Forest Products Industries' Economic Contributions: Maine, 2023

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Maine Forest Service
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Foreword

Maine’s forest resources are the cornerstone of the state’s environmental health, cultural identity, and economic prosperity. As the most forested state in the nation, Maine’s "working forest" provides essential services ranging from carbon sequestration to global timber products. Drawing from the transcendentalist roots of Henry David Thoreau, Maine's relationship with its forests is often one of profound optimism and stewardship, and the ability to travel miles without seeing another person offers a rare opportunity for solitude and introspection that is increasingly lost in the modern world. The beauty of the Maine woods is in the eye of the beholder, and most distinctive is that Maine’s forest lands are both a working forest and a cherished public resource.

This report serves as a critical baseline to ensure resources are managed sustainably for future generations. The state’s forests are not only vast but also uniquely structured and vital to its residents. The economic impact cannot be overstated; the forest products sector contributes approximately $8.3 billion to Maine's economy annually, supporting roughly 29,000 jobs across all Maine’s sixteen counties. The contributions of Maine’s forests to climate resilience are increasingly a focus of conversations. Maine’s forests and wood products currently offset over 90% of the state's gross greenhouse gas emissions. We are unique here in Maine when it comes to ownership and access to Maine's forestland. In a rare model for the eastern U.S., about 92% of Maine's forest land is privately owned, yet much of it remains open for public recreation through a long-standing tradition of shared stewardship.

This report highlights the ongoing resilience of the forest while addressing emerging challenges, such as shifting paper markets and the impacts of a changing climate. I have been struck by how distinguished Maine’s forest resources truly are in comparison to other parts of our region, never mind other parts of the country. Those of us who care about our forests need to find ways to work collaboratively to resolve forestry issues if we are to maximize our effectiveness and achieve the benefits of a stable public policy and avoid divisive debates. That same stable policy environment creates predictability for landowners, forest products firms, and investors as they make decisions, which, in turn, helps keep Maine’s forest products industry competitive and innovative. The discussions resulting from this report will improve our understanding of the issues and of one another’s perspectives, and foster an open and constructive dialogue.

I hope you find this report both interesting and informative. My thanks to the many people who worked on sections of this report, their efforts contribute enormously to a broad understanding of Maine’s forests, the challenges and immense opportunities they represent, and the deep connections they foster among all Mainers.

Patty Cormier

Director, Maine Forest Service

Department of Agriculture, Conservation, and Forestry

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Executive Summary

Based on 2023 FIA estimates, Maine contains approximately 17.4 million acres of forest land, representing about 88.4 percent of its total land area. Of this forest base, 96.2 percent (16.78 million acres) is classified as timberland capable of producing commercial volumes of wood, while 3.1 percent consists of reserved or low-productivity forestland. Private ownership accounts for the majority of forest land at 91.7 percent (15.99 million acres), followed by state and local governments (6.8 percent; 1.19 million acres) and federal ownership (1.5 percent; 0.26 million acres). This report summarizes the economic contribution of forest products industries in Maine using IMPLAN 2023 data. This report also captures the pre-and post-COVID snapshots of forest products industries in Maine and shows the changes in last five years.

Forest Product Industries

This report analyzes the economic contribution of Maine's forest products sector, comprised of 32 individual economic sectors in IMPLAN (only 30 presented in Maine) 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 16,067 jobs and generated $6.15 billion in output, $1.79 billion in Value-Added, and $1.17 billion in Labor Income. When indirect supply-chain linkages and induced household-spending effects are included, the sector's total economic footprint reached 31,650 jobs, $9.39 billion in output, $3.64 billion in Value-Added, and $2.20 billion in Labor Income. The sector exerts a substantial multiplier effect on the broader economy; for every direct job in the forest industry, nearly one additional job is supported elsewhere in the state. Key non-forest sectors impacted include Wholesale Trade, Truck Transportation, Electric Power Generation, Real Estate, and Hospitals, reflecting the substantial spending power of forest product companies and their employees.

Leading Forest Products Industry Groups (direct contribution)

Among the seven aggregated groups, Logging was the largest direct employer in 2023 (3,286 jobs), followed closely by Primary Solid Wood Products (2,952 jobs) and Pulp, Paper, and Paperboard Mills (2,640 jobs). In terms of revenue, Pulp, Paper, and Paperboard Mills produced the highest direct output at $2.16 billion, serving as the sector's financial anchor. Primary Solid Wood Products generated $1.71 billion, while Secondary Paperboard and Other Paper Products contributed $1.02 billion, highlighting the growing importance of packaging manufacturing. Secondary Solid Wood Products ($752 million) and Wood Furniture ($297 million) provided critical Value-Added manufacturing contributions. Forestry, while the smallest contributor in dollar terms ($63.4 million), provided the essential biological inputs supporting the entire value chain.

Leading Individual Forest Products Sectors (direct contribution)

At the disaggregated level (30 sectors), Commercial Logging remained the top individual employer with 3,286 jobs. Financial dominance, however, was concentrated in manufacturing. Paper Mills ranked first in Labor Income ($314.9 million), Value-Added ($550.2 million), and Output ($2.08 billion). Sawmills were a consistent top-tier performer, ranking second in both Value-Added ($300.7 million) and Output ($1.21 billion). Sanitary Paper Product Manufacturing also emerged as a major driver, ranking third in direct output ($706.8 million). These rankings underscore a dual-structure economy: labor-intensive extraction (Logging) supporting capital-intensive, high-wage manufacturing (Paper and Sawmills).

Maine's Forest Products Industries Compared to Other Maine Industries

The Forest Products sector remains the undisputed leader of Maine's natural resource economy. In 2023, it ranked first across all economic measures when compared to Agriculture, Mining, and Commercial Fishing and Hunting. The forest sector's direct output ($6.15 billion) was more than six times larger than Agriculture ($998 million) and nine times larger than Mining ($667 million). In terms of employment, the 16,067 jobs supported by the forest industry accounted for 43.0 percent of the state's total natural resources workforce, surpassing Agriculture (11,874 jobs) and Commercial Fishing (8,405 jobs). Furthermore, within the statewide manufacturing landscape, Forest Products ranked as the first manufacturer by output ($5.81 billion) and the second employer, trailing only Transportation Equipment.

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

From 2017 to 2023, the sector underwent a period of consolidation and efficiency gains. Direct employment decreased by 14.9 percent, while direct output declined by 6.3 percent in real terms. Despite the contraction in workforce size, the quality of employment improved: real Labor Income declined by only 3.7 percent, resulting in a 13.2 percent increase in the average real wage per job.

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 Maine's economy. They provide jobs, raw materials, and finished goods that generate additional economic activity throughout the state, region, and nation. Forests in Maine 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 Maine 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 Maine has shifted between 2017 and 2023 in terms of employment, output, Labor Income, and the Gross State Product (GSP), also known as Value-Added[1]. 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 Maine, (ii) Economic Contributions of the Maine 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 Maine state

According to 2023 estimates from the USDA Forest Inventory and Analysis (FIA) program, Maine's total land area is approximately 19.74 million acres. Of this amount, about 17.44 million acres, or 88.4 percent, meet the FIA definition of forest land, while the remaining 2.29 million acres, or 11.6 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 Maine's forest land base, timberland accounts for 16.78 million acres, or about 96.2 percent (Figure 1), and represents unreserved forest capable of producing at least 20 cubic feet of wood per acre per year. Reserved forestland comprises 533,537 acres, or roughly 3.1 percent, and is withdrawn from timber utilization by legal or administrative designation. Other forestland totals 132,693 acres, or about 0.8 percent, consisting of unreserved forests of low productivity, generally yielding less than 20 cubic feet per acre per year. In practical terms, approximately 16.78 million acres are available and biophysically suitable for commercial timber management, while about 666,000 acres are either reserved or too low in productivity to contribute materially to timber supply.

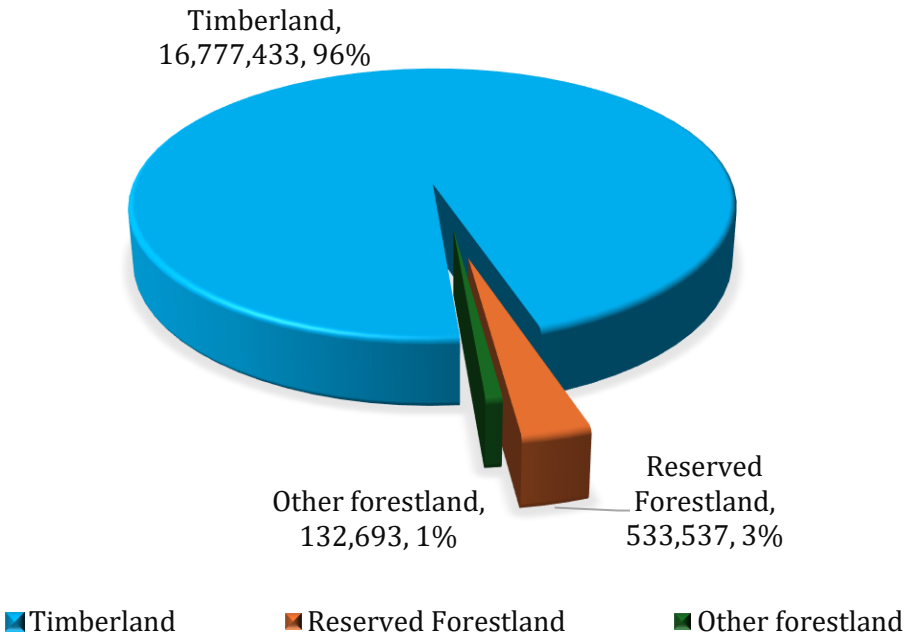

Figure 1: Maine Forest Land area in acres by Land use type, 2023 (US Forest Service).

