandemic has progressed. Some sectors have experienced minor overall changes; for example, the pulp and paper industry's overall prices in 2020 and 2021 have been similar to prices in 2019. However, in some timber industry sectors, such as lumber and consumer tissue, markets have experienced supply shortages or historically high prices as consumers and producers struggle to anticipate and adjust to the pandemic's effects. In others, such as newsprint and glossy paper, the pandemic has accelerated trends toward low demand brought on by other economic forces, such as declines in print media. Industry pressures—some potentially related to or exacerbated by COVID-19, but also other factors—have led to layoffs, closures, and other impacts. Some effects have been transient, and some predictions about market conditions (such as predictions about residential construction activity) have not been realized. The pandemic's ultimate impacts to the industry cannot yet be ascertained.

Congress provided specific assistance to timber harvesters and haulers through the FY2021 Consolidated Appropriations Act.[1] Timber-related businesses also may have received assistance available to businesses generally, such as assistance authorized under the provisions of the Coronavirus Aid, Relief, and Economic Security Act (CARES Act; P.L. 116-136). The U.S. Forest Service (FS) has implemented relief measures for timber harvesting on the federal lands under its jurisdiction. Stakeholders have proposed a variety of further actions, such as disbursement of existing funding, additional funding, and relief to those affected by high lumber prices.

The U.S. Timber Industry

The timber industry is a diverse commodity industry, wherein cut trees (*timber*) are converted to a wide variety of products made from wood (*wood products)*, such as lumber, paper products, furniture, and many others.[2] The United States is the largest producer of wood for industrial use in the world, harvesting 15.9 billion cubic feet in 2017.[3] Characteristics of the U.S. timber industry vary by region and are influenced by each region's land ownership patterns, tree species,

[1] P.L. 116-260, Division N—Additional Coronavirus Response and Relief, Title VII, Subtitle B, Section 751. As of May 29, 2021.

[2] The timber industry does not include trees grown to provide crops for human consumption, such as orchards and vineyards.

[3] James Howard and Shaobo Liang, *U.S. Timber Production, Trade, Consumption, and Price Statistics*, Forest Service (FS), FPL-RP-701, 2019 (hereinafter Howard and Liang, *U.S. Timber Production*); and Food and Agriculture Organization (FAO), *FAOSTAT Forestry Database*, *Forest Product Consumption and Production*, 2020. Timber may be measured in cubic feet or in board feet (BF), a unit of wood equaling 1 inch by 12 inches by 12 inches. The BF in a log is not equal to the cubic feet in a log, as some wood is lost in the processing of a log to squared dimensions, and BF cannot be directly converted to cubic feet.

transportation and processing infrastructure, and geography. The individual sectors within the timber industry also vary widely in their production methods, trade relationships, and consumers.

Timber is divided into two general categories with different supply chains, end uses, and production methods:

- *Softwood timber* refers to the wood of coniferous trees such as pine (*Pinus* sp.), fir (*Abies* sp.), Douglas fir (*Pseudotsuga menziesii*), and spruce (*Picea* sp.). Softwood timber is the primary material used in the construction industry in the form of *lumber* (products sawn from logs), panel products (e.g., plywood, particle board), and other products.[4] Softwood timber also is processed into pulp to produce *paper products* (e.g., cardboard, tissue, and writing paper) and used in other applications.
- *Hardwood timber* usually refers to the wood of broadleaved trees such as oak (*Quercus* sp.), maple (*Acer* sp.), walnut (*Juglans* sp.), and ash (*Fraxinus* sp.).[5] Hardwood timber often is used in applications where durability, appearance, or other specific traits are desirable, such as furniture, cabinetry, and flooring. It is also used as pulp and lumber. Hardwoods are sometimes combined with softwoods to reduce cost; for example, hardwood veneers may be bonded to engineered softwood pieces to create less costly finished products with the appearance of hardwood.

In 2017, about 41% of U.S. wood production was for lumber and engineered wood products, 35% was for pulp, and the remainder was for other uses.[6] Approximately 80% of U.S. lumber production and 75% of U.S. pulp production were from softwoods.[7] The residential construction industry is an important source of U.S. timber demand; in 2017, about 69% of U.S. softwood lumber was used for housing construction, along with significant amounts of other hardwood and softwood products.[8] The majority of softwood timber is produced in the South and the Pacific Northwest; hardwood timber generally is produced in the eastern United States.[9] The South is the largest U.S. timber region, producing nearly 60% of all timber in the United States.[10]

The timber supply chain is characterized by many small forest landowners. Approximately 63% of U.S. forests and woodlands are privately owned by corporations, individuals, nonprofits, or

[4] In 2017, about 69% of softwood lumber was used in residential construction, including 30% used for new residential construction and 39% used for remodeling or upkeep of existing construction. Howard and Liang, *U.S. Timber Production*.

[5] Despite the *hardwood* and *softwood* nomenclature used for these categories, there is great variation in actual wood hardness within these groups. However, within the commercial species prevalent in the U.S. timber industry, softwoods tend to be relatively fast-growing and soft compared to hardwoods.

[6] Howard and Liang, *U.S. Timber Production*. Engineered wood products are products made by affixing relatively small pieces of wood, such as strands, chips, or veneers, into larger pieces. Examples include oriented strandboard (OSB), fiberboard, and particleboard.

[7] Howard and Liang, *U.S. Timber Production*.

[8] Howard and Liang, *U.S. Timber Production*.

[9] For the purposes of this report, the South consists of the states of Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Louisiana, Texas, Kentucky, and Tennessee; however, sources cited may use the term *the South* to refer to a subset of this region. The Pacific Northwest consists of Washington and Oregon. In addition, the timber industry may refer to *Southern* or *Pacific Northwest (PNW)* timber, which usually refers to species of timber that generally grow in those respective areas but may occasionally grow outside them.

[10] Jeffrey Prestemon and Robert Abt, "The Southern Timber Market to 2040," *Journal of Forestry*, vol. 100, no. 7 (2002), pp. 16-22.

other nongovernmental groups.[11] Approximately 43% of all forests and woodlands are owned by an estimated 10.6 million families.[12] The remaining 37% is publicly owned by the federal government, states, counties, or other units of government, with 28% of all U.S. forests and woodlands owned by the federal government.[13] Most timber harvesting in the United States takes place on private lands; for example, in 2012, approximately 90% of U.S. wood and paper products originated on private lands.[14] Timber harvesting and hauling businesses vary in size, and there are many small firms, although relatively larger businesses harvest the majority of timber in most areas.[15]

After timber is harvested, it is transported and processed. Making final products out of timber may be a single- or multi-stage process. In general, it involves a first step of transforming logs into a primary product such as lumber, wood chips, or wood pulp (*timber processing*). Some of these products may not undergo further alteration (e.g., lumber). Others may act as materials for further processing into other final products (*wood product manufacturing*, for the purposes of this report).[16] Timber processing or wood product manufacturing facilities are often *capital intensive* (i.e., require costly, specialized equipment). Timber processing also may exhibit *economies of scale* (i.e., costs that decrease with higher levels of production) and may require large quantities of timber to meet a minimum level of efficient production.[17] This scale economy, combined with the generally high transportation cost of unprocessed wood, means that timber processing businesses may be spatially dispersed (i.e., relatively few, large facilities may be located in a given area) and that buying and selling timber usually occur relatively close to the harvest location.[18]

In the short term, supply of some wood products may be relatively *inelastic* (i.e., may not change much in response to changes in price), due to the time and expense needed to increase capacity, open facilities, or switch products in capital-intensive industries.[19] These factors may contribute

[11] Sonja Oswalt et al., *Forest Resources of the United States, 2017: A Technical Document Supporting the Forest Service 2020 RPA Assessment*, FS, GTR-WO-97, March 2019 (hereinafter Oswalt, *Forest Resources*).

[12] *Families* is defined as individuals, families, trusts, estates, and family partnerships. Oswalt, *Forest Resources*.

[13] Oswalt, *Forest Resources*.

[14] Sonja Oswalt and W. Brad Smith, *U.S. Forest Resource Facts and Historical Trends*, FS, FS-1035, 2014.

[15] Joseph Conrad IV, W. Dale Greene, and Patrick Heisl, "A Review of Changes in U.S. Logging Businesses, 1980s-Present," *Journal of Forestry*, vol. 116, no. 3 (2018), pp. 291-303. For example, a survey in the state of Washington found that the majority of log-hauling companies were owner-driver companies with a single truck and trailer, according to Larry Mason et al., *The Washington Log Trucking Industry: Costs and Safety Analysis*, Rural Technology Initiative, University of Washington, and Transportation Research Group, Washington State University, *Report to the Washington State Legislature*, 2008.

[16] When used colloquially, *wood product manufacturing* may not be inclusive of products made of wood pulp, such as paper, cardboard, or tissue.

[17] Brian Murray and Jeffrey Prestemon, "Structure and Efficiency of Timber Markets," in *Forests in a Market Economy*, ed. Erin Sills and Karen Abt (Dordrecht, the Netherlands: Kluwer Academic Publishers, 2003), pp. 153-176. Hereinafter, Murray and Presemon, "Timber Markets."

[18] Murray and Presemon, "Timber Markets." Logs generally are a costly commodity to transport compared to their value, due to their weight and size. Transport costs also may be affected by accessibility; for logs transported by road, federal law controls both maximum gross vehicle weight and weight per axle of trucks on the Interstate Highway System, which may limit the travel routes available to log trucks carrying certain loads (23 U.S.C. §127), and logs in rugged terrain sometimes must be transported by air. Timber processing businesses tend to locate in spatially distributed clusters of a few facilities each. See Glenn Ellison, Edward Glaeser, and William Kerr, "What Causes Industry Agglomeration? Evidence from Coagglomeration Patterns," *American Economic Review*, vol. 100 (2010), pp. 1195-1213, and Consuelo Brandeis and Donald Hodges, "Sawmill Industry in Tennessee: Assessing Location Pattern Changes and Their Effects on Sawlog Procurement Distribution," *Forest Science*, vol. 64, no. 3 (2018), pp. 280-289.

