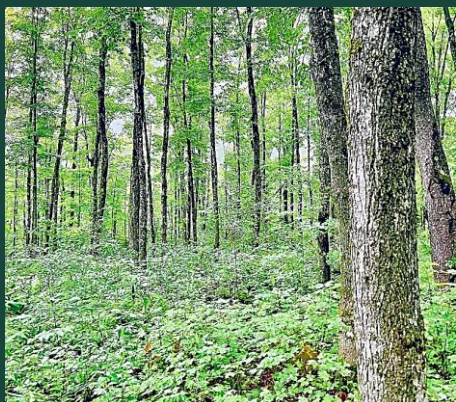




Forest Products Industries' Economic Contributions: Delaware, 2023

Prepared For:

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Executive Summary

Based on 2023 FIA estimates, Delaware contains approximately 352,028 acres of forest land, representing about 28.7 percent of its total land area. Of this forest base, 96.0 percent (337,840 acres) is classified as timber and capable of producing commercial volumes of wood, while 4.0 percent consists of reserved or low-productivity forestland. Private ownership accounts for the majority of forest land at 78.4 percent (276,079 acres), followed by state and local governments (18.4 percent; 64,714 acres) and federal ownership (3.2 percent; 11,235 acres). This report summarizes the economic contribution of forest products industries in Delaware using IMPLAN 2023 data. This report also captures the pre-and post-COVID snapshots of forest products industries in Delaware and shows the changes in last five years.

Forest Product Industries

This report analyzes the economic contribution of Delaware's forest products sector, comprised of 32 individual economic sectors in IMPLAN aggregated into seven industry groups: Forestry, Logging, Primary solid wood products, Secondary solid wood products, Wood furniture, Pulp, paper, and paperboard mills, and Secondary paperboard and other paper products. Notably, Delaware operates with a concentrated footprint, with only 22 of the 32 sectors active or disclosed, and the Pulp, Paper, and Paperboard mills industry group completely absent. In 2023, the active forest products industries directly supported 2,050 jobs and generated \$1.13 billion in Output, \$419.85 million in Value-Added, and \$164.05 million in Labor Income. When indirect supply-chain linkages and induced household-spending effects are included, the sector's total economic footprint reached 3,862 jobs, \$1.51 billion in Output, \$647.95 million in Value-Added, and \$278.50 million in Labor Income. The sector exerts a meaningful multiplier effect on the regional economy; for every 100 direct jobs in the forest industry, roughly 88 additional jobs are supported elsewhere in the state (Employment multiplier of 1.88).

Leading Forest Products Industry Groups (direct contribution)

Among the seven aggregated groups, Secondary Paperboard and Other Paper Products stood as the primary labor and financial anchor in 2023, directly providing 913 jobs and generating \$798.02 million in direct Output and \$270.45 million in direct Value-Added. Wood Furniture served as the second-largest employer, supporting 666 direct jobs and generating \$187.82 million in Output and \$93.12 million in Value-Added. Secondary Solid Wood Products followed, contributing 336 direct jobs and \$103.15 million in Output. Operating at a smaller scale, Logging generated \$23.28 million in Output across 41 jobs with exceptional value-added efficiency (\$23.04 million), while Primary Solid Wood Products contributed \$14.20 million in Output with 23 jobs. Similarly, Forestry directly supported 71 jobs and generated \$3.08 million in Output,

providing essential silvicultural management and technical support services for the state's resource base.

Leading Individual Forest Products Sectors (direct contribution)

At the disaggregated level (22 active sectors), direct economic activity was highly concentrated within paper converting and commercial cabinetry. Sanitary paper product manufacturing emerged as the clear leader across every economic metric, ranking first in Employment (625 jobs), Labor Income (\$61.01 million), Value-Added (\$219.13 million), and Output (\$618.16 million). Paperboard container manufacturing maintained the second position across all measures, providing 282 jobs, \$176.79 million in Output, and \$50.10 million in Value-Added. Institutional furniture manufacturing ranked third across all categories with 240 jobs and \$71.15 million in Output, followed by Wood kitchen cabinet and countertop manufacturing in fourth place with 228 jobs and \$57.11 million in Output. Wood container and pallet manufacturing ranked fifth in Employment (122 jobs) and Labor Income (\$8.03 million), while Commercial logging ranked fifth in Value-Added (\$23.04 million) and Showcase, partition, shelving, and locker manufacturing ranked fifth in Output (\$31.61 million).

Delaware's Forest Products Industries Compared to Other Delaware Industries

Within Delaware's natural resource base, Agricultural Production remains the dominant sector, supporting 4,031 jobs (60.2 percent of the natural resources workforce) and generating \$1.89 billion in direct Output. The Forest Products sector serves as the vital secondary pillar, accounting for 2,050 jobs (30.6 percent of the natural resource workforce) and \$1.13 billion in direct Output, substantially outperforming Mining (340 jobs; \$292.26 million in Output) and Commercial Fishing (275 jobs; \$23.52 million in Output). Within the broader statewide manufacturing landscape, Forest Products Manufacturing (excluding forestry and logging activities) supported 1,938 jobs, representing approximately 6.8 percent of Delaware's manufacturing workforce, and generated \$1.10 billion in Output in 2023. The industry ranked fourth among the state's 16 manufacturing groups in Employment and fifth in Labor Income (\$157.3 million), Value-Added (\$393.9 million), and Output. Forest Products Manufacturing generated approximately \$569,000 in Output per worker, further demonstrating its substantial production activity relative to its workforce. Overall, these measures position Forest Products Manufacturing among Delaware's leading manufacturing industries in terms of both Employment and economic contribution.

Seven-years Trends in Delaware's Forest Products Industries Economic Contribution

From 2017 to 2023, Delaware's forest products sector demonstrated structural resilience and expanding production capacity. Direct Employment increased by 4.8 percent (from 1,957 jobs to 2,050 jobs) and direct Output grew by 11.1 percent (from \$1.02 billion to \$1.13 billion). Direct

Value-Added expanded substantially by 23.8 percent (from \$339 million to \$420 million), while direct Labor Income fell by 22.1 percent over the period. Consistent with output expanding faster than workforce size, labor productivity (Output per job) rose from \$519.67 thousand per worker in 2017 to \$551.00 thousand per worker in 2023, an increase of 6.0 percent. Overall, the trends indicate that Delaware's forest products industries have expanded their production volume and wealth-generation capacity over time through improved operational efficiencies and specialized converting activities.

Glossary

Forestry Terms

Average annual harvest removals: The estimated volume of trees that were live at the time of the previous inventory and were either cut and removed by direct human activity related to harvesting or died as a result of silvicultural or land-clearing activity by the time of the current inventory.

Average annual mortality: The volume of trees that were live at the time of the previous inventory and are dead in the current inventory.

Average annual net growth: The change in merchantable bole volume of growing-stock trees (at least five inches diameter at breast height [DBH]) after deducting mortality volume, in cubic feet, on forest land.

Forest land: Land that is at least 10 percent stocked by trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated. Forest land includes transition zones, such as areas between heavily forested and non-forested lands that are at least 10 percent stocked with trees and forest areas adjacent to urban and built-up lands, including pinyon-juniper and chaparral areas in the western U.S., and afforested areas. The minimum area for classification of forest land is one acre and 120 feet wide, measured stem-to-stem from the outermost edge. Unimproved roads and trails, streams, and clearings in forest areas are classified as forest land if less than 120 feet wide.

Growing stock: Live trees of commercial species that meet minimum merchantability standards (at least five inches DBH). In general, these trees have at least one solid eight-foot section, are reasonably free of form defect on the merchantable bole, and at least 34 percent or more of the volume is merchantable. Excludes rough or rotten cull trees.

Timberland: A subset of forest land that produces or can produce crops of industrial wood and is not withdrawn from timber utilization by statute or administrative regulation. (Note: Areas qualifying as timberland can produce at least 20 cubic feet per acre per year of industrial wood in natural stands. Currently inaccessible and inoperable areas are included.)

Economic Contribution Terms

Direct effects/contributions: The direct contribution represents the economic activities (output, employment, labor income, and value-added) that occur within an industry or sector as a result of its existing production to satisfy current (exogenous) final demand. In contribution analysis, the direct effect corresponds to the sector's own production activities that maintain the structure of the regional economy. For example, the direct contribution of the forest products industry reflects its ongoing production and employment required to meet current local and export demand for forest-based goods.

Employment: The number of full- and part-time jobs associated with an industry.

Indirect effects/contributions: The indirect contribution captures the inter-industry linkages created when the industry purchases goods and services from other local industries. These transactions stimulate additional production, employment, and income along the supply chain. For instance, demand for wood products generates additional output in sectors such as transportation, wholesale trade, and equipment manufacturing that supply inputs to the forest industry. The magnitude of indirect contribution reflects the degree of interdependence and strength of local supply-chain relationships.

Induce effects/contributions: The induced contribution measures the additional economic activity generated by household spending of labor income earned through direct and indirect effects. When workers employed in the forest products and related supply-chain sectors spend their income on goods and services, such as housing, healthcare, or retail, it further stimulates regional economic activity. This household feedback effect represents the cyclical flow of income and expenditures within the economy.

Labor income: The dollar total of employee compensation and proprietor income; the latter is associated with self-employed individuals.

Output: The dollar measure of production within an area; it is also viewed as sales.

Social Accounting Matrix (SAM) multipliers: These multipliers are derived by dividing the sum of direct, indirect, and induced effects by the direct effects. The social accounts include payments made between households, households and government, and more. These are available for output, employment, labor income, and value-added and are used to assess the effects of changes in industry activity (i.e., "ripple effects").

Total effects/contributions: The sum of direct, indirect, and induced effects.

Value-added (also known as gross state product, or GSP): The sum of labor income, other property income (e.g., rents and profits), and indirect business taxes (e.g., excise and sales

taxes). It is the difference between an industry's total output and the cost of its intermediate inputs. The sum of value-added for all economic sectors within the region equals the total GSP.

Introduction

Forest products industries are an integral component of Delaware’s economy. They provide jobs, raw materials, and finished goods that generate additional economic activity throughout the state, region, and nation. Forests in Delaware have always supported local and state economies and generated employment and income (Leefers 2014, 2015; Poudel, 2022). These forests form the foundation for a wide array of industries, supporting logging, sawmills, pulp and paper, wood products manufacturing, and furniture production. Collectively, the Forest Products Industry (FPI) contributes directly to the economic development of the region, while also supporting rural livelihoods, providing raw materials for construction and packaging, and generating substantial downstream linkages to other industries (Poudel and Dahal 2025; Lamsal et al. 2025a). The scale and diversity of activities across the FPI underscore its role as a major part of the broader manufacturing economy, contributing to value added and sustaining consumer demand (Lamsal et al. 2025b).

A state report on FPI contributions on Delaware was previously published by Leefers et al. (2020) using 2017 IMPLAN data. The present update extends that effort using 2023 data, allowing for a comparison across time. This analysis measures how the performance of forest sector industries in Delaware has shifted between 2017 and 2023 in terms of employment, output, labor income, and the Gross State Product (GSP), also known as value added¹. Tracking these changes is essential, as it provides a clear picture of both long-term trends and the more recent disruptions caused by the COVID-19 pandemic. The pandemic had economy-wide effects on supply chains, consumer demand, and labor markets (Poudel and Dahal 2025; Lamsal et al. 2025b), and this report therefore captures the pre- and post-COVID conditions of the FPI within the region.

This trend analysis can be used in multiple ways by related stakeholders. For policymakers, it offers a benchmark for monitoring the health of one of the region’s key resource-based industries and helps inform workforce development, investment, and rural economic policies. For industry stakeholders, it provides insight into productivity, competitiveness, and sectoral resilience, supporting strategic planning. For researchers and forest managers, it offers a consistent regional framework that connects forest resources with industrial performance and economic outcomes.

¹ The 2017 results in this report are based on data from the IMPLAN Pro desktop version, whereas the 2018–2023 results are based on the IMPLAN web platform. Because there are minor differences between the Pro and web versions, the 2017 estimates shown here may not exactly match 2017 results reproduced from the web version. To maintain consistency with the original 2017 report and ensure a valid basis for comparison and trend analysis, we use the original 2017 IMPLAN Pro data, and IMPLAN web data for all years from 2018 through 2023.

The inventory data used in this report were sourced from the U.S. Forest Service Forest Inventory and Analysis (FIA) database and the economic data were obtained from Impact Analysis for Planning (IMPLAN). These data and related information are presented in four major sections: (i) Forest Resources of Delaware, (ii) Economic Contributions of the Delaware FPIs, (iii) Comparing FPIs with other industries and neighbor states, and (iv) Summary. We acknowledge that, due to rounding, some values in the tables and figures may not sum to the exact total indicated.

Forest Resources of Delaware state

According to 2023 estimates from the USDA Forest Inventory and Analysis (FIA) program, Delaware's total land area is approximately 1.23 million acres. Of this total, 352,028 acres (28.7 percent) meet the FIA definition of forest land, while the remaining 876,346 acres (71.3 percent) are classified as non-forest land. FIA defines forest land as land at least 10 percent stocked by trees of any size, including areas that formerly supported such tree cover and that will be naturally or artificially regenerated. Within Delaware's forest land base, timberland accounts for 337,840 acres, or 96.0 percent (Figure 1), representing unreserved forest capable of producing at least 20 cubic feet of wood per acre per year. Reserved forestland comprises 14,188 acres, or 4.0 percent, and is withdrawn from timber utilization by legal or administrative designation. Overall, nearly all of Delaware's forest land is classified as timberland, indicating that the state's forest base is predominantly unreserved and biophysically suitable for commercial timber management.

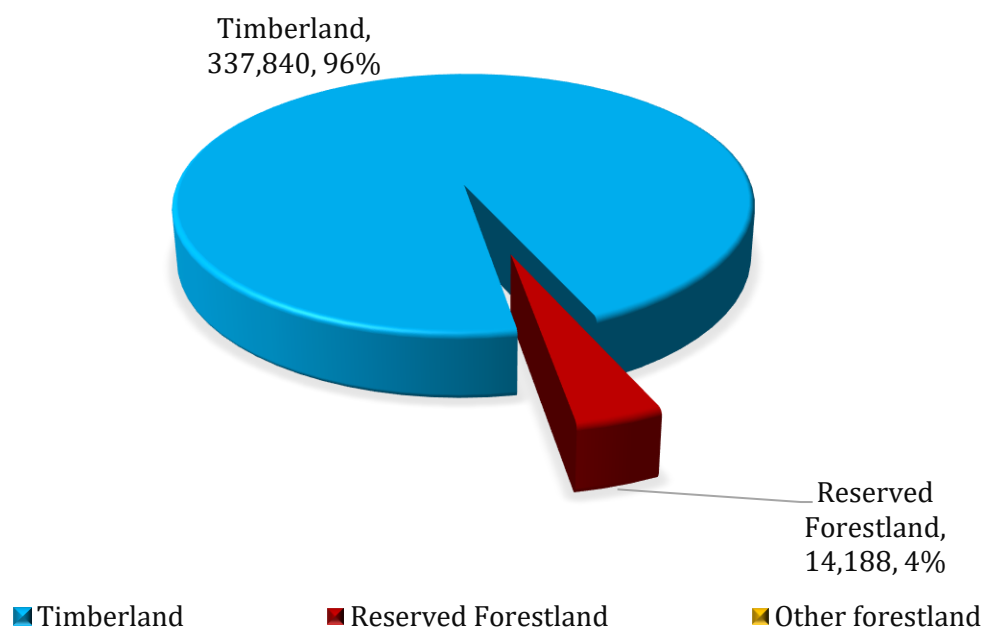


Figure 1: Delaware Forest Land area in acres by Land use type, 2023 (US Forest Service).