Ownership of Maine's 17.44 million acres of forest land is concentrated in the private sector. Private landowners manage about 15.99 million acres, or roughly 91.7 percent of the total forest land. State and local governments are responsible for approximately 1.19 million acres, or about 6.9 percent, while federal ownership accounts for the remaining 1.5 percent (about 258 thousand acres) (Figure 2). Within the federal category, National Forest lands total 55,250 acres (about 0.3 percent of forest land), and other federal agencies manage 202,664 acres (about 1.2 percent).

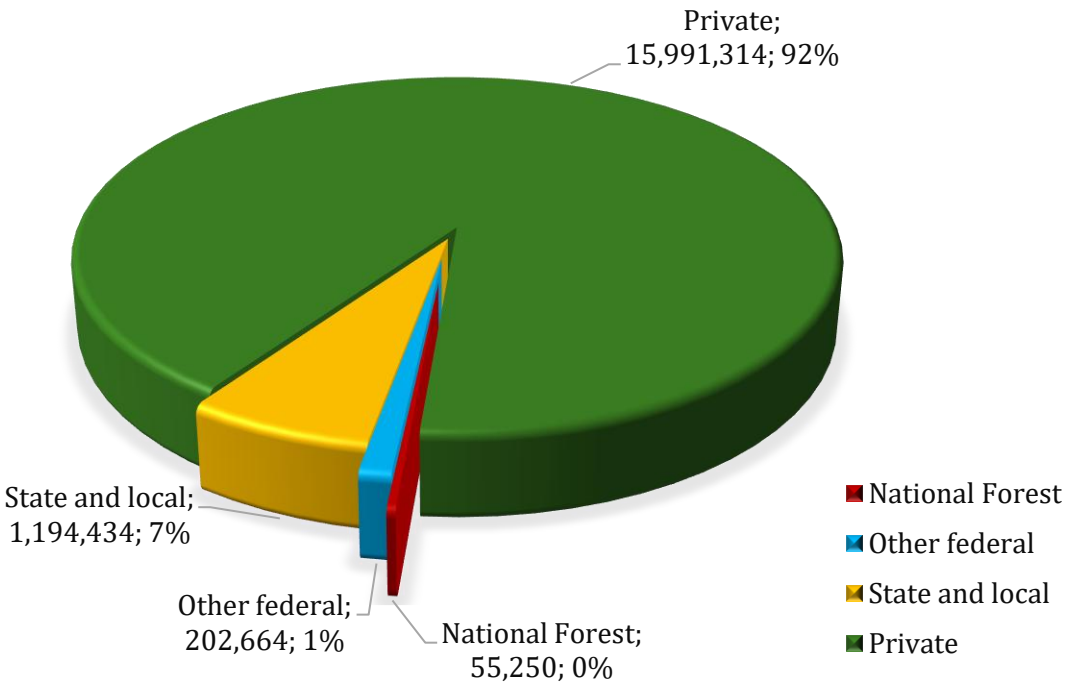

Figure 2: Maine Forest Land area in acres by Ownership group, 2023 (US Forest Service).

Hardwoods and mixed hardwoods make up just over half of Maine's 17.44 million acres of forest land. The maple/beech/birch forest-type group is the most extensive, occupying about 7.17 million acres, or 41 percent of the forest base (Figure 3). The spruce/fir group is the second largest, covering approximately 5.97 million acres (34 percent), followed by aspen/birch at 1.73 million acres (10 percent). Coniferous pine types are also important: white/red/jack pine occupies about 1.21 million acres (7 percent). The oak/hickory group accounts for roughly 415,000 acres (2 percent), and the remaining 953,000 acres (5 percent) fall into other mixed or less common forest-type groups. Taken together, hardwood-dominated types, principally maple/beech/birch, aspen/birch, oak/hickory, and portions of the "other" group, represent a bit more than half of Maine's forest land, while conifer-dominated spruce/fir and white/red/jack

pine account for roughly two-fifths, with the remainder in mixed or transitional stands.

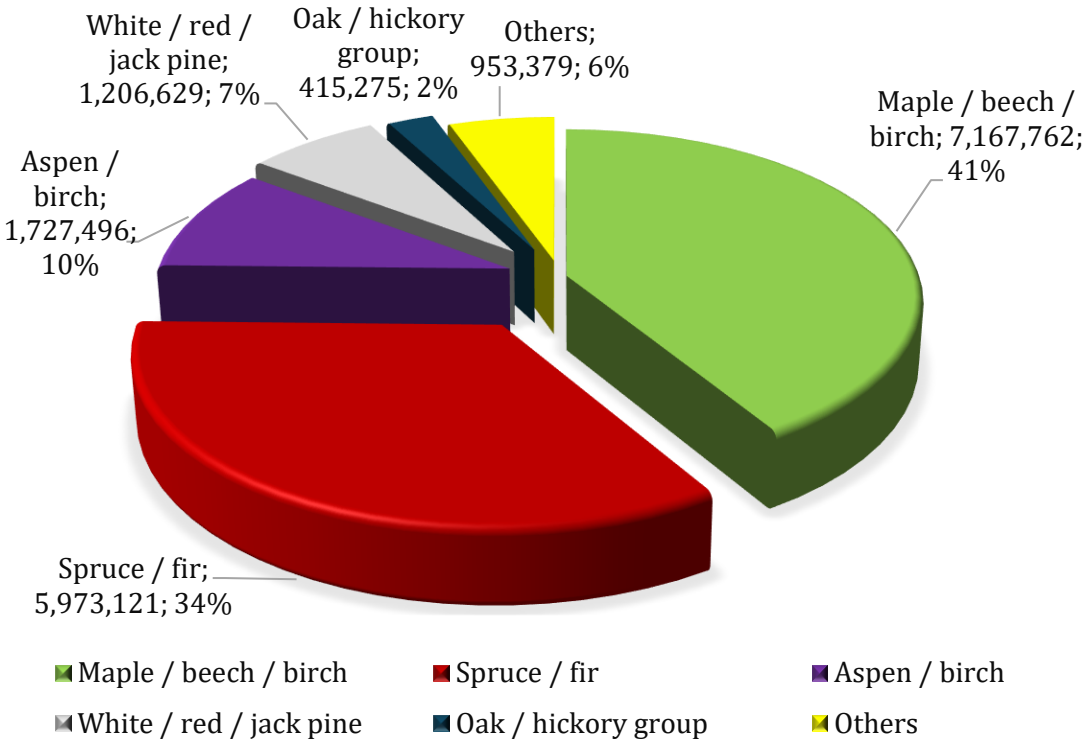

Figure 3*:* Maine Forest Land area in acres by Forest type group, 2023 (US Forest Service).

Maine's timber resources support a wide range of forest-based industries, from forestry and commercial logging to sawmills, pulp and paper, and secondary wood and paper products manufacturing. The estimated volume of standing timber suitable for forest products (i.e., marketable growing stock) is approximately 27.08 billion cubic feet, or about 341 million standard cords (Table 1). Of this total, hardwoods account for 11.58 billion cubic feet (about 43 percent) and softwoods for 15.50 billion cubic feet (about 57 percent). Roughly 88.8 percent of the growing-stock volume is on private lands (24.05 billion cubic feet), about 9.3 percent on state and local lands (2.53 billion), and the remaining 1.8 percent on federal holdings, split between national forest (0.15 billion) and other federal lands (0.35 billion). Average annual net change in growing-stock volume is approximately 663.8 million cubic feet. Annual harvest removals total 384.4 million cubic feet, and mortality accounts for 258.8 million cubic feet per year. Combined, removals and mortality amount to about 643 million cubic feet annually, which is slightly less than net growth, resulting in a continued net increase in standing inventory at the statewide level.

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

Description	Species group	National Forest	Other federal	State and local	Private	Not available	**Total**
Net volume	Hardwood	72,090	150,151	935,935	10,423,345	0	**11,581,522**
	Softwood	80,784	198,738	1,595,029	13,627,667	0	**15,502,218**
	Total	**152,874**	**348,890**	**2,530,964**	**24,051,013**	**0**	**27,083,740**
Average annual net growth	Hardwood	1,111	3,789	13,959	267,676	764	**287,299**
	Softwood	1,167	4,229	23,398	347,065	652	**376,511**
	Total	**2,279**	**8,018**	**37,357**	**614,742**	**1,415**	**663,810**
Average annual harvest removals	Hardwood	0	0	5,427	157,225	0	**162,652**
	Softwood	0	0	9,338	212,414	0	**221,752**
	Total	**0**	**0**	**14,765**	**369,639**	**0**	**384,403**
Average annual mortality	Hardwood	233	713	8,024	61,100	0	**70,069**
	Softwood	527	1,748	19,468	166,996	0	**188,739**
	Total	**760**	**2,461**	**27,492**	**228,095**	**0**	**258,809**

† 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 Maine economy, not only providing direct employment in logging, milling, and manufacturing but also supporting a much larger network of indirect and induced jobs in transportation, warehousing, wholesale trade, and retail (Leefers et al. 2020). Its health has far-reaching consequences for rural communities, where it is often one of the few sources of year-round employment, and for regional supply chains that depend on steady flows of wood, fiber, and paper products (Lamsal et al. 2025a).