[19] Nianfu Song, Sun Joseph Chang, and Francisco Aguilar, "U.S. Softwood Lumber Demand and Supply Estimation

to facilities permanently or temporarily closing rather than switching to produce a new product if demand decreases, although the reasons for such closures are complex and may involve other factors. If few facilities are located in a given area, closures may have a large effect on local timber industry profitability and employment.

Wood products are highly traded commodities in world markets, and supply chains may be integrated across regions and trading partners to varying degrees. The United States is a net importer of timber and wood products. For example, in 2017, U.S. timber-related imports totaled approximately 3.5 million cubic feet and timber-related exports totaled approximately 2.3 million cubic feet.[20] As of 2017, Canada was the United States' largest source of timber imports and China was the largest single U.S. timber export market, though a substantial share is exported to Canada and Mexico.[21] A portion of the wood produced and exported from the United States is processed into intermediate and finished products overseas, particularly in China, and subsequently imported back into the United States.

Effects of COVID-19 on the Timber Industry

The COVID-19 pandemic has impacted timber and wood product markets, with substantial variation across sectors. The timber industry's diversity has resulted in uneven impacts. Some sectors of the industry have been negatively affected through shortages, price fluctuations, closures, and other disruptions; others have maintained or increased sales. The diversity of the industry's businesses and supply chains may have provided some resilience to the system as a whole, but this resilience may mask stresses on different sectors. In addition, the pandemic's impacts have evolved over time, with demand, supply, and price sometimes changing over the space of weeks or months. Current and comprehensive information on some industry sectors is lacking due to the rapidly evolving situation, the diffuse nature of some timber industry sectors, and other reasons. The following sections discuss impacts on various parts of the wood product supply chain and wood product markets.

Timber Harvesting

In the year immediately prior to the pandemic, timber prices were relatively stable. According to the Bureau of Labor Statistics (BLS), the average prices obtained by timber producers changed by 1% or less from March 2019 to April 2020 (see **Figure 1**).[22] Then, in May 2020, they decreased by 2.6% in one month**.** According to BLS, producers received lower average prices year-over-year (i.e., compared with the same month in 2019) from March to September 2020. These prices may reflect a decline in wood raw material consumption from January to July 2020, when consumption was 6.7% lower than the same period in 2019.[23] However, from October 2020 through March 2021, producer prices showed a volatile but generally increasing trend and generally were higher year-over-year. In October 2020, prices were 3% higher than in October

Using Cointegration in Dynamic Equations," *Journal of Forest Economics*, vol. 17 (2011), pp. 19-33.

[20] Howard and Liang, *U.S. Timber Production*.

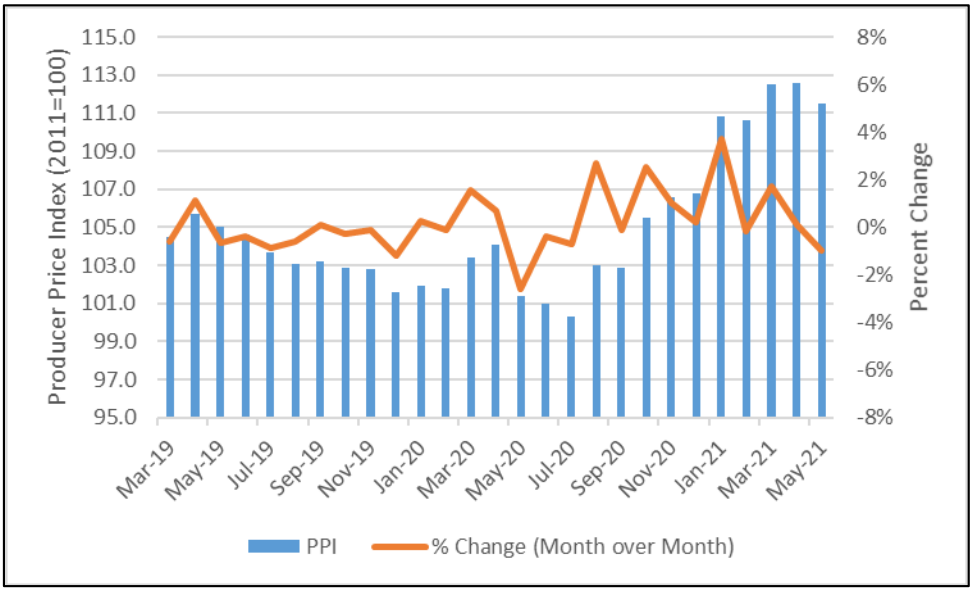
[21] Howard and Liang, *U.S. Timber Production*.

[22] CRS calculation from Bureau of Labor Statistics (BLS), Producer Price Index (PPI) Commodity Data for lumber and wood products, "logs, bolts, timber, and pulpwood," accessed July 12, 2021, PPI data updated June 15, 2021.

[23] Forest2Market, *United States Economic Impact: Forest Products Consumption*, American Loggers Council, August 28, 2020.

2019, and in May 2021, prices were 7% higher than in May 2019.[24] Overall, average prices from January to May 2021 were 6% higher than during the same period in 2019.

Figure 1. Producer Price Index: Logs, Bolts, Timber, and Pulpwood



Source: Bureau of Labor Statistics, Producer Price Index (PPI), Commodities, Logs, Bolts, Timber, and Pulpwood, monthly, not seasonally adjusted, December 2011 = 100.

Notes: The PPI represents the average price producers receive for their products, expressed as a unitless index where average prices in December of 2011 equal 100. Therefore, percentage changes in the PPI are the best expression of price changes.

Price trends in different regions and products in 2020 sometimes differed from national averages, although directly comparable data across regions and time periods are not available. However, 2021 prices in the major wood-producing regions (the Southeast and the Pacific Northwest) generally have been higher than average. For example, the industry analysis firm Forest2Market found that average prices of standing timber (*stumpage prices*) for all southeastern timber products increased 15% in the first quarter of 2021, compared with the 2020 average.[25] As of July 2021, average southeastern pine stumpage prices were at their highest level since the first quarter of 2015.[26] Similarly, information from surveys by the Washington Department of Natural Resources shows overall average prices of logs delivered to mills (*delivered prices*) in Oregon, Washington, and Idaho were higher in April 2021 than in April 2020, with prices differing markedly between species and grades.[27] Conversely, Forest2Market found that Lake States prices

[24] CRS calculation from BLS, PPI Commodity Data for lumber and wood products, "logs, bolts, timber, and pulpwood," accessed July 12, 2021, PPI data updated June 15, 2021. Prices in May of 2020 may have been affected by the onset of the COVID-19 pandemic and may be an inappropriate time period for comparison.

[25] Mike Powell, "Wet Weather Driving Southern Timber Prices Higher in 1Q2021," *Forest2Market Blog*, February 25, 2021. Throughout this report, *quarters* refer to the quarters of the calendar year.

[26] Joe Clark, "Lumber Prices Freefall, but Log Prices Trend Higher," *Forest2Market Blog*, July 12, 2021.

[27] CRS calculation from Washington Department of Natural Resources, "Survey Prices for Delivered Logs," each of January 2020-April 2021. For example, prices for some Douglas fir grades rose by over 50% and prices for some Western red cedar grades rose by over 93%. Conversely, prices for lodgepole pine rose by 8% and prices for white fir rose by 17%. The timber industry uses both stumpage and delivered prices to assess market performance, and the popularity and availability from publicly available sources of these prices differ by region and industry; however, the

for harvested timber delivered to mills in April 2021 were at their lowest point in over eight years.[28]

It is difficult to disentangle timber market changes due to the COVID-19 pandemic in 2020 from other short- and long-term influences. For example, despite the average southern timber price increases, Forest2Market reported that price changes differed markedly by region, as winter weather constrained harvesting in certain areas, and prices were volatile.[29] Similarly, despite quarter-over-quarter increases in prices, per-ton average delivered prices for many southern timber types in early 2021 did not deviate more than 5.6% (increase or decrease) from long-term averages.[30] Although the market situation for some wood products changed rapidly throughout 2020 and 2021 (see "Lumber" and "Paper Products," below), overall timber prices generally do not change much as wood product markets fluctuate, for a variety of reasons.[31] In particular, timber prices are driven primarily by the inventory of standing timber at any given time, along with the demand for timber from processors, and large standing timber inventories in important timber-producing regions have contributed to lower timber prices.[32]

Processing and Manufacturing

Businesses throughout the wood product supply chain, such as timber processors, wholesalers, and consumers, have experienced varying impacts from the COVID-19 pandemic. At the beginning of the pandemic, federal guidance designated businesses that "support the manufacture and distribution of forest products, including, but not limited to timber, paper, and other wood products," as components of critical infrastructure within the food and agriculture sector.[33] However, state-mandated stay-at-home orders varied and, in some states, wood product-related businesses were ordered to close for some period of time.[34] Some industry sectors that were

two prices reflect different stages in the timber supply chain, and therefore their levels generally differ. Stumpage prices reflect the value of standing timber at the time it is purchased (e.g., by a timber harvesting business), and delivered prices reflect the value of harvested timber when purchased for primary processing (i.e., "at the mill gate"). These prices have different strengths and weaknesses: for example, stumpage may not reflect current demand for wood because timber is not always harvested immediately, whereas delivered prices incorporate the costs of harvesting and transporting the timber in addition to the timber's value. Although the topic is little studied, trends in stumpage and delivered prices may be related over time. See Zhuo Ning and Changyou Sun, "Vertical Price Transmission in Timber and Lumber Markets," *Journal of Forest Economics*, vol. 20 (2014), pp.17-32.