Ownership of Delaware’s 352,028 acres of forest land is distributed among federal, state and local, and private entities, with private landowners holding the largest share (Figure 2). Private ownership accounts for 276,079 acres, representing 78.4 percent of the state’s forest land base. State and local governments manage 64,714 acres (18.4 percent), while other federal agencies manage 11,235 acres (3.2 percent). No forest land is reported under National Forest System ownership. Overall, Delaware’s forest land base is predominantly privately owned, with state and local governments accounting for a meaningful share and federal ownership representing only a small portion of the total.

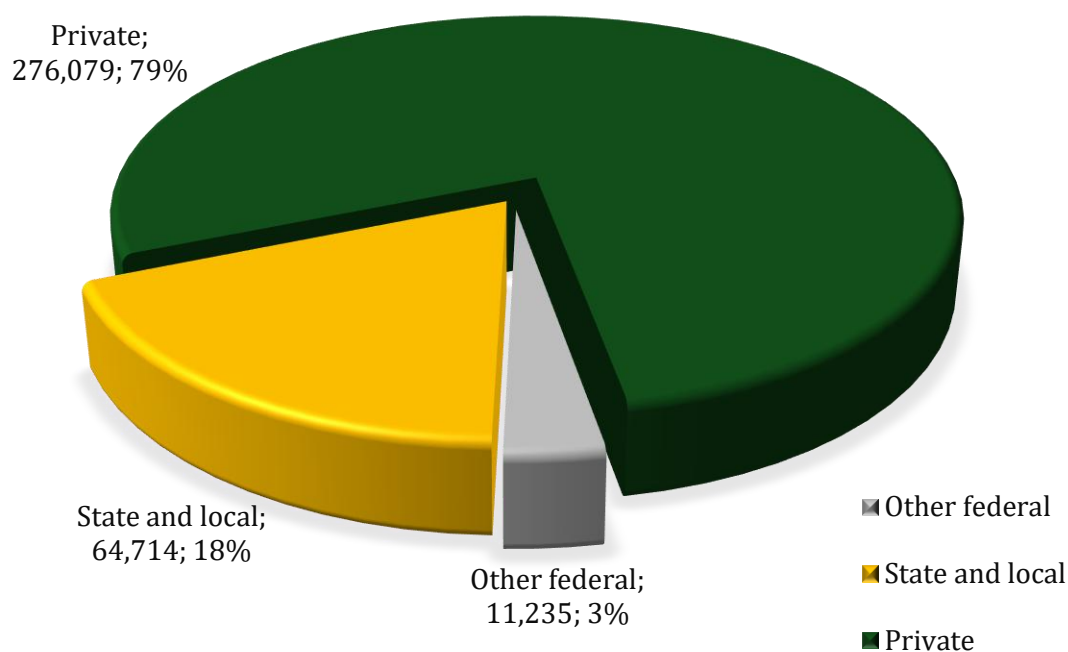


Figure 2: Delaware Forest Land area in acres by Ownership group, 2023 (US Forest Service).

Delaware’s 352,027 acres of forest land are dominated by hardwood forest types (Figure 3). The oak/hickory forest-type group is by far the largest, occupying 177,278 acres, or 50.4 percent of the state’s forest land base. Loblolly/shortleaf pine is the second-largest group at 74,663 acres (21.2 percent), followed by oak/gum/cypress at 58,878 acres (16.7 percent). Oak/pine forests account for 18,223 acres (5.2 percent), while elm/ash/cottonwood forests occupy 14,137 acres (4.0 percent). The remaining 8,848 acres (2.5 percent) are distributed across other forest-type groups. Overall, Delaware’s forest land composition is strongly concentrated in oak/hickory forests, with pine and bottomland hardwood types also representing substantial components of the state’s forest resource.

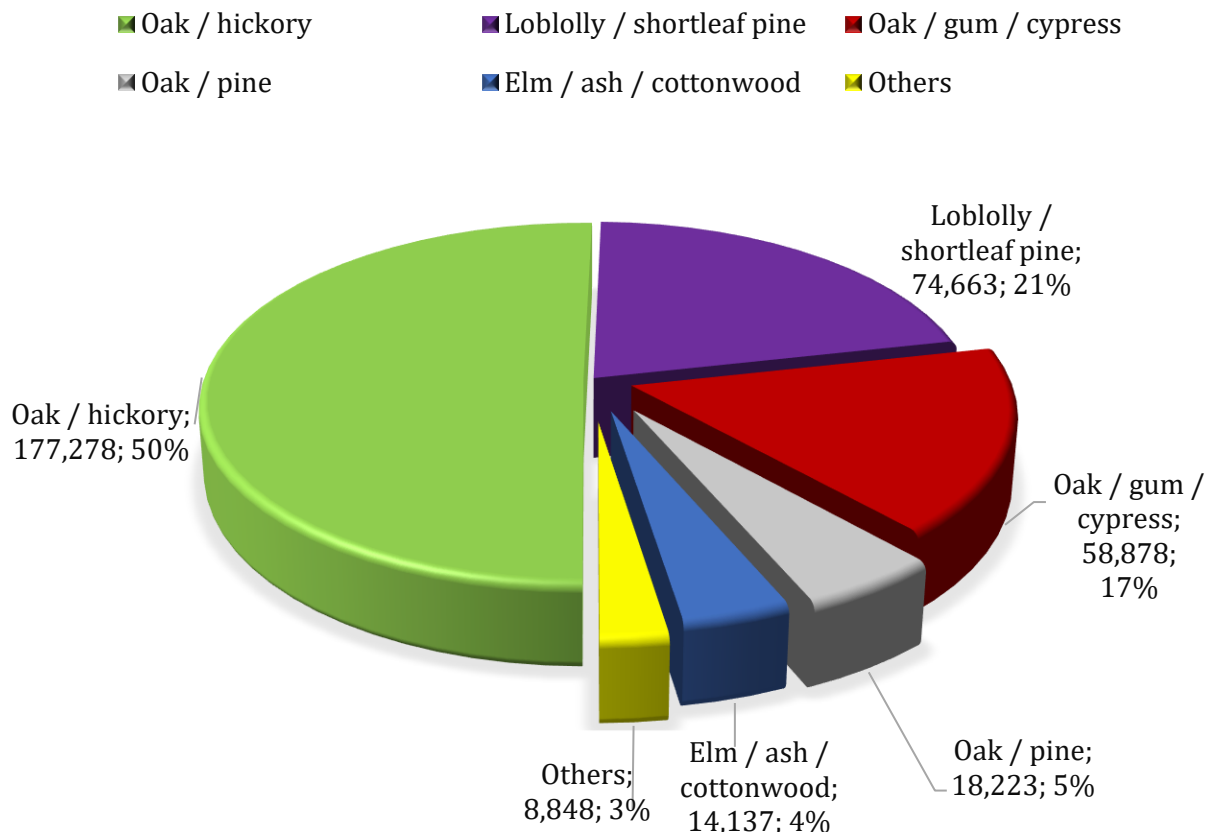


Figure 3: Delaware Forest Land area in acres by Forest type group, 2023 (US Forest Service).

Delaware's timber resource base supports a range of forest-based supply chains, from forest management and commercial logging to primary wood processing and related manufacturing. The estimated volume of growing stock totals approximately 950 million cubic feet (Table 1). Hardwoods comprise 693.4 million cubic feet (73.0 percent) of this total, while softwoods account for 256.4 million cubic feet (27.0 percent). By ownership class, private lands contain 704.1 million cubic feet (74.1 percent) of growing-stock volume, followed by state and local lands with 235.0 million cubic feet (24.7 percent). Other federal lands account for 10.6 million cubic feet (1.1 percent), while no growing-stock volume is reported on National Forest lands.

Average annual net growth totals 19.6 million cubic feet per year, compared with 6.8 million cubic feet in average annual harvest removals and 8.2 million cubic feet in average annual mortality. Net growth is approximately 2.9 times annual harvest removals, indicating that growth remains well above removals statewide. Net growth also exceeds the combined total of harvest removals and mortality by approximately 4.5 million cubic feet per year. Relative to standing growing-stock volume, annual harvest removals represent about 0.7 percent, while mortality accounts for about 0.9 percent. Hardwoods account for 91.0 percent of harvest removals and 82.3 percent of mortality. In contrast, annual net growth is more evenly

distributed between hardwoods and softwoods, with hardwoods accounting for 48.1 percent and softwoods for 51.9 percent of total net growth.

Table 1: Characteristics of Growing Stock in Delaware, 2023. [†]

Description	Species group	National Forest	Other federal	State and local	Private	Not available	Total
Net volume	Hardwood	0	9,769	185,991	497,598	0	693,357
	Softwood	0	853	49,027	206,531	0	256,411
	Total	0	10,622	235,018	704,129	0	949,768
Average annual net growth	Hardwood	0	163	1,847	7,356	58	9,425
	Softwood	0	19	1,987	8,145	0	10,151
	Total	0	182	3,833	15,502	58	19,575
Average annual harvest removals	Hardwood	0	0	284	5,938	0	6,222
	Softwood	0	0	0	615	0	615
	Total	0	0	284	6,553	0	6,837
Average annual mortality	Hardwood	0	5	1,193	5,574	0	6,772
	Softwood	0	0	431	1,021	0	1,452
	Total	0	5	1,623	6,595	0	8,223

[†] All amounts are in thousands of cubic feet.

Note: **Growing stock** is all live trees of commercial species that meet minimum merchantability standards. **Net volume** is net volume in cubic feet of growing stock for timber species, for trees greater than or equal to five inches in diameter, from a one-foot stump to a minimum four-inch top diameter, or to where the central stem breaks into limbs, all of which are less than four inches in diameter. **Net growth** is the average annual net growth of growing stock, in cubic feet, on forest land. **Annual mortality** is the average annual cubic foot mortality of live growing-stock trees (at least four inches DBH), in cubic feet, on forest land. **Harvest removals** are the average annual harvest removals, in cubic feet, of growing stock trees on forest land.

Economic contribution of the Forest Product Industries, 2023

The FPIs in this study are defined as 32 IMPLAN industries (only 30 industries present in Delaware) that were aggregated into seven analytic groups for consistent reporting across the state. This report follows the same industry grouping framework used in the 2017 report, which was originally developed through consultation with state forestry agencies and other stakeholders and represent a working consensus on what constitutes the regional FPI (Leefers et al. 2020; Poudel and Dahal 2025). The complete list of industries and groupings are presented in [Appendix A](#).

The FPI encompasses a wide range of activities that begin with forest management and timber harvesting and extend through the conversion of raw materials into high-value finished goods. These activities include timber tract operations, nurseries, logging, sawmills, wood preservation, pulp and paper manufacturing, furniture production, and related downstream sectors (Poudel and Dahal 2025). The FPI is a cornerstone of the Delaware economy, not only providing direct employment in logging, milling, and manufacturing but also supporting a much larger network of indirect and induced jobs in transportation, warehousing, wholesale trade, and retail (Leefers et al. 2020). Its health has far-reaching consequences for rural communities, where it is often one of the few sources of year-round employment, and for regional supply chains that depend on steady flows of wood, fiber, and paper products (Lamsal et al. 2025a).

Measuring these contributions requires more than simply counting jobs, mills, or other establishments. Contribution analysis is essentially a descriptive, ex-post accounting framework that traces how industries interact within a regional economy and support the economy (Lamsal et al. 2025b, Watson et al. 2015). It not only measures the direct transactions tied to a sector, but also the indirect effects in supplier industries and the induced effects from household spending that ripple outward. Economic contribution analysis depends on standardized frameworks that can translate government statistics into regional input–output models. The Bureau of Economic Analysis (BEA) provides the foundation through its Benchmark Input-Output Accounts, which map the flow of goods and services across industries and establish the structure of GDP by industry (BEA 2023). The Bureau of Labor Statistics (BLS) complements this with the Quarterly Census of Employment and Wages (QCEW) and occupational data, which provide details on employment and payroll. Further, the U.S. Census Bureau adds extra detail with the Economic Census and County Business Patterns, which track establishments, receipts, and industry-level production. IMPLAN harmonizes these data sources into a consistent input-output modeling framework for estimating regional economic contributions (IMPLAN 2023). IMPLAN is widely used in forest-sector economic research to estimate employment, output,

labor income, and value-added effects associated with forest-products industries. Several forest-sector studies have also paired IMPLAN with FIA data to link forest resource conditions with regional economic outcomes, including timber-product output in Ohio (Coronado et al. 2014), domestic hardwood substitution for imported trailer decking in New York (Pokharel et al. 2023), and potential mass timber processing facility development in Michigan (Khanal et al. 2024). IMPLAN also provides a bridge table that is important for defining the forest-products sectors included in this report. The bridge table is useful in both directions: it aggregates NAICS industries into IMPLAN sectors for modeling and identifies the NAICS components represented within each IMPLAN sector. Although this does not by itself constitute a formal sector disaggregation within IMPLAN, it provides the basis for constructing partial-sector estimates when external data are available.

This distinction is particularly important for forest sector analysis because several IMPLAN sectors contain both forestry and non-forestry components (Poudel and Dahal 2025). In this study, the IMPLAN bridge table was used to identify the relevant NAICS-defined activities embedded within broader IMPLAN sectors, and external data were then used to approximate the forest-related share of selected mixed sectors. For example, IMPLAN Sector 10 (All Other Crop Farming) includes a wide variety of agricultural activities such as alfalfa, peanut, and hemp farming, also in addition to maple syrup production. Using USDA maple syrup production data, only the maple syrup portion of Sector 10 was included in the FPI.. Similarly, IMPLAN Sector 19 (Support Activities for Agriculture and Forestry) encompasses a broad spectrum of NAICS industries, including soil preparation, crop harvesting, farm labor contracting, and specialized support services for forestry. To avoid overstating the sector, only Support Activities for Forestry were retained in the FPI totals, using BLS employment and establishment data. Thus, the partial-sector estimates reported here reflect analyst-defined allocations based on the IMPLAN bridge table and supplementary data, rather than an automatic sector split performed within IMPLAN. In the 2017 report, several additional sectors were treated as partial sectors, IMPLAN 40 (Electric Power Generation, Biomass), IMPLAN 352 (Institutional Furniture Manufacturing), and IMPLAN 356 (Showcase, Partition, Shelving, and Locker Manufacturing), but in 2023, following stakeholder consensus and due to limited data to isolate wood-based components, these are treated as full sectors; consequently, the 2023 economic contribution estimates for these specific sectors appear higher and are not directly comparable to the 2017 figures. Any comparison between years should therefore be interpreted with caution.