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

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

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

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

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

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

Figures 4 and 5 illustrate the structural adjustments within Maine's Forest Sector over the six-year study period. As shown in Figure 4, the sector's employment has contracted. Total direct employment declined by 14.9% (a loss of roughly 2,800 jobs), falling from 18,887 in 2017 to 16,067 in 2023. Real Industry Output followed a similar, though less severe, downward trajectory, decreasing by 6.3% to $6.15 billion. The disparity between the sharp drop in employment and the moderate drop in output indicates a period of consolidation, where the industry has maintained production capacity despite a smaller workforce.

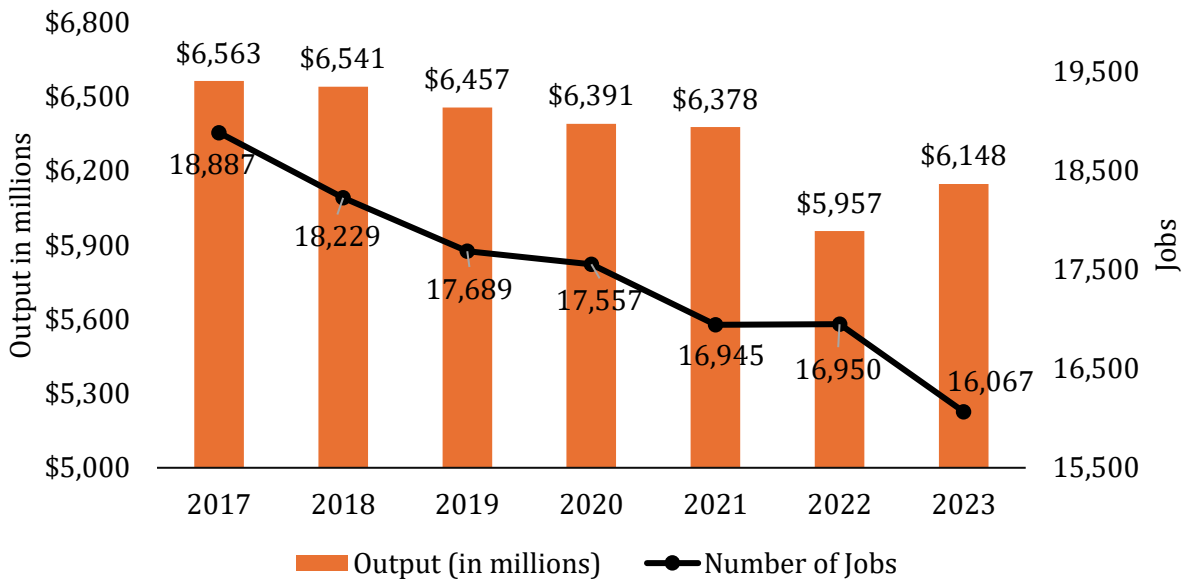

Figure 4: Direct output and employment, 2017–2023, Maine state forest products industries.

Figure 5 provides context on the economic quality of this activity. Real Value-Added, the sector's contribution to Gross State Product, tracked closely with output, stabilizing near $1.8 billion annually after 2020. However, the most distinct trend appears in Labor Income. While employment fell by nearly 15%, total real Labor Income declined by only 3.7%.

The divergence between falling employment and stable Labor Income signals a significant shift in job quality and productivity. As the sector shed lower-efficiency positions, the remaining workforce realized higher returns. Consequently, the average real Labor Income per worker rose by 13.2%, increasing from approximately $64,100 in 2017 to $72,600 in 2023. This suggests that while Maine's Forest Sector has become smaller in terms of headcount, it has become more capital-intensive and continues to support increasingly high-value employment.

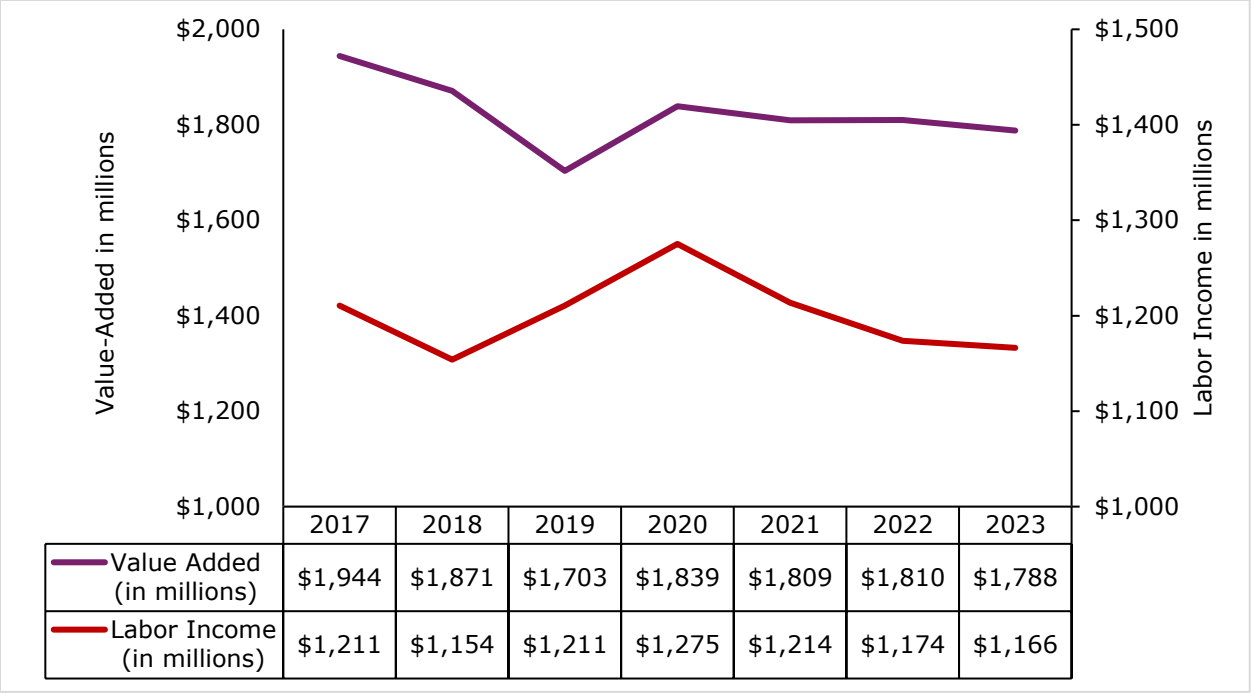

Figure 5: Direct Value-Added and Labor Income, 2017–2023, Maine state, forest products industries.

Direct and Total Contributions by Forest Product Industry Groups in 2023

In 2023, Maine's forest products industries directly employed 16,067 individuals, generated $6.15 billion in output, and contributed $1.79 billion in Value-Added to the state economy. 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 31,650 jobs and $9.39 billion in total output.

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

	Employment	Labor Income	Value-Added	Output
Direct in 2023	16,067	$1,166,317	$1,787,856	$6,147,705
Compared to 2017	-14.9%	-3.7%	-8.0%	-6.3%
Total in 2023	31,650	$2,196,510	$3,635,064	$9,388,524
Compared to 2017	-20.4%	-7.9%	-6.8%	-8.3%
Multipliers in 2023	1.97	1.88	2.03	1.53

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

Comparing the results with 2017 values shows that the wider economic footprint is contracting faster than the direct industry. While direct employment declined by 14.9% from 2017 to 2023, the total employment impact fell by 20.4%. Further, the calculated multipliers highlight the sector's deep integration into the broader state economy. The employment multiplier of 1.97 indicates that for every 100direct job in the forest industry, roughly 97 additional jobs are supported elsewhere in the Maine economy. Similarly, the Value-Added multiplier of 2.03 suggests that the sector generates more economic value in the wider supply chain than it does directly, effectively doubling its contribution to the Gross State Product.

Table 3 reports direct economic contributions of seven industry groups, while Table 4 presents total contributions. In 2023, the Logging industry accounted for the largest share of direct employment, supporting 3,286 jobs, followed closely by Primary Solid Wood Products (2,952 jobs) and Pulp, Paper, and Paperboard Mills (2,640 jobs). However, in terms of financial contribution, Pulp, Paper, and Paperboard Mills was the dominant industry, generating the highest direct output ($2.16 billion) and Value-Added ($571.2 million). This highlights the capital-intensive nature of paper manufacturing compared to the labor-intensive nature of logging. In contrast, Forestry was the smallest industry by output ($63.4 million) and Value-Added ($49.2 million). When supply-chain and induced effects are included, the rankings shift significantly due to strong inter-industry linkages. Primary Solid Wood Products emerged as the largest contributor to total employment, supporting 10,249 jobs statewide. Pulp, Paper, and Paperboard Mills remained the largest economic driver in terms of total output ($3.50 billion) and total Value-Added ($1.31 billion).

