



Forest Products Industries' Economic Contributions: New York, 2023

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Foreword

New York's forests are the most extensive in the Northeast, with over 18.5 million acres covering 62% of the land area. These forests contribute myriad benefits including watershed protection, habitat and biodiversity, and climate resiliency. And these forests also play a vital role in the state's economy: over 15 million acres are working or potential timberland providing an important renewable resource. From the vast tracks of industrial private timberland in the Adirondack and Catskill Parks to State-owned working lands reforested by the Civilian Conservation Corps in the 1930s, from the municipally-managed forests of the New York City watershed to the thousands of individual forest owners enrolled in New York State's forest tax law program, sustainable forest management is a critical element of the State's natural resource economy. But most forest management in New York State is conducted by individual forest landowners outside of these programs, where data is scarce. That makes reports like this one vital to understanding the contributions of the forest resource economy to jobs, manufacturing, and rural communities, while providing essential goods used in our everyday lives. These materials form a connected web, or chain of goods, that provide economic support to local, national and even global markets. As markets and demand fluctuate, it is critical to understand the role of this sector in New York's overall economy.

This report provides an updated assessment of New York's forestry sector and its overall contribution to the state's economy. It updates a 2020 report from the Forest Products Industry Sector Northeast-Midwest Region to allow for a 5 year comparison of changes in the forest products industry in New York (based on IMPLAN data from 2017 and 2023). This time range also sheds light on the impact of the COVID-19 pandemic on the sector.

The analysis and report are made possible by the cooperative agreement 24-CA-11132544-047 between the Northeast-Midwest State Foresters Alliance, Inc. and the USDA Forest Service's State, Private & Tribal Forestry project *"Build and Support State Forestry Utilization and Marketing Capacity Through Targeted Investments in State Forestry Utilization and Marketing Programs"*. The grant supported a regional and state-by-state analysis of forest products industry economic data using the IMPLAN model, with technical support from Forest economists from Michigan State University and State agencies. The information in these pages is intended to help states make well-grounded and informed decisions and offer practical insights to support New York State's forest products industry in service of healthy and sustainable forest landscapes and economies.

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Executive Summary

Based on 2023 FIA estimates, New York contains approximately 18.53 million acres of forest land, representing about 61.6 percent of its total land area. Of this forest base, 82.7 percent (15.32 million acres) is classified as timberland capable of producing commercial volumes of wood, while 17.3 percent consists of reserved or low-productivity forestland. Private ownership accounts for the majority of forest land at 72.9 percent (13.51 million acres), followed by state and local governments (26.2 percent; 4.86 million acres) and federal ownership (0.9 percent; 0.16 million acres). This report summarizes the economic contribution of forest products industries in New York using IMPLAN 2023 data. This report also captures the pre-and post-COVID snapshots of forest products industries in New York and shows the changes in last five years.

Forest Product Industries

This report analyzes the economic contribution of New York's forest products sector, comprised of 32 individual economic sectors 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. In 2023, these industries directly supported 36,968 jobs and generated \$15.14 billion in output, \$4.57 billion in Value-Added, and \$3.30 billion in Labor Income. When indirect supply-chain linkages and induced household-spending effects are included, the sector's total economic footprint reached 72,133 jobs, \$23.81 billion in output, \$10.02 billion in Value-Added, and \$6.40 billion in Labor Income. The sector exerts a significant multiplier effect on the broader economy; for every direct job in the forest industry, roughly 0.95 additional jobs are supported elsewhere in the state. Key non-forest sectors impacted include Wholesale Trade, Other Real Estate, Warehousing and Storage, and Truck Transportation, reflecting the substantial logistics requirements and spending power of forest product companies and their employees.

Leading Forest Products Industry Groups (direct contribution)

Among the seven aggregated groups, Wood Furniture was the largest direct employer in 2023 (9,658 jobs), driven by the state's diverse manufacturing base, followed by Secondary Paperboard and Other Paper Products (8,684 jobs) and Secondary Solid Wood Products (6,694 jobs). In terms of output, the paper value chain dominated the landscape. Secondary Paperboard and Other Paper Products produced the highest direct output at \$5.21 billion, serving as the sector's financial anchor. Pulp, Paper, and Paperboard Mills generated nearly \$3.96 billion, highlighting the high capital intensity of the state's mills. Wood Furniture contributed \$2.06 billion, while Secondary Solid Wood Products generated \$1.97 billion.

Forestry was the smallest contributor in dollar terms (\$61.7 million), while Logging generated \$439.4 million in direct output with 3,224 direct jobs.

Leading Individual Forest Products Sectors (direct contribution)

At the disaggregated level (32 sectors), Paperboard Container Manufacturing was the top individual employer with 5,381 jobs. Financial dominance was similarly concentrated in the pulp and paper complex. Paper Mills ranked first in both Value-Added (\$968.0 million) and Output (\$3.31 billion), despite ranking second in employment. Paperboard Container Manufacturing followed closely, ranking second in Output (\$3.26 billion) and Value-Added (\$843.0 million). Commercial Logging served as a critical upstream driver, ranking third in employment (3,224 jobs) and third in Value-Added (\$426.2 million). Sawmills also remained a top-tier performer, ranking fifth in employment (2,390 jobs) and third in Output (\$1.07 billion).

New York's Forest Products Industries Compared to Other New York Industries

The Forest Products sector remains the fiscal leader of New York's natural resource economy. In 2023, it ranked first in output when compared to Agriculture and Mining. The forest sector's direct output (\$15.14 billion) was roughly double that of Agriculture (\$7.83 billion) and significantly exceeded Mining (\$11.95 billion). In terms of employment, the 36,968 jobs supported by the forest industry accounted for roughly 31 percent of the state's total natural resources workforce, trailing Agriculture (63,052 jobs) but more than doubling the workforce of Mining (15,865 jobs) and Commercial Fishing (1,516 jobs). Furthermore, within the statewide manufacturing landscape, Forest Products ranked as the seventh largest employer (32,414 manufacturing jobs), trailing larger sectors such as Food and Computer/Electronic Products, but employing significantly more workers than Transportation Equipment, Printing, or Textiles.

Five-years Trends in New York's Forest Products Industries Economic Contribution

From 2017 to 2023, the sector underwent a period of consolidation and adjustment. Direct employment decreased by 14.1 percent, while direct output declined by 10.4 percent in real terms. Despite the contraction in workforce size, the sector demonstrated increased efficiency; while real Labor Income declined by 17.4 percent, the direct output per worker rose by 4.3 percent.

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 New York’s economy. They provide jobs, raw materials, and finished goods that generate additional economic activity throughout the state, region, and nation. Forests in New York 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 New York 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 New York 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 New York, (ii) Economic Contributions of the New York 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 New York state

According to 2023 estimates from the USDA Forest Inventory and Analysis (FIA) program, New York's total land area totals 30.08 million acres. Of this, 18.53 million acres (61.6 percent) meet the FIA definition of forest land, while the remaining 11.55 million acres (38.4 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 New York's forest land base, timberland accounts for 15.32 million acres, or 82.7 percent (Figure 1), and represents unreserved forest capable of producing at least 20 cubic feet of wood per acre per year. Reserved forestland comprises 3.19 million acres (17.2 percent) and is withdrawn from timber utilization by legal or administrative designation. Other forestland totals 23,992 acres (0.1 percent) and consists of unreserved forests of low productivity, generally yielding less than 20 cubic feet per acre per year. In practical terms, approximately 15.32 million acres are available and biophysically suitable for commercial timber management, while about 3.21 million acres are either reserved or too low in productivity to contribute materially to timber supply.

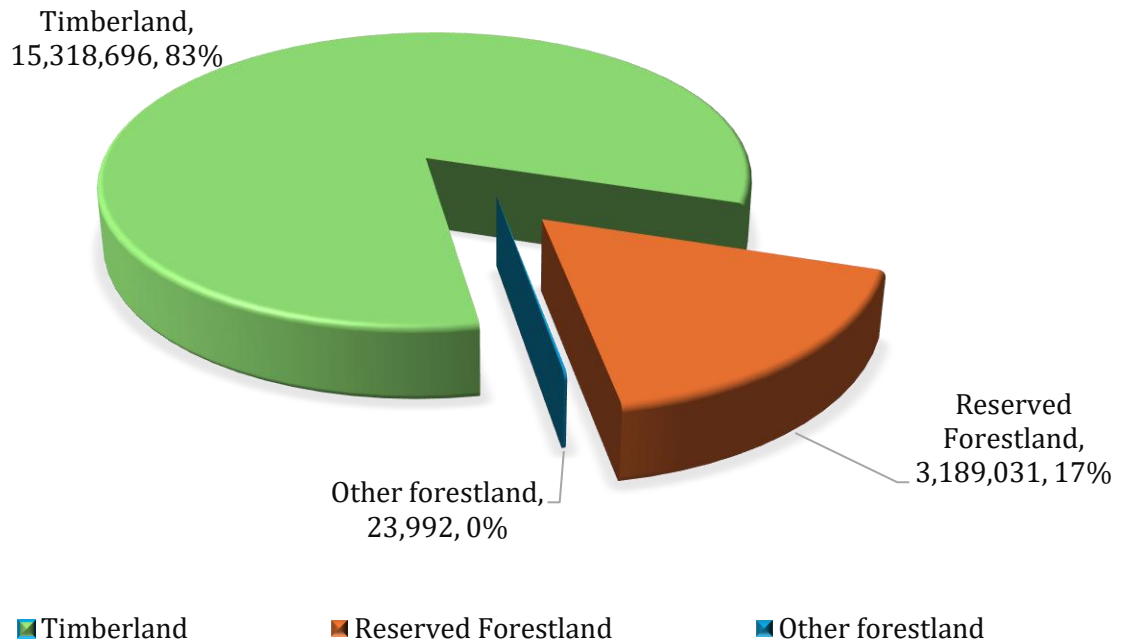


Figure 1: New York Forest Land area in acres by Land use type, 2023 (US Forest Service).

Ownership of New York’s 18.53 million acres of forest land is distributed among federal, state and local, and private entities, with private owners holding the majority share. Private landowners manage 13.51 million acres (72.9 percent) of the state’s forest land. State and local governments are responsible for 4.86 million acres (26.2 percent), while federal ownership totals 163,892 acres (0.9 percent). Within the federal category, National Forests account for 15,815 acres (0.1 percent), and other federal agencies manage 148,077 acres (0.8 percent) (Figure 2).

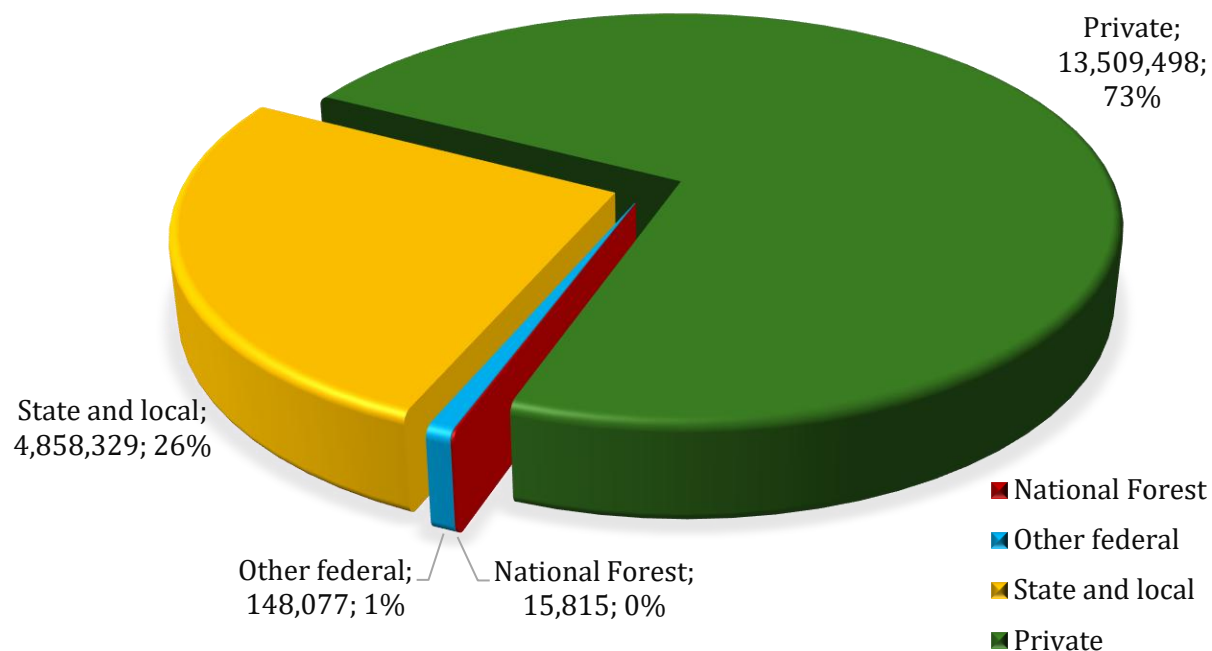


Figure 2: New York Forest Land area in acres by Ownership group, 2023 (US Forest Service).