Further, the 2023 analysis implemented the mixed endogenous-exogenous closure using the Output- and Employment -based multipliers formulation approach (Miller and Blair 2022; Lamsal et al. 2025a), whereas the 2017 report used the equivalent matrix-inversion approach. Since these approaches are alternative computational expressions of the same input–output

framework and, under the same closure assumptions, these formulations are theoretically equivalent and yield the same multipliers and results.

Note on Data Consistency (2017 vs. 2018–2023): Readers should interpret the sharp variance between 2017 and 2018 data with caution. The 2017 figures presented in this report are retained from previous studies that used the desktop-based IMPLAN Pro software. Data for 2018 through 2023 were generated using the modernized IMPLAN Cloud (Web) platform, which utilizes updated accounting frameworks and regional purchase coefficients. Although both sets of estimates are based on the same underlying input–output/SAM framework, they are not fully comparable in construction. IMPLAN revised its industry classification structure over time, moving from the 536-industry scheme used for 2013–2017 data years to the 546-industry scheme used for 2018–2022, and later to the 528-industry scheme beginning in 2023. IMPLAN also documents differences in trade-flow and regional purchase coefficient estimation between legacy Pro-era workflows and the current cloud environment. In addition, this report applies updated aggregation and sector-inclusion rules for selected forest-related industries. Accordingly, differences between 2017 and later years may reflect methodological discontinuity in addition to underlying economic change. Comparisons spanning 2017 to 2018 should therefore be interpreted with caution.

Economic Performance Trends of Forest Product Industry (2017–2023)

Figure 4 and 5 illustrates the economic trajectory of Delaware’s Forest Sector over the seven-year study period from 2017 to 2023. Despite the absence of large-scale paper manufacturing, Delaware’s forest sector demonstrated marked resilience and positive long-term growth. The industry experienced initial volatility, featuring a pronounced peak in 2018, reaching 2,265 jobs and \$1.31 billion in direct output, followed by a sharp market correction in 2019. Following this brief contraction, the sector established a steady, uninterrupted recovery from 2020 onward. Over the full study period, direct employment expanded by approximately 4.8 percent, growing from 1,957 jobs in 2017 to 2,050 jobs in 2023. Total direct output followed a similar but more aggressive upward trajectory, increasing by 11.1 percent from \$1.02 billion in the 2017 baseline to \$1.13 billion by 2023.

The fact that production value grew at a faster rate than workforce size points to a steady improvement in operational efficiency and strengthening supply chain linkages within the remaining active sub-sectors. Consequently, labor productivity within the state advanced steadily; output per worker climbed from approximately \$520 thousand in 2017 to \$551 thousand in 2023, representing a 6.1 percent increase. This data indicates that while Delaware operates a more highly concentrated forest products market, its active industries are

successfully optimizing their capital and labor inputs to drive sustained economic contributions.

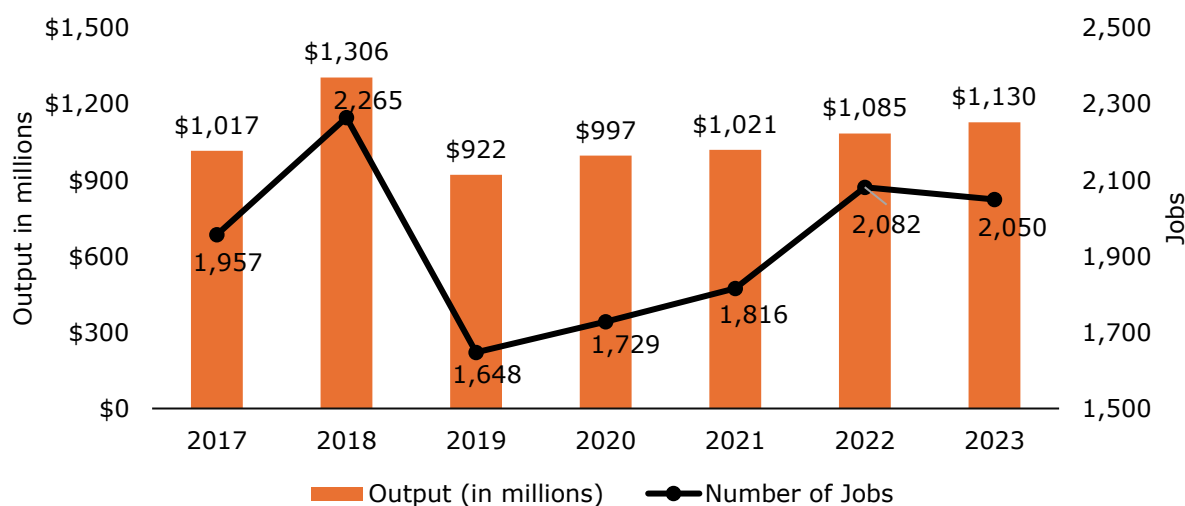


Figure 4: Direct output and employment, 2017–2023, Delaware state forest products industries.

Figure 5 summarizes the trends in Value-Added and Labor Income for Delaware’s forest sector from 2017 through 2023. Over the seven-year study period, Value-Added demonstrated robust long-term expansion despite intermediate market fluctuations. From a baseline of \$339 million in 2017, Value-Added dipped to a low of \$311 million during the 2019 market contraction before embarking on a strong, sustained upward trajectory. By 2023, Value-Added reached a period-high of \$420 million, representing an overall increase of 23.9 percent.

Conversely, Labor Income followed a distinctly different path, characterized by a sharp structural realignment. Labor Income initially rose to \$226 million in 2018 but dropped sharply to \$122 million in 2019, a contraction, which is consistent with the workforce reductions observed during that same year. While Labor Income experienced a steady post-2019 recovery to reach \$164 million by 2023, it ultimately remained 22.3 percent below its 2017 baseline.

When analyzed alongside the employment data from Figure 4, these shifting trends reveal a significant divergence in the sector’s internal economic dynamics. Value-Added per worker increased substantially, rising from approximately \$173 thousand in 2017 to nearly \$205 thousand in 2023. This gain highlights a clear enhancement in the sector's net wealth-generation capacity and capital efficiency over time. However, Labor Income per worker fell from roughly \$108 thousand to \$80 thousand over the same period. This trend points to a broader structural shift within Delaware's specialized forest economy. The divergence suggests a transition toward more capital-intensive operations or a shift in the underlying industry mix, where an increasing share of the sector's total value-added is retained as corporate returns and capital consumption rather than direct employee compensation.

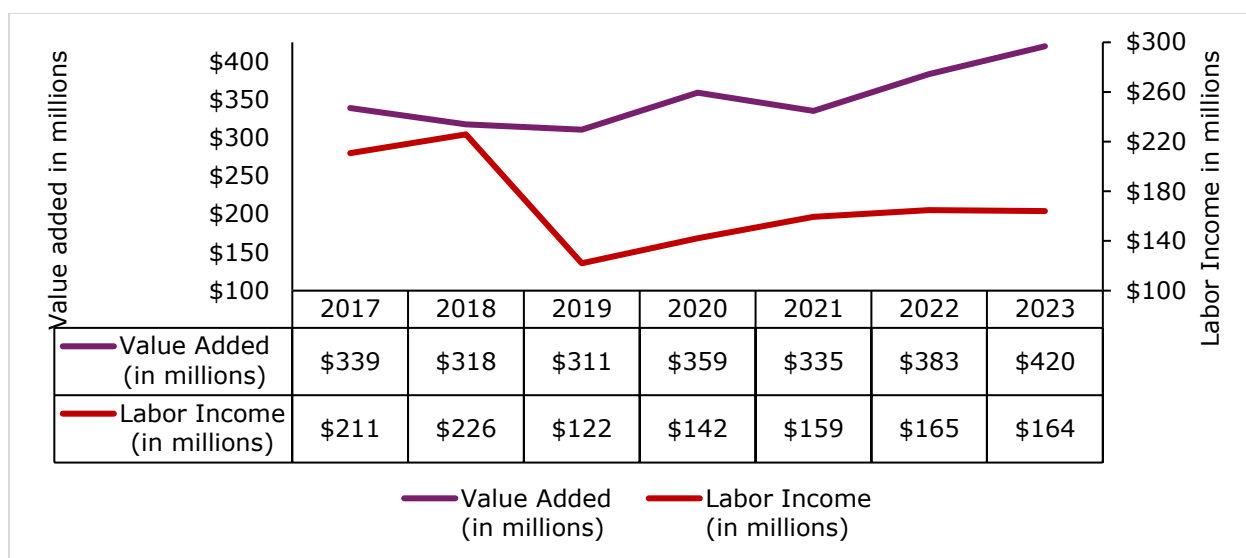


Figure 5: Direct value-added and labor income, 2017–2023, Delaware state, forest products industries.

Direct and Total Contributions by Forest Product Industry Groups

In 2023, Delaware's forest products industries directly supported 2,050 jobs, generated \$1.13 billion in gross output, and contributed \$419.85 million in value-added to the state's economy (Table 2). When accounting for indirect supply-chain business transactions and the induced spending of sector employees, the total economic contribution of Delaware's forest sector scales to 3,862 jobs and \$1.51 billion in total economic output.

Table 2: Statewide Economic Contribution of Forest Products Industries, 2023. [†]

	Employment	Labor Income	Value-added	Output
Direct in 2023	2,050	\$164,048	\$419,852	\$1,129,545
Compared to 2017	4.8%	-22.1%	23.8%	11.1%
Total in 2023	3,862	\$278,499	\$647,950	\$1,506,702
Compared to 2017	-3.5%	-21.9%	9.2%	4.7%
Multipliers in 2023	1.88	1.70	1.54	1.33

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

An analysis of the multi-year trajectory reveals a compelling divergence between the direct performance of the industry and its broader macroeconomic footprint since 2017. While direct employment within the sector expanded by 4.8%, total supported employment across the wider state economy actually contracted by 3.5%. A similar pattern is visible in wealth creation: direct

value-added experienced a remarkable 23.8% surge over the study period, whereas total value-added grew at a more modest rate of 9.2%. The direct sector is successfully generating substantially more value and output per worker internally, even as changing domestic sourcing or shifts in corporate procurement alter the secondary ripple effects across external supporting sectors.

The 2023 multipliers mathematically illustrate these evolving economic interlinkages. The employment multiplier of 1.88 indicates that for every 100 direct jobs in the forest industry, an additional 88 positions are supported in other sectors of the state economy. Similarly, the value-added multiplier of 1.54 suggests that every dollar of wealth directly created by forest industries generates an additional \$0.54 elsewhere in Delaware. While these multipliers reflect a more compact supply chain, consistent with a state economy that lacks large-scale primary paper manufacturing, they prove that the forest sector acts as a vital economic anchor, effectively circulating capital and multiplying economic activity across Delaware's logistics, trade, and service sectors.

Table 3 reports the direct economic contributions of the seven forest industry groups, while Table 4 includes total contributions after accounting for supply-chain and induced effects. In 2023, Delaware's forest sector was heavily concentrated in downstream manufacturing rather than forestry, logging, or primary wood processing. Secondary Paperboard and Other Paper Products was the largest direct employer, providing 913 jobs, followed by Wood Furniture with 666 jobs and Secondary Solid Wood Products with 336 jobs. Together, these three downstream industries accounted for more than 90 percent of direct forest-sector employment. By comparison, Forestry, Logging, and Primary Solid Wood Products collectively supported only 135 direct jobs, while no direct economic activity was reported for Pulp, Paper, and Paperboard Mills.

A similar pattern is evident in Output and Value-Added. Secondary Paperboard and Other Paper Products was the dominant industry group, generating approximately \$798.0 million in direct Output and \$270.4 million in Value-Added. Wood Furniture contributed an additional \$187.8 million in Output and \$93.1 million in Value-Added, while Secondary Solid Wood Products generated \$103.1 million in Output and \$27.9 million in Value-Added. In contrast, Forestry, Logging, and Primary Solid Wood Products together generated approximately \$40.6 million in direct Output. Overall, Delaware's forest-sector economy is therefore concentrated primarily in secondary processing and manufacturing, particularly converted paper products and furniture, rather than in upstream timber production or primary processing.

When supply-chain and induced effects are included (Table 4), Secondary Paperboard and Other Paper Products remains the largest contributor, supporting 2,079 total jobs, \$162.4 million in Labor Income, \$421.1 million in Value-Added, and approximately \$1.05 billion in total economic

Output. Wood Furniture supports 1,014 total jobs and \$257.8 million in Output, while Secondary Solid Wood Products supports 582 jobs and \$151.6 million in Output. Secondary Paperboard and Other Paper Products also exhibits substantial employment-related multiplier effects, with total Employment approximately 2.28 times its direct Employment. Primary Solid Wood Products has the highest Employment multiplier, at approximately 2.57, although its direct employment base is relatively small. These results reinforce the importance of downstream manufacturing to Delaware's forest-sector economy and demonstrate that its economic contribution extends beyond direct industry activity through purchases from supporting industries and household spending associated with forest-sector income.

Table 3: Direct Economic Contributions in Delaware state, Industry Groups, 2023. [†]

Industries	Employment	Labor Income	Value-Added	Output
1.Forestry	71	\$2,827	\$2,899	\$3,080
2.Logging	41	\$3,964	\$23,044	\$23,277
3.Primary Solid Wood Products	23	\$1,726	\$2,466	\$14,198
4.Secondary Solid Wood Products	336	\$24,244	\$27,875	\$103,146
5.Wood Furniture	666	\$43,540	\$93,121	\$187,821
6.Pulp, Paper, and Paperboard mills	0	\$0	\$0	\$0
7.Secondary Paperboard and other Paper Products	913	\$87,746	\$270,447	\$798,024

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

Note: In Table 4, readers may observe that the sum of the economic contributions for the individual industries exceeds the reported total contribution for the Forest Sector as a whole as presented in Table 2. This difference is intentional and results from the "mixed-model" approach used to ensure accuracy.