Taken together, the manufacturing sectors drive the majority of the forest economy. The combined primary mills (Pulp, Paper, and Paperboard) plus secondary paper products accounted for 51.7 percent of the sector's total direct output ($3.18 billion). Meanwhile, the solid wood value chain (Primary and Secondary Solid Wood Products) accounted for 33.2 percent of direct jobs (5,343 jobs). This indicates that while the solid wood sectors are crucial for maintaining employment levels, the paper sectors provide the largest contribution to the state's industrial output.

Table 3: Direct Economic Contributions in Maine state, Industry Groups, 2023. †

Industries	Employment	Labor Income	Value-Added	Output
1.Forestry	1,874	$47,338	$49,167	$63,402
2.Logging	3,286	$133,750	$131,759	$145,225
3.Primary Solid Wood Products	2,952	$243,281	$454,018	$1,712,090
4.Secondary Solid Wood Products	2,391	$171,281	$243,093	$751,920
5.Wood Furniture	1,468	$98,338	$85,660	$297,098
6.Pulp, Paper, and Paperboard mills	2,640	$329,968	$571,203	$2,157,684
7.Secondary Paperboard and other Paper Products	1,456	$142,361	$252,956	$1,020,285

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

Table 4: Total Economic Contributions in Maine state, Industry Groups, 2023. †

Industries	Employment	Labor Income	Value- Added	Output
1.Forestry	2,122	$62,062	$77,604	$109,873
2.Logging	4,112	$176,541	$209,685	$267,948
3.Primary Solid Wood Products	10,249	$657,684	$1,122,649	$2,837,687
4.Secondary Solid Wood Products	5,254	$350,558	$550,656	$1,342,590
5.Wood Furniture	2,552	$167,040	$208,692	$518,649
6.Pulp, Paper, and Paperboard mills	9,006	$754,730	$1,308,090	$3,503,608
7.Secondary Paperboard and other Paper Products	3,843	$303,089	$538,643	$1,545,469

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

Note: In Table 4, r*eaders 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.

Forestry

Economic Contribution of Forestry

Table 5 presents the economic contribution of the Forestry sector. The forestry group includes three industries: (1) timber tract operations, which involve managing forest lands primarily for the sale of standing timber; (2) maple syrup production; and (3) support activities for forestry. Support activities include estimating (cruising) timber; wildland firefighting; forest pest control; aerial treatment of burned forests for reforestation or emergency response; and consulting on wood attributes and reforestation, timber production and wood technology, forestry economics and marketing, forest protection, maple syrup operations, and related support services. Maple syrup production is one of the activities classified under the “all other crop farming” sector. Firms providing support activities may handle boundary marking, pest and fire control, timber cruising, and other forest management services.

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

	Employment	Labor Income	Value-Added	Output
Direct	1,874	$47,338	$49,167	$63,402
Indirect	25	$1,712	$3,257	$6,317
Induced	223	$13,011	$25,180	$40,154
Total	**2,122**	**$62,062**	**$77,604**	**$109,873**

† 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 supported 1,874 jobs and generated $63.4 million in direct output. While Forestry is not the largest employer in the forest products industries (ranking below Logging and Primary Solid Wood Products), it serves as the biological foundation for the entire industry. The sector exhibits a distinct economic profile characterized by low intermediate

consumption but steady household-spending impacts. The employment multiplier of 1.13 is relatively low and indicates that for every 100 jobs in Forestry, only 13 additional jobs are supported elsewhere.

Notably, the Induced effects (driven by worker household spending) substantially outweigh the Indirect effects (driven by business-to-business supply chain purchases).

- Indirect Effect: Only 25 jobs and $6.3 million in output. This reflects the nature of timber growing; it is land-intensive rather than supply-chain intensive, requiring fewer daily inputs from other industries compared to a sawmill or paper mill.
- Induced Effect: 223 jobs and $40.2 million in output. This suggests that the primary economic ripple of this sector comes from the wages and compensation spent by its workforce in the local economy rather than the operational purchases of the businesses themselves.

When these effects are combined, the Forestry industry contributed a total of 2,122 jobs, $109.9 million in output, and $77.6 million in Value-Added to the Maine's economy in 2023. The total output multiplier of 1.73 implies that every $100 of timber produced by Forestry, generates an additional $73 of economic activity throughout the state.

Trend Analysis: Forestry (2017–2023)

As illustrated in Figure 6, the Forestry industry exhibits substantial year-over-year volatility driven by biological cycles and weather conditions. After reaching a period high of $106.0 million in direct output in 2017, the sector's financial contribution has trended downward, culminating in a sharp contraction in 2023.

Between 2022 and 2023, direct output fell by 33.8% (from $95.8 million to $63.4 million), while direct employment declined by 28.7% (loss of 756 jobs). A primary driver of this 2023 decline was a severe drop in maple syrup production, a key component of the Forestry sub-sector in Maine. WABI TV5. (2023) reported that unfavorable weather conditions led to a reduction in maple syrup by more than 25% (634 thousand gallons to 470 thousand gallons). In terms of production value, it decreased from approximately $24.5 million in 2022 to $14.7 million in 2023, a 40% year-over-year decrease . Because the Forestry sub-sector is smaller than the manufacturing sector, this singular shock had a disproportionately large impact on the

industry's topline performance for the year.

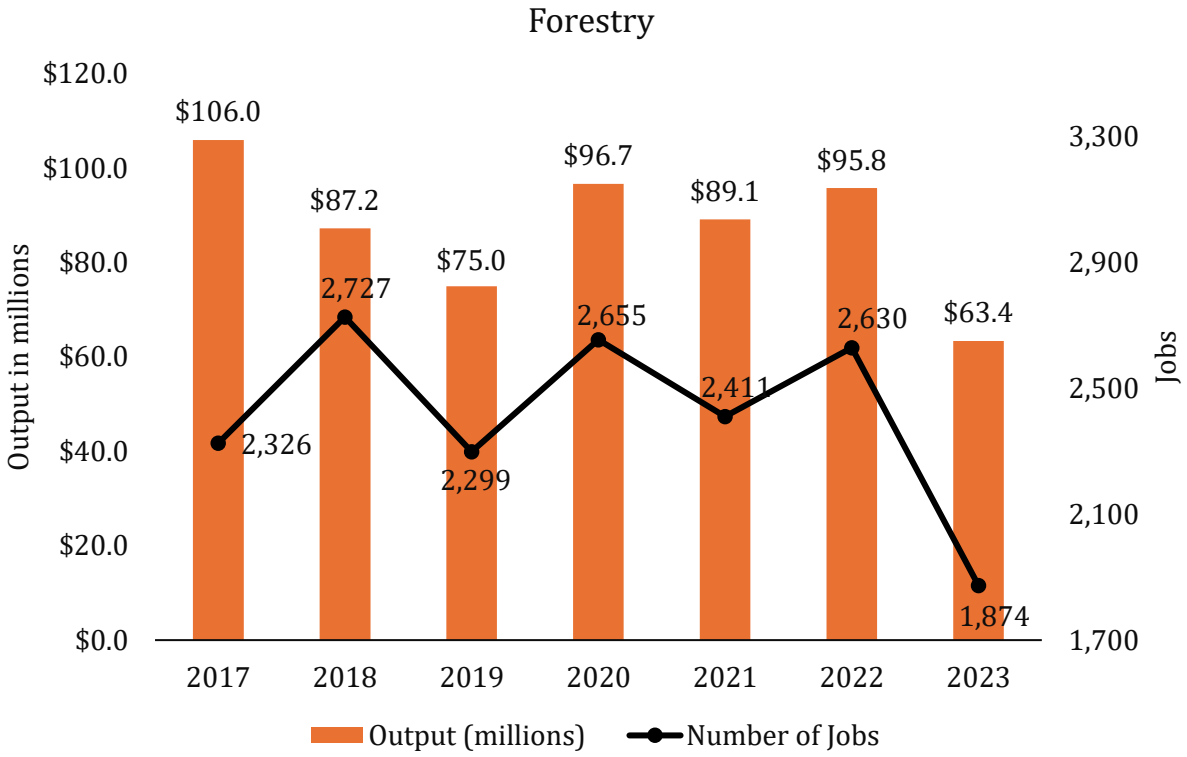

Figure 6: Trend in direct employment and output for the Forestry industry in Maine, 2017–2023.

Logging

Economic Contribution of Logging

The commercial logging sector consists of establishments, primarily engaged in cutting timber, transporting logs, and producing chips in the field. Table 6 outlines the economic contributions of the Logging sector. As indicated in previous sectoral comparisons, Logging is the single largest source of direct employment within Maine's forest sector, supporting 3,286 jobs in 2023. The sector generated $145.2 million in direct industry output and $131.8 million in Value-Added. Multipliers for Logging reveal an industry that is highly labor-intensive with significant downstream impacts on local communities.