Hardwoods dominate New York’s 18.53 million acres of forest land. The maple/beech/birch forest-type group is the most extensive, occupying 10.20 million acres (55.1 percent) of the total forest area (Figure 3). The oak/hickory group follows with 3.29 million acres (17.8 percent). Several additional forest-type groups each account for smaller but still material shares of the land base, including elm/ash/cottonwood at 1.19 million acres (6.4 percent) and white/red/jack pine at 1.19 million acres (6.4 percent). The spruce/fir group totals 728,189 acres (3.9 percent), while the remaining 1.93 million acres (10.4 percent) are distributed among other forest-type groups. Taken together, the major hardwood-associated groups (maple/beech/birch, oak/hickory, and elm/ash/cottonwood) comprise approximately 79 percent of New York’s forest land, while the principal conifer-dominated groups reported (white/red/jack pine and spruce/fir) account for about 10 percent, with the balance in other types.

■ Maple / beech / birch ■ Oak / hickory ■ Elm / ash / cottonwood
■ White / red / jack pine ■ Spruce / fir ■ Others

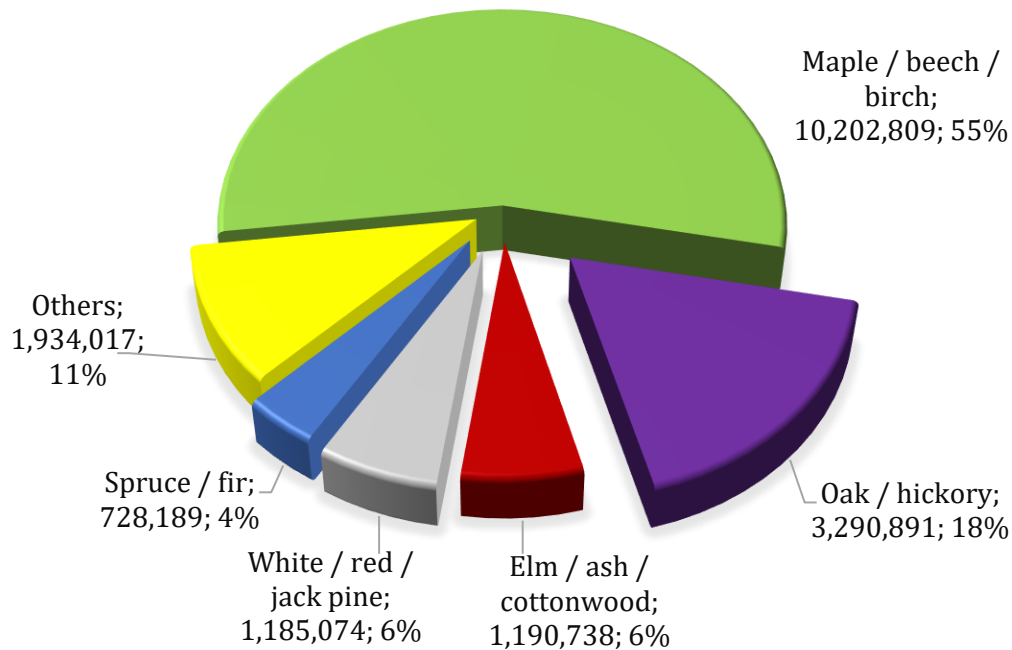


Figure 3: New York Forest Land area in acres by Forest type group, 2023 (US Forest Service).

New York’s timber resource base includes substantial volumes of both hardwood and softwood growing stock, supporting a diverse mix of forest products activity. The estimated volume of standing timber suitable for forest products, defined here as the marketable volume of growing stock, is approximately 45.12 billion cubic feet, or about 568 million standard cords (Table 1). Of this total, hardwoods account for 32.97 billion cubic feet, or 73.1 percent, while softwoods account for 12.14 billion cubic feet, or 26.9 percent. By ownership class, about 69.3 percent of growing-stock volume is on private lands, 29.9 percent is on state and local lands, 0.7 percent is on other federal holdings, and 0.1 percent is on National Forest lands.

Average annual net growth totals 807.3 million cubic feet per year, while average annual harvest removals total 226.9 million cubic feet and average annual mortality totals 355.4 million cubic feet per year. Net growth exceeds harvest removals by a ratio of about 3.6 to 1, indicating that removals remain well below net biological growth statewide. Because net growth is already net of mortality, the implied annual net change in growing-stock volume is net growth minus harvest removals, or approximately 580.5 million cubic feet per year. This positive balance indicates continued expansion of growing stock volume at the statewide level. Average annual harvest removals equal roughly 0.5 percent of standing volume, or about 2.9 million standard cords, while mortality represents about 0.8 percent of standing volume. Hardwoods account for the majority of annual inventory flows, comprising 70.9 percent of net growth, 77.5 percent of harvest removals, and 75.4 percent of mortality. Harvest removals are concentrated on private

lands, which account for about 83.2 percent of total removals, followed by state and local ownerships at about 16.6 percent. Overall, these statewide indicators suggest that New York's growing stock inventory remains in a condition of positive net growth.

Table 1: Characteristics of Growing Stock in New York, 2023. †

Description	Species group	National Forest	Other federal	State and local	Private	Not available	Total
Net volume	Hardwood	43,390	190,665	9,127,101	23,611,040	0	32,972,197
	Softwood	5,033	115,145	4,376,166	7,647,438	0	12,143,782
	Total	48,423	305,811	13,503,267	31,258,478	0	45,115,979
Average annual net growth	Hardwood	547	2,386	121,543	446,148	1,684	572,308
	Softwood	121	2,953	72,410	159,144	402	235,031
	Total	668	5,340	193,953	605,292	2,086	807,339
Average annual harvest removals	Hardwood	0	0	13,095	162,778	0	175,873
	Softwood	0	440	24,614	25,947	0	51,001
	Total	0	440	37,709	188,725	0	226,874
Average annual mortality	Hardwood	467	3,977	79,835	183,675	0	267,955
	Softwood	6	140	35,427	51,842	0	87,415
	Total	473	4,117	115,261	235,518	0	355,369

† 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 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). 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 New York 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. Impact Analysis for Planning (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)

Figures 4 and 5 illustrate the structural adjustments and shifting economic efficiency within New York’s Forest Sector over the seven-year study period. As shown in Figure 4, the sector has experienced a consolidation of its physical footprint or number of jobs. Total direct employment declined by 14.1%, falling from 43,024 jobs in 2017 to 36,968 in 2023. Real Industry Output followed a downward trajectory, decreasing by 10.4% to \$15.14 billion. This downward trajectory is also consistent with the findings of Lamsal et al. (2025b), which show that New York’s forest sector is shrinking primarily due to a decline in final demand in the state’s economy. However, a divergence in these rates, with employment contracting faster than output, signals a gain in labor productivity. The average output per worker rose by approximately 4.3%, suggesting that the remaining operations have successfully maintained production capacity through process efficiencies despite a smaller workforce.

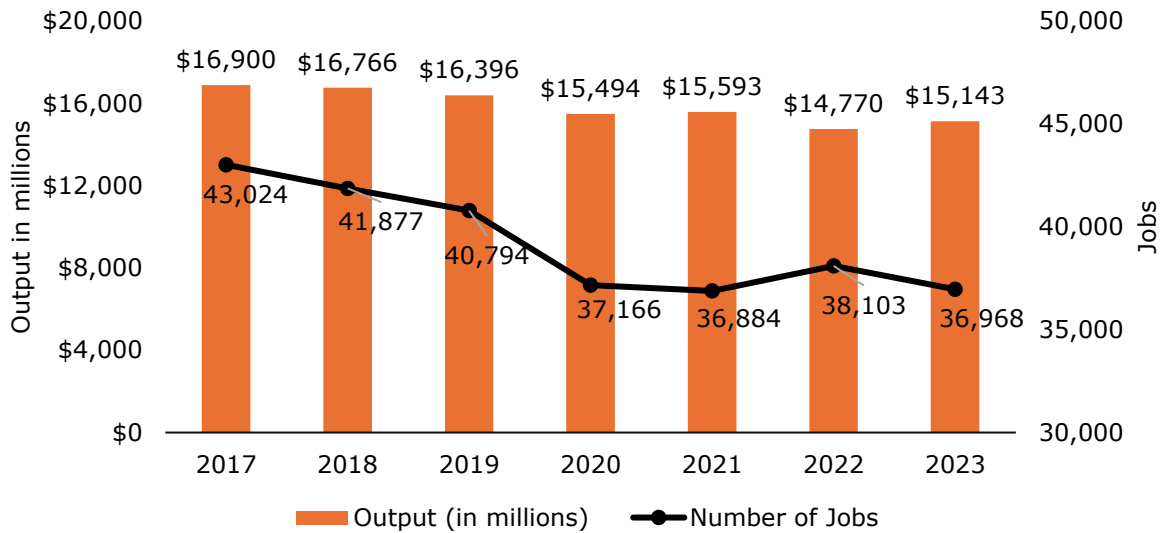


Figure 4: Direct output and employment, 2017–2023, New York state forest products industries.

Figure 5 shows a critical resilience in the sector’s ability to generate wealth. While total output fell, Real Value-Added (the sector’s contribution to GSP) remained remarkably stable, declining only 1.3% to settle at \$4.57 billion. This stability in the face of falling sales indicates a structural shift toward higher Value-Added activities; the sector is effectively capturing more wealth per dollar of output, with the Value-Added-to-Output ratio rising from 27.4% in 2017 to 30.2% in 2023. Conversely, Real Labor Income experienced the steepest contraction among all metrics, declining 17.4%, which shows that the sector’s recent gains in Value-Added efficiency have been driven primarily by cost containment and capital deepening rather than payroll expansion, as the average Labor Income per worker adjusted downward by 3.9% over the period.

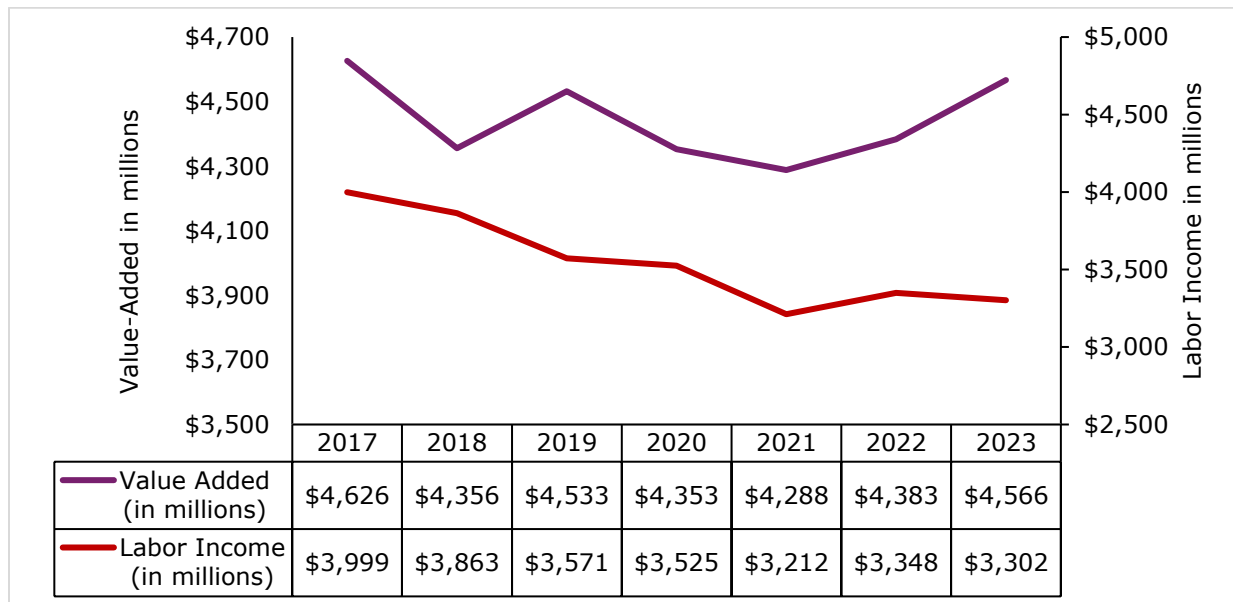


Figure 5: Direct Value-Added and Labor Income, 2017–2023, New York state, forest products industries.