In Input-Output (I-O) analysis, simply adding the total contributions of individual sectors results in double-counting. This occurs because the output of one forest industry often serves as an input for another. For example, logs harvested by the Logging sector are inputs for the Furniture sector. If modeled individually and summed, the model counts both the direct value of the logs and the associated supply-chain ripples (indirect effects) twice: once as a production requirement for the Furniture, and again as a direct output of the Logging sector. To provide the most accurate estimate, the aggregated total is calculated by treating the forest industries as a

single economic unit. This method mathematically nets out all inter-industry transactions within the sector, ensuring that the final results reflect only the new economic value generated for the state economy.

Table 4: Total Economic Contributions in Delaware state, Industry Groups, 2023. [†]

Industries	Employment	Labor Income	Value- Added	Output
1.Forestry	81	\$3,386	\$4,016	\$4,807
2.Logging	56	\$4,842	\$24,734	\$25,866
3.Primary Solid Wood Products	59	\$4,110	\$7,310	\$22,095
4.Secondary Solid Wood Products	582	\$39,491	\$56,985	\$151,616
5.Wood Furniture	1,014	\$64,847	\$135,514	\$257,810
6.Pulp, Paper, and Paperboard mills	0	\$0	\$0	\$0
7.Secondary Paperboard and other Paper Products	2,079	\$162,412	\$421,066	\$1,047,251

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars.

Forestry

Economic Contribution of Forestry.

Table 5 presents the economic contribution of the Forestry industry group in Delaware for 2023. When evaluating the state's broader forest economy, it is important to note that Delaware operates with a highly concentrated industry footprint, featuring only 22 of the 32 national Forest Products Industries due to absent or undisclosed data across several manufacturing and power generation segments. For this specific Forestry group, the traditionally included "All other crop farming" (Maple Syrup Production) industry is absent. Consequently, Delaware's Forestry sector exclusively represents "Forestry, forest products, and timber tract production" alongside "Support activities for forestry."

Table 5: Direct, Indirect, and Induced Economic Contributions of the Forestry Industry in Delaware, 2023. [†]

	Employment	Labor Income	Value-Added	Output
Direct	71.3	\$2,827	\$2,899	\$3,080
Indirect	0.3	\$29	\$57	\$93
Induced	9.0	\$530	\$1,061	\$1,633
Total	80.6	\$3,386	\$4,016	\$4,807

† All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars.

In 2023, Delaware's Forestry industry directly supported approximately 71 jobs and generated \$3.1 million in direct Output (Table 5). A distinct structural characteristic of this industry is its exceptionally high labor intensity compared to downstream manufacturing. The data indicates that about 91.8 percent of the sector's gross Output is retained directly as a Labor Income (\$2.8 million out of \$3.1 million), and about 94.1 percent as a Value-Added. This indicates that a large share of the economic value generated by forestry activities is associated with labor and other components of Value-Added rather than intermediate input purchases.

The Employment multiplier is approximately 1.13, meaning that for every 100 direct jobs in Forestry, about 13 additional jobs are supported elsewhere in the Delaware economy. These additional effects are driven almost entirely by induced activity rather than supply-chain purchases.

- **Indirect Effect:** Forestry generated very limited indirect impacts, supporting less than one additional job and approximately \$93 thousand in Output. This indicates relatively limited in-state purchases from supporting industries associated with the sector's direct activity.
- **Induced Effect:** Induced effects were considerably larger, supporting approximately 9 additional jobs and \$1.6 million in Output. These impacts result from household spending supported by the Labor Income generated directly and indirectly by forestry activity.

When direct, indirect, and induced effects are combined, Delaware's Forestry industry supported approximately 81 jobs, \$4.8 million in total Output, and \$4.0 million in Value-Added in 2023. The total Output multiplier of approximately 1.56 indicates that every \$100 of direct Forestry Output supported an additional \$56 of economic activity elsewhere in the Delaware economy.

Trend Analysis: Forestry (2017–2023).

As illustrated in Figure 6, the Forestry industry in Delaware exhibited considerable year-to-year volatility in both workforce levels and production values over the study period. Direct employment followed an uneven trajectory, contracting by 19.3 percent overall from 88 jobs in 2017 to 71 jobs in 2023. After experiencing an initial decline to 57 jobs in 2019 and a brief rebound in 2020 (67 jobs), the industry reached a low of 28 jobs in 2021 before mounting a steady recovery through 2023.

Output followed a markedly different pattern, expanding substantially despite workforce contractions. Direct output rose from \$1.2 million in 2017 to a peak of \$3.3 million in 2020.

Following a temporary dip to \$1.4 million in 2021 that mirrored employment declines, production rebounded to \$3.1 million in 2023, representing an overall increase of approximately 158.3 percent relative to the 2017 baseline.

Because output expanded substantially while the labor footprint contracted, labor productivity increased significantly across the period. Output per worker was approximately \$14 thousand in 2017, rising to about \$44 thousand in 2023. Overall, the 2017–2023 series indicates that while Delaware's Forestry sector operates with a fluctuating workforce, its active operations have generated greater economic production value per job over time.

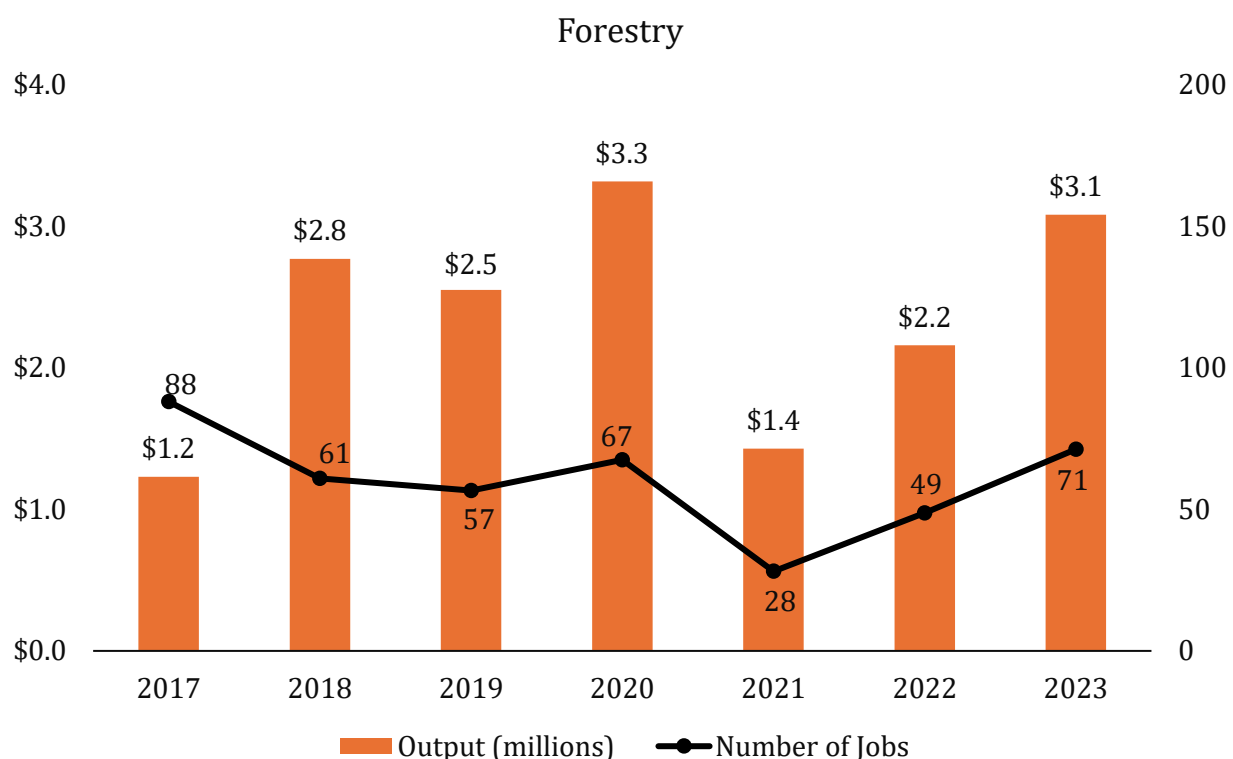


Figure 6: Trend in direct employment and output for the Forestry industry in Delaware, 2017–2023.

Logging

Economic Contribution of Logging.

Table 6 outlines the economic contributions of the Logging industry group in Delaware for 2023. This sector encompasses establishments primarily engaged in cutting timber, transporting logs, and producing wood chips directly in the field. In 2023, the industry directly supported 41 jobs, generated \$23.28 million in direct economic output, and contributed \$23.04 million in direct value-added to the state economy.

A notable characteristic of Delaware’s Logging industry is the relatively small magnitude of its indirect supply-chain effects. Indirect activity supported approximately 2 jobs and generated only \$124,000 in Output. In contrast, induced effects were considerably larger, supporting approximately 14 jobs and \$2.5 million in Output. This indicates that the broader economic effects associated with Logging arise primarily from household spending supported by Labor Income rather than purchases from other Delaware industries. The limited indirect effect suggests relatively weak in-state backward linkages to industries supplying equipment, fuel, maintenance, and other operating inputs.

When direct, indirect, and induced effects are combined, Delaware’s Logging industry supported approximately 56 jobs, generated \$25.9 million in total Output, and contributed \$24.7 million in Value-Added to the state economy in 2023. The Output multiplier is approximately 1.11, indicating that every \$100 of direct Logging Output supported an additional \$11 of economic activity elsewhere in Delaware.

Table 6: Direct, Indirect, and Induced Economic Contributions of the Logging Industry in Delaware, 2023. [†]

	Employment	Labor Income	Value-Added	Output
Direct	41	\$3,964	\$23,044	\$23,277
Indirect	2	\$78	\$89	\$124
Induced	14	\$800	\$1,601	\$2,465
Total	56	\$4,842	\$24,734	\$25,866

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars.

Trend Analysis: Logging (2017–2023).

As shown in Figure 7, the Logging industry in Delaware exhibited extreme cyclical volatility in both workforce dynamics and economic production over the seven-year study period. Direct employment followed an irregular but overall upward trajectory, expanding from a baseline of 29 jobs in 2017 to 41 jobs in 2023, representing a 41.4 percent increase. The labor market experienced a temporary, anomalous spike in 2020, swelling to 70 jobs, before correcting and stabilizing in the low 40s during the final two years of the period.

Total output displayed even more dramatic fluctuations, starting at an exceptionally high \$64.1 million in 2017 before undergoing a severe market correction. Production plummeted to \$13.4 million in 2018 and reached a low of \$3.5 million in 2019. Throughout the middle of the study period (2020–2022), output remained heavily suppressed, hovering between \$4.5 million and \$6.3 million, even as employment surged. However, the sector demonstrated a strong localized recovery in the final year, with output scaling rapidly to \$23.3 million in 2023, though remaining well below the 2017 peak.

Because of these drastic, asynchronous movements between workforce size and gross production, labor productivity (output per worker) shifted fundamentally. Output per worker began at \$2.21 million in 2017, a figure that suggests non-standard market activities such as large-scale timber tract liquidations, accelerated harvesting, or significant capital sell-offs rather than steady-state logging operations. Following this anomaly, productivity crashed, reaching a low of \$90 thousand per worker during the employment peak of 2020. By 2023, the stabilization of the workforce, paired with rebounding production values, drove labor productivity back up to a robust \$568 thousand per worker. Overall, the series illustrates a specialized sector that absorbed a massive post-2017 structural correction but successfully re-established its operational efficiency by the close of the study period.

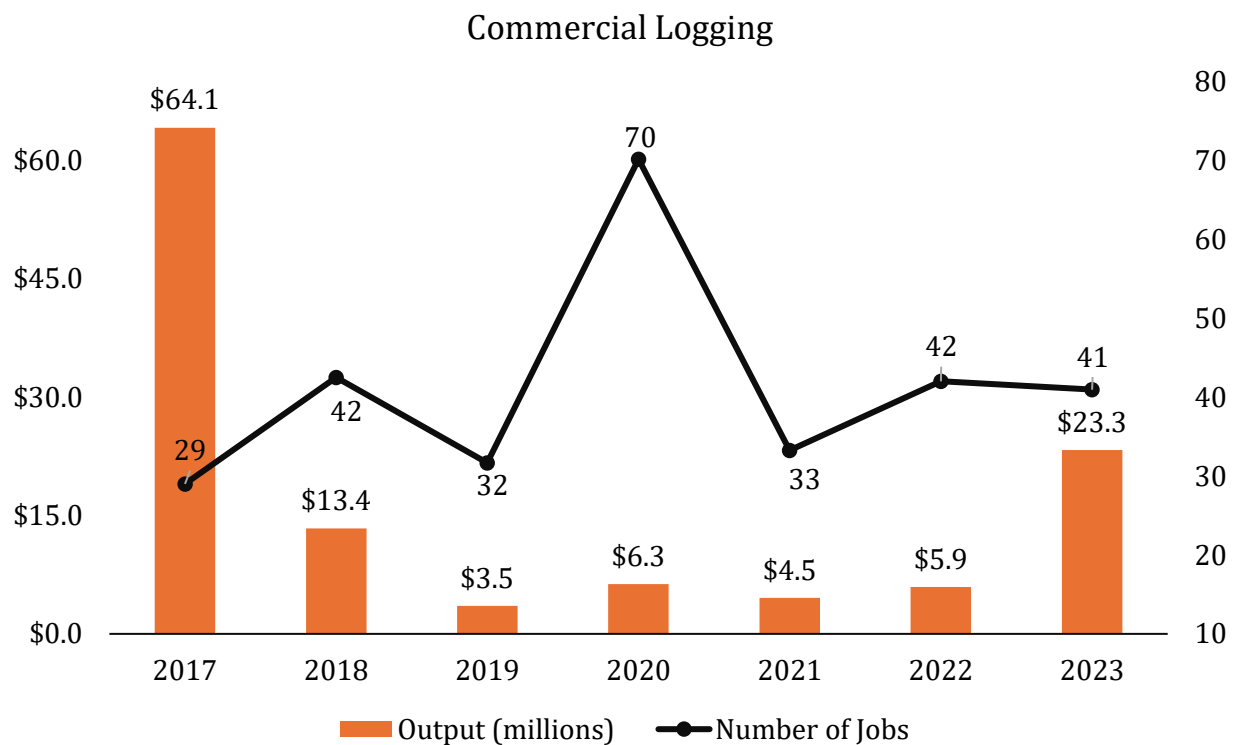


Figure 7: Trend in direct employment and output for the Logging industry in Delaware, 2017–2023.

Primary Solid Wood Products

Economic Contribution of Primary Solid Wood Products.

Table 7 presents the economic contributions of the Primary Solid Wood Products industry group in Delaware for 2023. Within this primary manufacturing group, three major industrial sub-sectors are completely absent or undisclosed, including Electric power generation - Biomass, Veneer and plywood manufacturing, and Reconstituted wood product manufacturing. As a result, Delaware’s primary solid wood processing is concentrated almost entirely within

foundational operations such as sawmills and wood preservation facilities. In 2023, the industry directly supported approximately 23 jobs in Delaware and generated \$14.2 million in direct Output, \$2.5 million in Value-Added, and \$1.7 million in Labor Income.