The sector demonstrates a powerful link between industry activity and household spending. The Induced effects generated $113.1 million in output, which is more than 10 times larger than the Indirect effects ($9.6 million). This disparity is driven by the sector's cost structure: a massive portion of Logging's direct output flows directly into Labor Income ($133.8 million out of $145.2 million in output or 92% of total output). Because a high percentage of revenue is paid out as employee compensation (also a proprietor income) to workers who live locally, the re-spending of those wages creates a substantial "induced" ripple throughout the state

economy. Similar to the Forestry sector, Logging has a relatively small supply chain footprint ($9.6 million in indirect output). This reflects the nature of the business, where major inputs are primarily fuel, equipment, and stumpage, rather than processed intermediate goods.

Table 6: Direct, Indirect, and Induced Economic Contributions of the logging Industry in Maine, 2023. †

	Employment	Labor Income	Value-Added	Output
Direct	3,286	$133,750	$131,759	$145,225
Indirect	196	$6,123	$6,988	$9,590
Induced	630	$36,668	$70,939	$113,132
Total	**4,112**	**$176,541**	**$209,685**	**$267,948**

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

When combining these effects, the Logging industry contributed a total of 4,112 jobs, $267.9 million in output, and $209.7 million in Value-Added to the state economy. The implied Output Multiplier is 1.85, meaning that for every $1.00 of timber harvested, an additional $0.85 of economic activity is generated elsewhere in Maine. This is a stronger multiplier effect than the Forestry sector (1.73), largely due to the higher volume of wages circulating back into the economy.

Trend Analysis: Logging (2017–2023)

As detailed in Figure 7, the Logging industry has experienced severe structural contraction, characterized by extreme volatility in output and a steady erosion of the workforce. While employment has declined linearly, falling 35.0% from a peak of 5,052 jobs in 2017 to a period low of 3,286 in 2023, direct output has suffered largely from demand shocks in the pulp and paper sector.

Most notably, the sector faced a critical downturn in 2023. Direct output dropped by 35.1% year-over-year, dropping from $223.9 million in 2022 to just $145.2 million in 2023. This acute contraction can be linked to the permanent closure of the Pixelle Specialty Solutions mill in Jay in March 2023. The mill was a primary consumer of pulpwood (low-grade timber); its closure removed a vital revenue stream for loggers, forcing many to leave low-grade wood in the forest or sell it into depressed biomass markets. Unlike the manufacturing sectors, which saw rising productivity, the logging sector's output per worker has crashed, falling from over $100,000 in 2017 to approximately $44,000 in 2023, reflecting the difficulty of operating profitably in a

market with shrinking outlets for wood fiber.

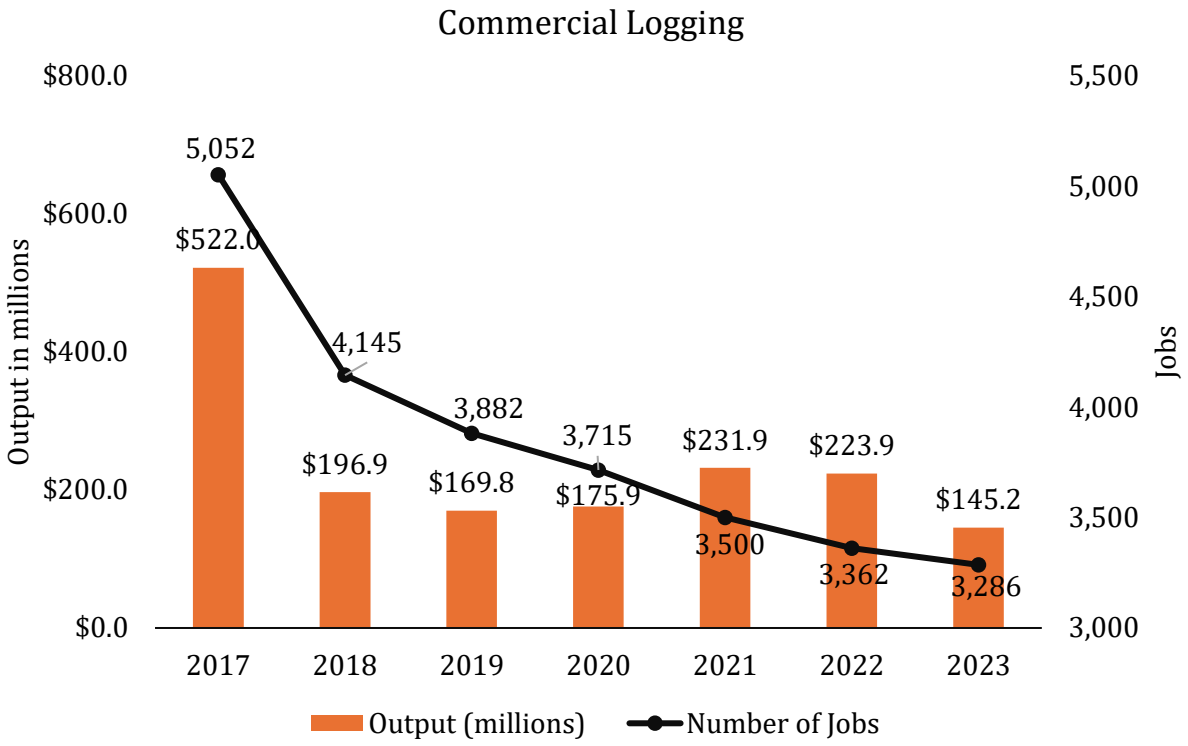

Figure 7: Trend in direct employment and output for the Logging industry in Maine, 2017–2023.

Primary Solid Wood Products

Economic Contribution of Primary Solid Wood Products

Table 7 outlines the economic contributions of the Primary Solid Wood Products industry, which includes wood-based electric power generation, sawmills, wood preservation, veneer and plywood manufacturing, and reconstituted wood product industries. In 2023, this manufacturing sector directly employed 2,952 workers and generated $1.71 billion in direct output. Notably, this sector generates the highest Value-Added per unit of output compared to forestry and logging ($454 million in direct Value-Added), reflecting the economic gains achieved by processing raw timber into finished lumber and structural products. The Primary Solid Wood Products industry exhibits the strongest backward linkages in the entire forest economy, characterized by an exceptionally high employment multiplier.

Unlike the Logging sector, where induced effects (household spending) were dominant, this sector is driven by supply chain purchases. The Indirect Employment effect supports 4,942 jobs, a figure that is 1.6 times larger than the sector's own direct workforce. This unique structure illustrates that for every job inside this sector, nearly two jobs are supported in the supply chain (primarily in logging, trucking, and wholesale sectors). The implied Employment Multiplier is

3.47 (10,249 Total / 2,952 Direct). This means that every 100 direct job in primary wood manufacturing supports an additional 247 jobs elsewhere in the Maine economy. This is significantly higher than the multipliers for Forestry (1.13) or Logging (1.25), underscoring this sector's role as a "keystone" industry that anchors the wider forest supply chain.

When aggregating direct, indirect, and induced effects, the Primary Solid Wood Products industry contributed a total of 10,249 jobs, $2.84 billion in output, and $1.12 billion in Value-Added to the state economy in 2023. By supporting over 10,000 jobs statewide, this sector serves as the primary economic engine for Maine's rural counties, converting the state's raw resources into substantial exported wealth.

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

	Employment	Labor Income	Value-Added	Output
Direct	2,952	$243,281	$454,018	$1,712,090
Indirect	4,942	$277,350	$403,578	$703,180
Induced	2,355	$137,052	$265,052	$422,417
Total	**10,249**	**$657,684**	**$1,122,649**	**$2,837,687**

† 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 illustrated in Figure 8, the Primary Solid Wood Products industry has demonstrated remarkable resilience and growth, decoupling from the downward trends seen in the extraction sectors. While direct employment has remained relatively stable, fluctuating within a narrow band between 2,769 and 3,052 jobs, real industry output has surged to a period high.

Most notably, while the upstream Logging sector contracted in 2023, the Primary Solid Wood sector expanded substantially. Direct output rose by 14.3% year-over-year, climbing from $1.49 billion in 2022 to $1.71 billion in 2023. This growth trajectory indicates that Maine's sawmills have successfully capitalized on post-pandemic market conditions and capital improvements. Furthermore, the workforce has fully recovered from the 2020 pandemic dip (2,769 jobs), stabilizing at 2,952 jobs in 2023, nearly identical to the 2017 starting level. This stability in employment combined with rising output suggests a period of high-capacity utilization and

increased value generation per board foot processed.