Direct and Total Contributions by Forest Product Industry Groups

In 2023, New York’s forest products industries directly employed 36,968 individuals, generated \$15.14 billion in output, and contributed approximately \$4.57 billion in Value-Added to the state economy (Table 2). However, the sector’s influence extends well beyond these direct operations. When accounting for indirect supply-chain purchases and induced household spending, the sector’s total economic contribution reached 72,133 jobs and \$23.81 billion in total output.

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

	Employment	Labor Income	Value-Added	Output
Direct in 2023	36,968	\$3,302,396	\$4,566,431	\$15,142,713
Compared to 2017	-14.1%	-17.4%	-1.3%	-10.4%
Total in 2023	72,133	\$6,403,365	\$10,024,499	\$23,809,790
Compared to 2017	-16.9%	-19.9%	-9.4%	-12.8%
Multipliers in 2023	36,968	\$3,302,396	\$4,566,431	\$15,142,713

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

Comparing these results with 2017 values reveals a distinct divergence between the core industry's performance and its broader economic ripple effects. The direct forest sector has demonstrated significant resilience in wealth retention; while gross output fell by 10.4%, Direct Value-Added remained nearly stable, declining by only 1.3%. However, this stability did not fully translate to the wider economy. The Total Value-Added contribution declined by 9.4%, a much steeper drop than the direct sector experienced. This discrepancy is primarily driven by the significant 17.4% contraction in Direct Labor Income. As the sector shed payroll and other compensation, the induced effect, economic activity generated by workers spending their wages, diminished, thereby dragging down the total economic contribution figures more than the direct operational data would suggest.

The calculated multipliers further underscore the sector's deep integration into the state economy, particularly regarding wealth creation. The Value-Added multiplier of 2.20 is exceptionally strong, indicating that for every dollar of wealth created directly by forest industries, an additional \$1.20 is generated elsewhere in the New York economy. Similarly, the employment multiplier of 1.95 suggests that every 100 direct jobs in the forest industry

supports nearly 95 additional jobs in allied sectors. This high leverage implies that while the forest sector is becoming leaner in terms of direct headcount, it remains a critical foundational driver for employment and wealth generation throughout the state’s broader supply chain.

Table 3 reports the direct economic contributions of the seven industry groups, while Table 4 presents their total contributions including multiplier effects. In 2023, New York’s forest economy exhibited a distinct structural orientation toward downstream manufacturing rather than raw extraction. The Wood Furniture sector served as the state's largest direct employer, providing 9,658 jobs, followed closely by Secondary Paperboard and other Paper Products with 8,684 jobs. A significant divergence in capital intensity is evident across these groups. While the furniture sector is labor-intensive, generating approximately \$213,000 in output per worker, the Pulp, Paper, and Paperboard Mills sector demonstrates exceptional capital efficiency. With a workforce of 4,546, this sector generated about \$4 billion in output, translating to roughly \$870,000 per worker. This represents a highly mechanized infrastructure capable of driving substantial revenue with a relatively streamlined workforce.

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

Industries	Employment	Labor Income	Value-Added	Output
1.Forestry	1,228	\$40,888	\$45,303	\$61,740
2.Logging	3,224	\$179,164	\$426,214	\$439,414
3.Primary Solid Wood Products	2,934	\$280,816	\$282,572	\$1,449,512
4.Secondary Solid Wood Products	6,694	\$574,439	\$534,922	\$1,967,685
5.Wood Furniture	9,658	\$723,085	\$691,865	\$2,055,059
6.Pulp, Paper, and Paperboard mills	4,546	\$595,609	\$1,166,252	\$3,956,789
7.Secondary Paperboard and other Paper Products	8,684	\$908,395	\$1,419,304	\$5,212,514

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

When supply-chain and induced effects are incorporated (Table 4), the Secondary Paperboard and other Paper Products sector emerges as the overwhelming economic engine, supporting over 20,500 total jobs and generating \$8.28 billion in total output. The data also highlights the deep inter-industry linkages possessed by the primary processing sectors. Pulp, Paper, and Paperboard Mills exhibited the highest employment multiplier (3.08), meaning that every 100 direct jobs in a mill supports about 208 additional jobs elsewhere in the state economy.

Similarly, Primary Solid Wood Products showed a robust multiplier of 2.76. These figures suggest that while the primary processing sectors may have smaller direct workforces compared to furniture manufacturing, they serve as critical foundational nodes that sustain extensive networks of loggers, foresters, and logistics providers. Collectively, the combined paper and paperboard manufacturing sectors (Groups 6 and 7) accounted for approximately 60.6% of the sector's total direct output, which shows their pivotal role in New York's forest economy.

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 New York state, Industry Groups, 2023. [†]

Industries	Employment	Labor Income	Value- Added	Output
1.Forestry	1,398	\$54,687	\$71,523	\$101,735
2.Logging	3,918	\$230,163	\$518,147	\$572,576
3.Primary Solid Wood Products	8,105	\$708,216	\$1,063,831	\$2,638,480
4.Secondary Solid Wood Products	12,956	\$1,098,702	\$1,446,064	\$3,492,596
5.Wood Furniture	15,864	\$1,269,426	\$1,645,800	\$3,579,381
6.Pulp, Paper, and Paperboard mills	13,993	\$1,451,500	\$2,640,607	\$6,403,532
7.Secondary Paperboard and other Paper Products	20,514	\$1,946,013	\$3,362,623	\$8,282,201

[†] 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 sector. This group is composed of three primary industries: (1) timber tract operations, which manage forest lands for the sale of standing timber; (2) maple syrup production (classified as "all other crop farming"); and (3) support activities for forestry. The latter category encompasses essential services such as timber cruising, wildland firefighting, pest control, and silvicultural consulting, all of which ensure the long-term commercial viability of the timber base.

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

	Employment	Labor Income	Value-Added	Output
Direct	1,228	\$40,888	\$45,303	\$61,740
Indirect	25	\$2,570	\$5,475	\$9,893
Induced	145	\$11,229	\$20,746	\$30,102
Total	1,398	\$54,687	\$71,523	\$101,735

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

In 2023, the sector directly employed 1,228 individuals and generated \$61.7 million in direct output. The financial profile of Forestry is distinct from downstream manufacturing sectors due to its high labor intensity. A substantial portion of the sector's gross revenue flows directly to the workforce rather than to intermediate suppliers. Specifically, Labor Income (\$40.9 million) accounts for approximately 66.2% of the sector's direct output. This indicates that the primary economic input in forestry is human capital, the expertise of foresters and the labor of maple producers, rather than raw material purchases.

This structural characteristic drives the sector's specific economic ripple effects. The employment multiplier of 1.14 indicates that for every 100 jobs in Forestry, roughly 14 additional jobs are supported elsewhere in the state. Deconstructing this multiplier reveals that these contributions are heavily skewed toward induced household spending rather than business-to-business transactions:

- **Indirect Effect:** The sector generated modest indirect impacts, supporting only 25 jobs and \$9.9 million in output. This reflects the land-intensive nature of timber growing; unlike manufacturing facilities that require constant inputs of energy and materials, forestry operations have relatively low operational supply chain requirements.
- **Induced Effect:** Conversely, the induced effect was significantly stronger, supporting 145 jobs and \$30.1 million in output. Because such a high percentage of revenue is retained

as wages, the sector's broader economic impact is primarily fueled by foresters and maple producers spending their income within local communities.

When these effects are combined, the Forestry industry contributed a total of 1,398 jobs, \$101.7 million in output, and \$71.5 million in Value-Added to the New York economy in 2023. Notably, the total output multiplier of 1.65 suggests that every \$100 of output generated by forest management stimulates an additional \$65 of economic activity across the state, largely driven by the consumption power of its workforce.

Trend Analysis: Forestry (2017–2023)

As illustrated in Figure 6, New York's forestry industry shows a clear divergence between physical output and labor inputs. Over the seven-year period, direct employment experienced a sharp structural contraction, declining by 25.9% from 1,658 jobs in 2017 to 1,229 in 2023. However, this reduction in headcount did not result in a corresponding loss of economic activity. Real industry output actually increased slightly by 1.6%, rising from \$60.8 million to \$61.8 million.

This divergence signals a remarkable surge in labor productivity. The average output per worker increased by approximately 37.1%, jumping from roughly \$36,700 in 2017 to over \$50,200 in 2023. This shift suggests that the sector is moving away from labor-intensive manual operations toward more efficient, mechanized, or high-value management practices. While the industry experienced volatility, notably a supply-side contraction in 2021 followed by a revenue peak in 2022, the long-term trend indicates a leaner, more capital-efficient sector capable of maintaining production levels despite a significantly reduced workforce.

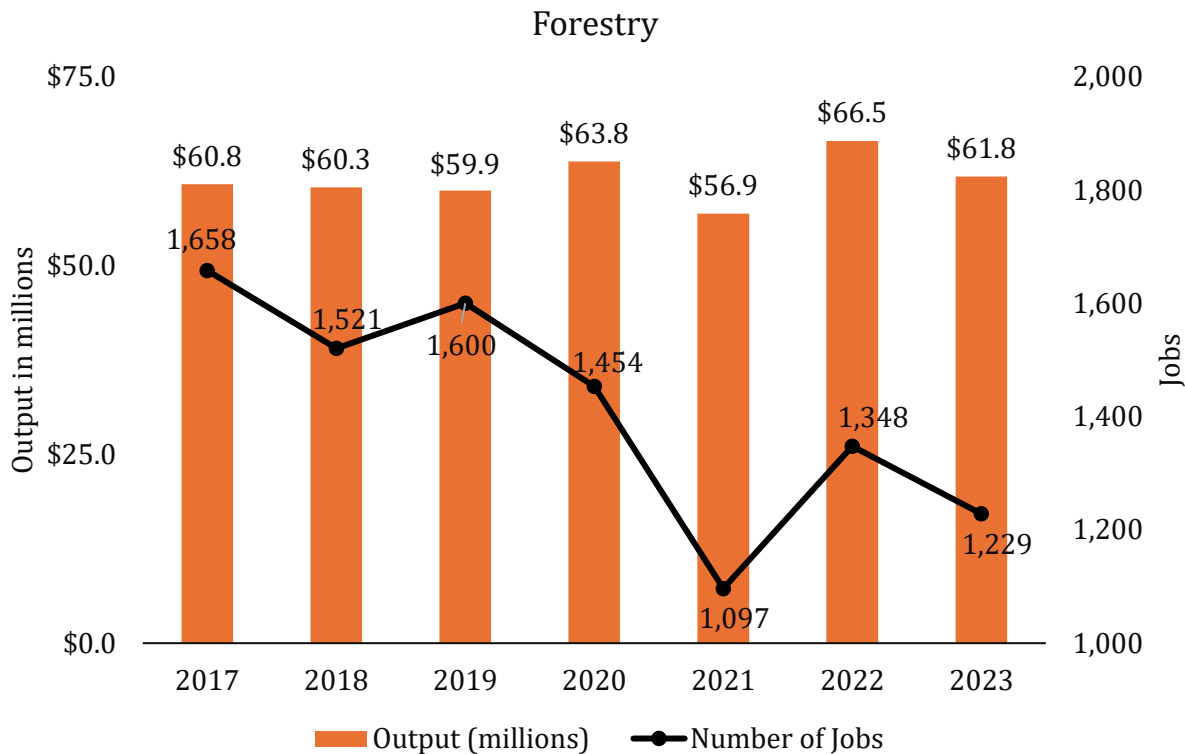


Figure 6: Trend in direct employment and output for the Forestry industry in New York, 2017–2023.