[28] Mike Powell, "Timber Prices & Inventories Plummet in the Lake States," *Forest2Market Blog*, April 7, 2021. The author refers to the states of Minnesota and Wisconsin in this article, but it is unclear what other states (if any) are included in the definition of *Lake States*.

[29] Mike Powell, "Wet Weather Driving Southern Timber Prices Higher in 1Q2021," *Forest2Market Blog*, February 25, 2021. Throughout this report, *quarters* refer to the quarters of the calendar year.

[30] CRS calculation from TimberMart-South, *Quarterly Market Bulletin*, 3rd Quarter 2020 through 1st Quarter 2021. For example, the first quarter 2021 delivered price for hardwood sawtimber was 2.6% higher than the 2014 through 2020 average, and the first quarter 2021 delivered price for pine chip-and-saw was 5.6% higher than the 2014-2020 average. The firse quarter 2021 delivered price for pine sawtimber was 1 cent less than the 2013-2020 average (a percentage change of less than 0.1%).

[31] Mo Zhou and Joseph Buongiorno, "Price Transmission Between Products at Different Stages of Manufacturing in Forest Industries," *Journal of Forest Economics*, vol. 11 (2005), pp. 5-19; Pete Stewart, "What's Driving the Disparity Between Log and Lumber Prices?," *Forest2Market Blog*, March 17, 2021.

[32] Brooks Mendell, "Why Are Timber Prices So Low?," *Forisk Blog*, April 7, 2021; Joe Clark, "How Does a Soaring Lumber Market Impact Timber Prices?," *Forest2Market Blog*, August 24, 2020.

[33] Christopher C. Krebs, *Memorandum of Identification of Essential Critical Infrastructure Workers During COVID-19 Response*, U.S. Department of Homeland Security, Cybersecurity and Infrastructure Security Agency, March 19, 2020.

[34] For example, in Pennsylvania, manufacturers of veneer plywood, engineered wood products, furniture, and cabinets were ordered to close. Karl Forth, "Is Your Company an Essential Business? It Depends," *Woodworking Network*,

declared essential nonetheless reduced capacity or curtailed operations for various reasons, such as to reduce risk to workers or due to expectations of adverse market conditions.[35] As state stay-at-home orders have expired or been replaced and businesses have resumed operations, some businesses have lifted capacity reductions or curtailments. However, since the start of the pandemic, some processing and manufacturing facilities have closed permanently. Such closures may disrupt local communities due to the regional nature of timber markets, which sometimes means individual facilities purchase a large proportion of local timber supply or are significant for local employment.[36] A number of factors may influence permanent closures, including (but not limited to) COVID-19; these factors have contributed to a long-term trend in timber industry consolidation since the 1990s.[37] How the pandemic may affect long-term trends remains to be seen.

Lumber

Early in 2020, the lumber supply chain contracted for numerous reasons.[38] Housing starts declined precipitously, falling 22.3% in March 2020, and the lumber industry anticipated low overall demand.[39] Consequently, lumber mills idled or curtailed production, with the industry analytics firm Forisk reporting that overall softwood lumber capacity had been reduced by over 15.6% in the first quarter of 2020 and curtailments were continuing into April.[40] However, housing starts began to rise in June and, for the remaining months of 2020, exceeded starts in the same months in 2019. Starts in 2021 continued this increasing trend; for example, in March 2021, housing starts reached their highest level since 2006.[41] Demand for lumber for remodeling in 2020 remained steady.[42] Although lumber mills responded by reopening or ending curtailments, lumber demand exceeded supply, leading to softwood lumber shortages and prices that rose to record-high levels beginning in late August and early September 2020.[43]

March 24, 2020.

[35] For example, see Ted Sickinger, "Coronavirus Undercuts Oregon's Wood Products Industry, Forestry Department Budget," *Oregonian*, April 4, 2020.

[36] For example, a Wisconsin paper plant that closed in July 2020 purchased approximately 25% of the pulpwood in Wisconsin. The closure was projected to affect more than 14,000 jobs, including 1,000 mill workers. Carey Biron, "Paper Cuts: U.S. Coronavirus Downturn Hits Timber-Reliant Towns," Reuters, September 23, 2020, and Great Lakes Timber Professionals Association, "Economic and Environmental Impact of Verso Announcement," press release, June 2020.

[37] Timber industry consolidation includes timber processing and manufacturing plant closures, plant expansions, and product changes at existing plants. Peter Ince et al., *Globalization and Structural Change in the U.S. Forest Sector: An Evolving Context for Sustainable Forest Management*, FS, FPL-GTR-170, 2007; C. Woodall et al., "An Overview of the Forest Products Sector Downturn in the United States," *Forest Products Journal*, vol. 61, no. 8 (2011), pp. 595-603.

[38] Pete Stewart, "Why Are Lumber Prices at a Record High?," *Forest2Market Blog*, August 18, 2020.

[39] "U.S. Home Construction Fell 22.3% in March," *CNBC*, April 16, 2020.

[40] Brooks Mendell, "Forisk Q1 2020 Update of Forest Industry Capital Investments and Timberland Transactions," *Forisk Blog*, April 22, 2020.

[41] United States Census Bureau, "Historical Time Series Data," Housing Units Started, New Privately Owned Housing Units Started (Monthly), Not Seasonally Adjusted, accessed May 13, 2021.

[42] John Greene, "Lumber Prices Continue to Freefall," *Forest2Market Blog*, October 22, 2020.

[43] John Greene, "Breaking: Have North American Lumber Prices Peaked?," *Forest2Market Blog*, September 21, 2020; John Greene, "Lumber Prices Continue to Freefall," *Forest2Market Blog*, October 22, 2020.

Table 1. Quarterly Southern Yellow Pine (SYP) Average Lumber Prices

(second quarter 2020 through June 16, 2021, per MBF)

Quarter and Year	Average Quarterly Price
2nd Quarter 2020	$442/MBF
3rd Quarter 2020	$728/MBF
4th Quarter 2020	$595/MBF
1st Quarter 2021	$946/MBF
Year-to-Date 2nd Quarter 2021	$1,041/MBF

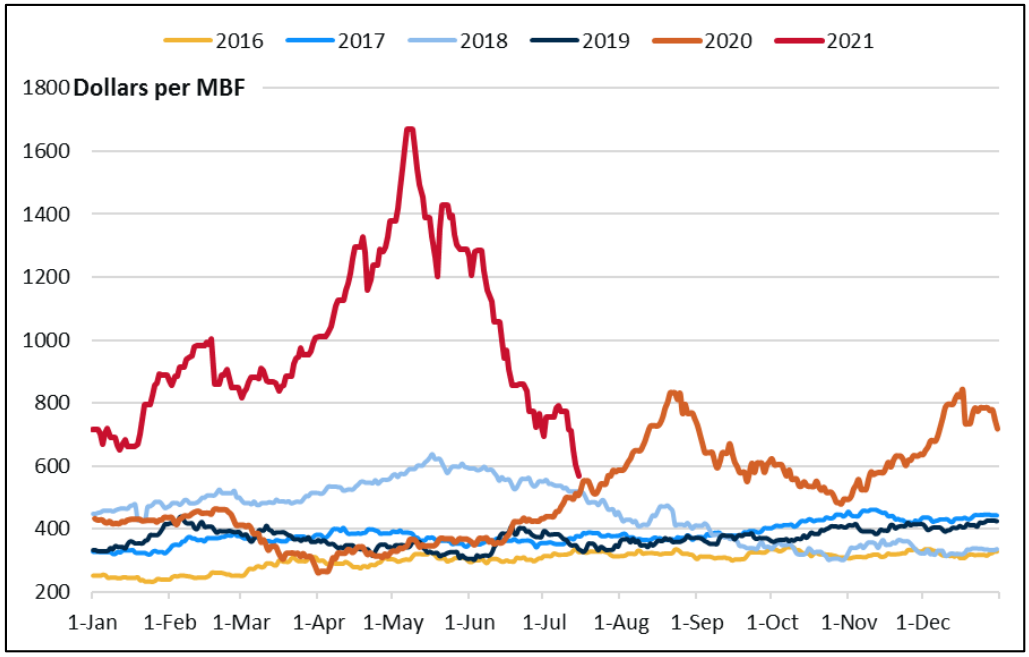
Source: John Greene, "Breaking: Have North American Lumber Prices Peaked?," *Forest2Market Blog*, September 21, 2020, and Mike Powell, "Lumber Prices Plummet; Is the Roller Coaster Ride Over?," *Forest2Market Blog*, June 16, 2021.

Notes: Years and quarters refer to calendar years. Second quarter 2021 data reflect data up to June 16, 2021. MBF = thousand board feet; a board foot is a traditional unit for measuring lumber and equals 1 inch by 12 inches by 12 inches.

Although the available data sources for lumber vary by region and species, various sources agree an extraordinary rise in lumber prices began in August 2020. For example, industry sources reported average southern softwood lumber prices rose 67% between the second and third quarters of 2020 (see **Table 1**). Although prices have varied since, they generally remained high compared with historic averages and rose to record high levels beginning in early 2021. Prices declined in the fourth quarter of 2020 but remained about 40% higher than the 2019 quarterly average; seasonal declines in the fall and winter are typical of lumber markets.[44] In 2021, prices increased precipitously: prices nearly doubled between the fourth quarter of 2020 and the first quarter of 2021. These changes were preceded by record-high lumber futures prices beginning in late August and continuing through mid-July 2021 (see **Figure 1**).