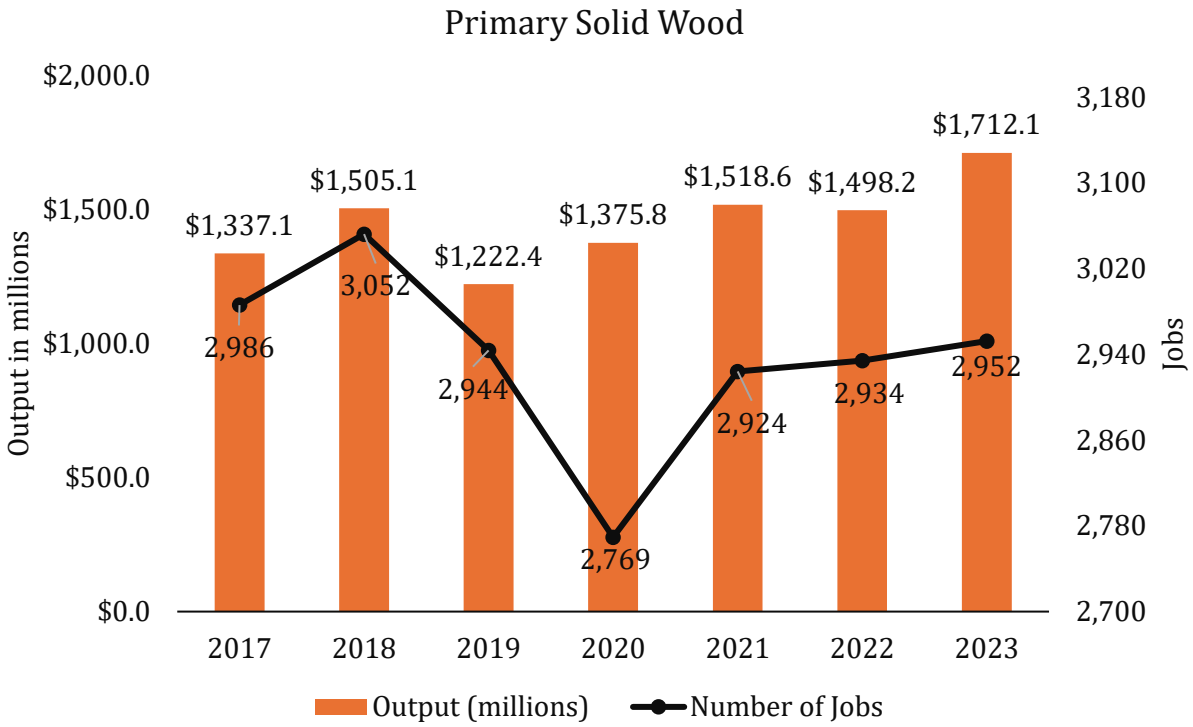

Figure 8: Trend in direct employment and output for the Primary Solid Wood Products industry in Maine, 2017–2023.

Secondary Solid Wood Products

Economic Contribution of Secondary Solid Wood Products

Table 8 details the economic contribution of the Secondary Solid Wood Products industry, a diverse Value-Added sector that encompasses the industries such as engineered wood member and truss manufacturing; wood windows and doors manufacturing; cut stock, resawing lumber, and planing; other millwork, including flooring; wood container and pallet manufacturing; manufactured home production; prefabricated wood building manufacturing; and other miscellaneous wood product manufacturing. In 2023, this sector directly employed 2,391 workers and generated $751.9 million in direct output.

The sector exhibits a robust employment multiplier of 2.20, indicating that for every 100 jobs created in secondary manufacturing, approximately 120 additional jobs are supported elsewhere in the Maine economy. While strong, this multiplier is notably lower than that of the Primary Solid Wood sector (3.47). This distinction reflects the upstream supply chain dynamics: while Primary manufacturers purchase raw timber from labor-intensive logging operations, Secondary manufacturers primarily purchase processed lumber from capital-intensive sawmills.

Consequently, the Indirect Employment effect (1,607 jobs), while substantial, is less massive than the indirect linkages seen in the primary stage.

When fully aggregated, the sector supports a total of 5,254 jobs and contributes $1.34 billion in total economic output. Financially, the sector is a highly effective value generator, contributing a total of $550.7 million in Value-Added to the Gross State Product. This reflects the significant economic lift achieved by transforming rough lumber into high-value finished construction components and consumer goods.

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

	Employment	Labor Income	Value-Added	Output
Direct	2,391	$171,281	$243,093	$751,920
Indirect	1,607	$106,133	$166,043	$365,050
Induced	1,256	$73,145	$141,520	$225,620
Total	**5,254**	**$350,558**	**$550,656**	**$1,342,590**

† 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 experienced significant volatility closely linked to housing and construction cycles. Unlike the extraction sectors which have steadily contracted, this Value-Added sector has achieved substantial long-term growth. Real output expanded by 34.7% over the six-year period, rising from $558.3 million in 2017 to $751.9 million in 2023.

The trend line reveals a distinct 'pandemic peak' in 2020, where employment surged to a period high of 2,730 jobs and output jumped to $751.5 million. This aligns with national data showing a record spike in home renovations and DIY projects during the pandemic (Harvard Joint Center for Housing Studies, 2023). Following a correction in 2021, the sector rallied strongly in 2023, with output increasing by 12.6% year-over-year (from $668.0 million in 2022) to surpass the previous 2020 record. Interestingly, while output has reached new highs, direct employment in 2023 (2,391 jobs) remains 3.7% below 2017 levels, indicating a structural shift toward higher automation and efficiency in manufacturing facilities.

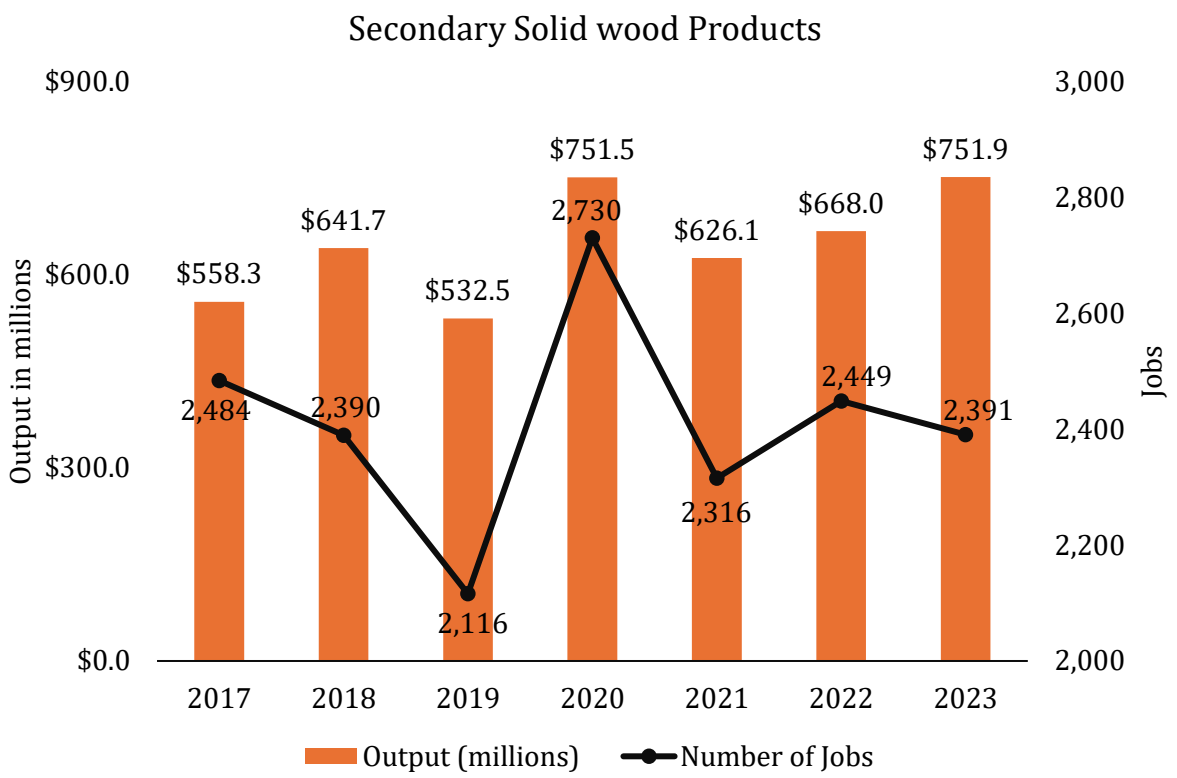

Figure 9: Trend in direct employment and output for the Secondary Solid Wood Products industry in Maine, 2017–2023.

Wood Furniture

Economic Contribution of Wood Furniture

The Wood Furniture group includes kitchen cabinet and countertop manufacturing; upholstered and non-upholstered household furniture; institutional and office furniture; custom architectural woodwork; and showcase and partition manufacturing. Economic Contribution of the Wood Furniture Industry Table 9 details the economic contribution of the Wood Furniture Industry. As a consumer-facing sector, it plays a specialized role in Maine's forest economy, directly employing 1,468 workers and generating $297.1 million in direct output in 2023. The sector exhibits a distinct economic profile compared to the primary processing industries. The implied Employment Multiplier is 1.74, indicating that for every 100 jobs in furniture manufacturing, 74 additional jobs are supported elsewhere in the state. Notably, the Induced effects (598 jobs) exceed the Indirect effects (487 jobs).

This structural characteristic, where household spending by workers creates more impact than the factory's supply chain purchases, suggests that the sector's supply chain is less localized than that of a sawmill. While sawmills purchase nearly 100% of their inputs (logs) locally, furniture manufacturers likely import a portion of their non-wood inputs (hardware, fabrics,

varnishes), resulting in "leakage" that dampens the indirect effect. Nevertheless, the sector remains a vital contributor, generating a total economic impact of $518.6 million and supporting 2,552 total jobs statewide.