Logging

Economic Contribution of Logging

Table 6 presents the economic contribution of the Logging sector. This industry acts as the critical logistical link in the forest supply chain, responsible for harvesting timber and transporting raw material from the forest to downstream processing facilities. The sector includes logging contractors, cutting and transporting crews, and related support services.

In 2023, the Logging industry directly employed 3,224 individuals and generated \$439.4 million in direct output. A standout feature of the sector’s financial profile is its exceptionally high Value-Added retention. Direct Value-Added (\$426.2 million) represents nearly 97% of total output. This unusual ratio indicates that the majority of the sector's revenue is captured as local Gross State Product, primarily in the form of wages, salaries, benefits and proprietor income (\$179.2 million), rather than being lost to intermediate input purchases. This suggests that the economic value of logging in New York is derived almost entirely from the labor and capital applied within the state, with minimal "leakage" to imported supplies.

The multiplier effects further clarify how this industry interacts with the broader economy. The employment multiplier is 1.22. Breaking this down reveals a stark contrast between supply chain and household impacts:

- Indirect Effect:** The indirect contribution is relatively minor, supporting just 86 jobs. This suggests that while loggers utilize heavy equipment and fuel, the sector maintains limited backward linkages to local service providers or equipment manufacturers, likely relying on imported machinery or self-contained operations.
- Induced Effect:** In contrast, the induced effect is the primary driver of the sector’s wider impact, supporting 607 jobs and nearly \$126 million in output. The \$179.2 million in direct Labor Income circulates through the economy as loggers spend their wages on housing, healthcare, and retail, thereby sustaining a significant number of service-sector jobs.

In total, the Logging industry contributed 3,918 jobs, \$572.6 million in output, and \$518.1 million in Value-Added to the New York economy. While the employment multiplier is modest compared to manufacturing, the sector’s ability to retain wealth locally makes it a highly efficient contributor to the state’s economic base..

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

	Employment	Labor Income	Value-Added	Output
Direct	3,224	\$179,164	\$426,214	\$439,414
Indirect	86	\$4,019	\$5,111	\$7,179
Induced	607	\$46,980	\$86,822	\$125,983
Total	3,918	\$230,163	\$518,147	\$572,576

[†] 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 depicted in Figure 7, the Logging industry in New York has undergone a severe structural transformation characterized by shrinking employment but soaring productivity. Over the seven-year period, the workforce contracted steadily, declining by 19.7% from 4,013 jobs in 2017 to 3,224 in 2023. In contrast, Real Industry Output followed a volatile trajectory, bottoming out in 2019 before staging a remarkable recovery. Between 2017 and 2023, output surged by 32.2%, rising from \$332.4 million to reach a period high of \$439.4 million. This divergence between labor and output highlights an exceptional gain in operational efficiency. While the industry operates with nearly 800 fewer workers than it did seven years ago, the average output per worker has skyrocketed by 64.5%, increasing from approximately \$82,800 to \$136,300.

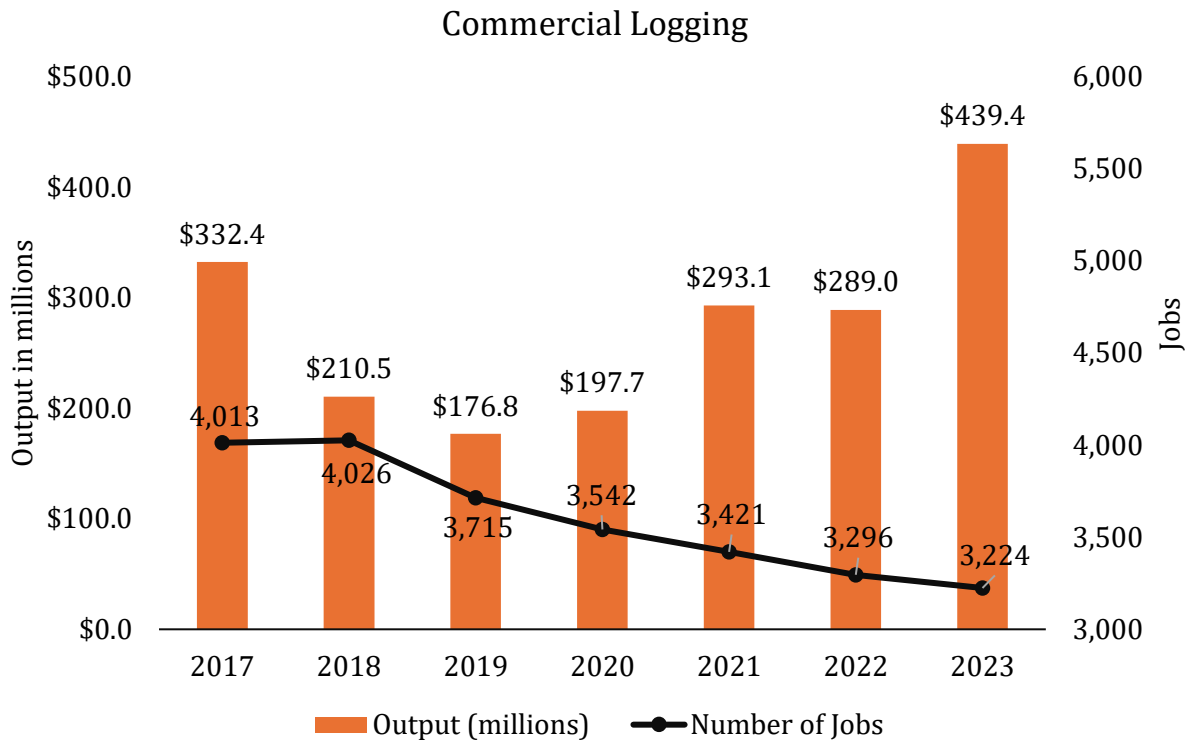


Figure 7: Trend in direct employment and output for the Logging industry in New York, 2017–2023.

Primary Solid Wood Products

Economic Contribution of Primary Solid Wood Products

Table 7 outlines the economic contributions of the Primary Solid Wood Products industry. This sector serves as the core manufacturing hub of the forest economy, encompassing sawmills, wood preservation facilities, veneer and plywood manufacturing, and reconstituted wood product plants. In 2023, these facilities directly employed 2,934 workers and generated \$1.45 billion in direct output.

The defining economic characteristic of this sector is the exceptional depth of its supply chain. The Primary Solid Wood Products industry exhibits the strongest backward linkages in the New York forest economy, functioning as the vital commercial outlet for the region's timber. The data reveals a critical structural dynamic: the Indirect Employment effect supports 3,304 jobs, a figure that effectively exceeds the sector's own direct workforce (2,934 jobs). This implies that for every person working inside a sawmill or processing plant, more than one job is supported in the supply chain, primarily among loggers, truckers, and maintenance contractors who keep the mills operational.

Consequently, the sector boasts a second largest employment multiplier of 2.76. This underscores the industry's role as the "keystone" of the forest sector; without the demand generated by these facilities, the upstream extraction sectors would lack a viable local market, and the downstream secondary manufacturers would lose their local material base.

When aggregating direct, indirect, and induced effects, the Primary Solid Wood Products industry contributed a total of 8,105 jobs, \$2.64 billion in output, and \$1.06 billion in Value-Added to the state economy in 2023. By driving over \$2.6 billion in total economic activity, this sector transforms raw natural resources into a substantial engine of statewide commerce.

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

	Employment	Labor Income	Value-Added	Output
Direct	2,934	\$280,816	\$282,572	\$1,449,512
Indirect	3,304	\$282,966	\$514,317	\$801,652
Induced	1,867	\$144,433	\$266,942	\$387,316
Total	8,105	\$708,216	\$1,063,831	\$2,638,480

[†] 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)

As shown in Figure 8, the Primary Solid Wood Products sector stands out as a pillar of stability and consistent growth within New York’s forest economy. Unlike the extraction sectors, which saw workforce contractions, this manufacturing group maintained a remarkably stable employment base, with direct jobs increasing slightly by 2.6% from 2,861 in 2017 to 2,934 in 2023. This stability in jobs was accompanied by a robust expansion in financial performance. Real Industry Output grew by 29.2% over the seven-year period, rising from \$1.12 billion to \$1.45 billion. The trajectory reveals a sustained upward trend, particularly in the post-2020 recovery period, where output consistently outpaced labor growth. Consequently, labor productivity has improved substantially; the average output per worker rose by 26.0%, reaching approximately \$494,000 in 2023.

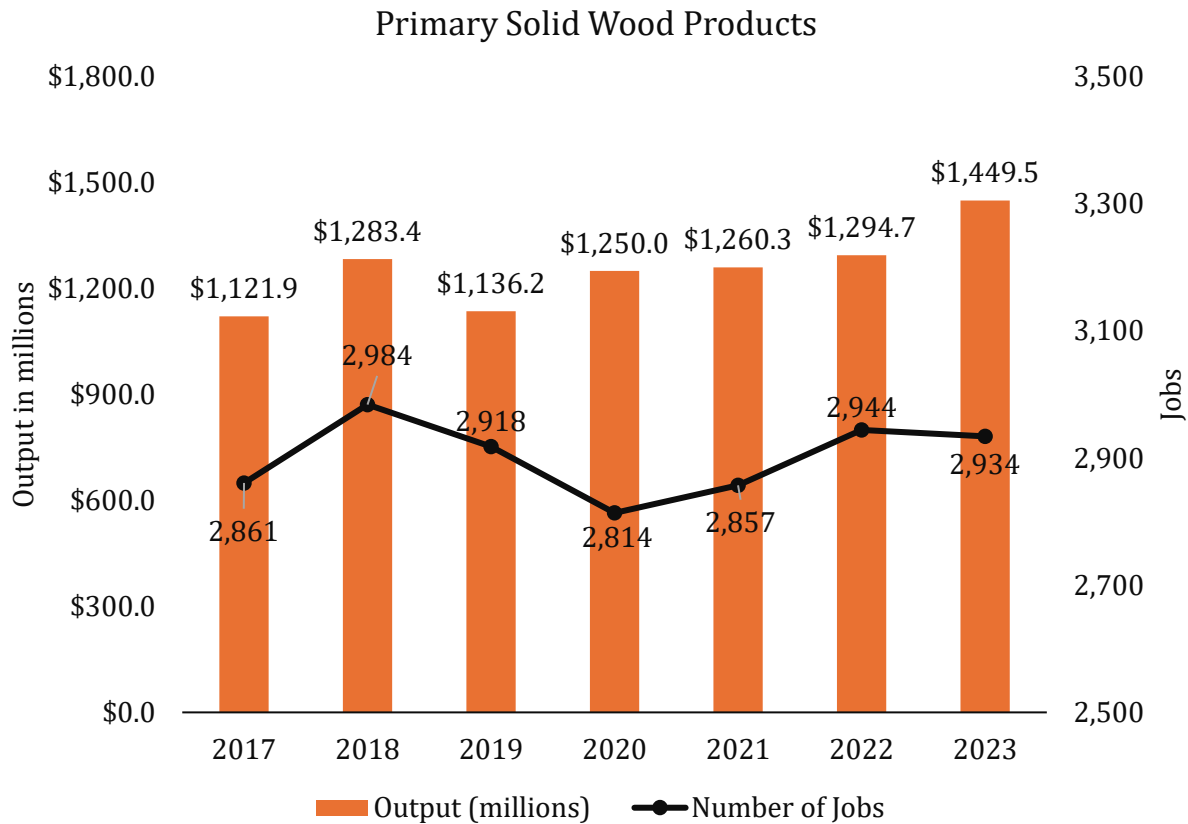


Figure 8: Trend in direct employment and output for the Primary Solid Wood Products industry in New York, 2017–2023.

Secondary Solid Wood Products

Economic Contribution of Secondary Solid Wood Products

Table 8 presents the economic contributions of the Secondary Solid Wood Products industry. This diverse manufacturing group transforms rough lumber and primary materials into finished building components and industrial products, encompassing sectors such as millwork, window and door manufacturing, wood containers, pallets, and prefabricated wood buildings.