[44] In the fourth quarter of 2019, the average southern softwood lumber price was $348 per MBF. John Greene, "SYP Lumber Prices Deflate in 2019; What's in Store for 2020?," *Forest2Market Blog*, January 13, 2020, and John Greene, "Southern Yellow Pine Prices Shatter Previous Record," *Forest2Market Blog*, May 10, 2021.

Figure 2. Lumber Futures Prices, 2016-2021



Source: NASDAQ Commodity Trading Prices, Lumber, Daily Closing Prices, accessed July 16, 2021.

Notes: *Lumber futures* are exchange-traded contracts to deliver a specified amount of lumber at a given future date. Lumber futures prices are not necessarily equivalent to prices of lumber transactions occurring in real time (lumber prices). Existing research suggests lumber futures may forecast lumber prices. Lumber futures closing prices are reported daily on trading days. The figure has been smoothed between trading days. MBF = thousand board feet; a board foot is a traditional unit for measuring lumber and equals 1 inch by 12 inches by 12 inches.

These quarterly averages may mask additional short-term volatility or price fluctuations, or they may differ across regions and species. In particular, some prices reached all-time highs in early- to mid-May 2021 and began to decline toward the end of the month. For example, in the week of May 10, 2021, average southern softwood lumber prices were $1,091 per MBF, over 166% higher than the same week in 2020, but had declined to $979 per MBF by the week of June 11, 2021.[45] Similarly, in the week of June 17, 2021, certain western spruce-pine-fir (SPF) lumber products were $1,048/MBF, compared with $1,618 one month prior—a decrease of almost 20%.[46] It is unclear what overall factors may be contributing to the decline in prices, but they may include a combination of decreased demand from the housing sector and increased production and delivery.[47]

As of July 12, 2021, prices for southern yellow pine had reached $689/MBF,[48] a decline from their peak. As of July 16, 2021, futures prices for lumber had fallen even farther, below $600/MBF. It remains unclear if (or when) real-time transaction prices will fall to prices similar to those before the pandemic, although futures prices often predict real-time prices. In 2019, the average quarterly prices of southern yellow pine never rose above $410/MBF and weekly prices

[45] Mike Powell, "Southern Timber Prices Push Toward 2-Year High," *Forest2Market Blog*, May 24, 2021, and Mike Powell, "Lumber Prices Plummet; Is the Roller Coaster Ride Over?" *Forest2Market Blog*, June 16, 2021.

[46] Madison's Lumber Reporter, "Madison's Softwood Lumber Reporter Weekly Comment," June 29, 2021. The price given is the price for Western spruce-pine-fir 2x4's, grade 2 or better.

[47] Lance Lambert, "Lumber Prices Continue to Plummet—Down 49% from the Peak," *Fortune*, July 7, 2021.

[48] Lance Lambert, "Hitting bottom? Lumber's Price Is Down 55%, But a Rebound Looms," *Fortune*, July 12, 2021.

for certain western SPF products never rose above $420/MBF.[49] According to a graph published by Forest2Market, southern yellow pine prices varied between approximately $320/MBF and $620/MBF in the years 2017, 2018, and 2019; lumber futures from 2016 onward similarly show prices that rarely reach beyond $600/MBF.[50]

Increased lumber prices have affected associated businesses in a variety of ways. Businesses for which lumber is an input (such as lumber wholesalers, distributers, and members of the construction industry) reported shortages and rationing. For some, such as the construction industry, the effect of higher lumber prices or shortages may have decreased revenues or output and may have affected consumers.[51] For example, the National Association of Home Builders (NAHB) estimated that, in August 2020, the average price of a new single-family home was $16,000 higher than in April 2020 due to the increase in softwood lumber prices; in May 2021, NAHB estimated the average single-family home price had increased by $35,872 and the average multifamily home price had increased by $13,000.[52] Businesses that produce lumber, such as sawmills, saw increased profits.[53] For example, in the second quarter of 2020, gross margins for sawmills in the Pacific Northwest (the cost of logs compared with the price of lumber) were at their highest level in 15 years.[54]

Although overall reasons for lumber price increases in 2020 and 20201 are complex, as discussed above, industry groups generally have stated that market forces—such as supply shortages, higher-than-expected demand, and production capacity issues—have been the primary drivers.[55] Industry sources have identified features of lumber milling, such as narrow margins and long timelines needed to increase capacity, that may slow supply increases.[56] Others have pointed out conditions brought on by the pandemic. For example, during shutdowns early in the pandemic, buyers depleted lumber inventory, and continued high demand means mills cannot rebuild

[49] Western prices are for Western spruce-pine-fir 2x4's, grade 2 or better, weekly for 2019 up to October 8. Madison's Lumber Reporter, "Benchmark Western Spruce-Pine-Fir 2×4 Price Matches One-Year-Ago," October 8, 2019. Southern prices given at John Greene, "SYP Lumber Prices Deflate in 2019; What's in Store for 2020?," *Forest2Market Blog*, January 13, 2020.

[50] Mike Powell, "Lumber Prices Plummet; Is the Roller Coaster Ride Over?," *Forest2Market Blog*, June 16, 2021.

[51] For example, see "Rising Price of Lumber Putting People in a Pinch," *KMOV4-St. Louis*, October 12, 2020, and Russ O'Reilly, "Building Concerns: Lumber Shortage a 'Strange Disaster' amid COVID-19," *Tribune-Democrat*, August 8, 2020.

[52] National Association of Home Builders, "Average New Home Price Now $16,000 Higher Due to Lumber," *NAHBNow*, August 28, 2020, National Association of Home Builders, "Skyrocketing Lumber Prices Add Nearly $36,000 to New Home Prices," April 28, 2021.

[53] Wood Resources International, "Lumber Companies in the U.S. Reached Record Profits Thanks to High Lumber Prices and Declining Sawlog Costs," *Cision PR Newswire*, September 30, 2020.

[54] Ibid.

[55] For example, see Mike Powell, "2020 Lumber Price Surge Was Demand Driven," *Forest2Market Blog*, April 15 2021, Robert Dalheim, "Homebuilders Respond, Say Lumber Producers Are Misleadingly Underrating Cost of Lumber in a Home," *Woodworking Network*, April 29, 2021.

[56] For example, see Ryan Dezember, "Despite Lumber Boom, Few New Sawmills Coming," *Wall Street Journal*, May 17, 2021; and Pete Stewart, "Making More Lumber Is Not So Simple," *Forest2Market Blog*, May 26, 2021. Timelines to increase lumber capacity are long; Forest2Market provides the example of a new sawmill in Alabama that started construction in 2018, finished construction in 2019, and is still increasing overall production in 2021. Data from Forisk show that overall U.S. sawmill capacity was similar in 2020 and 2019, with a slight increase in 2020 (CRS was unable to locate data from 2021). For a technical discussion of lumber market dynamics, see Nianfu Song, Sun Joseph Chang, and Francisco Aguilar, "U.S. Softwood Lumber Demand and Supply Estimation Using Cointegration in Dynamic Equations," *Journal of Forest Economics*, vol. 17 (2011), pp. 19-33; and Jeffrey Prestemon et al., "Projecting Housing Starts and Softwood Lumber Consumption in the United States," *Forest Science*, vol. 64, no. 1 (2017), pp. 1-14.

inventory while also meeting immediate needs, contributing to supply issues.[57] Some of these market features have been apparent in the past, when other price swings occurred due to mismatched supply and demand.[58]

Some have pointed to the potential effects of nature-related timber supply shocks. For example, in 2020, some expressed concern that the impacts of wildfires, Hurricane Laura, and winter weather would cause lumber prices to increase further.[59] However, Forest2Market found that overall U.S. lumber production was higher in 2020 than in 2019, including in regions influenced by such shocks (for example, lumber production was higher in the Pacific Northwest despite wildfires).[60]

Forest2Market states that this provides evidence that supply constraints were less of an issue than demand expansion in terms of driving prices in 2020. However, long-term regional timber supply issues could affect regional timber industry health and therefore could reduce lumber supply. For example, the online business publication *Quartz* wrote that sawmill capacity in British Columbia—and consequently, lumber available for export to the United States—may have been falling for some time due to a long-term regional insect infestation.[61] In general, however, formal analysis of the impact of long-term timber supply shocks is lacking.

Similarly, some have expressed the view that trade in wood products may be influencing lumber markets. In particular, some have contended that duties imposed on Canadian softwood lumber as part of the U.S-Canada softwood lumber dispute (see text box) have exacerbated shortages or high prices.[62] As Canada supplied about 25% of U.S. lumber demand in 2020, this question is consequential for U.S. lumber markets.[63] The specific impact of Canadian imports (including duties) on U.S. lumber markets in 2020 and 2021 is not well understood. However, general studies of U.S. lumber markets under the 2017 duty rates may inform some potential impacts. These studies generally have found small increases in U.S. production, small decreases in Canadian imports, and small increases in U.S. prices from application of 2017 duty rates, with duty-related effects much smaller than the large price increases of 2020 and 2021.[64] These studies

[57] Lance Lambert, "Southern Loggers Are Pushing Wood Production to a 13-Year High. So Why Is the Price of Lumber up 288%?," *Fortune*, June 10, 2021.

[58] For example, see John Greene, "SYP Lumber Prices Finish 2018 in a Slump; Outlook for 2019," *Forest2Market Blog*, January 4, 2019.

[59] Forestry Economic Advisers, "After Hitting Record Levels, Production Disruptions from Hurricane Laura Are Likely to Drive Lumber Prices Even Higher," news release, September 10, 2020. Hurricane Laura impacted over 757,000 acres of timber in Louisiana, and it also affected Alabama, Mississippi, and Texas. Bruce Schultz, "AgCenter Estimates Ag, Forestry Losses from Hurricane Laura Exceed $1.6 Billion," Louisiana State University AgCenter, September 15, 2020. For information on wildfire, see CRS In Focus IF10244, *Wildfire Statistics*, by Katie Hoover and Laura A. Hanson.