The Primary Solid Wood Products industry exhibits strong backward linkages within Delaware's economy. Indirect effects supported approximately 25 jobs, slightly exceeding the industry's direct workforce, and generated \$5.9 million in additional Output. By comparison, induced effects supported approximately 11 jobs and \$2.0 million in Output. The larger indirect effect indicates that much of the industry's broader economic contribution occurs through purchases of goods and services from supporting industries, including logging, transportation, equipment, maintenance, and other business services.

The Employment multiplier is approximately 2.57, meaning that for every 100 direct jobs in Primary Solid Wood Products, an additional 157 jobs are supported elsewhere in the Delaware economy. When direct, indirect, and induced effects are combined, the industry supported approximately 59 jobs, generated \$22.1 million in total Output, and contributed \$7.3 million in Value-Added in 2023. These relatively strong multiplier effects highlight the role of primary wood processing in connecting upstream forest-resource activities with broader manufacturing and service industries in the state.

Table 7: Direct, Indirect, and Induced Economic Contributions of the Primary Solid Wood Products Industry in Delaware, 2023.[†]

	Employment	Labor Income	Value-Added	Output
Direct	23	\$1,726	\$2,466	\$14,198
Indirect	25	\$1,740	\$3,555	\$5,911
Induced	11	\$644	\$1,289	\$1,985
Total	59	\$4,110	\$7,310	\$22,095

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars.

Trend Analysis: Primary Solid Wood Products (2017–2023).

Figure 8 summarizes the employment and output trends for the Primary Solid Wood Products industry in Delaware from 2017 through 2023. Over the seven-year study period, the industry experienced a severe structural contraction. Direct employment declined significantly from a high of 60 jobs in 2017 to just 23 jobs by 2023, representing a net decrease of 61.7 percent. This contraction was largely front-loaded; the workforce dropped sharply to 29 jobs in 2018 and remained relatively flat through the remainder of the period, save for a brief, temporary increase to 35 jobs in 2021.

Total direct output is consistent with this steep downward trajectory. Production fell abruptly from a period-high of \$38.5 million in 2017 to \$12.3 million in 2018. While output reached a

post-contraction peak of \$17.6 million in 2021, it ultimately settled at \$14.2 million in 2023. This represents a substantial 63.1 percent decline in direct economic output relative to the 2017 baseline.

Because employment and production contracted at nearly identical proportional rates following the 2018 market adjustment, labor productivity remained stable over the long term. Output per worker was exceptionally high in 2017 at approximately \$642 thousand. Following the sharp drop in both metrics in 2018, productivity initially fell to \$424 thousand per worker but steadily climbed back as the remaining active mills optimized their operations. By 2023, output per worker had recovered to roughly \$617 thousand. These parallel trends indicate that while Delaware's Primary Solid Wood Products sector is operating at a vastly reduced scale compared to 2017, the surviving facilities have successfully maintained their core operational efficiency and per-capita wealth generation capacity.

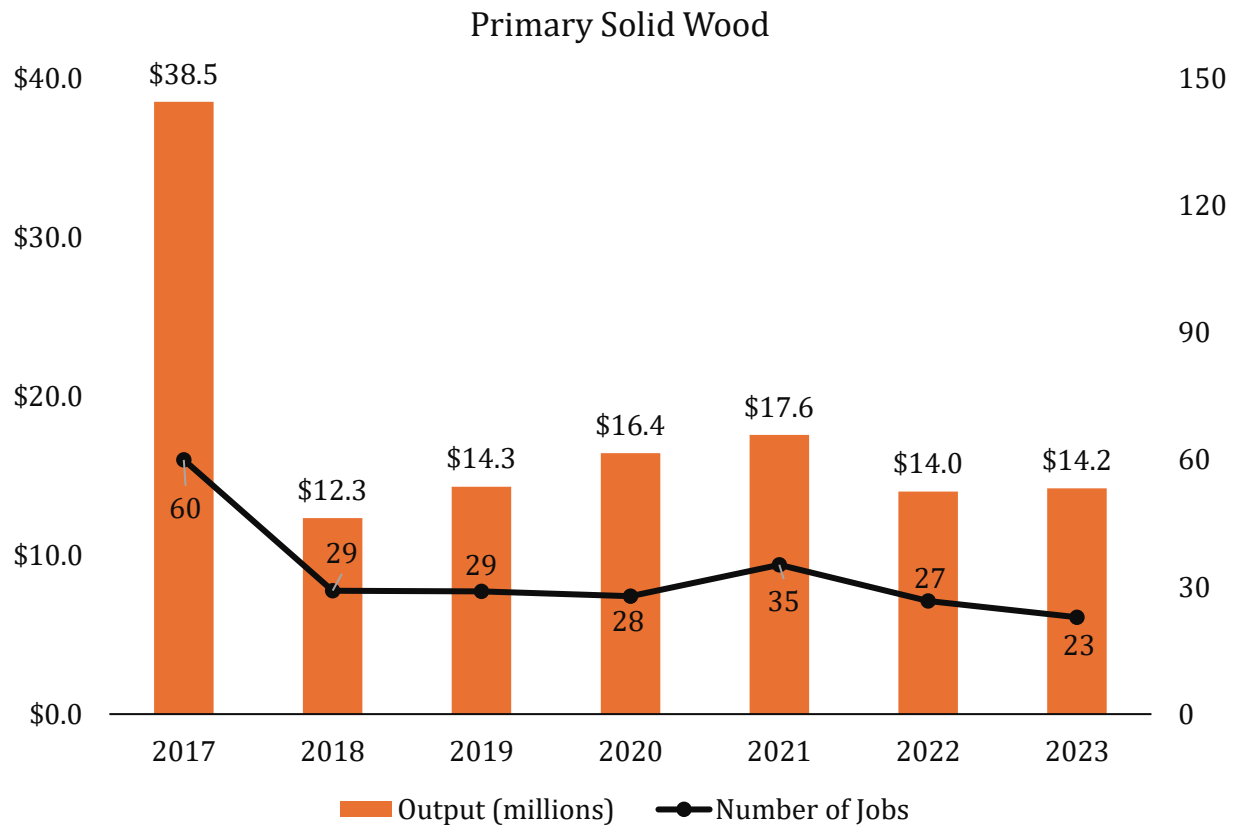


Figure 8: Trend in direct employment and output for the Primary Solid Wood Products industry in *Delaware*, 2017–2023.

Secondary Solid Wood Products

Economic Contribution of Secondary Solid Wood Products.

Table 8 presents the economic contribution of the Secondary Solid Wood Products industry group in Delaware for 2023. This value-added manufacturing sector encompasses activities such as millwork, wood windows and doors manufacturing, engineered wood member and truss manufacturing, wood container and pallet manufacturing, and prefabricated wood building manufacturing. Within Delaware's streamlined forest economy, which operates with a concentrated footprint of only 22 out of the 32 national Forest Products Industries, this sector stands as a vital component of the state's solid wood manufacturing framework, directly providing 336 jobs and generating \$103.15 million in direct economic output.

The Secondary Solid Wood Products industry exhibits an employment multiplier of approximately 1.73, meaning that for every 100 direct jobs in this sector, an additional 73 positions are supported throughout the rest of Delaware's economy via indirect and induced effects. While this indicates a solid level of domestic economic linkage, it is notably lower than Delaware's Primary Solid Wood Products industry, which possesses a higher employment multiplier of 2.57. In the primary sector, indirect employment actually exceeds the direct workforce, reflecting a deep reliance on local, raw material inputs and logging supply chains. In contrast, the secondary sector's indirect employment footprint of 140 jobs is substantial but remains smaller than its direct workforce of 336 jobs. This structural variance suggests that secondary manufacturers frequently source a portion of their specialized intermediate components, hardware, or pre-processed lumber from out-of-state suppliers. Consequently, a larger share of this sector's total macroeconomic footprint is driven by its own internal manufacturing operations rather than local upstream supply-chain purchasing.

When direct, indirect, and induced impacts are aggregated, the Secondary Solid Wood Products industry supports a total of 582 jobs and generates \$151.62 million in total economic output. The industry also contributes \$56.99 million in total value-added, representing a notable contribution to Delaware's gross state product.

Table 8: Direct, Indirect, and Induced Economic Contributions of the Secondary Solid Wood Products Industry in Delaware, 2023. [†]

	Employment	Labor Income	Value-Added	Output
Direct	336	\$24,244	\$27,875	\$103,146
Indirect	140	\$9,078	\$16,765	\$29,463
Induced	105	\$6,169	\$12,345	\$19,007
Total	582	\$39,491	\$56,985	\$151,616

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars.

Trend Analysis: Secondary Solid Wood Products (2017–2023).

Figure 9 summarizes the direct employment and output trends for Delaware’s Secondary Solid Wood Products industry from 2017 through 2023. Operating as a critical value-added segment within the state’s concentrated forest economy, this sector demonstrated strong economic resilience and steady expansion despite a modest long-term contraction in its workforce.

Direct employment remained relatively stable across the seven-year period but experienced a slight net decline, moving from 355 jobs in 2017 to 336 jobs in 2023, a decrease of approximately 5.4 percent. The workforce reached a period-low of 313 jobs during the 2020 market disruption before mounting a recovery into the mid-340s during 2021 and 2022, ultimately settling at 336 workers in the final year.

In sharp contrast to the slight contraction in employment, direct economic output expanded significantly. Total production value rose from \$85.9 million in 2017 to a period-high of \$103.1 million in 2023, representing a robust 20.0 percent increase. While output briefly dipped to \$82.4 million in 2018, it maintained a strong upward trajectory in the subsequent years. This divergence was particularly evident in the final year; between 2022 and 2023, output surged by approximately 10.3 percent (an increase of \$9.6 million), even as employment concurrently decreased by 3.2 percent (a loss of 11 jobs).

This persistent divergence between rising production values and a stabilizing or slightly shrinking labor base highlights substantial gains in capital efficiency. Consequently, labor productivity increased consistently over the study period. Output per worker rose from approximately \$242 thousand in 2017 to nearly \$307 thousand in 2023, an increase of 26.8 percent.

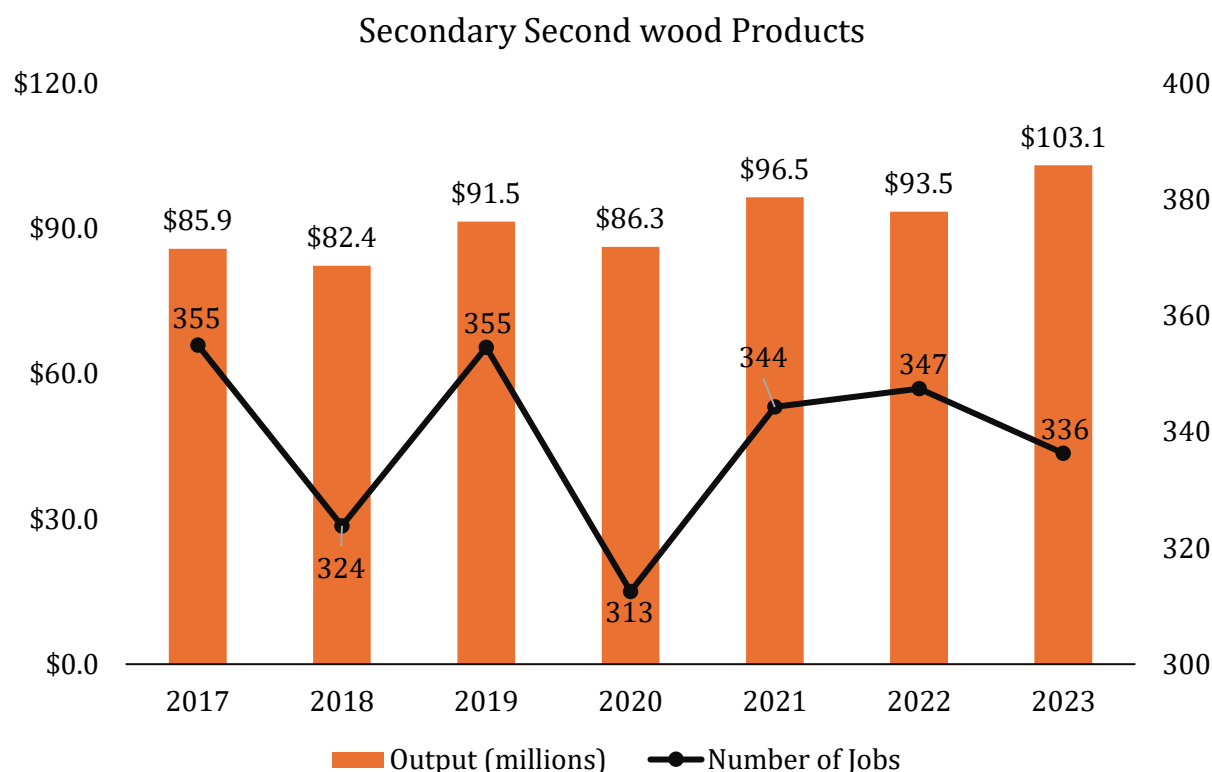


Figure 9: Trend in direct employment and output for the Secondary Solid Wood Products industry in Delaware, 2017–2023.

Wood Furniture

Economic Contribution of Wood Furniture.

Table 9 outlines the economic contributions of the Wood Furniture industry group in Delaware for 2023. This value-added manufacturing sector encompasses establishments producing wood kitchen cabinets and countertops, non-upholstered household furniture, custom architectural woodwork, and institutional wood furniture. On the other hand, Upholstered household furniture manufacturing segment is absent or undisclosed within the state during the study period.

In 2023, this sector stood as the second-largest direct employer within Delaware's forest products ecosystem, directly providing 666 jobs and generating \$187.82 million in direct economic output. The industry demonstrates an exceptional capacity for internal wealth creation, contributing \$93.12 million in direct value-added. This metric indicates that nearly 50 percent of the sector's gross output is retained as net regional value, a remarkably high ratio that reflects the advanced product transformation, intricate craftsmanship, and specialized secondary processing required to convert dimensional lumber into finished consumer and commercial goods.

The employment multiplier is 1.52, signifying that for every 100 direct jobs in wood furniture manufacturing, an additional 52 positions are sustained elsewhere in the state economy. Interestingly, the distribution of these secondary macroeconomic impacts is almost entirely symmetrical:

- **Indirect Effect:** Supply-chain integration supported 176 jobs and \$38.95 million in secondary output. This reflects the sector's localized demand for specialized intermediate inputs, such as finishes, hardware, packaging, and commercial transportation services.
- **Induced Effect:** Household spending sustained a nearly identical workforce of 172 jobs, alongside \$31.04 million in output. This impact is directly driven by the reinvestment of the sector's \$43.54 million in direct labor income into Delaware's local retail, healthcare, service and other markets.