In 2023, this sector stood as the third largest employer within the state's Forest Product Industries base, directly employing 6,694 workers and generating nearly \$1.97 billion in direct output. Positioned further down the value chain than the primary solid wood products, this industry captures additional value through fabrication and assembly. While the output per worker (\$294,000) is lower than the primary mills, it remains substantially higher than the labor-intensive forestry sectors, showing a balanced reliance on both skilled labor and advanced manufacturing technology to produce varied end-use goods.

The sector's economic influence is characterized by robust supply chain integration. The employment multiplier of 1.94 indicates that for every 100 direct jobs in secondary manufacturing, approximately 94 additional jobs are supported elsewhere in the economy. A closer look at the data reveals that the Indirect Employment effect (3,367 jobs) is higher than the Induced Employment effect (2,895 jobs). This dominance of supply chain impacts underscores the sector's vital role as a downstream consumer; its operations create a steady demand for the lumber produced by the state's sawmills and the logistics services required to transport finished goods.

When fully aggregated, the Secondary Solid Wood Products industry contributed a total of 12,956 jobs, \$3.49 billion in output, and \$1.45 billion in Value-Added to the New York economy in 2023. By nearly doubling its direct employment impact through multiplier effects, this sector effectively bridges the gap between raw material extraction and the construction and industrial markets, anchoring a substantial portion of the state's forest-dependent workforce.

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

	Employment	Labor Income	Value-Added	Output
Direct	6,694	\$574,439	\$534,922	\$1,967,685
Indirect	3,367	\$300,313	\$497,191	\$924,352
Induced	2,895	\$223,950	\$413,951	\$600,559
Total	12,956	\$1,098,702	\$1,446,064	\$3,492,596

[†] 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)

As illustrated in Figure 9, the Secondary Solid Wood Products industry has demonstrated a resilient recovery characterized by significant efficiency gains. While the sector experienced a contraction in its workforce, with direct employment declining by 5.9% from 7,113 jobs in 2017 to 6,694 in 2023, its financial performance has followed a strong upward trajectory. Real Industry Output increased by 16.6%, growing from \$1.69 billion to \$1.97 billion.

The data highlights a clear pivot point around the 2020–2021 period, linked to pandemic-induced disruptions, where both jobs and output temporarily dipped. However, the subsequent rebound has been driven by capital deepening rather than mass hiring. Since the 2021 low, output surged while employment stabilized at a lower level. This dynamic drove a substantial 23.9% increase in labor productivity, with the average output per worker rising from approximately \$237,300 to \$294,000. This trend suggests that New York's secondary wood manufacturers have successfully optimized their production lines, allowing them to meet rising demand for building components and finished goods with a leaner, more productive workforce.

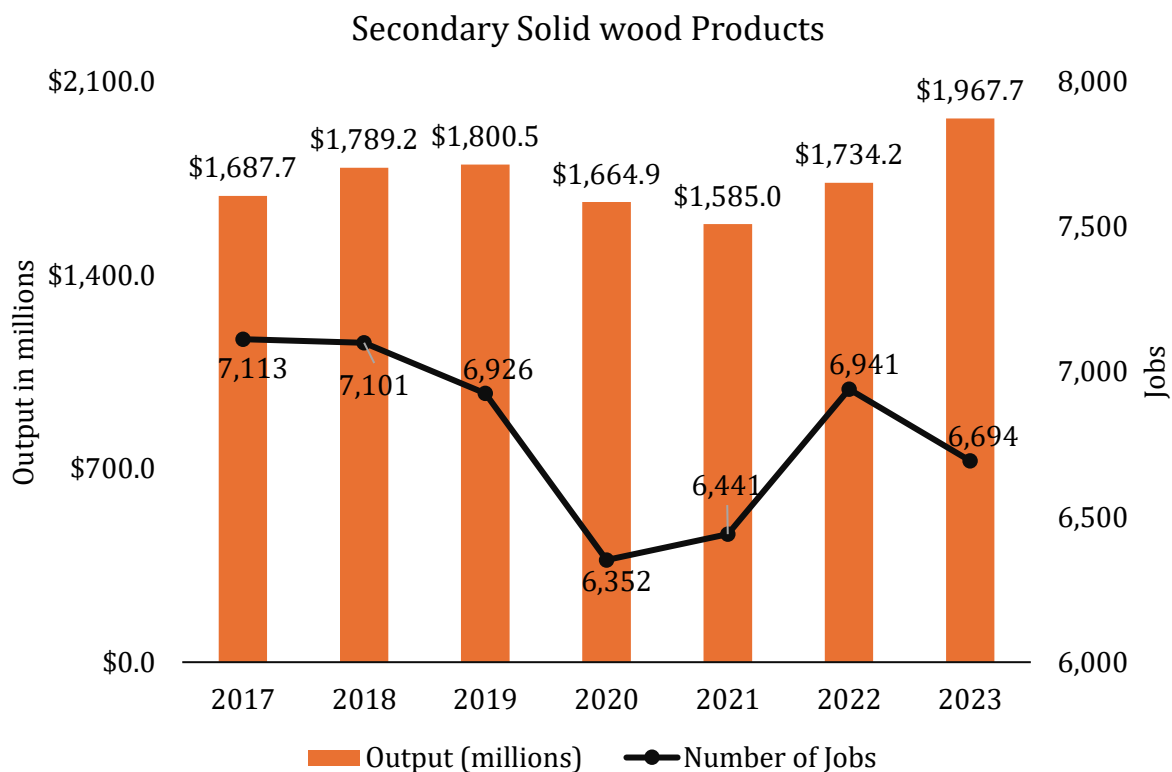


Figure 9: Trend in direct employment and output for the Secondary Solid Wood Products industry in New York, 2017–2023.

Wood Furniture

Economic Contribution of Wood Furniture

Table 9 outlines the economic contributions of the Wood Furniture industry. This broad manufacturing group encompasses the production of wood kitchen cabinets and countertops, upholstered and non-upholstered household furniture, institutional furniture, office furniture, and custom architectural woodwork. Unlike other states where certain sub-sectors may be absent, New York’s economy retains the full spectrum of these manufacturing activities. In 2023, this sector stood as the largest direct employer among the seven industry groups, employing 9,658 workers and generating nearly \$2.06 billion in direct output.

The financial data highlights that Wood Furniture manufacturing operates with a distinct economic structure compared to primary processing. It is significantly more labor-intensive relative to its output, with approximately 35.2% of its direct gross output flowing directly to workers as Labor Income (\$723.1 million out of \$2.06 billion). This substantial labor share reflects the industry's reliance on skilled craftsmanship and assembly work to produce high-value custom goods, rather than the highly automated throughput seen in pulp or sawmills.

This labor intensity shapes the sector's multiplier dynamics. The Employment Multiplier is 1.64, indicating that every 100 direct jobs support an additional 64 jobs elsewhere in the state. Notably, the Induced Employment effect (3,288 jobs) exceeds the Indirect Employment effect (2,918 jobs). When fully aggregated, the Wood Furniture industry contributed a total of 15,864 jobs, \$3.58 billion in output, and \$1.65 billion in Value-Added to the New York economy in 2023. As the leading source of direct employment within the forest sector, this industry plays a vital role in converting processed timber into high-value consumer and industrial goods, effectively anchoring the workforce in downstream manufacturing.

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

	Employment	Labor Income	Value-Added	Output
Direct	9,658	\$723,085	\$691,865	\$2,055,059
Indirect	2,918	\$292,183	\$483,649	\$841,910
Induced	3,288	\$254,158	\$470,286	\$682,412
Total	15,864	\$1,269,426	\$1,645,800	\$3,579,381

[†] 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 depicted in Figure 10, the Wood Furniture industry has experienced a parallel contraction in both employment and output, reflecting a broad consolidation of the sector's footprint. Over the study period, direct employment declined by 18.1%, falling from 11,791 jobs in 2017 to 9,658 in 2023. Real Industry Output followed a nearly identical downward trajectory, decreasing by 16.2% to \$2.06 billion. The data reveals a distinct structural break in 2020, likely precipitated by pandemic-related disruptions, where the sector shed over 2,000 jobs in a single year. Unlike the primary manufacturing sectors, which saw rapid productivity spikes during their recovery, the Wood Furniture sector has shown only a modest gain in labor productivity of 2.3%, with output per worker rising slightly from \$208,000 to \$212,800.

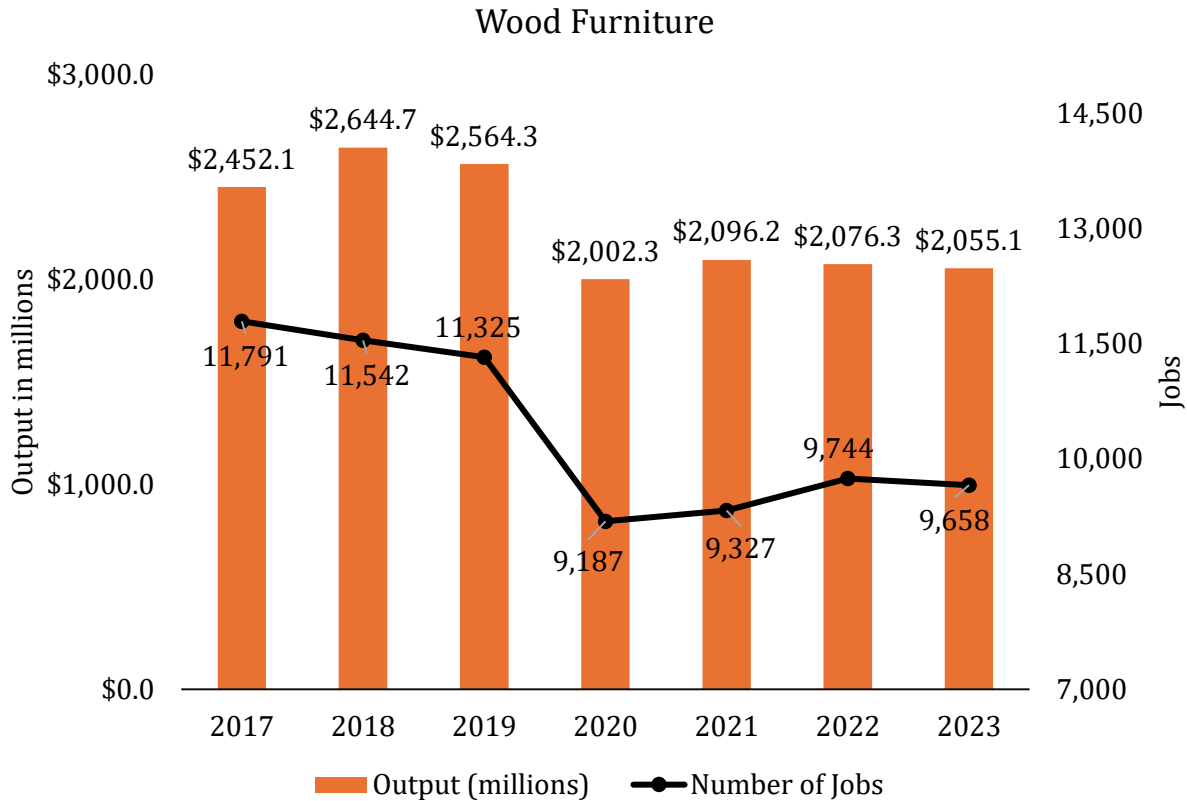


Figure 10: Trend in direct employment and output for the Wood Furniture industry in New York, 2017–2023.

Pulp, Paper, and Paperboard Mills

Economic Contribution of Pulp, Paper, and Paperboard Mills

Table 10 details the economic contribution of the Pulp, Paper, and Paperboard Mills industry. In 2023, this sector stood as the most capital-intensive component of New York’s forest economy. This is evidenced by the pronounced ratio between headcount and production: while the sector employed 4,546 workers, it generated nearly \$3.96 billion in direct output. This translates to an output per worker of approximately \$870,400, a figure that far exceeds any other group in the forest sector and signals an advanced level of technological integration and high-volume processing.

A defining characteristic of this industry is its "inverted" employment profile, where the supply chain workforce actually exceeds the direct workforce inside the facilities. Specifically, the Indirect Employment (5,641 jobs) is larger than the Direct Employment (4,546 jobs). This structure indicates that the mills' operational requirements, massive continuous inputs of fiber, energy, maintenance services, chemical supplies, and logistics, sustain a larger external

workforce than the mills employ directly. Consequently, the sector exhibits the highest Employment Multiplier in the forest economy at 3.08.