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

	Employment	Labor Income	Value-Added	Output
Direct	1,468	$98,338	$85,660	$297,098
Indirect	487	$33,908	$55,720	$114,207
Induced	598	$34,795	$67,312	$107,344
Total	**2,552**	**$167,040**	**$208,692**	**$518,649**

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

Trend Analysis: Wood Furniture Industry (2017–2023)

As illustrated in Figure 10, the Wood Furniture Industry has experienced a gradual contraction over the study period, reflecting the competitive pressures facing domestic furniture manufacturing. Between 2017 and 2022, the sector saw a persistent erosion in both output and employment, with real output falling from a peak of $329.0 million in 2018 to a low of $284.1 million in 2022.

However, 2023 marked a notable reversal of this downward trend. For the first time since 2021, the sector posted year-over-year growth in both metrics. Real output expanded by 4.6% (rising to $297.1 million), and direct employment increased by 2.7% (adding 38 jobs to reach 1,468). While the sector remains approximately 6-8% smaller than it was in 2017, this recent stabilization suggests that the remaining manufacturers, likely focusing on high-end custom cabinetry and niche woodworking, have found a sustainable market footing despite broader economic headwinds.

Figure 10: Trend in direct employment and output for the Wood Furniture industry in Maine, 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, the state's most capital-intensive forest sector. In 2023, these mills generated the highest Direct Output ($2.16 billion), Labor Income ($330.0 million), and Value-Added ($571.2 million) of any forest industry group, despite ranking third in direct employment with 2,640 jobs. The sector exhibits a powerful Employment Multiplier of 3.41, meaning that for every 100 jobs inside a Pulp, Paper, and Paperboard mill, nearly 241 additional jobs are supported elsewhere in Maine. A defining characteristic of this industry is that its Indirect Employment (3,645 jobs) significantly exceeds its Direct Employment (2,640 jobs). This "inverted" employment profile underscores the mill's role as an economic anchor; the facility itself requires fewer workers due to automation, but its massive appetite for raw fiber, chemicals, energy, and logistics sustains a supply chain workforce larger than its own.

When fully aggregated, the sector supports a total of 9,006 jobs and generates $3.50 billion in total economic output. Furthermore, the quality of direct employment in this sector is

exceptional; with total Labor Income of nearly $330 million distributed among 2,640 workers, the average annual compensation per direct job is approximately $125,000, the highest in the entire forest economy.

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

	Employment	Labor Income	Value-Added	Output
Direct	2,640	$329,968	$571,203	$2,157,684
Indirect	3,645	$266,356	$430,407	$857,416
Induced	2,721	$158,406	$306,480	$488,508
Total	**9,006**	**$754,730**	**$1,308,090**	**$3,503,608**

† 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 sector has experienced the most significant contraction of any forest industry group in terms of real economic value. Following a distinct peak in 2019, where operations surged to support 3,615 jobs and $3.18 billion in output, the sector has faced a steep structural decline driven by global digitization and shifting market demand.

By 2023, direct output had fallen to $2.16 billion, a 26.5% decrease from 2017 levels and a massive 32.2% drop from the 2019 peak. Direct employment followed a similar downward trajectory, shedding nearly 500 jobs since 2017 to reach a study-period low of 2,640 jobs in 2023. Notably, the trend curve clearly captures the impact of recent capacity reductions, such as the Pixelle Androscoggin Mill closure in early 2023. While the rate of output decline stabilized between 2022 and 2023 (remaining essentially flat at ~$2.16 billion), the continued erosion of employment suggests that manufacturers are still optimizing workforce levels in response to reduced capacity.

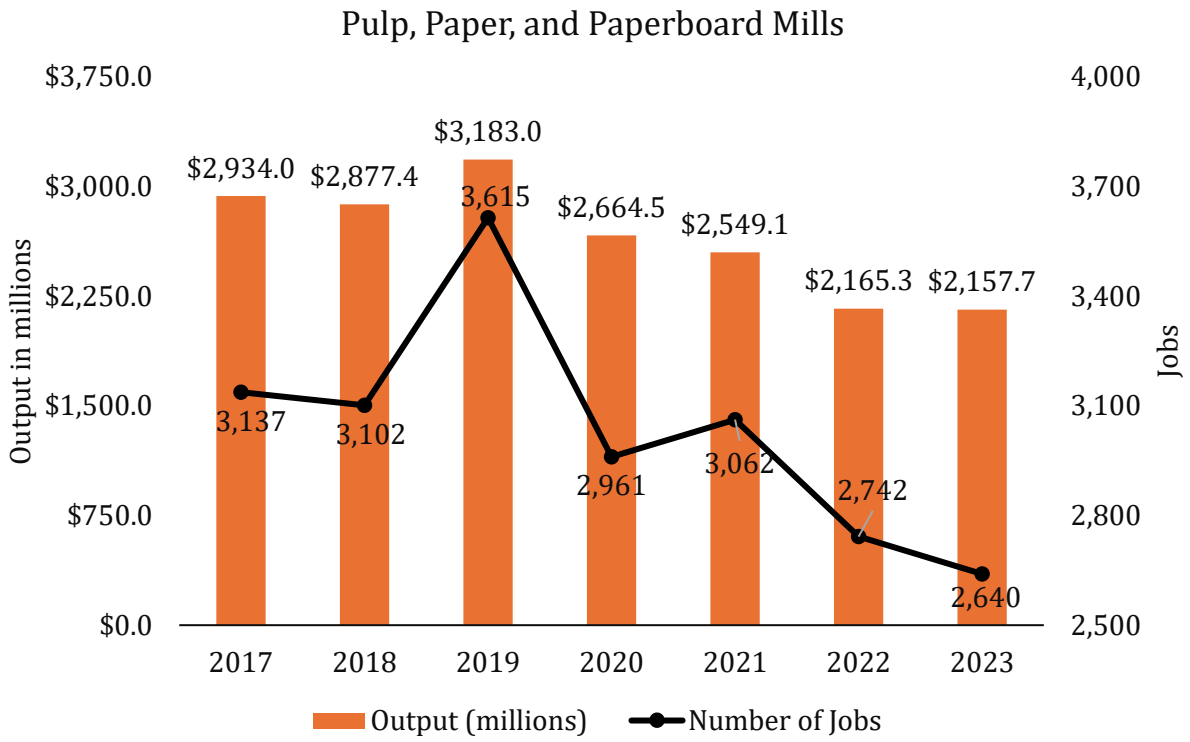

Figure 11: Trend in direct employment and output for the Pulp, Paper, and Paperboard Mills industry in Maine, 2017–2023.

Secondary Paperboard and Other Paper Products

Economic contribution: Secondary Paperboard and Other Paper Products Industry

Table 11 outlines the economic contribution of the Secondary Paperboard and Other Paper Products industry, which includes sanitary paper product manufacturing; paper bags, coated and treated paper manufacturing; stationery; paperboard container production; and other converted paper products. Facilities in this group primarily manufacture from purchased pulp, paperboard, or recycled materials. Secondary Paperboard and Other Paper Products is the smallest direct employer among Maine's seven forest product industry groups. In 2023, this converting sector directly employed 1,456 workers and generated $1.02 billion in direct output.

The sector demonstrates a robust capacity for job creation relative to its size, driven by strong backward linkages to the primary manufacturing base. The implied Employment Multiplier is 2.64, meaning that for every 100 jobs in a box plant or paper converter, roughly 164 additional jobs are supported throughout the state economy. Notably, the Indirect Employment (1,301 jobs) is nearly equal to the Direct Employment (1,456 jobs). This nearly 1-to-1 ratio suggests that these manufacturers source a significant portion of their intermediate inputs, likely

industrial paper rolls and paperboards, from within the state's own primary mill network, thereby keeping the supply chain spending localized.

In terms of total contribution, the sector supports a total of 3,843 jobs and contributes $1.55 billion in total economic output. Additionally, the sector is a highly efficient generator of wealth; with a direct Value-Added of $253.0 million, it achieves a Value-Added-to-Output ratio of approximately 25%, consistent with specialized manufacturing that adds significant value to raw commodities.

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

	Employment	Labor Income	Value-Added	Output
Direct	1,456	$142,361	$252,956	$1,020,285
Indirect	1,301	$97,482	$163,331	$330,123
Induced	1,086	$63,246	$122,356	$195,061
Total	**3,843**	**$303,089**	**$538,643**	**$1,545,469**

† 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 Industry (2017–2023)

As illustrated in Figure 12, the Secondary Paperboard industry stands out as a high-growth sector, effectively counterbalancing the declines seen in primary paper manufacturing. The industry has demonstrated sustained expansion in both workforce and revenue over the six-year period. Real industry output grew by 29.3%, surging from $789.4 million in 2017 to $1.02 billion in 2023, firmly establishing itself as a billion-dollar sub-sector.

The trend line reveals a clear inflection point in 2020, where output jumped to $1.035 billion. This surge likely correlates with the pandemic-driven explosion in e-commerce and the resulting demand for shipping containers and packaging materials. Unlike other forest sectors that shed jobs during this transition, the Secondary Paperboard sector has been a net job creator. Direct employment expanded by 11.0% over the study period, rising from 1,312 jobs in 2017 to a period high of 1,456 jobs in 2023. This growth trajectory suggests that Maine is successfully capturing value further down the supply chain, moving from producing raw paper rolls to manufacturing finished packaging solutions.