When direct, indirect, and induced impacts are combined, the Wood Furniture industry supported a total of 1,014 jobs, generated \$257.81 million in total economic output, and contributed \$135.51 million to Delaware's gross state product.

Table 9: Direct, Indirect, and Induced Economic Contributions of the Wood Furniture Industry in Delaware, 2023. [†]

	Employment	Labor Income	Value-Added	Output
Direct	666	\$43,540	\$93,121	\$187,821
Indirect	176	\$11,231	\$22,232	\$38,946
Induced	172	\$10,076	\$20,162	\$31,043
Total	1,014	\$64,847	\$135,514	\$257,810

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars.

Trend Analysis: Wood Furniture Industry (2017–2023).

As illustrated in Figure 10, the Wood Furniture industry in Delaware experienced substantial growth between 2017 and 2022, followed by a decline in 2023. Employment increased from 436 jobs in 2017 to a peak of 754 jobs in 2022. By 2023, Employment had declined to 666 jobs, representing an 11.7 percent decrease from the 2022 peak but remaining 230 jobs, or 52.8 percent, above the 2017 level.

Output followed a similar overall trajectory, increasing from \$90.3 million in 2017 to a peak of \$201.4 million in 2022 before declining to \$187.8 million in 2023. Despite the 6.8 percent decline from the 2022 peak, 2023 Output remained approximately 108 percent above the 2017 level. The strongest increases occurred between 2017 and 2018 and again between 2019 and 2021.

Labor productivity, measured as Output per worker, also increased over the study period. Output per worker rose from approximately \$207 thousand in 2017 to \$249 thousand in 2018 and reached approximately \$282 thousand in 2023. Overall, the data indicate substantial long-term expansion in Delaware's Wood Furniture industry, with both Employment and Output remaining well above their 2017 levels despite some contraction in 2023. The increase in Output per worker further suggests that production grew faster than Employment over the period.

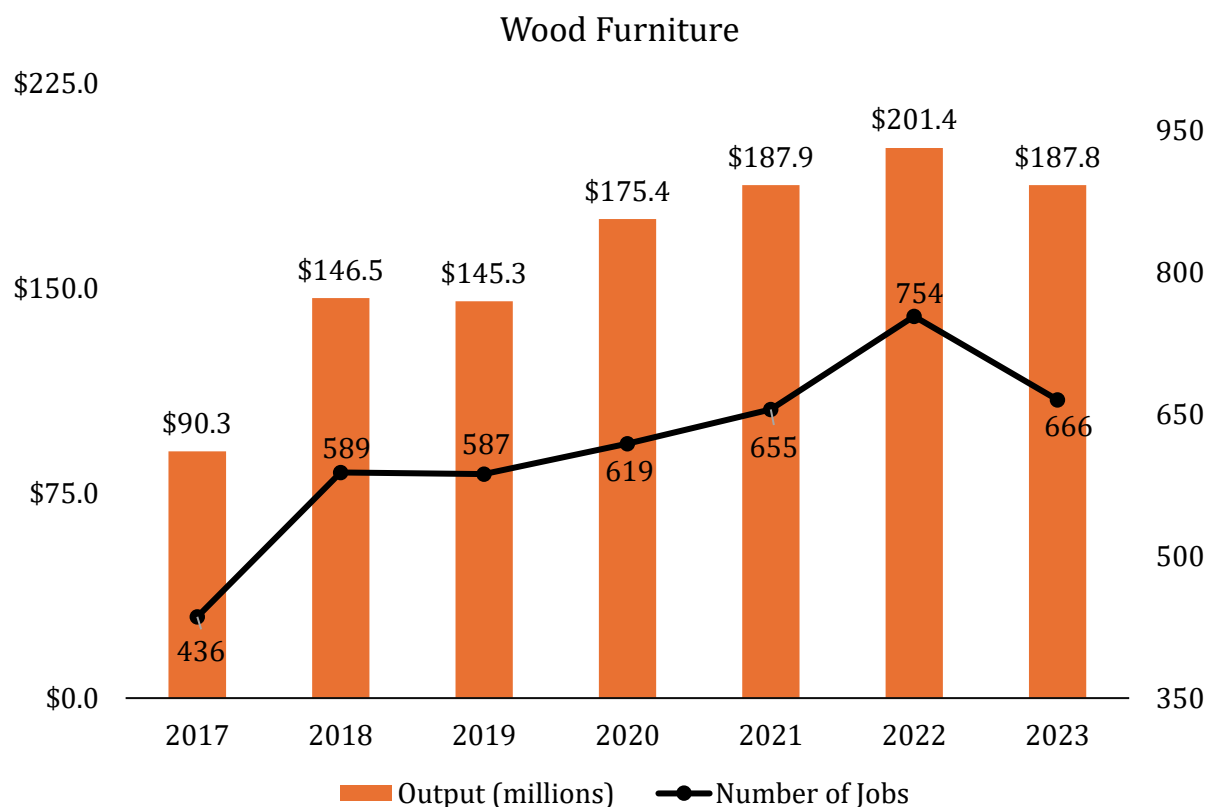


Figure 10: Trend in direct employment and output for the Wood Furniture industry in Delaware, 2017–2023.

Secondary Paperboard and Other Paper Products

Economic Contribution of Secondary Paperboard and Other Paper Products.

Table 11 outlines the economic contribution of the Secondary Paperboard and Other Paper Products industry group in Delaware for 2023. This sector is primarily composed of "converters" that manufacture finished products from purchased paper or paperboard. Within this category, Paper bag and coated and treated paper manufacturing and Stationery product manufacturing are completely absent or undisclosed. Furthermore, because the primary Pulp, Paper, and Paperboard Mills industry group is entirely missing from Delaware, these converting facilities

operate within a unique supply chain, relying on imported or out-of-state primary paper stock rather than local mills.

Despite these structural limitations, this sector stands as the absolute economic powerhouse of Delaware’s forest products industry. In 2023, it directly provided 913 jobs and generated over \$798.02 million in direct output, representing the largest share of employment and production value across all seven industry groups.

The sector exhibits a robust employment multiplier of approximately 2.28, meaning that for every 100 direct jobs in paper converting, an additional 128 positions are supported throughout the wider state economy. A closer inspection of these multiplier components reveals an exceptional structural feature: the indirect employment effect accounts for 740 jobs, which is nearly as large as the sector's direct workforce of 913. In a state lacking primary paper mills, this massive indirect footprint indicates that Delaware's converting facilities drive extensive local supply-chain activity concentrated heavily in localized industrial infrastructure, including specialized transportation, shipping logistics, warehousing, wholesale trade, and corrugated packaging assemblies.

Additionally, the induced employment effect supports 427 jobs, illustrating how the sector leverages both business procurement and consumer spending. Because the industry provides a substantial and steady direct labor income of \$87.75 million, the re-spending of these amounts heavily stimulates Delaware’s local retail, healthcare, services and other sectors. In terms of aggregate macroeconomic impact, the Secondary Paperboard and Other Paper Products supports a total of 2,079 jobs and contributes about \$1.05 billion in total economic output. By generating \$421.07 million in total value-added, this converting sector performs a critical regional role.

Table 10: Direct, Indirect, and Induced Economic Contributions of the Secondary Paperboard and Other Paper Products Industry in Delaware, 2023. [†]

	Employment	Labor Income	Value-Added	Output
Direct	913	\$87,746	\$270,447	\$798,024
Indirect	740	\$49,656	\$100,578	\$172,199
Induced	427	\$25,010	\$50,040	\$77,028
Total	2,079	\$162,412	\$421,066	\$1,047,251

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars.

Trend Analysis: Secondary Paperboard and Other Paper Products (2017–2023).

Figure 11 summarizes the direct Employment and Output trends for Delaware’s Secondary Paperboard and Other Paper Products industry from 2017 through 2023. The industry experienced substantial volatility early in the study period, followed by a sustained recovery

after 2019. Direct Employment increased from 988 jobs in 2017 to a peak of 1,220 jobs in 2018 before declining sharply to 589 jobs in 2019. From 2020 onward, Employment increased each year, reaching 913 jobs in 2023. Despite this recovery, 2023 Employment remained 25.2 percent below the 2018 peak and 7.6 percent below the 2017 level.

Output followed a similar pattern, increasing from \$736.6 million in 2017 to a peak of \$1.05 billion in 2018 before falling to \$664.6 million in 2019. Output subsequently increased each year, reaching \$798.0 million in 2023. Although this remained 23.9 percent below the 2018 peak, it was 8.3 percent higher than the 2017 level. Overall, the industry experienced a sharp contraction after its 2018 peak, followed by several years of steady recovery in both Employment and Output, although Employment had not returned to its pre-decline level by 2023.

Throughout the study period, the sector demonstrated substantial gains in capital efficiency and labor productivity. Output per worker rose from approximately \$746 thousand in 2017 to nearly \$874 thousand by 2023, representing a strong 17.2 percent increase. Despite operating with a slightly smaller workforce than in 2017, the sector generated greater total economic value by 2023, reinforcing its vital role in supplying essential packaging and converted paper goods across the region.

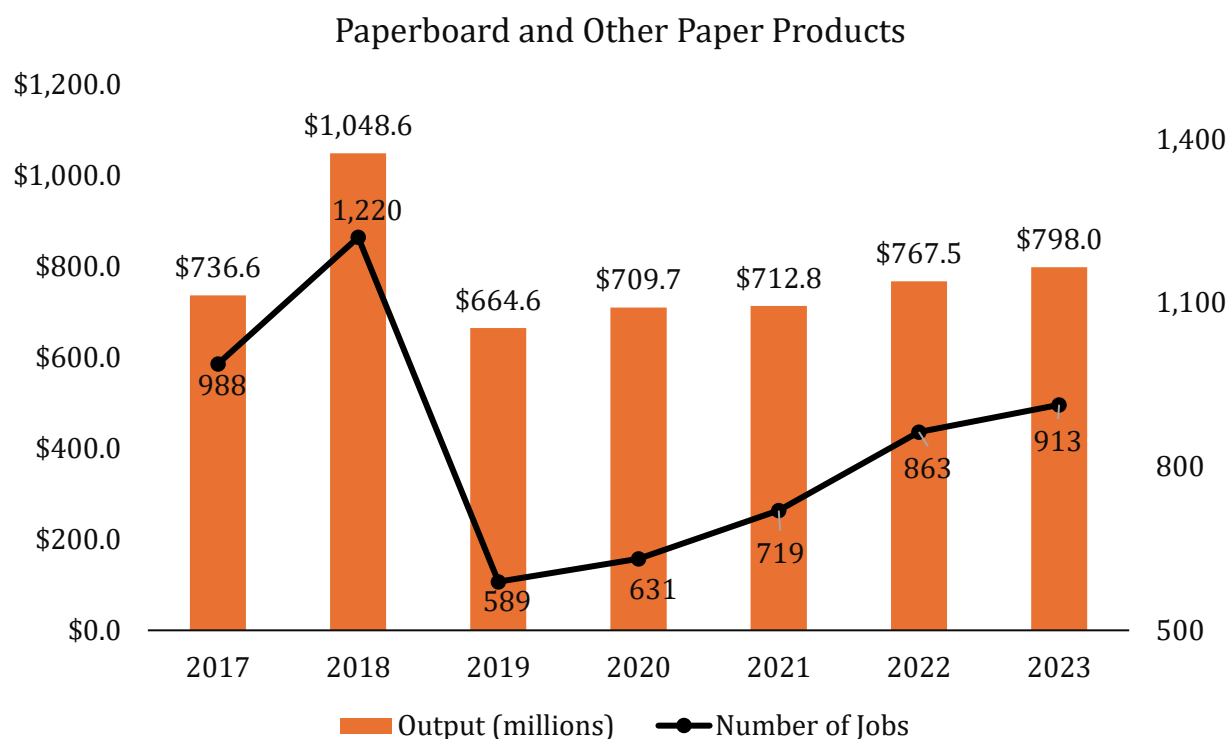


Figure 11: Trend in direct employment and output for the Secondary Paperboard and Other Paper Products industry in Delaware, 2017–2023.

Major Forest Product Sectors

Delaware's forest-products sector is represented by 22 IMPLAN industries; the remaining industries are either not present in the state, or their data are undisclosed for 2023. Industries that are not present or have undisclosed data include Maple syrup production; Electric Power Generation – Biomass; Veneer and Plywood Manufacturing; Reconstituted Wood Product Manufacturing; Upholstered Household Furniture Manufacturing; Pulp Mills; Paper Mills; Paperboard Mills; Paper Bag and Coated and Treated Paper Manufacturing; and Stationery Product Manufacturing.

Table 12 highlights the five leading individual IMPLAN industries across major measures of direct economic contribution in Delaware's forest-products sector. The results indicate a strong concentration in downstream paper-product manufacturing. Sanitary Paper Product Manufacturing ranks first across all four economic indicators, directly supporting 625 jobs, generating \$61.0 million in Labor Income, \$219.1 million in Value-Added, and \$618.2 million in Output. The industry alone accounts for a substantial share of Delaware's forest-products economy, particularly in terms of Output and Value-Added.

Paperboard Container Manufacturing ranks second across all four measures, supporting 282 jobs and generating \$26.2 million in Labor Income, \$50.1 million in Value-Added, and \$176.8 million in Output. Together, these two paper-converting industries dominate the upper end of Delaware's forest-products sector, demonstrating the importance of downstream paper manufacturing relative to forestry, logging, and primary wood processing.

Wood-based manufacturing industries also feature prominently among the leading employers. Institutional Furniture Manufacturing ranks third in Employment with 240 jobs, followed by Wood Kitchen Cabinet and Countertop Manufacturing with 228 jobs. These industries also rank among the leading sectors in Labor Income and Value-Added. At the fifth position, rankings begin to diverge across economic measures: Wood Container and Pallet Manufacturing ranks fifth in both Employment and Labor Income, Commercial Logging ranks fifth in Value-Added, and Showcase, Partition, Shelving, and Locker Manufacturing ranks fifth in Output. Overall, the rankings indicate that Delaware's forest-products economy is anchored by a relatively small number of downstream paper-converting industries, while furniture, wood-product manufacturing, and logging provide additional sources of Employment and economic value.