[60] Mike Powell, "2020 Lumber Price Surge was Demand Driven," *Forest2Market Blog*, April 15 2021; TimberMart-South, *Quarterly Market Bulletin*, 1Q2020.

[61] Samanth Subramanian, "The U.S. Wood Shortage Can Be Traced to a Decades-Old Beetle Infestation in Canada," *Quartz*, May 17, 2021.

[62] Joe Bousquin, "AGC Asks Biden for Relief from Soaring Lumber Prices," *ConstructionDive*, February 22, 2021, TimberLine Staff, "Home Builders Applaud Canadian Lumber Tariff Cuts," *TimberLine*, March 1, 2021.

[63] Zoltan van Heyningen, "Home Price Rises Aren't Explained by Duties," *Wall Street Journal*, April 19, 2021.

[64] For example, J. Buongiorno, "Projected Effects of U.S. Tariffs on Canadian Softwood Lumber and Newsprint Imports: A Cobweb Model," *Canadian Journal of Forest Resources*, vol. 48 (August 18), pp. 1351-1357, found that an application of the average 2017 duty decreased Canadian imports by up to 8%, increased U.S. production by up to 2%, and increased U.S. prices by up to 2%. The article did not examine total supply, as it did not include U.S. trade with other countries, and did not account for differing duties across firms. Craig Johnson and Rajan Parajuli, "What's Next in the U.S.-Canada Softwood Lumber Dispute? An Economic Analysis of Restrictive Trade Policy Measures," *Forest Policy and Economics*, vol. 85, no. 1 (December 2017), pp. 135-146, found that nationwide application of the highest

often do not account for U.S. lumber trade with other nations, which caused an overall 4.5% year-over-year increase in lumber imports in 2020.[65] These studies support the assertion that duties on Canadian lumber imports affect U.S. consumers and markets. However, they do not suggest that such duties are likely to induce large, short-term price volatility or supply impacts.

The U.S.-Canada Softwood Lumber Trade Dispute

Softwood lumber trade between the United States and Canada has been a contentious issue since the 1980s. U.S. lumber producers claim they are at an unfair competitive disadvantage in the domestic market against Canadian lumber producers because of Canada's timber pricing policies. Consequently, there have been five major trade disputes regarding softwood lumber between the United States and Canada.

The current dispute started when the 2006 Softwood Lumber Agreement (SLA) expired on October 12, 2015. Under that agreement, Canadian softwood lumber shipped to the United States was subject to export charges and quota limitations when the price of U.S. softwood products fell below a certain level. In 2016, after a year-long grace period, a coalition of U.S. lumber producers filed trade remedy petitions, which claimed that Canadian firms dump lumber in the U.S. market and that Canadian provincial forestry policies subsidize Canadian lumber production.

In 2017, federal agencies determined Canadian imports of softwood lumber were subsidized and *dumped* (sold at a lower price in the United States than in Canada), causing material injury to U.S. producers. As such, the United States imposed firm-dependent duties of up to 24% on Canadian exporters. In December 2020, the United States lowered this duty to approximately 9%, also firm dependent, for products imported during the 2017-2018 review period. U.S. duties are retrospective, meaning importers must pay a cash deposit of the estimated duty upon import and the final duty may not be determined until later. Thus, current imports may not be subject to the lower duty levels imposed in 2020.

Sources: CRS Report R42789, *Softwood Lumber Imports from Canada: Current Issues*, by Katie Hoover and Ian F. Fergusson; International Trade Administration, "Fact Sheet: Commerce Finds Dumping and Subsidization of Imports of Softwood Lumber from Canada," November 2017; International Trade Administration, "Certain Softwood Lumber Products From Canada: Final Results of the Countervailing Duty Administrative Review, 2017-2018," 85 Federal Register 76519, November 30, 2020; International Trade Administration, "Certain Softwood Lumber Products From Canada: Final Results of the Countervailing Duty Administrative Review, 2017-2018," 85 Federal Register 77163, December 1, 2020.

Members of Congress and members of the construction industry have expressed concern about the impact of increased construction prices on homebuyers and construction businesses.[66] Since 2020, these groups have asked the Trump and Biden Administrations to promote greater lumber production and resolve the softwood lumber trade dispute with Canada.[67] The Biden Administration has not committed to any particular action or remedy, although Secretary of Commerce Gina Raimondo and U.S. Trade Representative Katherine Tai have expressed that they will work on varying aspects of the lumber price issue.[68]

2017 duty increased U.S. prices by up to 4%, increased U.S. production by up to 4%, and decreased the Canadian share of U.S. imports by up to 5%. The article also did not examine total supply and did not account for differing duties across firms.

[65] Wood Resources International LLC, "Softwood Lumber Imports to the U.S. Were up 4.5% in 2020, Contrary to China, Japan and MENA Where Imports Fell," *Canadian Forest Industries*, March 30, 2021.

[66] For example, see Letter from National Association of Home Builders to President Joe Biden, January 29, 2021, and David Lawder and Jarrett Renshaw, "U.S. Trade Chief Pressured to Lift Duties on Canadian Lumber," Reuters, May 16, 2021.

[67] For a timeline of industry and congressional communications with the Trump Administration prior to October 21, 2020, see National Association of Home Builders, "Working Closely with NAHB, Nearly 100 Lawmakers Urge Trump to Act on Lumber," *NAHB Now*, October 10, 2021. Since October 10, see, for example, Letter from Rep. Jim Costa and Rep. Jodey Arrington to President Biden and U.S. Department of Justice, May 2021, and Letter from National Association of Home Builders et al. to Gina Raimondo, U.S. Department of Commerce Secretary, March 29, 2021.

[68] David Lawder and Jarrett Renshaw, "U.S. Trade Chief Pressured to Lift Duties on Canadian Lumber," Reuters, May

Paper Products

Wood is the primary raw material for paper products, such as cardboard and bath tissue. During the pandemic, demand for paper products used in offices, schools, restaurants, and other public places has decreased, whereas demand for products used in residential settings has increased. As a result, the pandemic has had differential and offsetting impacts across the pulp and paper sector, sometimes within industries or geographic regions.[69] For example, despite widely publicized shortages in bath tissue and other personal-use paper products in early 2020, the increased household demand for these products has been countered by decreased demand in schools, offices, and other public places.[70] Similarly, demand for paper packaging materials for shipping to homes has increased, whereas demand for these materials from restaurants and hotels has decreased.[71] Some sectors that primarily supply offices and schools (e.g., printing and writing paper) reported decreased demand in 2020.[72] Overall, producers of pulp, paper, and related products reported relatively little change in the average prices they received in 2020 (which varied no more than 1% over the year), which were similar to average prices in 2019.[73] Producer prices rose 5% from January to May 2021.[74] Industry sources have pointed to increases in the cost of inputs, including wood pulp, energy, freight, and chemicals, and to increases in demand as driving price increases.[75] It is unclear how trends across different industry sectors are continuing in 2021, as more facilities, offices, and public places increase capacity.

Industry analytics firm Fastmarkets RISI reported that 43 pulp- and paper-related facilities in the United States curtailed production temporarily or permanently closed between March and September 2020 due to COVID-19.[76] CRS was unable to locate information on curtailments or permanent closures since that time. According to the Industrial Resources Council, there are 430

16, 2021, and Alex Seitz-Wald and Jonathan Allen, "Should Joe Biden worry about soaring lumber prices?," *NBC News*, May 17, 2021.

[69] For example, two Wisconsin paper plants producing glossy paper (primarily used for print advertising, magazines, and similar products) announced they would close in 2020 reportedly due to declining demand and the high cost of retrofitting the plants. Carey Biron, "Paper Cuts: U.S. Coronavirus Downturn Hits Timber-Reliant Towns," Reuters, September 23, 2020. However, demand for bath tissue from other Wisconsin mills doubled, leading mills and distribution centers to operate at 120% of their normal capacity. Rick Barrett, "Demand for Toilet Paper is Rising, and Wisconsin's $13 Billion Paper Industry Could Thrive," *Milwaukee Journal-Sentinel*, March 18, 2020.

[70] Jen Weiczner, "The Case of the Missing Toilet Paper: How the Coronavirus Exposed U.S. Supply Chain Flaws," *Fortune*, May 18, 2020, and Sharon Terlep, "Toilet Paper Giant Pivots from Scratchy Office Rolls to Battle Home Shortages," *Wall Street Journal*, April 23, 2020.

[71] Brenna Butler, *Cardboard Box & Container Manufacturing in the U.S.*, IBISWorld, U.S. Industry (NAICS) Report 32221, October 2020.

[72] For example, see American Forest and Paper Association, "American Forest & Paper Association Releases September 2020 Printing-Writing Monthly Report," press release, October 16, 2020.

[73] CRS calculation from BLS, PPI Commodity Data for pulp, paper and allied products, "Pulp, Paper, and Allied products," not seasonally adjusted, accessed July 6, 2021, PPI data updated June 15, 2021.

[74] CRS calculation from BLS, PPI Commodity Data for pulp, paper and allied products, "Pulp, Paper, and Allied products," not seasonally adjusted, accessed July 6, 2021, PPI data updated June 15, 2021. In May 2021, prices were 3% lower than in May 2019.

[75] Faustine Loison, "Paper Price Rises Continue," *Print Industry News*, April 16, 2021.