When fully aggregated, the sector supports a total of 13,993 jobs and generates \$6.40 billion in total economic output. Furthermore, the quality of direct employment in this sector is exceptional. With a total Labor Income of \$595.6 million distributed among 4,546 workers, the average annual Labor Income per direct job is approximately \$131,000. This shows that while the Pulp and Paper sector relies on a consolidated workforce, it remains a critical source of high-income, high-skill technical employment that drives significant wealth generation throughout New York’s industrial supply chain.

Table 10: Direct, Indirect, and Induced Economic Contributions of the Pulp, Paper, and Paperboard Mills Industry in New York, 2023. [†]

	Employment	Labor Income	Value-Added	Output
Direct	4,546	\$595,609	\$1,166,252	\$3,956,789
Indirect	5,641	\$561,598	\$929,888	\$1,656,913
Induced	3,807	\$294,293	\$544,467	\$789,829
Total	13,993	\$1,451,500	\$2,640,607	\$6,403,532

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

Trend Analysis: Pulp, Paper, and Paperboard Mills (2017–2023)

As illustrated in Figure 11, the Pulp, Paper, and Paperboard Mills industry has faced a challenging period of contraction across both number of jobs and financial output. Direct employment declined by 7.2%, falling from 4,898 jobs in 2017 to 4,546 in 2023. This labor contraction was outpaced by a sharper decline in Real Industry Output, which fell by 12.8% to \$3.96 billion.

The simultaneous drop in output and employment, with output falling faster, indicates a rare decline in labor productivity for this sector. Average output per worker decreased by 6.1%, dropping from approximately \$926,500 to \$870,400. This suggests that while the mills remain massive revenue generators, still boasting the highest output-per-worker in the forest economy, they have faced significant headwinds. The decline reached its lowest level in 2022 (\$3.76 billion), which likely reflects market pressures or operational disruptions, whereas the slight uptick in both jobs and output in 2023 signals potential stabilization or early recovery of production capacity.

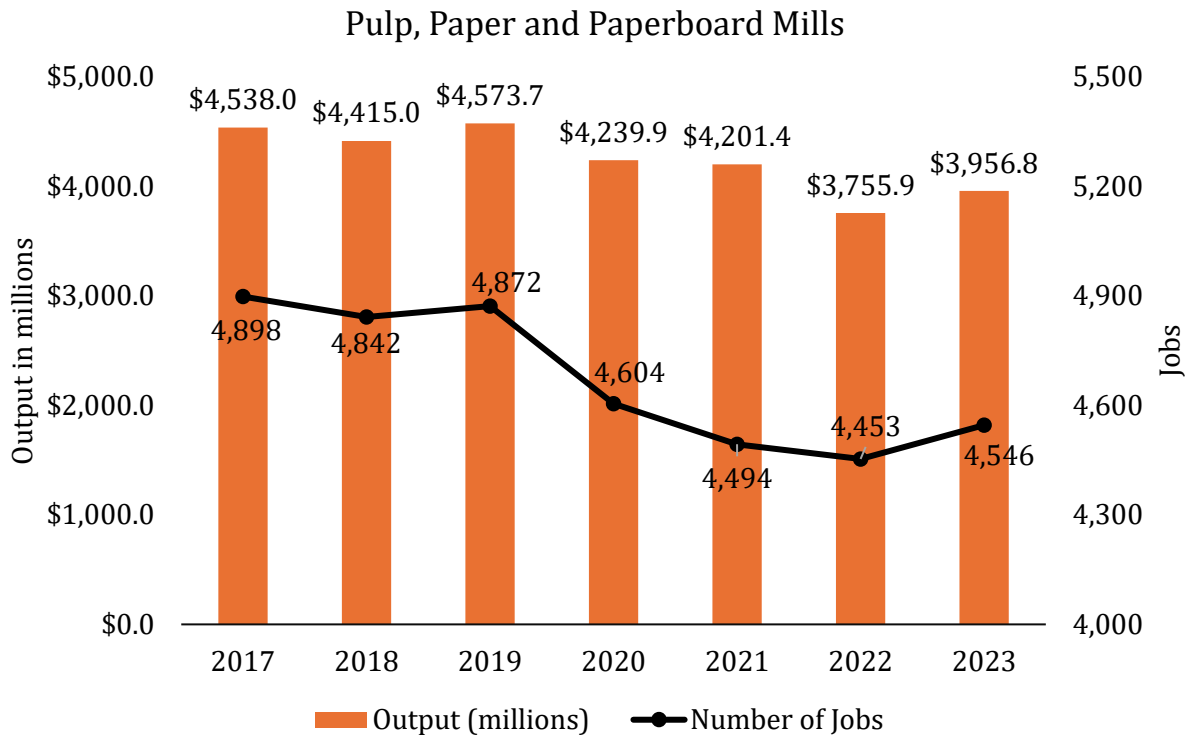


Figure 11: Trend in direct employment and output for the Pulp, Paper, and Paperboard Mills industry in New York, 2017–2023.

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. This diverse group functions as the state's primary "converting" sector, transforming raw paper and paperboard into finished consumer and industrial goods. In 2023, this sector stood as the dominant financial engine of New York's forest economy. Generating \$5.21 billion in direct output, it surpassed all other groups in terms of gross output. While it ranks second in employment (8,684 workers) behind Wood Furniture, its superior labor productivity, approximately \$600,000 in output per worker, demonstrates the efficiency of modern converting operations.

The sector's multiplier profile reveals a robust integration with the regional supply chain. The Employment Multiplier of 2.36 indicates that for every 100 jobs in a converting plant, 136 additional jobs are supported throughout the economy. A critical driver of this multiplier is the substantial Indirect Employment effect (6,767 jobs). Given the strong presence of Pulp, Paper and Paperboard Mills in New York, this high indirect figure suggests a functional in-state value chain: converting facilities are likely sourcing a significant portion of their raw materials from

local paper mills, thereby keeping supply-chain spending within the state rather than leaking it to imports.

When fully aggregated, the Secondary Paperboard and Other Paper Products industry serves as the single largest economic contributor in the entire forest sector, supporting 20,514 total jobs and generating \$8.28 billion in total economic output. By converting intermediate paper inputs into high-demand final goods, from shipping boxes to sanitary products, this sector anchors the state’s forest economy, linking upstream manufacturing to the broader retail and logistics markets.

Table 11: Direct, Indirect, and Induced Economic Contributions of the Secondary Paperboard and Other Paper Products Industry in New York, 2023. [†]

	Employment	Labor Income	Value-Added	Output
Direct	8,684	\$908,395	\$1,419,304	\$5,212,514
Indirect	6,767	\$646,155	\$1,124,833	\$2,019,165
Induced	5,063	\$391,462	\$818,487	\$1,050,523
Total	20,514	\$1,946,013	\$3,362,623	\$8,282,201

[†] 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)

As shown in Figure 12, the Secondary Paperboard and Other Paper Products industry has experienced a sustained contraction across both operational capacity and financial output. Over the seven-year period, direct employment declined by 18.8%, falling from 10,689 jobs in 2017 to 8,684 in 2023. This reduction in the workforce was accompanied by an even steeper decline in Real Industry Output, which fell by 22.3% to \$5.21 billion. This trend distinguishes the converting sector from the solid wood manufacturing group, where productivity gains were common. Here, the contraction in output outpaced the reduction in employment, resulting in a 4.3% decline in labor productivity (from roughly \$627,500 per worker in 2017 to \$600,200 in 2023). This dynamic suggests that while the sector remains the largest output generator in New York’s forest economy, it faces significant structural headwinds.

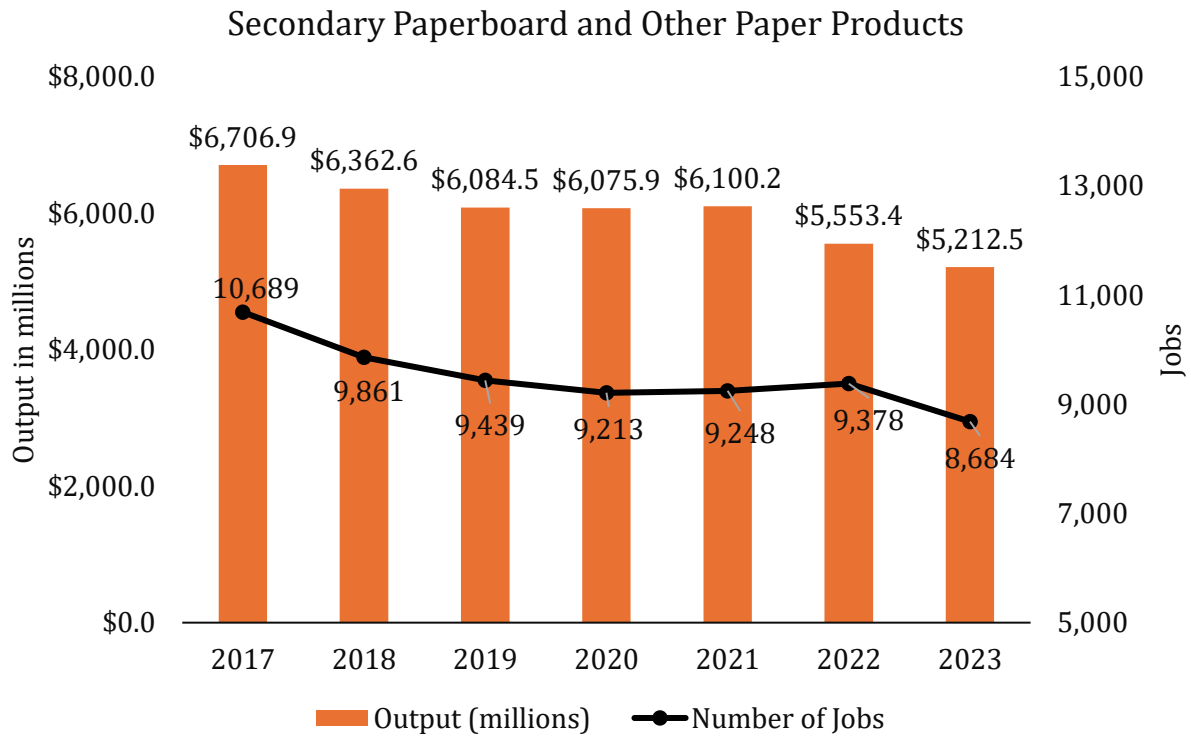


Figure 12: Trend in direct employment and output for the Secondary Paperboard and Other Paper Products industry in New York, 2017–2023.

Top Forest Product Sectors

New York's forest-products sector is represented by the full spectrum of 32 IMPLAN industries, which shows a diverse and highly integrated industrial base where every stage of the value chain, from raw extraction to specialized finishing, is active. Table 12 presents the top five forest products industries at a disaggregated level within the set of 32 industries. Paperboard Container Manufacturing serves as the sector's primary employment engine, ranking first with 5,381 jobs. It is followed by Paper Mills with 3,879 jobs and Commercial Logging with 3,224 jobs. Notably, New York's employment profile is heavily weighted toward downstream manufacturing rather than extraction.

Table 12: Top five industries in terms of direct Economic Contributions in New York state, 2023. [†]

Rank	Employment	Labor Income	Value-Added	Output
1	Paperboard container manufacturing (5,381)	Paperboard container manufacturing (\$569,787)	Paper mills (\$968,041)	Paper mills (\$3,312,408)
2	Paper mills (3,879)	Paper mills (\$488,216)	Paperboard container manufacturing (\$843,039)	Paperboard container manufacturing (\$3,260,778)
3	Commercial logging (3,224)	Paper bag and coated and treated paper manufacturing (\$213,419)	Commercial logging (\$426,214)	Sawmills (\$1,074,053)
4	Wood kitchen cabinet and countertop manufacturing (2,848)	Wood kitchen cabinet and countertop manufacturing (\$205,966)	Paper bag and coated and treated paper manufacturing (\$329,133)	Paper bag and coated and treated paper manufacturing (\$993,090)
5	Sawmills (2,390)	Sawmills (\$193,251)	Wood kitchen cabinet and countertop	Sanitary paper product

manufacturing (\$224,277)	manufacturing (\$745,948)
------------------------------	------------------------------

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

The contribution to Labor Income reinforces this manufacturing focus. Paperboard Container Manufacturing remains the top generator of Labor Income, contributing \$569.8 million. Paper Mills follows closely with \$488.2 million, while Paper Bag and Coated and Treated Paper Manufacturing ranks third with \$213.4 million. The presence of three paper-related converting sectors in the top rankings for income highlights the state's role as a major hub for packaging and industrial paper products.