Table 11: Top five industries in terms of direct Economic Contributions in Delaware state, 2023. [†]

Rank	Employment	Labor Income	Value added	Output
1	Sanitary paper product manufacturing (625)	Sanitary paper product manufacturing (\$61,006)	Sanitary paper product manufacturing (\$219,134)	Sanitary paper product manufacturing (\$618,158)
2	Paperboard container manufacturing (282)	Paperboard container manufacturing (\$26,226)	Paperboard container manufacturing (\$50,097)	Paperboard container manufacturing (\$176,788)
3	Institutional furniture manufacturing (240)	Institutional furniture manufacturing (\$16,992)	Institutional furniture manufacturing (\$34,544)	Institutional furniture manufacturing (\$71,149)
4	Wood kitchen cabinet and countertop manufacturing (228)	Wood kitchen cabinet and countertop manufacturing (\$14,177)	Wood kitchen cabinet and countertop manufacturing (\$30,584)	Wood kitchen cabinet and countertop manufacturing (\$57,113)
5	Wood container and pallet manufacturing (122)	Wood container and pallet manufacturing (\$8,026)	Commercial logging (\$23,044)	Showcase, partition, shelving, and locker manufacturing (\$31,610)

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

Major Non-Forest Industries supported by the Forest Sector in 2023

Excluding the forest products industries themselves, the Delaware economy included 350 other IMPLAN sectors in 2023. The forest sector's economic reach is extensive, supporting at least one job in 114 of these industries and at least ten jobs in 48 of them. Beyond the 2,050 direct jobs, the sector supported an additional 1,812 indirect and induced jobs across the state's economy. These additional positions, generated through supply chain purchases and workforce household spending, are heavily concentrated in logistics, wholesale trade, real estate, and corporate services. Table 13 highlights the top ten non-forest industries most heavily impacted by this economic activity in 2023. Together, these ten sectors account for 759 jobs, representing approximately 41.9 percent of all indirect and induced employment generated by the forest economy.

Table 12: Top Ten Industries Impacted by Delaware state's Forest Products Industries in terms of number of jobs in 2023.

Industries	Number of Jobs
Warehousing and storage	166
Other real estate	109
Couriers and messengers	94
Truck transportation	70
Wholesale - Other nondurable goods merchant wholesalers	63
Hospitals	60
Full-service restaurants	58
Wholesale - Other durable goods merchant wholesalers	50
Management of companies and enterprises	45
Employment services	44
Total	759

The composition of these sectors illustrates the specific mechanisms through which the forest industry drives the wider Delaware economy:

- **Logistics and Distribution:** The strongest linkages are found in the movement and storage of physical goods. Warehousing and storage ranks as the largest impacted sector overall, with 166 jobs supported by the forest industry. When combined with Couriers and messengers (94 jobs), Truck transportation (70 jobs), Wholesale - Other nondurable goods merchant wholesalers (63 jobs), and Wholesale - Other durable goods merchant wholesalers (50 jobs), it is evident that the forest sector acts as a significant catalyst for

the state's supply chain infrastructure. The industry requires a reliable network to import raw paperboard, move converted packaging products, and distribute finished goods to market, thereby sustaining 443 jobs in this logistics and trade cluster alone.

- **Induced Household Spending:** The prominence of Other real estate (109 jobs), Hospitals (60 jobs), and Full-service restaurants (58 jobs) illustrates the powerful "induced" effect of the forest workforce. These sectors are sustained not by manufacturing supply chain purchases, but by the wages, salaries, and benefits spent by forest-sector employees within their local communities. The high ranking of real estate, healthcare, and food service suggests that the income earned by converters, furniture makers, and loggers serves as a critical revenue stream for maintaining local housing markets and essential community services, supporting 227 jobs across these three sectors.
- **Corporate and Business Support:** A notable secondary impact is the sector's demand for professional business services. Management of companies and enterprises ranks ninth with 45 jobs, while Employment services accounts for 44 jobs. This demonstrates that Delaware's forest product firms, particularly the large-scale secondary paperboard converters, are consistent consumers of corporate support. They rely on external firms for administrative oversight, headquarters management, and staffing services to maintain their complex manufacturing operations.

In terms of gross economic Output, the ten non-forest industries most strongly supported by Delaware's forest-products sector generated a combined \$164.9 million in 2023 (Table 14). Together, these industries accounted for approximately 43.7 percent of the \$377.2 million in total indirect and induced Output generated across the broader Delaware economy.

Wholesale trade represents an important component of these broader economic effects. Wholesale - Other Nondurable Goods Merchant Wholesalers ranks first, with \$28.5 million in supported Output, while Wholesale - Other Durable Goods Merchant Wholesalers ranks fourth, with \$15.8 million. Combined, these two wholesale industries account for approximately \$44.3 million, or 26.9 percent, of the Output generated among the top ten supported industries. Their prominence reflects the broader commercial and distribution networks associated with forest-products manufacturing and related economic activity.

Transportation, warehousing, utilities, and corporate services also feature prominently among the industries supported by forest-sector activity. Warehousing and Storage generated approximately \$15.1 million in Output, while Truck Transportation generated \$14.9 million. Management of Companies and Enterprises contributed \$12.8 million, and Electric Power Transmission and Distribution contributed \$12.3 million. These industries reflect the

transportation, storage, energy, and business-service requirements associated with manufacturing and distributing forest products.

Several industries associated more closely with household spending also rank among the top ten. Other Real Estate generated approximately \$19.6 million in supported Output, while Owner-Occupied Housing accounted for \$19.5 million. In economic modeling, Owner-Occupied Housing represents the imputed value of housing services provided by owner-occupied homes rather than direct residential investment or increases in household equity. Hospitals generated an additional \$13.7 million in Output, and Monetary Authorities and Depository Credit Intermediation contributed \$12.6 million. Collectively, the composition of the top ten industries illustrates how forest-sector activity extends beyond forest-based businesses themselves, supporting trade, logistics, utilities, business services, housing services, healthcare, and financial activities throughout Delaware.

Table 13: Top Ten Industries impacted by Delaware State’s Forest Products Industries in terms of output production in 2023. [†]

Industries	Output
Wholesale - Other nondurable goods merchant wholesalers	\$28,499
Other real estate	\$19,613
Owner-occupied housing	\$19,545
Wholesale - Other durable goods merchant wholesalers	\$15,788
Warehousing and storage	\$15,089
Truck transportation	\$14,938
Hospitals	\$13,725
Management of companies and enterprises	\$12,844
Monetary authorities and depository credit intermediation	\$12,613
Electric power transmission and distribution	\$12,282
Total	\$164,935

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

Importance of the Forest Products Industries in Context

Natural Resources and Agricultural Industries

Table 15 contextualizes the forest economy within Delaware’s broader natural resource base by comparing the direct economic contributions of four major sectors in 2023: Forest Products, Commercial fishing, hunting, and trapping, Mining (including oil and gas), and Agriculture production.

The results demonstrate a clear hierarchical structure, with agriculture serving as the absolute foundation of the state's natural resource economy. Agriculture production is the largest employer, supporting 4,031 jobs (approximately 60.2 percent of total employment across the four sectors). Forest Products ranks second, sustaining 2,050 jobs (approximately 30.6 percent of the total). Agriculture in Delaware also dominates the financial metrics, generating the largest direct output (\$1.89 billion), value-added (\$646.68 million), and labor income (\$820.32 million). By comparison, the Forest Products sector stands as a robust secondary pillar, generating \$1.13 billion in direct output, \$419.85 million in value-added, and \$164.05 million in labor income.

Compared to 2017 data:

Forest Products: The sector demonstrated strong growth in production and capital efficiency. While labor income experienced a 22.1 percent decline, direct employment expanded by 4.8 percent, output increased by 11.1 percent, and value-added surged by 23.8 percent.

Agriculture Production: This leading sector underwent a notable workforce contraction, with employment declining by 15.8 percent and value-added decreasing slightly by 3.7 percent. However, labor income rose sharply by 47.6 percent, and overall output remained relatively stable, increasing by 1.2 percent.

Mining, and Oil & Gas Production: Mining experienced intense structural shifts, operating with a substantially smaller workforce (employment down 37.7 percent) but generating massive financial gains. Direct output increased by 92.3 percent and value-added grew by 55.2 percent, indicating highly optimized, capital-intensive extraction activities.

Commercial Fishing, Hunting, and Trapping: Although representing the smallest absolute scale among the groups, this sector experienced severe, structural contraction across all economic measures, with both output and value-added falling by 63.7 percent.

Overall, the data illustrates that Delaware's natural resource base is comprehensively anchored by agriculture across all metrics of employment and wealth creation, while the Forest Products industry functions as the vital, expanding secondary engine of the state's industrial resource production.

Table 14: Natural Resources and Agricultural Production Industries in Delaware state, 2023. [†]

Industry	Employment	Δ2017 ^{††}	Labor Income	Δ2017 ^{††}	Value-Added	Δ 2017 ^{††}	Output	Δ 2017 ^{††}
1. Forest Products	2,050	4.8%	\$164,048	-22.1%	\$419,852	23.8%	\$1,129,545	11.1%
2. Commercial fishing, hunting & trapping	275	-33.8%	\$2,147	-88.2%	\$22,644	-63.7%	\$23,515	-63.7%
3. Mining, and oil & gas production	340	-37.7%	\$77,755	-14.4%	\$142,432	55.2%	\$292,261	92.3%
4. Agriculture production (plant crops and animals)	4,031	-15.8%	\$820,321	47.6%	\$646,677	-3.7%	\$1,893,268	1.2%
Total	6,697	-13.1%	\$1,064,271	21.6%	\$1,231,605	5.7%	\$3,338,589	7.5%

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

^{††} All percentage differences are calculated in real terms using 2023 constant dollars.

Manufacturing Industries

To assess the relative standing of the forest sector within Delaware's industrial base, Table 16 compares "Forest Products Manufacturing" against the state's other major manufacturing groups. Note that in this context, "Forest Products" refers specifically to the manufacturing sub-sectors (Groups 3 through 7), excluding the extraction activities of forestry and logging and other non-manufacturing sectors (IMPLAN codes 10, 15, 16, 19, and 40 see Appendix A). Forest products manufacturing accounts for 95 percent of total forest-sector Employment, 96 percent of Labor Income, 94 percent of Value-Added, and 98 percent of total forest-sector Output.

Delaware's manufacturing sector supported 28,605 jobs and generated approximately \$23.64 billion in Output in 2023 (Table 16). Food Manufacturing was the state's largest manufacturing employer, supporting 10,917 jobs, followed by Chemical Manufacturing with 3,158 jobs and Computer and Electronic Product Manufacturing with 2,389 jobs. Forest Products Manufacturing ranked fourth, supporting 1,938 jobs, or approximately 6.8 percent of Delaware's total manufacturing Employment. In terms of Output, Petroleum and Coal Manufacturing ranked first at approximately \$5.90 billion, closely followed by Chemical Manufacturing at \$5.89 billion and Food Manufacturing at \$4.54 billion.

Forest Products Manufacturing also represents a meaningful component of the state's manufacturing economy in terms of financial contributions. The industry generated approximately \$1.10 billion in direct Output, ranking fifth among the 16 manufacturing groups. It also ranked fifth in Value-Added, contributing \$393.9 million, and fifth in Labor Income, generating \$157.3 million. Forest Products Manufacturing accounted for approximately 4.7 percent of total manufacturing Output, 5.7 percent of Value-Added, and 6.1 percent of Labor Income in Delaware in 2023.

On a per-worker basis, Forest Products Manufacturing generated approximately \$569 thousand in Output per job. This was higher than Food Manufacturing, at approximately \$416 thousand per worker, and Fabricated Metal Manufacturing, at approximately \$307 thousand per worker, but substantially below highly capital-intensive industries such as Chemical Manufacturing, at approximately \$1.86 million per worker, and Petroleum and Coal Manufacturing, at approximately \$7.54 million per worker. Overall, the results indicate that Forest Products Manufacturing is not merely a small specialized component of Delaware's manufacturing base; it ranks among the state's leading manufacturing groups in Employment, Labor Income, Value-Added, and Output.

Table 15: Manufacturing Industries in Delaware state, 2023. [†]

Manufacturing Industries	Employment	Labor Income	Value Added	Output
Food	10,917	\$692,292	\$1,177,090	\$4,540,432
Fabricated Metal	1,346	\$137,628	\$114,511	\$413,234
Computer and Electronic Product	2,389	\$392,111	\$556,093	\$1,302,304
Machinery	3,158	\$699,840	\$2,790,223	\$5,889,141
Forest Products	786	\$63,568	\$182,081	\$407,392
Miscellaneous	1,274	-\$259,410	\$204,078	\$507,630
Printing	1,938	\$157,257	\$393,909	\$1,103,188
Plastics and Rubber Products	536	\$38,795	\$38,921	\$94,580
Transportation Equipment	1,291	\$104,709	\$163,887	\$597,534
Chemical	505	\$52,116	\$106,580	\$258,972
Nonmetallic Mineral Product	320	\$15,905	\$55,839	\$126,303
Electrical Equipment	753	\$63,613	\$117,945	\$312,852
Beverage and Tobacco Product	1,112	\$116,031	\$132,598	\$429,565
Textiles and Apparel	798	\$54,935	\$255,246	\$688,014
Primary Metal	699	\$86,009	\$22,684	\$1,073,343
Petroleum and Coal	782	\$180,591	\$577,258	\$5,899,937
Total	28,605	\$2,595,990	\$6,888,945	\$23,644,422
Compared to 2017	4%	-1%	34%	26%

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

Summary

The 2023 economic contribution report shows that the Forest Products sector serves as a specialized, high-efficiency component of Delaware's industrial base. In 2023, the Forest Products sector directly provided 2,050 jobs, generated \$1.13 billion in direct gross output, and contributed \$419.85 million in direct value-added to the state economy. The sector's economic influence extends across regional business networks; when accounting for indirect supply-chain transactions and induced household spending, the total economic contribution reached 3,862 jobs and \$1.51 billion in total output. This represents an employment multiplier of 1.88, indicating that for every 100 direct jobs in the forest sector, an additional 88 positions are supported in other sectors of Delaware's economy.

The industry exhibits a distinct structural concentration in downstream, value-added converting and secondary manufacturing rather than primary resource extraction. Notably, the Pulp, Paper, and Paperboard Mills industry group is completely absent from Delaware's economic base. Consequently, the Secondary Paperboard and Other Paper Products group functions as the sector's primary economic engine, supporting 913 direct jobs and generating \$798.02 million in direct output. When analyzing unaggregated industries, Sanitary paper product manufacturing emerges as the undisputed financial and employment anchor, ranking first across all four economic measures: employment (625 jobs), labor income (\$61.01 million), value-added (\$219.13 million), and output (\$618.16 million). This is followed by Paperboard container manufacturing, which ranks second across all four measures, followed by Institutional furniture manufacturing and Wood kitchen cabinet manufacturing.