[76] Fastmarkets RISI, "COVID-19-Related North American Pulp and Paper Mill Shuts, March-September 2020," accessed November 3, 2020. Fastmarkets RISI specified that companies were "listed for downtime, either novel coronavirus or market-related or maintenance if deemed relevant, or for indefinite or permanent shutdowns, announced since early March." Reported downtime was based on publicly reported announcements by companies and information reported to the organization's editors. Fastmarkets RISI estimates that COVID-19-related mill downtime throughout North America represents 2.684 million short tons of production.

pulp and paper mills in the United States, although it is unclear what year this statistic reflects or whether it and the Fastmarkets RISI data include the same types of facilities.[77] Some of these events may be directly related to the COVID-19 pandemic, such as measures to prevent or forestall outbreaks.[78] In other cases, these curtailments and closures have occurred in response to changing market conditions, some of which predated the pandemic and were accelerated by changes to consumer behavior related to the pandemic.[79]

Trade

Lower economic activity in other countries and disruptions to parts of the transportation network have affected U.S. wood product trade throughout the pandemic, though conditions improved in early 2021. Early in the pandemic, some ports were closed, which curtailed shipments, and worldwide shutdowns in construction and manufacturing weakened international demand.[80] As a result, trade activity in timber-related products generally decreased. For example, as of October 2020, U.S. exports of timber-related products were approximately 32% lower than the year-to-date export value in 2019 and U.S. imports of timber-related products were approximately 26% lower than in 2019.[81] However, by early 2021, trade activity had increased. As of March 2021, U.S. exports of timber-related products were nearly identical to March 2020 and U.S. imports of timber-related products were approximately 36% higher than in March 2020.[82]

COVID-19 and Timber Harvesting on Federal Lands

Timber harvesting takes place on federal lands managed by the Forest Service (FS), within the U.S. Department of Agriculture (USDA), and the Bureau of Land Management (BLM), within the Department of the Interior. These agencies are broadly authorized to sell federal timber under their multiple-use authorities.[83] The FS and BLM generally authorize timber harvesting through a timber sale, wherein an interested party (*timber purchaser*) bids on a contract to harvest specified timber (such as a given species in a given location) over a contract term, which is generally 3

[77] Industrial Resource Council, "Pulp and Paper Manufacturing: Industry Snapshot," accessed November 25, 2020.

[78] For example, see Nicole Bales, "Georgia-Pacific Wauna Mill Discloses Virus Case," *Astorian*, July 10, 2020.

[79] For example, Bruce Ferrin, "Layoffs Loom as Rumford Mill Expands into Packaging Grades," *Sun Journal*, October 30, 2020; Peter Kendall, "A Warning from Wisconsin," *Washington Post*, July 30, 2020.

[80] For example, see Hal Bernton, "In Rural Washington, Coronavirus Outbreak Takes a Big Bite Out of Pulp and Shellfish Exports to China," *Seattle Times*, March 7, 2020.

[81] CRS, from Bureau of Economic Analysis, "U.S. International Trade in Goods and Services," Exports, Imports, and Balance of Goods by Selected NAICS-Based Product Code, Not Seasonally Adjusted, each of October 2019 and October 2020. Sum of Forestry Products, Wood Products, and Paper Products. In October 2020, the United States had exported approximately $24.0 billion in timber-related products and had imported approximately $35.3 billion, in contrast to the year-to-date export value of approximately $26.6 billion and the year-to-date import value of $35.8 billion in 2019.

[82] CRS, from Bureau of Economic Analysis, "U.S. International Trade in Goods and Services," Exports, Imports, and Balance of Goods by Selected NAICS-Based Product Code, Not Seasonally Adjusted, each of March 2020 and March 2019. Sum of Forestry Products, Wood Products, and Paper Products. In March 2021, the United States had exported approximately $7.7 billion in timber-related products and had imported approximately $13.3 billion, in contrast to the year-to-date export value of approximately $7.7 billion and the year-to-date import value of $9.8 billion in 2019. It is unclear to what degree March 2020 trade figures may have been influenced by the COVID-19 pandemic, particularly as it impacted U.S. trade partners abroad.

[83] 16 U.S.C. §475, 30 U.S.C. §601. For more information, see CRS Report R45688, *Timber Harvesting on Federal Lands*, by Anne A. Riddle.

years, with a maximum term of 10 years for FS timber.[84] Most timber harvested on federal lands is from FS lands. The FS responded to COVID through various authorized timber contract flexibilities. It is unclear if BLM used any timber contract flexibilities to relieve timber purchasers.

Forest Service Timber Contract Flexibilities

The USDA has the authority to modify timber contracts to provide relief to purchasers if adverse timber market conditions develop. The Secretary of Agriculture (Secretary) may extend the length of timber sale contracts if the Secretary finds that a "substantial overriding public interest" (*SOPI finding*) justifies the extension.[85] In addition, if specific "adverse wood products market conditions" develop, defined as a specified percentage decrease over two or more consecutive quarters in the Producer Price Indexes for hardwood lumber, softwood lumber, and wood chips, this constitutes an automatic SOPI finding. Under these conditions, the FS can issue a market-related contract term addition (MRCTA) to an affected timber sale contract.[86] MRCTAs are a subset of the Secretary's authority to issue SOPI findings, which are more general and flexible (e.g., they can be issued for a variety of reasons or can respond to conditions occurring over time scales shorter than two quarters). FS timber sale contracts can be extended longer than 10 years, if the Secretary finds that doing so would allow for better use of forest resources.

On April 15, 2020, the USDA issued a SOPI finding, announcing the FS would extend certain timber contracts and permits due to a combination of factors affecting the timber market.[87] The announcement specified that a confluence of several factors, beginning in late 2019, has created "unprecedented worldwide instability" in timber markets, citing factors such as the COVID-19 pandemic, tariffs on hardwood products exported to China, and others.[88] In April 2020, the FS found total hardwood export value had fallen by over 42%.[89] Stakeholders reported that hardwood mills had closed, instituted layoffs, reduced production, and lost revenues and that National Forest System hardwood timber sales were at risk of default.[90]

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[84] 16 U.S.C. §472a(c). Bureau of Land Management timber contracts must be completed in three years, unless extended at the timber purchaser's written request. 43 C.F.R. §§5463.1, 5473.4.

[85] 16 U.S.C. §472a(c).

[86] 36 C.F.R. §223.52.

[87] FS, "Extension of Certain Timber Sale Contracts; Finding of Substantial Overriding Public Interest," 85 *Federal Register* 20984-20987, April 15, 2020. This substantial overriding public interest (SOPI) finding is not applicable to all timber sales. Sales where timber is in urgent need of removal (e.g., to mitigate wildfire risk) will not be extended. The SOPI does not apply to certain contracts called *stewardship contracts*, if they include timber harvesting but are primarily for restoration services. For more information on stewardship contracting, see CRS In Focus IF11179, *Stewardship End Result Contracting: Forest Service and Bureau of Land Management*, by Anne A. Riddle.

[88] Beginning in 2018, China responded to import tariffs instituted by the Trump Administration by placing a series of retaliatory tariffs on American wood products. These tariffs particularly influenced hardwood markets, due to the high proportion of U.S. hardwood exported to China. In the first months of 2020, the United States and China signed the first phase of a trade deal, under which China issued tariff exclusions for some (but not all) hardwood products, beginning February 28, 2020. For a summary of tariffs, see International Trade Administration, *Foreign Retaliation Product Matrix*, November 13, 2020.

[89] FS, "Extension of Certain Timber Sale Contracts; Finding of Substantial Overriding Public Interest," 85 *Federal Register* 20984-20987, April 15, 2020.

[90] Letter from Representatives Ann McLane Kuster et al. to Sonny Perdue, Secretary of Agriculture, and Robert Lighthizer, U.S. Trade Representative, November 19, 2019; and FS, "Extension of Certain Timber Sale Contracts; Finding of Substantial Overriding Public Interest," 85 *Federal Register* 20984-20987, April 15, 2020. For a summary of affected products, see Foreign Agriculture Service, *China Issues Tariff Exclusions on U.S. Hardwood Products*, CH2020-0020, February 28, 2020.

Under the SOPI finding, most contracts may be extended for a total of two years, including time provided under other MRCTA or SOPI findings, either those made in the past or those made in the future. Market conditions in Alaska have been particularly affected (e.g., due to the region's reliance on foreign demand), so timber sale contracts in Alaska may be extended for up to three years.[91]

As of June 22, 2021, the FS had granted extensions to 1,000 timber contracts under the April 15, 2020, SOPI finding. In addition, as of June 25, 2021, 346 timber contracts had been extended under MRCTA provisions related to softwood lumber prices. It is unclear whether some sales had extensions under both provisions. The ultimate effect of timber contract flexibilities on timber harvesting on FS lands is unclear. Timber harvesting in FY2020 on FS lands was very similar to FY2019 (in both years, approximately 2.6 billion board feet); flexibilities are to remain in effect for some time.

Federal Assistance to the Timber Industry

The FY2021 Consolidated Appropriations Act directed the Secretary of Agriculture to allocate $200 million to provide relief to timber harvesting and timber hauling businesses.[92] The act specified that relief be provided to timber harvesting and hauling businesses that experienced at least a 10% decline in gross revenue from January 1, 2020, through December 1, 2020, as compared to the gross revenue generated from January 1, 2019, to December 1, 2019. On July 20, the USDA announced that the relief would be administered through the Farm Services Agency, in conjunction with the FS, as the Pandemic Assistance for Timber Harvesters and Haulers program.[93] Timber harvesters and haulers may apply for relief between July 22 and October 15, 2021. In addition, the FY2021 Consolidated Appropriations Act authorized the Secretary of Agriculture to make payments to producers of specified biofuels produced in the United States for "unexpected market losses" as a result of COVID-19, which may be inclusive of some wood-based biofuels.[94]

Congress also has provided general assistance to U.S. businesses and employees, including those in the timber industry. Some of the main federal assistance programs include the following:

- **Small Business Administration (SBA) Loans and Advances.** Congress has authorized several programs through the CARES Act that provide loans or advances to eligible businesses through the SBA. Certain eligible businesses (such as small businesses, sole proprietors, nonprofit organizations, and cooperatives) may apply for Economic Injury Disaster Loans (EIDLs). The SBA is authorized to provide amounts of up to $500,000, although this amount has changed over time due to the availability of funds in the SBA Disaster Loan Account. The CARES Act also provided $10 billion for emergency EIDL grants

[91] For more information on stewardship contracting, see CRS In Focus IF11179, *Stewardship End Result Contracting: Forest Service and Bureau of Land Management*, by Anne A. Riddle.