In terms of Output and Value-Added, the economic activity is again distinctively concentrated in the paper value chain. Paper Mills solidifies its role as the sector's heavyweight, ranking first in both Value-Added (\$968.0 million) and Output (\$3.31 billion). Paperboard Container Manufacturing follows closely in output with \$3.26 billion. The gap between these top two industries and the rest of the sector is substantial; Sawmills ranks third in output with \$1.07 billion, roughly one-third the size of the leading paper sectors. Furthermore, the appearance of Sanitary Paper Product Manufacturing in the top five for output (\$745.9 million) underscores New York's specialized capacity in high-value consumer goods. Collectively, this data reveals a structural orientation toward the pulp, paper, and packaging complex, distinguishing New York's forest economy from those primarily driven by solid wood and lumber production.

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

Excluding the forest-products industries themselves, the New York economy included 469 IMPLAN sectors in 2023. The forest sector's economic reach is extensive, supporting at least one job in 243 of these industries and at least ten jobs in 148 of them. In addition to the 36,968 direct jobs within the forest industry, the sector supported approximately 35,166 indirect and induced jobs across the state's wider economy. Table 13 highlights the top ten non-forest industries most heavily impacted by this economic activity. Together, these ten sectors account for 12,071 jobs, representing roughly 34.3% of all indirect and induced employment generated by the forest economy.

Table 13: Top Ten Industries Impacted by New York state's Forest Products Industries in terms of number of jobs in 2023.

Industries	Number of Jobs
Wholesale - Other durable goods merchant wholesalers	1,748
Other real estate	1,666
Warehousing and storage	1,649
Truck transportation	1,239
Couriers and messengers	1,110
Hospitals	1,039
Management of companies and enterprises	1,014
Full-service restaurants	998
Employment services	809
Wholesale - Other nondurable goods merchant wholesalers	798
Total	12,071

The composition of these sectors reveals three distinct mechanisms through which the forest industry stimulates New York’s commercial landscape:

- Logistics and Physical Distribution:** The most profound connection is the sector’s reliance on the movement and storage of physical goods. Four of the top five impacted industries, Wholesale - Other durable goods (1,748 jobs), Warehousing and storage (1,649 jobs), Truck transportation (1,239 jobs), and Couriers and messengers (1,110 jobs), are logistics-centered. This concentration is driven by the state’s dominance in paperboard and packaging manufacturing. Unlike service industries, the forest sector produces massive volumes of tangible products that require a robust infrastructure of lumber yards, distribution centers, and freight networks to reach the market.
- Induced Household Spending and Real Estate:** The sector’s Labor Income generates a powerful induced effect. This is most visible in Other real estate, which ranks as the second most impacted industry overall with 1,666 jobs. This suggests that the income earned by forest-sector employees is one of the primary drivers of local property markets, leasing, and housing activity. Furthermore, the support for Hospitals (1,039 jobs) and Full-service restaurants (998 jobs) confirms that the income earned circulate locally, sustaining essential healthcare and service-sector employment in their communities.
- Corporate and Administrative Support:** The presence of Management of companies and enterprises (1,014 jobs) and Employment services (809 jobs) indicates a sophisticated corporate structure. Many of the state’s larger forest product firms likely operate headquarters or holding companies within New York, requiring significant administrative

oversight. Additionally, the reliance on employment services suggests the industry utilizes staffing agencies to manage workforce flexibility, likely to adjust to the cyclical nature of manufacturing demand.

Similarly, as presented in Table 14, the top ten industries supported by forest-sector activity generated a combined \$3.34 billion in 2023. This list is dominated by the complex logistics and energy grids necessary to move and process high volumes of timber and paper products, as well as the financial structures that support the industry's workforce and capital assets.

Table 14: Top Ten Industries impacted by New York State's Forest Products Industries in terms of output production in 2023. [†]

Industries	Output
Wholesale - Other durable goods merchant wholesalers	\$637,484
Owner-occupied housing	\$395,517
Wholesale - Other nondurable goods merchant wholesalers	\$390,578
Electric power transmission and distribution	\$363,011
Other real estate	\$323,311
Management of companies and enterprises	\$295,042
Truck transportation	\$259,700
Monetary authorities and depository credit intermediation	\$258,849
Hospitals	\$246,091
Rail transportation	\$168,914
Total	\$3,338,498

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

The most significant contribution lies in the movement and wholesale distribution of goods. Wholesale - Other durable goods merchant wholesalers ranks as the leading sector, generating \$637.5 million in output. When combined with Wholesale - Other nondurable goods (\$390.6 million), the wholesale trade sector alone accounts for over \$1 billion in economic activity. This massive footprint underscores the forest industry's role as a primary supplier to the broader economy, feeding a vast network of distributors who handle everything from lumber to paper packaging. The logistical depth of this supply chain is further evidenced by the presence of Truck transportation (\$259.7 million) and Rail transportation (\$168.9 million). The appearance of rail in the top ten is particularly notable for New York, reflecting the reliance of pulp and paper mills on rail freight for moving heavy raw materials and finished rolls over long distances.

The rankings also highlight the sector's immense energy footprint. Electric power transmission and distribution ranks fourth, generating \$363.0 million. This is directly driven by the

manufacturing profiles sectors, which are among the most energy-intensive industries in the state.

On the induced side, the high ranking of Owner-occupied housing (\$395.5 million) serves as a critical indicator of household wealth. In economic modeling, this figure represents the imputed value of homeownership. Its position as the second-largest impacted sector confirms that the Labor Income generated by the forest industries is sustaining high rates of homeownership and property maintenance. This is complemented by Other real estate (\$323.3 million) and Monetary authorities and depository credit intermediation (\$258.8 million).

Importance of the Forest Products Industries in Context

Natural Resources and Agricultural Industries

To contextualize the economic importance of the forest economy, Table 15 compares the direct contributions of New York's four primary natural resource sectors: Forest Products, Commercial Fishing, Mining/Oil & Gas, and Agriculture. The data reveals a distinct hierarchy where Agriculture dominates employment, but the Forest Products sector remains the state's leading driver of gross industrial output.

In terms of employment, the natural resource landscape is heavily weighted toward Agricultural production. Agriculture serves as the primary employer, supporting 63,052 jobs (approximately 53.7% of the total natural resources workforce). The Forest Products sector ranks second with 36,968 jobs. On the other hand, in terms of output production, Forest Products ranks first among all natural resource industries, generating \$15.14 billion in 2023. This exceeds the output of the booming Mining sector (\$11.95 billion) and is nearly double the gross output generated by Agriculture (\$7.83 billion).

Similarly, a structural shift is visible in the wealth-generation metrics (Value-Added and Labor Income), driven by explosive growth in the extractive energy sector. While Forest Products contributed a substantial \$4.57 billion to the state's Gross State Product (Value-Added), the Mining, and Oil & Gas Production sector has surged to the top rank in this category with \$5.77 billion. The trend analysis highlights a massive divergence: while the Forest sector experienced a mature consolidation (Employment -14.1%, Value-Added -1.3%), the Mining sector underwent a period of hyper-growth, with Value-Added increasing by 317.7% and Labor Income soaring by nearly 569% over the study period (2017-2023).

Agriculture, meanwhile, exhibited a trend of intensification. Despite a 5.9% decline in its workforce, the farm sector managed to increase its Labor Income by 90.5% and Value-Added by 34.7%. This stands in contrast to the Forest sector's trajectory. While Agriculture and Mining have experienced rapid growth in financial value, the Forest Products industry has moved toward capacity reduction and stabilization. As a result, it continues to lead in physical output but contributes less to total Value-Added.

Table 15: Natural Resources and Agricultural Production Industries in New York state, 2023. [†]

Industry	Employment	Δ2017^{††}	Labor Income	Δ2017^{††}	Value-Added	Δ2017^{††}	Output	Δ2017^{††}
1. Forest Products	36,968	-14.1%	\$3,302,396	-17.4%	\$4,566,431	-1.3%	\$15,142,713	-10.4%
2. Commercial fishing, hunting & trapping	1,516	0.7%	\$38,314	-17.5%	\$75,789	-4.9%	\$79,349	-4.6%
3. Mining, and oil & gas production	15,865	4.9%	\$5,230,359	568.9%	\$5,770,889	317.7%	\$11,947,792	301.5%
4. Agriculture production (plant crops and animals)	63,052	-5.9%	\$3,271,596	90.5%	\$3,969,296	34.7%	\$7,828,884	6.4%
Total	117,401	-7.3%	\$11,842,666	81.0%	\$14,382,405	59.2%	\$34,998,739	28.1%

[†] 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 New York'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). The data reveals that New York's manufacturing economy is highly diversified, with no single sector holding a monopoly on employment or output. Within this competitive landscape, Forest Products Manufacturing operates as a robust mid-tier industry, ranking 7th in employment and Labor Income, 8th in Value-Added, and 6th in output. This positioning reflects a sector that is neither marginal nor dominant, but structurally important to the state's industrial base.

In terms of physical scale, the sector is a significant employer. With 32,414 direct jobs, Forest Products Manufacturing accounts for 7.4% of the state's total manufacturing workforce. It employs substantially more workers than several high-profile industries, including Printing (21,196 jobs), Transportation Equipment (18,413 jobs), and Textiles and Apparel (18,074 jobs). Financially, the sector generated \$14.49 billion in direct output. While this trails the state's industrial giants, such as Chemical Manufacturing (\$48.1 billion) and Food Manufacturing (\$35.3 billion), it represents a substantial 6.4% share of the state's total manufacturing output.

A key insight emerges when examining Value-Added per worker, which provides a standardized measure of each sector's economic contribution relative to employment. Forest Products Manufacturing generates approximately \$123,500 in Value-Added per employee. This level exceeds that of several other manufacturing industries, including Textiles and Apparel (\$96,500 per worker), Printing (\$120,300 per worker), and Fabricated Metal Manufacturing (\$117,600 per worker). At the same time, Value-Added per worker remains below that of industries such as Machinery Manufacturing (\$156,000 per worker) and Transportation Equipment Manufacturing (\$159,600 per worker).

Overall, these indicators suggest that Forest Products Manufacturing plays a structurally significant role in New York's manufacturing sector. It combines relatively high employment levels with moderate-to-strong output and Value-Added performance, reinforcing its position as a stable and economically relevant industry within the state's diversified manufacturing base.

Table 16: Manufacturing Industries in New York state, 2023. †

Manufacturing Industries	Employment	Labor Income	Value-Added	Output
Food	73,723	\$4,965,220	\$7,527,912	\$35,284,418
Fabricated Metal	46,861	\$4,228,727	\$5,510,256	\$15,631,870
Computer and Electronic Product	45,540	\$6,318,135	\$4,157,925	\$21,802,429
Chemical	37,459	\$4,966,796	\$22,919,251	\$48,133,304
Machinery	33,662	\$3,507,117	\$5,252,079	\$15,266,840
Miscellaneous	33,401	\$3,112,733	\$4,077,581	\$9,798,352
Forest Products	32,414	\$3,034,436	\$4,003,694	\$14,486,214
Printing	21,196	\$1,514,786	\$2,551,241	\$4,748,847
Plastics and Rubber Products	18,870	\$1,723,981	\$3,988,551	\$9,798,717
Transportation Equipment	18,413	\$2,241,503	\$2,940,344	\$9,623,371
Textiles and Apparel	18,074	\$1,591,070	\$1,744,985	\$3,960,382
Nonmetallic Mineral Product	16,303	\$1,575,977	\$3,746,341	\$7,697,632
Electrical Equipment	14,944	\$1,690,103	\$2,192,339	\$6,308,509
Beverage and Tobacco Product	14,283	\$1,618,588	\$4,540,806	\$9,344,564
Primary Metal	10,457	\$1,129,235	\$1,665,844	\$11,438,066
Petroleum and Coal	1,806	\$423,187	\$1,056,249	\$2,842,279
Total	437,405	\$43,641,594	\$77,875,396	\$226,165,796
Compared to 2017	-8.4%	-10.5%	-10.4%	-10.8%

† 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 remains a cornerstone of New York's industrial economy and a significant pillar of its manufacturing base. In 2023, the Forest Products sector directly employed 36,968 individuals and generated \$15.14 billion in direct economic output. The sector's influence extends deeply into the broader economy; when accounting for indirect supply chain purchases and induced household spending, the total contribution reached 72,133 jobs and \$23.81 billion in total output. This results in a robust employment multiplier of 1.95, meaning that practically every 100 direct jobs in the forest sector support 95 additional jobs elsewhere in the New York economy.