Within Delaware's broader natural resource base, agricultural production remains the primary anchor across employment, labor income, value-added, and output. However, the Forest Products sector constitutes a vital secondary pillar. Since 2017, the direct forest sector demonstrated strong growth, expanding its workforce by 4.8 percent, direct output by 11.1 percent, and direct value-added by 23.8 percent. Within Delaware's manufacturing landscape, Forest Products Manufacturing (excluding forestry and logging activities) supported 1,938 jobs and generated approximately \$1.10 billion in Output in 2023. The industry ranked fourth among the state's 16 manufacturing groups in Employment and fifth in Labor Income (\$157.3 million), Value-Added (\$393.9 million), and Output. Forest Products Manufacturing generated approximately \$569,000 in Output per worker, indicating a substantial level of production relative to its workforce. Overall, the sector transforms locally sourced and imported inputs into higher-value manufactured products, including construction materials, paper packaging, and consumer goods, supporting Employment within Delaware while generating significant out-of-state sales.

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Appendix A: Forest Products Industries Groupings and IMPLAN Sectors

A1: Forestry Industry Grouping and IMPLAN Sectors

Industry Code	Industry name
10	All other crop farming***
15	Forestry, forest products, and timber tract production
19	Support activities for agriculture and forestry-*

Note: Sectors with an “*” indicate that only a portion of the sector is included in the forest products industries.

Sectors denoted by “****” indicate that the corresponding FPI is not present in Delaware.

A2: Logging Industry Grouping and IMPLAN Sector

Industry Code	Industry name
16	Commercial logging

A3: Primary Solid Wood Products Industry Grouping and IMPLAN Sectors

Industry Code	Industry name
40	Electric power generation – Biomass***
124	Sawmills
125	Wood preservation
126	Veneer and plywood manufacturing***
128	Reconstituted wood product manufacturing***

Sectors denoted by “****” indicate that the corresponding FPI is not present in Delaware.

A4: Secondary Solid Wood Products Industry Grouping and IMPLAN Sectors.

Industry Code	Industry name
127	Engineered wood member and truss manufacturing
129	Wood windows and door manufacturing
130	Cut stock, resawing lumber, and planning
131	Other millwork, including flooring
132	Wood container and pallet manufacturing
133	Manufactured home (mobile home) manufacturing
134	Prefabricated wood building manufacturing
135	All other miscellaneous wood product manufacturing

A5: Wood Furniture Industry Grouping and IMPLAN Sectors.

Industry Code	Industry name
348	Wood kitchen cabinet and countertop manufacturing
349	Upholstered household furniture manufacturing***
350	Non-upholstered wood household furniture manufacturing
352	Institutional furniture manufacturing**
353	Wood office furniture manufacturing
354	Custom architectural woodwork and millwork
356	Showcase, partition, shelving, and locker manufacturing**

Note: Sectors with “***” indicate that it is treated as **full sector** in 2023; however in 2017 it was treated as a **partial (wood component only)** so the numbers are not strictly comparable. Sectors denoted by “****” indicate that the corresponding FPI is not present in Delaware.

A6: Pulp, Paper, and Paperboard Mills Industry Grouping and IMPLAN Sectors.

Industry Code	Industry name
136	Pulp mills***
137	Paper mills***
138	Paperboard mills***

Sectors denoted by “****” indicate that the corresponding FPI is not present in Delaware.

A7: Secondary Paperboard and Other Paper Products Industry Grouping and IMPLAN Sectors.

Industry Code	Industry name
139	Paperboard container manufacturing
140	Paper bag and coated and treated paper manufacturing***
141	Stationery product manufacturing***
142	Sanitary paper product manufacturing
143	All other converted paper product manufacturing

Sectors denoted by “***” indicate that the corresponding FPI is not present in Delaware.

Appendix B. Detailed Economic Contribution Results of 2023

B1: Direct Economic Contribution by IMPLAN Sector, 2023

B1.1: Direct Economic Contributions, Forestry Sector Details, 2023. [†]

Industries	Employment	Labor Income	Value-Added	Output
All other crop farming	0	\$0	\$0	\$0
Forestry, forest products, and timber tract production	3	\$315	\$326	\$361
Support activities for agriculture and forestry	68	\$2,512	\$2,573	\$2,719
Total	71	\$2,827	\$2,899	\$3,080

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

B1.2: Direct Economic Contributions, Logging Sector Details (2023, in 2023 USD). [†]

Industries	Employment	Labor Income	Value-Added	Output
Commercial logging	41	\$3,964	\$23,044	\$23,277
Total	41	\$3,964	\$23,044	\$23,277

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

B1.3: Direct Economic Contributions, Primary Solid Wood Products Sector Details (2023, in 2023 USD).[†]

Industries	Employment	Labor Income	Value- Added	Output
Electric power generation - Biomass	0	\$0	\$0	\$0
Sawmills	12	\$862	\$1,071	\$5,563
Wood preservation	11	\$864	\$1,395	\$8,635
Veneer and plywood manufacturing	0	\$0	\$0	\$0
Reconstituted wood product manufacturing	0	\$0	\$0	\$0
Total	23	\$1,726	\$2,466	\$14,198

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

B1.4: Direct Economic Contributions, Secondary Solid Wood Products Sector Details (2023, in 2023 USD).[†]

Industries	Employment	Labor Income	Value-Added	Output
Engineered wood member and truss manufacturing	75	\$6,118	\$7,166	\$29,491
Wood windows and door manufacturing	12	\$792	\$914	\$3,326
Cut stock, resawing lumber, and planing	9	\$460	\$600	\$2,939
Other millwork, including flooring	11	\$663	\$825	\$3,223
Wood container and pallet manufacturing	122	\$8,026	\$8,984	\$30,021
Manufactured home (mobile home) manufacturing	54	\$4,265	\$4,577	\$16,690
Prefabricated wood building manufacturing	41	\$3,265	\$4,040	\$14,427
All other miscellaneous wood product manufacturing	12	\$655	\$769	\$3,028
Total	336	\$24,244	\$27,875	\$103,146

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

B1.5: Direct Economic Contributions, Wood Furniture Sector Details (2023, 2023 USD).[†]

Industries	Employment	Labor Income	Value-Added	Output
Wood kitchen cabinet and countertop manufacturing	228	\$14,177	\$30,584	\$57,113
Upholstered household furniture manufacturing	0	\$0	\$0	\$0
Non-upholstered wood household furniture manufacturing	55	\$3,141	\$6,050	\$12,577
Institutional furniture manufacturing	240	\$16,992	\$34,544	\$71,149
Wood office furniture manufacturing	24	\$1,545	\$4,437	\$8,719
Custom architectural woodwork and millwork	31	\$2,096	\$1,735	\$6,653
Showcase, partition, shelving, and locker manufacturing	88	\$5,590	\$15,771	\$31,610
Total	666	\$43,540	\$93,121	\$187,821

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

**B1.7: Direct Economic Contributions, Secondary Paperboard and Other Paper Products Sector
Details (2023, in 2023 USD).[†]**

Industries	Employment	Labor Income	Value-Added	Output
Paperboard container manufacturing	282	\$26,226	\$50,097	\$176,788
Paper bag and coated and treated paper manufacturing	0	\$0	\$0	\$0
Stationery product manufacturing	0	\$0	\$0	\$0
Sanitary paper product manufacturing	625	\$61,006	\$219,134	\$618,158
All other converted paper product manufacturing	6	\$514	\$1,216	\$3,078
Total	913	\$87,746	\$270,447	\$798,024

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

B2: Direct Economic Contribution by IMPLAN Sector, 2017 (2017 USD)

B2.1: Direct Economic Contributions, Forestry Sector Details (2017, in Nominal 2017 USD). [†]

Industries	Employment	Labor Income	Value-Added	Output
All other crop farming	0	\$0	\$0	\$0
Forestry, forest products, and timber tract production	88	\$3,121	\$644	\$982
Support activities for agriculture and forestry	0	\$0	\$0	\$0
Total	88	\$3,121	\$644	\$982

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

B2.2: Direct Economic Contributions, Logging Sector Details (2017, in Nominal 2017 USD). [†]

Industries	Employment	Labor Income	Value-Added	Output
Commercial logging	29	\$46,732	\$48,599	\$51,148
Total	29	\$46,732	\$48,599	\$51,148

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2017 dollars value.

B2.3: Direct Economic Contributions, Primary Solid Wood Products Sector Details (2017, in Nominal 2017 USD).[†]

Industries	Employment	Labor Income	Value- Added	Output
Electric power generation - Biomass	0	\$0	\$0	\$0
Sawmills	3	\$157	\$167	\$875
Wood preservation	15	\$858	\$1,329	\$8,350
Veneer and plywood manufacturing	3	\$182	\$203	\$868
Reconstituted wood product manufacturing	39	\$2,917	\$4,209	\$20,648
Total	60	\$4,115	\$5,908	\$30,741

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2017 dollars value.

B2.4: Direct Economic Contributions, Secondary Solid Wood Products Sector Details (2017, in Nominal 2017 USD).[†]

Industries	Employment	Labor Income	Value-Added	Output
Engineered wood member and truss manufacturing	75	\$3,883	\$4,228	\$16,299
Wood windows and door manufacturing	34	\$2,144	\$2,461	\$7,853
Cut stock, resawing lumber, and planing	30	\$1,485	\$1,935	\$6,719
Other millwork, including flooring	31	\$1,652	\$1,945	\$6,239
Wood container and pallet manufacturing	69	\$3,159	\$3,508	\$10,494
Manufactured home (mobile home) manufacturing	0	\$0	\$0	\$0
Prefabricated wood building manufacturing	66	\$3,830	\$4,119	\$11,669
All other miscellaneous wood product manufacturing	51	\$2,707	\$3,112	\$9,253
Total	355	\$18,861	\$21,309	\$68,525

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2017 dollars value.

B2.5: Direct Economic Contributions, Wood Furniture Sector Details (2017, in Nominal 2017 USD).[†]

Industries	Employment	Labor Income	Value-Added	Output
Wood kitchen cabinet and countertop manufacturing	203	\$8,952	\$9,397	\$27,752
Upholstered household furniture manufacturing	0	\$0	\$0	\$0
Non-upholstered wood household furniture manufacturing	10	\$412	\$450	\$1,203
Institutional furniture manufacturing	155	\$9,662	\$10,274	\$29,912
Wood office furniture manufacturing	4	\$98	\$110	\$639
Custom architectural woodwork and millwork	0	\$0	\$0	\$0
Showcase, partition, shelving, and locker manufacturing	64	\$3,516	\$3,819	\$12,571
Total	436	\$22,640	\$24,050	\$72,076

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2017 dollars value.

**B2.7: Direct Economic Contributions, Secondary Paperboard and Other Paper Products Sector
Details (2017, in Nominal 2017 USD).[†]**

Industries	Employment	Labor Income	Value-Added	Output
Paperboard container manufacturing	141	\$10,612	\$14,924	\$66,019
Paper bag and coated and treated paper manufacturing	388	\$28,136	\$45,816	\$174,028
Stationery product manufacturing	0	\$0	\$0	\$0
Sanitary paper product manufacturing	431	\$36,864	\$114,549	\$339,826
All other converted paper product manufacturing	28	\$1,200	\$1,522	\$7,848
Total	988	\$76,812	\$176,810	\$587,721

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2017 dollars value.

B3: Direct Economic Contribution by IMPLAN Sector, 2017 (2023 USD)

B3.1: Direct Economic Contributions, Forestry Sector Details (2017, in 2023 USD). [†]

Industries	Employment	Labor Income	Value-Added	Output
All other crop farming	0	\$0	\$0	\$0
Forestry, forest products, and timber tract production	88	\$3,816	\$788	\$1,230
Support activities for agriculture and forestry	0	\$0	\$0	\$0
Total	88	\$3,816	\$788	\$1,230

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value. B3.2: Direct Economic Contributions, Logging Sector Details (2017, in 2023 USD). [†]

Industries	Employment	Labor Income	Value-Added	Output
Commercial logging	29	\$57,141	\$59,423	\$64,105
Total	29	\$57,141	\$59,423	\$64,105

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

B3.3: Direct Economic Contributions, Primary Solid Wood Products Sector Details (2017, in 2023 USD). [†]

Industries	Employment	Labor Income	Value- Added	Output
Electric power generation - Biomass	0	\$0	\$0	\$0
Sawmills	3	\$192	\$204	\$1,097
Wood preservation	15	\$1,050	\$1,625	\$10,466
Veneer and plywood manufacturing	3	\$223	\$248	\$1,088
Reconstituted wood product manufacturing	39	\$3,567	\$5,147	\$25,878
Total	60	\$5,031	\$7,224	\$38,528

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

B3.4: Direct Economic Contributions, Secondary Solid Wood Products Sector Details (2017, in 2023 USD).[†]

Industries	Employment	Labor Income	Value-Added	Output
Engineered wood member and truss manufacturing	75	\$4,748	\$5,170	\$20,428
Wood windows and door manufacturing	34	\$2,622	\$3,009	\$9,842
Cut stock, resawing lumber, and planing	30	\$1,816	\$2,367	\$8,421
Other millwork, including flooring	31	\$2,020	\$2,379	\$7,819
Wood container and pallet manufacturing	69	\$3,863	\$4,289	\$13,152
Manufactured home (mobile home) manufacturing	0	\$0	\$0	\$0
Prefabricated wood building manufacturing	66	\$4,684	\$5,036	\$14,625
All other miscellaneous wood product manufacturing	51	\$3,309	\$3,805	\$11,596
Total	355	\$23,062	\$26,055	\$85,884

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

B3.5: Direct Economic Contributions, Wood Furniture Sector Details (2017, in 2023 USD). [†]

Industries	Employment	Labor Income	Value-Added	Output
Wood kitchen cabinet and countertop manufacturing	203	\$10,946	\$11,490	\$34,782
Upholstered household furniture manufacturing	0	\$0	\$0	\$0
Non-upholstered wood household furniture manufacturing	10	\$503	\$550	\$1,508
Institutional furniture manufacturing	155	\$11,814	\$12,563	\$37,489
Wood office furniture manufacturing	4	\$119	\$134	\$801
Custom architectural woodwork and millwork	0	\$0	\$0	\$0
Showcase, partition, shelving, and locker manufacturing	64	\$4,300	\$4,670	\$15,755
Total	436	\$27,682	\$29,407	\$90,335

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.

B3.7: Direct Economic Contributions, Secondary Paperboard and Other Paper Products Sector
Details (2017, in real 2023 Dollars). [†]

Industries	Employment	Labor Income	Value- Added	Output
Paperboard container manufacturing	141	\$12,976	\$18,248	\$82,743
Paper bag and coated and treated paper manufacturing	388	\$34,403	\$56,020	\$218,113
Stationery product manufacturing	0	\$0	\$0	\$0
Sanitary paper product manufacturing	431	\$45,075	\$140,062	\$425,910
All other converted paper product manufacturing	28	\$1,467	\$1,861	\$9,837
Total	988	\$93,921	\$216,191	\$736,602

[†] All monetary values (Labor Income, Value-Added, and Output) are in thousands of U.S. dollars, adjusted to 2023 dollars value.