[92] P.L. 116-260, Division N—Additional Coronavirus Response and Relief, Title VII, Subtitle B, Section 751. For more information on the U.S. Department of Agriculture's (USDA's) Pandemic Assistance to Producers program, see https://www.farmers.gov/pandemic-assistance.

[93] U.S. Department of Agriculture, "USDA Announces Pandemic Assistance for Timber Harvesters and Haulers," press release, July 20, 2021.

[94] P.L. 116-260, Division N—Additional Coronavirus Response and Relief, Title VII, Subtitle B, Section 751. Applicable biofuels are defined at 42 U.S.C. §7545(o)(1). For more information on biofuels, contact Kelsi Bracmort at kbracmort@crs.loc.gov or 7-7283.

of up to $10,000 to borrowers adversely affected by the COVID-19 pandemic. The emergency EIDL grant did not have to be repaid, even if the applicant was subsequently denied an EIDL. Due to high demand, the SBA limited grants to $1,000 per employee, capped at $10,000.[95]

- **SBA Paycheck Protection Program (PPP)**.[96] Small businesses, cooperatives, nonprofits, sole proprietors, and self-employed individuals generally were eligible for a PPP loan if they were in operation on February 15, 2020, and (1) were eligible for the SBA's 7(a) loan program or (2) had either (a) not more than 500 employees or, (b) if applicable, the SBA's "size standard" in number of employees for the industry in which they operate. The PPP was designed to help businesses retain workers (maintain payroll) and make mortgage, rental, and utility payments. Businesses generally received a two-year loan at a 1% interest rate equal to 2.5 times average monthly payroll costs (capped at $10 million), and they could apply for all or part of the loan to be forgiven if they met certain job retention and rehiring criteria. The statutory deadline for submitting PPP applications was May 31, 2021. However, on May 4, 2021, the SBA informed lenders that due to budgetary limitations it was limiting new PPP loan applications to community financial institutions and would continue to process applications that already had been submitted.[97]
- **Enhanced Unemployment Insurance (UI)**.[98] Congress created several temporary UI benefits in response to the pandemic, including providing an extra $600 in weekly benefits, expanding benefits to certain groups of unemployed workers who usually do not qualify for UI benefits, and providing an extra 13 weeks of UI benefits. Some states have opted out of federal UI agreements.[99] Benefits generally expire in September 2021.
- **Paid Leave and Sick Leave**.[100] If employees are unable to work for certain reasons associated with COVID-19, private-sector employers with fewer than 500 employees were required to provide two weeks of paid leave in 2020. These employers also were required to provide their employees an additional 10 weeks of paid expanded family and medical leave to care for a child whose school or

[95] The SBA stopped accepting new EIDL and emergency EIDL grant applications on April 16, 2020, because funding for the programs was nearly exhausted, but it continued to process EIDL and emergency EIDL grant applications that already had been submitted on a first-in, first-out basis. The American Rescue Plan Act (P.L. 117-2) established a Targeted EIDL Advance to provide grants of up to $10,000 to businesses located in low-income communities, with 300 or fewer employees, and a revenue reduction of more than 30% during an eight-week period beginning on March 2, 2020, or later. Businesses and nonprofits that received a previous emergency EIDL grant in an amount less than $10,000 have first priority.

[96] For more information, see CRS Report R46284, *COVID-19 Relief Assistance to Small Businesses: Issues and Policy Options*, by Robert Jay Dilger, Bruce R. Lindsay, and Sean Lowry; and CRS Insight IN11341, *SBA's Paycheck Protection Program (PPP) Loans and Self-Employed Individuals*, by Sean Lowry.

[97] For more information, see CRS Report R46284, *COVID-19 Relief Assistance to Small Businesses: Issues and Policy Options*, by Robert Jay Dilger, Bruce R. Lindsay, and Sean Lowry.

[98] For more information, see CRS In Focus IF11475, *Unemployment Insurance Provisions in the CARES Act*, by Katelin P. Isaacs and Julie M. Whittaker.

[99] For more information, see CRS Insight IN11679, *States Opting Out of COVID-19 Unemployment Insurance (UI) Agreements*, by Julie M. Whittaker and Katelin P. Isaacs.

[100] For more information, see CRS In Focus IF11487, *The Families First Coronavirus Response Act Leave Provisions*, by Sarah A. Donovan and Jon O. Shimabukuro and CRS In Focus IF11739, *Payroll Tax Credit for COVID-19 Sick and Family Leave*, by Molly F. Sherlock.

child care is closed or unavailable. Employers could claim a payroll tax credit to offset the cost of providing the required leave in 2020. The tax credits for employers choosing to provide paid leave are available through September 30, 2021, although the paid leave requirement expired at the end of 2020.

- **Tax Relief.** Congress enacted a number of provisions providing tax relief for businesses. Congress authorized for 2020, and later expanded and extended for 2021, a refundable employee retention payroll tax credit for employers subject to closures or experiencing reduced revenues due to COVID-19.[101] Congress also provided tax relief through expanded net operating losses recorded in tax years 2018, 2019, and 2020.[102] In addition, Congress authorized deferred payment of the employer share of Social Security payroll taxes for employers and self-employed individuals through the end of 2020,[103] along with other business tax relief provisions.[104]

Some timber industry sectors have used these programs. For example, a survey by the American Loggers Council from June of 2020 found that 72% of respondents applied for federal assistance. Of those, 84% applied for assistance with the PPP and 12% applied for assistance with the EIDL program.[105] The majority of respondents (92%) who applied for assistance were approved. Although it is unclear what timber industry sectors were included in this survey, the American Loggers Council represents independent loggers and log truck operators. In a later example, industry analytics firm Forisk reported that, as of January 2021, 5,532 logging businesses (up to 69% of the U.S. logging industry) had been granted PPP loans, with the majority of loan funding issued in April 2020 and consisting of loans of $50,000 or less.[106] It is unclear how many businesses throughout the wood product supply chain are included in figures from both sources or to what degree they represent the industry as a whole. In addition to the federal programs above, the CARES Act provided $150 billion in direct assistance to state governments, collectively known as the Coronavirus Relief Fund, which may be used for expenses related to the COVID-19 pandemic.[107] Some states have used this funding to assist sectors of the timber industry. For example, some states have used Coronavirus Relief Fund monies to establish grant programs that assist forest landowners and timber-related businesses.[108] States also have used Coronavirus Relief Fund money to assist businesses generally.

[101] CRS Insight IN11299, *COVID-19: The Employee Retention Tax Credit*, by Molly F. Sherlock.

[102] CRS Insight IN11296, *Tax Treatment of Net Operating Losses (NOLs) in the Coronavirus Aid, Relief, and Economic Security (CARES) Act*, by Jane G. Gravelle.

[103] CRS Insight IN11260, *COVID-19 Economic Stimulus: Business Payroll Tax Cuts*, by Molly F. Sherlock and Donald J. Marples.

[104] CRS Report R46279, *The Coronavirus Aid, Relief, and Economic Security (CARES) Act—Tax Relief for Individuals and Businesses*, coordinated by Molly F. Sherlock.

[105] American Loggers Council, "Results: Loggers COVID-19 Federal Assistance Survey," June 16, 2020.

[106] Shawn Baker, "Felling a Tree with the PPP: Small Business Loan Program Aids the Logging Industry," *Forisk Blog*, January 12, 2021.

[107] CRS Report R46298, *General State and Local Fiscal Assistance and COVID-19: Background and Available Data*, by Grant A. Driessen.

[108] For example, the State of Alabama established a grant program for qualifying timber owners that sold timber between March and July 2020, and the State of Vermont established a grant program for forest product businesses that experienced economic harm due to the COVID-19 pandemic. Alabama: "Memorandum of Understanding Between Alabama Department of Finance and the Alabama Forestry Commission for the Distribution of CARES Act Coronavirus Relief Funds," August 24, 2020; Vermont: Vermont Act 138, "An Act Relating to Providing Financial Relief Assistance to the Agricultural Community due to the COVID-19 Public Health Emergency," enacted July 2,

Options for Congress

Decreases in timber prices over certain periods, mill closures, and other pandemic-related market disruptions led some stakeholders to conclude that financial assistance was needed to provide relief to the timber industry.[109] As described above, Congress provided financial assistance to some sectors of the timber industry through the FY2021 Consolidated Appropriations Act. Should Congress seek to provide additional assistance or assistance to other timber industry sectors, such assistance could take the form of additional legislation, changes to the implementation of existing programs, or other measures.

As the pandemic has progressed, some stakeholders also have expressed that federal action is needed to protect consumers from high commodity prices, particularly lumber prices. In general, such proposals have not identified specific congressional action; however, Congress has acted on commodity prices from time to time.

The discussion below covers assistance proposed specifically for the timber industry in relation to the impacts of the COVID-19 pandemic.[110] Broad assistance to businesses or individuals, such as that provided by the CARES Act, may be inclusive of the timber industry; such options are beyond the scope of this report. The discussion below does not cover potential actions by the executive branch.