The industry exhibits a distinct orientation toward high-value manufacturing rather than raw extraction. Unlike regions where upstream activities dominate the workforce, New York's forest economy is driven by finished goods. Wood Furniture serves as the primary direct employer (9,658 jobs), while the Secondary Paperboard and Other Paper Products sector stand as the largest industry in terms of output, generating over \$5.2 billion in direct output. Despite employing fewer workers than the furniture sector, the Pulp, Paper, and Paperboard Mills sector displays exceptional capital intensity, generating nearly \$4 billion in output and serving as a critical node for wealth creation and high-income technical employment.

Within the state's natural resources base, Forest Products stands as the undisputed leader in terms of gross output. Generating \$15.14 billion in direct output, it significantly surpasses both Mining (\$11.95 billion) and Agriculture (\$7.83 billion), even though Agriculture maintains a larger workforce. In the broader manufacturing landscape, the forest sector functions as a vital mid-tier heavy industry. Ranking as the seventh-largest manufacturing employer (32,414 jobs), it employs more workers than major sectors such as Transportation Equipment, Printing, and Textiles.

The study period (2017–2023) reveals a sector in transition toward higher efficiency. While the physical footprint has consolidated, with total employment declining by 14.1%, the sector has successfully retained its economic value. Direct Value-Added declined by only 1.3%, signaling a shift toward higher-margin activities and increased automation, most notably within the logging, forestry, and solid wood manufacturing sectors. Ultimately, by converting renewable resources into high-demand packaging, furniture, and building materials, the sector not only sustains the state's rural and industrial landscapes but also serves as a resilient engine of New York's economic identity.

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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.

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

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.

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.

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

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

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

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	676	\$9,637	\$12,836	\$26,537
Forestry, forest products, and timber tract production	202	\$15,524	\$16,392	\$18,372
Support activities for agriculture and forestry	350	\$15,726	\$16,075	\$16,832
Total	1,228	\$40,888	\$45,303	\$61,740

[†] 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	3,224	\$179,164	\$426,214	\$439,414
Total	3,224	\$179,164	\$426,214	\$439,414

[†] 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	102	\$47,909	\$91,221	\$155,345
Sawmills	2,390	\$193,251	\$164,865	\$1,074,053
Wood preservation	51	\$4,536	\$2,861	\$36,331
Veneer and plywood manufacturing	245	\$20,050	\$15,132	\$77,326
Reconstituted wood product manufacturing	147	\$15,071	\$8,493	\$106,457
Total	2,934	\$280,816	\$282,572	\$1,449,512

[†] 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	734	\$70,498	\$64,801	\$282,103
Wood windows and door manufacturing	911	\$82,708	\$79,121	\$264,439
Cut stock, resawing lumber, and planing	281	\$18,380	\$14,640	\$91,055
Other millwork, including flooring	1,478	\$130,628	\$118,240	\$436,279
Wood container and pallet manufacturing	1,751	\$138,386	\$133,284	\$436,046
Manufactured home (mobile home) manufacturing	157	\$13,710	\$13,510	\$48,523
Prefabricated wood building manufacturing	608	\$54,037	\$49,558	\$202,868
All other miscellaneous wood product manufacturing	774	\$66,092	\$61,767	\$206,373
Total	6,694	\$574,439	\$534,922	\$1,967,685

[†] 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	2,848	\$205,966	\$224,277	\$556,176
Upholstered household furniture manufacturing	417	\$29,611	\$32,313	\$93,955
Non-upholstered wood household furniture manufacturing	2,072	\$136,317	\$146,538	\$393,337
Institutional furniture manufacturing	325	\$25,385	\$27,613	\$77,206
Wood office furniture manufacturing	980	\$80,835	\$92,625	\$265,467
Custom architectural woodwork and millwork	1,860	\$153,160	\$64,103	\$356,460
Showcase, partition, shelving, and locker manufacturing	1,156	\$91,812	\$104,396	\$312,458
Total	9,658	\$723,085	\$691,865	\$2,055,059

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

B1.6: Direct Economic Contributions, Pulp, Paper, and Paperboard Mills Sector Details (2023, in 2023 USD).[†]

Industries	Employment	Labor Income	Value-Added	Output
Pulp mills	41	\$6,737	\$9,594	\$31,020
Paper mills	3,879	\$488,216	\$968,041	\$3,312,408
Paperboard mills	626	\$100,657	\$188,616	\$613,361
Total	4,546	\$595,609	\$1,166,252	\$3,956,789

[†] 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	5,381	\$569,787	\$843,039	\$3,260,778
Paper bag and coated and treated paper manufacturing	1,932	\$213,419	\$329,133	\$993,090
Stationery product manufacturing	234	\$21,774	\$26,572	\$104,608
Sanitary paper product manufacturing	871	\$85,436	\$189,674	\$745,948
All other converted paper product manufacturing	266	\$17,980	\$30,886	\$108,090
Total	8,684	\$908,395	\$1,419,304	\$5,212,514

[†] 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	128	\$4,938	\$5,392	\$8,741
Forestry, forest products, and timber tract production	256	\$9,249	\$9,148	\$10,130
Support activities for agriculture and forestry	1,275	\$11,256	\$15,812	\$29,640
Total	1,658	\$25,443	\$30,352	\$48,511

[†] 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	4,013	\$141,272	\$176,974	\$265,205
Total	4,013	\$141,272	\$176,974	\$265,205

[†] 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	116	\$11,020	\$39,502	\$87,380
Sawmills	2,415	\$149,705	\$145,175	\$677,237
Wood preservation	63	\$4,388	\$3,376	\$33,503
Veneer and plywood manufacturing	155	\$8,184	\$9,316	\$41,578
Reconstituted wood product manufacturing	112	\$8,090	\$8,266	\$55,478
Total	2,861	\$181,386	\$205,635	\$895,177

[†] 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	620	\$38,176	\$42,428	\$142,146
Wood windows and door manufacturing	958	\$67,461	\$65,739	\$216,568
Cut stock, resawing lumber, and planing	272	\$16,239	\$14,232	\$58,146
Other millwork, including flooring	1,610	\$111,375	\$108,162	\$333,329
Wood container and pallet manufacturing	2,220	\$118,598	\$115,650	\$341,923
Manufactured home (mobile home) manufacturing	92	\$5,518	\$4,843	\$20,033
Prefabricated wood building manufacturing	620	\$38,142	\$37,395	\$107,856
All other miscellaneous wood product manufacturing	720	\$40,891	\$39,239	\$126,543
Total	7,113	\$436,401	\$427,688	\$1,346,545

[†] 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	3,380	\$168,078	\$181,645	\$487,103
Upholstered household furniture manufacturing	462	\$26,133	\$28,823	\$93,359
Non-upholstered wood household furniture manufacturing	2,645	\$128,081	\$150,196	\$351,019
Institutional furniture manufacturing	293	\$17,127	\$19,041	\$56,156
Wood office furniture manufacturing	1,402	\$81,854	\$108,588	\$303,527
Custom architectural woodwork and millwork	1,894	\$125,236	\$138,692	\$318,749
Showcase, partition, shelving, and locker manufacturing	1,716	\$98,450	\$113,285	\$346,589
Total	11,791	\$644,959	\$740,270	\$1,956,501

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

B2.6: Direct Economic Contributions, Pulp, Paper, and Paperboard Mills Sector Details (2017, in Nominal 2017 USD).[†]

Industries	Employment	Labor Income	Value-Added	Output
Pulp mills	109	\$25,609	\$27,530	\$83,424
Paper mills	4,205	\$472,298	\$617,874	\$3,075,691
Paperboard mills	585	\$71,580	\$89,759	\$461,648
Total	4,898	\$569,486	\$735,164	\$3,620,763

[†] 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	6,106	\$656,328	\$746,068	\$2,956,878
Paper bag and coated and treated paper manufacturing	2,285	\$297,671	\$329,928	\$1,085,603
Stationery product manufacturing	570	\$91,612	\$98,043	\$252,768
Sanitary paper product manufacturing	1,260	\$144,915	\$210,259	\$868,066
All other converted paper product manufacturing	469	\$80,896	\$83,268	\$188,007
Total	10,689	\$1,271,423	\$1,467,566	\$5,351,321

[†] 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	128	\$6,037	\$6,592	\$10,955
Forestry, forest products, and timber tract production	256	\$11,309	\$11,186	\$12,696
Support activities for agriculture and forestry	1,275	\$13,763	\$19,334	\$37,148
Total	1,658	\$31,110	\$37,112	\$60,799

[†] 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	4,013	\$172,737	\$216,392	\$332,387
Total	4,013	\$172,737	\$216,392	\$332,387

[†] 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	116	\$13,474	\$48,300	\$109,515
Sawmills	2,415	\$183,049	\$177,510	\$848,795
Wood preservation	63	\$5,366	\$4,128	\$41,990
Veneer and plywood manufacturing	155	\$10,006	\$11,391	\$52,110
Reconstituted wood product manufacturing	112	\$9,892	\$10,108	\$69,532
Total	2,861	\$221,787	\$251,436	\$1,121,943

[†] 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	620	\$46,679	\$51,878	\$178,154
Wood windows and door manufacturing	958	\$82,487	\$80,380	\$271,429
Cut stock, resawing lumber, and planing	272	\$19,856	\$17,401	\$72,876
Other millwork, including flooring	1,610	\$136,182	\$132,253	\$417,768
Wood container and pallet manufacturing	2,220	\$145,013	\$141,409	\$428,539
Manufactured home (mobile home) manufacturing	92	\$6,746	\$5,921	\$25,107
Prefabricated wood building manufacturing	620	\$46,638	\$45,724	\$135,179
All other miscellaneous wood product manufacturing	720	\$49,999	\$47,979	\$158,599
Total	7,113	\$533,601	\$522,946	\$1,687,651

† 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	3,380	\$205,514	\$222,103	\$610,496
Upholstered household furniture manufacturing	462	\$31,953	\$35,243	\$117,008
Non-upholstered wood household furniture manufacturing	2,645	\$156,609	\$183,650	\$439,939
Institutional furniture manufacturing	293	\$20,941	\$23,282	\$70,381
Wood office furniture manufacturing	1,402	\$100,085	\$132,774	\$380,416
Custom architectural woodwork and millwork	1,894	\$153,129	\$169,583	\$399,494
Showcase, partition, shelving, and locker manufacturing	1,716	\$120,378	\$138,516	\$434,387
Total	11,791	\$788,611	\$905,150	\$2,452,122

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

B3.6: Direct Economic Contributions, Pulp, Paper, and Paperboard Mills Sector Details (2017, in 2023 USD).[†]

Industries	Employment	Labor Income	Value- Added	Output
Pulp mills	109	\$31,313	\$33,662	\$104,557
Paper mills	4,205	\$577,493	\$755,494	\$3,854,825
Paperboard mills	585	\$87,523	\$109,751	\$578,592
Total	109	\$31,313	\$33,662	\$104,557

[†] 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	6,106	\$802,512	\$912,240	\$3,705,915
Paper bag and coated and treated paper manufacturing	2,285	\$363,972	\$403,413	\$1,360,608
Stationery product manufacturing	570	\$112,017	\$119,880	\$316,799
Sanitary paper product manufacturing	1,260	\$177,192	\$257,090	\$1,087,964
All other converted paper product manufacturing	469	\$98,914	\$101,814	\$235,632
Total	10,689	\$1,554,607	\$1,794,437	\$6,706,918

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