Congress also may decide that assistance specific to the timber industry is not warranted at this time. For example, Congress may decide existing policies are sufficient or the pandemic's impacts do not warrant industry-specific intervention. In general, Congress has declined to pass legislation providing assistance specific to all sectors of the timber industry under other adverse market situations. For example, in response to the economic downturn and housing market collapse of 2008-2010, sectors of the timber industry experienced severe declines.[111] Congress provided certain flexibilities to purchasers of federal timber sale contracts (see "Timber Harvesting on Federal Lands") but did not provide other specific assistance to the timber industry. In other situations, Congress has assisted some parts of the timber industry (such as forest landowners) but not others.[112]

2020. For more information on the Coronavirus Relief Fund, see CRS Report R46298, *General State and Local Fiscal Assistance and COVID-19: Background and Available Data*, by Grant A. Driessen.

[109] For example, see Edward Murphy, "Coronavirus and Papermaking Woes Bring Tough Times to Maine's Logging Industry," *Portland Press Herald*, July 20, 2020.

[110] In the 116th Congress, bills were introduced that would have provided relief to parts of the timber industry under adverse market conditions not directly related to COVID-19. For example, the Forest Recovery Act (S. 1687 and H.R. 1444) would have modified the tax deduction for casualty losses to establish special rules for losses of uncut timber due to natural disasters, theft, or other reasons.

[111] See D. Hodges et al., "Recession Effects on the Forests and Forest Product Industries of the South," *Forest Products Journal*, vol. 61, no. 8 (2012), pp. 614-624; and Charles Keegan et al., "Impact of the Great Recession on the Forest Products Industry in the Western United States," in *Moving from Status to Trends: Forest Inventory and Analysis (FIA) Symposium 2012*, ed. Randall Morin and Greg Liknes (FS, 2012).

[112] For example, in P.L. 116-20, the Additional Supplemental Appropriations for Disaster Relief Act of 2019, Congress delegated broad authority to the FS's state and private forestry mission area to administer $12.0 million for expenses related to specified hurricanes and wildfires; delegated broad authority to the U.S. Department of Agriculture (USDA) to administer $3.0 billion for expenses related to losses from natural disasters in 2018 and 2019, including for forest restoration; and appropriated additional funds to existing forest restoration programs, among other actions.

Financial Assistance to the Timber Industry

Stakeholders have previously called for Congress to pass legislation providing specific assistance to the timber industry. As described above (see "Federal Assistance to the Timber Industry"), Congress authorized relief to timber harvesting and hauling businesses that experienced specified economic losses. Although CRS did not locate any specific calls for Congress to authorize new relief, stakeholders in the timber industry have proposed other legislative approaches should Congress aim to do so. For example, the American Loggers Council proposed that Congress authorize low-interest loans for timber harvesting or hauling businesses' operating expenses based on lost production or revenue.[113] In general, legislation authorizing financial assistance can be tailored as narrowly or broadly as Congress desires; for example, such legislation could specify firm size, type of business, magnitude of economic impact, or other factors for eligibility, or it could have broad eligibility criteria.

Congress also might broadly use its oversight powers to review executive branch activities related to the timber industry, particularly the USDA's administration of the relief to timber harvesting and hauling businesses authorized in the Consolidated Appropriations Act, 2021. Congress could \ oversee potential uses of other USDA funding to the agriculture sector.[114] Such approaches might include overseeing any applicable rulemaking processes, directing the USDA to inventory or report on uses of the funding, or directing the USDA to review the funding's effects on the timber harvesting and hauling sectors. Congress also could oversee the timing and effectiveness of any eventual relief disbursement, as some have criticized the delay in disbursement.

Action on Commodity Prices

As the pandemic has progressed, some stakeholders have expressed the view that federal action is needed to protect consumers from high commodity prices, particularly lumber prices. In general, such proposals have not identified specific congressional action but may have identified either broad policy goals or potential actions by the executive branch. For example, the National Association of Home Builders (NAHB) has advocated extensively on lumber prices to both the Trump and Biden Administrations. In one letter to the Biden Administration, the NAHB asked President Biden the following:

> We respectfully request that you reach out to domestic lumber producers to urge them to increase lumber production to address these shortages and to ask the Department of Commerce to investigate why production remains at such low levels during this period of high demand. Additionally, returning to the negotiating table with Canada to achieve a new softwood lumber agreement with our northern neighbor and end at various times, tariffs on Canadian lumber shipments into the U.S. would be a significant step forward.[115]

Other stakeholders also have been active in this area; for example, a coalition of dozens of industry organizations asked Secretary of Commerce Raimondo to "undertake a thorough

[113] Letter from DanielRuctor, Executive Vice President, American Loggers Council, to Congress, June 1, 2020.

[114] Congress has authorized a variety of aid to the agriculture sector in response to the COVID-19 pandemic. In some instances, Members of Congress and other stakeholders have asserted that such funding should be available to some timber-related businesses. For more information on aid to the agriculture sector, see CRS In Focus IF11764, *U.S. Agricultural Aid in Response to COVID-19*, by Randy Schnepf and Stephanie Rosch.

[115] Letter from John Fowke, Chairman of the Board, National Association of Home Builders, to President Joe Biden, January 29, 2021.

examination of the lumber supply chain and seek remedies that will increase production."[116] Congress has engaged with the lumber price situation through various means, such as hearings, correspondence with the Biden and Trump Administrations, and others. If desired, options for congressional action regarding lumber prices are varied, although CRS was not able to locate any direct congressional intervention in lumber markets in recent decades. Alternatively, Congress may decide that action related to lumber prices is not desirable at this time. For example, Congress may elect to observe whether lumber price fluctuations and their effects on related industries continue for an extended period. As described above (see "Lumber"), prices have been volatile and have changed rapidly in relatively short periods. This volatility makes it particularly unclear what federal actions, if any, could respond in a timely manner to the developing situation.

Congress might use its oversight powers to review executive branch activities related to lumber markets. Such approaches might include overseeing executive branch actions related to lumber trade, directing federal agencies to inventory or report on lumber market conditions, or directing federal agencies to review the effects of federal authorities on lumber markets (for example, authorities governing timber harvesting on federal lands, federal procurement, weight limits on federal interstate highways, or others).[117]

Congress also could consider legislation to address lumber prices, taking a variety of approaches. There are various examples of congressional action in other markets for different purposes, such as to authorize producer revenue or price protection programs, to authorize the executive branch to regulate wholesale prices, or to govern trade.[118] Other legislative options to reduce consumer prices or increase supply may use indirect approaches, such as reforming federal regulations.[119] Congress also has created or authorized grants, loans and loan guarantees, research and development programs, and other federal programs to facilitate development of certain industries or businesses.[120]

[116] Letter from American Gas Association, American Public Gas Association, and American Supply Association et al. to Gina Raimondo, Secretary of Commerce, March 12, 2021.

[117] For more information on the trade policy authorities Congress has delegated to the executive branch, see CRS Report R45148, *U.S. Trade Policy Primer: Frequently Asked Questions*, coordinated by Cathleen D. Cimino-Isaacs.

[118] For example, Congress has regularly authorized various farm revenue and price support programs, has authorized the executive branch to regulate wholesale prices of electricity, and has authorized the executive branch to take a variety of actions on international trade. For more information, see CRS In Focus IF10718, *Farm Bill Primer: Title I Commodity Programs*, by Randy Schnepf, CRS In Focus IF11411, *The Legal Framework of the Federal Power Act*, by Adam Vann, and CRS Report R45148, *U.S. Trade Policy Primer: Frequently Asked Questions*, coordinated by Cathleen D. Cimino-Isaacs.

[119] For example, Congress has contemplated a variety of legislative approaches to reforming consumer drug prices, such as reforming patent laws and regulations. In response to meat shortages early in the COVID-19 pandemic, the USDA granted some plants waivers to federal processing speed regulations. For more information, see CRS Report R46741, *Drug Pricing and Intellectual Property: The Legislative Landscape for the 117th Congress*, by Kevin J. Hickey, Kevin T. Richards, and Erin H. Ward, and CRS Insight IN11366, *COVID-19 Disrupts U.S. Meat Supply; Producer Prices Tumble*, by Joel L. Greene.

[120] For example, Congress has authorized loan guarantees for clean energy technology development, grant programs for certain projects involving innovative wood products, and funding for a wide variety of research and development programs. For more information, see CRS Insight IN11432, *Department of Energy Loan Programs: Title XVII Innovative Technology Loan Guarantees*, by Phillip Brown et al., CRS Report R45219, *Forest Service Assistance Programs*, by Anne A. Riddle and Katie Hoover, CRS Report R46341, *Federal Research and Development (R&D) Funding: FY2021*, coordinated by John F. Sargent Jr.

Timber Harvesting on Federal Lands

In the past, Congress has at times acted to relieve federal timber purchasers under adverse market conditions. For example, in relation to the 2008 housing market downturn, some sectors of the U.S. timber industry experienced historic declines. In addition to a USDA-issued SOPI finding that authorized timber sale contract extensions, in the 2008 farm bill, Congress authorized additional timber sale contract flexibilities, such as contract value recalculations to reflect changing timber prices, contract buyouts, and adjustment of required periodic payments for qualified contracts.[121] Such flexibilities were intended to assist federal timber purchasers if they experienced challenging market conditions.[122] Congress may consider similar actions as a model if federal timber purchasers experience hardships related to COVID-19.

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[121] Food, Conservation, and Energy Act of 2008, P.L. 110-246 §§8401 et seq.

[122] For example, see explanatory material at FS, "Extension of Certain Timber Sale: Contracts; Finding of Substantial Overriding Public Interest," 85 *Federal Register* 20984, April 15, 2020, and FS, "Extension of Certain Timber Sale Contracts; Finding of Substantial Overriding Public Interest," 77 *Federal Register* 65169, October 25, 2012.