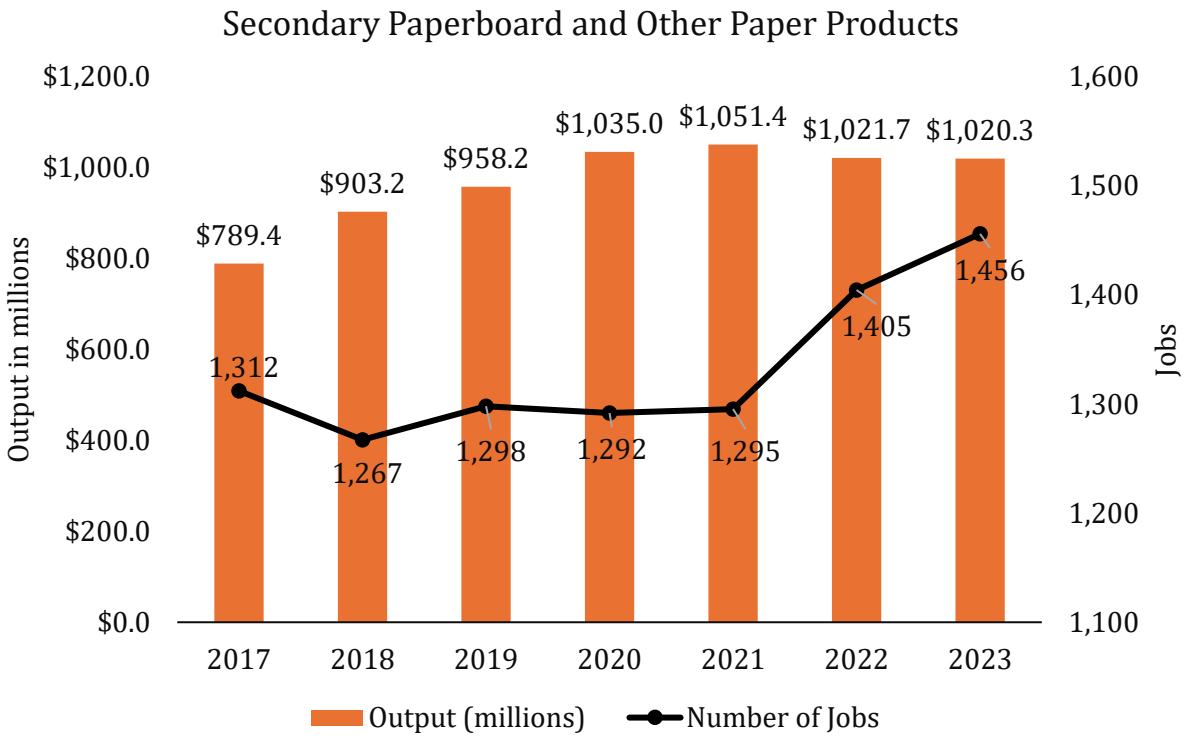

Figure 12: Trend in direct employment and output for the Secondary Paperboard and Other Paper Products industry in Maine, 2017–2023.

Top Forest Product Sectors

Maine's forest-products sector is represented by 30 IMPLAN industries because the Paperboard Mills and Stationery Product Manufacturing sector does not appear in the state's 2023 industry mix. Commercial Logging serves as the sector's primary employment engine, ranking first with 3,286 jobs (accounting for 20.5 percent of all direct forest sector employment). It is followed by Paper Mills with 2,524 jobs (15.7 percent) and Sawmills with 2,396 jobs (14.9 percent). Together, these three foundational sectors employ over half (51.1 percent) of the industry's direct workforce.

Table 12: Top five industries in terms of direct Economic Contributions in Maine state, 2023. †

Rank	Employment	Labor Income	Value-Added	Output
1	Commercial logging (3,286)	Paper mills ($314,870)	Paper mills ($550,241)	Paper mills ($2,075,800)
2	Paper mills (2,524)	Sawmills ($190,785)	Sawmills ($300,662)	Sawmills ($1,212,011)
3	Sawmills (2,396)	Commercial logging ($133,750)	Sanitary paper product manufacturing ($173,666)	Sanitary paper product manufacturing ($706,819)
4	Support activities for forestry (1,196)	Sanitary paper product manufacturing ($87,871)	Commercial logging ($131,759)	Reconstituted wood product manufacturing ($313,447)
5	All other miscellaneous wood product manufacturing (1,016)	All other miscellaneous wood product manufacturing ($68,702)	All other miscellaneous wood product manufacturing ($97,270)	All other miscellaneous wood product manufacturing ($287,155)

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

However, the contribution to Labor Income shifts toward high-value manufacturing. Paper Mills emerged as the dominant financial anchor, generating $314.9 million in Labor Income (27.0 percent of the sector total). Sawmills followed with $190.8 million (16.4 percent), while Commercial Logging contributed $133.8 million (11.5 percent).

Similarly, in terms of output, economic activity is even more highly concentrated. Paper Mills produced $2.08 billion in 2023 (33.8 percent of total forest-products output), solidifying their role as the sector's fiscal heavyweight. Sawmills followed with $1.21 billion (19.7 percent), and Sanitary Paper Product Manufacturing ranked third with $706.8 million (11.5 percent). The top five industries, including Reconstituted Wood Product Manufacturing ($313.4 million, 5.1 percent) and All Other Miscellaneous Wood Product Manufacturing ($287.2 million, 4.7 percent), together account for approximately 74.7 percent of the sector's entire direct output. A similar trend is visible in Value-Added, where Paper Mills contributed $550.2 million (30.8 percent) to the state's GSP, nearly double the contribution of Sawmills ($300.7 million, 16.8 percent) and significantly higher than Commercial Logging ($131.8 million, 7.4 percent).

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

Excluding the forest-products industries themselves, Maine included 388 other IMPLAN sectors in 2023 representing the broader regional economy. Table 13 highlights the top ten non-forest industries most heavily supported by this economic activity. Together, these ten sectors account for 5,319 jobs, representing approximately 34.1 percent of all indirect and induced jobs generated by the forest economy.

The composition of these top sectors reveals two distinct drivers of impact:

Logistics and Supply Chain: The strongest linkages are found in the movement and trade of physical goods. Wholesale - Other Durable Goods ranks as the single largest supporting sector (726 jobs), followed closely by Truck Transportation (626 jobs), Warehousing and Storage (618 jobs), and Couriers and Messengers (408 jobs). This underscores the forest sector's heavy reliance on a robust logistics network to transport raw timber and distribute finished paper and lumber products.

Induced Household Spending: The presence of Hospitals (572 jobs) and Restaurants (Full-service: 463 jobs; Limited service: 333 jobs) in the top ten illustrates the "induced" power of the forest workforce. These jobs are supported not by mill purchases, but by the income spent by forest-sector employees in their local communities, driving demand for healthcare, dining, and other essential services.

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

Industries	Number of Jobs
Wholesale - Other durable goods merchant wholesalers	726
Truck transportation	626
Warehousing and storage	618
Other real estate	616
Hospitals	572
Management of companies and enterprises	568
Full-service restaurants	463
Couriers and messengers	408
Employment services	390
Limited-service restaurants	333
Total	**5,319**

In terms of economic output, the forest sector's influence shifts toward capital-intensive infrastructure and trade sectors. As detailed in Table 14, the top ten industries supported by forest-sector activity generated a combined $1.39 billion in 2023. The dominant category involves the movement and wholesale distribution of goods, reflecting the forest industry's heavy reliance on logistics to move high volumes of timber and paper.

The leading sector is Wholesale - Other Durable Goods, generating $232.6 million in output. When combined with Nondurable Goods Wholesalers ($94.9 million), the wholesale trade sector alone accounts for over $327 million in economic activity supported by the forest industry. Unlike the employment rankings, the output rankings highlight the sector's massive energy footprint. Electric Power Transmission and Distribution ranks third with $182.7 million, driven by the high electricity consumption of pulp and paper mills. Similarly, Truck Transportation generated $141.7 million, underscoring the critical role of freight in the supply chain.

The presence of Owner-Occupied Housing as the second-largest sector ($202.9 million) is a significant indicator of the induced effect. In economic modeling, this sector represents the imputed value of homeownership. Its high ranking confirms that forest sector jobs, particularly the high-wage manufacturing roles identified in previous tables, sustain high levels of homeownership and household wealth in Maine. Additionally, the sector supports $123.2 million in output for Hospitals, further reflecting the essential spending power of the forest workforce within their local communities.

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

Industries	Output
Wholesale - Other durable goods merchant wholesalers	$232,618
Owner-occupied housing	$202,928
Electric power transmission and distribution	$182,728
Truck transportation	$141,726
Management of companies and enterprises	$134,510
Other real estate	$124,682
Hospitals	$123,240
Wholesale - Other nondurable goods merchant wholesalers	$94,902
Monetary authorities and depository credit intermediation	$92,546
Warehousing and storage	$62,458
Total	**$1,392,337**

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

Importance of the Forest Products Industries in Context

Natural Resources and Agricultural Industries

To contextualize the economic importance of the forest economy, Table 15 compares the direct contributions of Maine's four primary natural resource sectors: Forest Products, Agriculture, Commercial Fishing/Hunting, and Mining. The data shows that the Forest Products industry is the dominant economic anchor of Maine's rural economy, significantly outperforming its peers in scale, stability, and wealth generation. In 2023, the Forest Products sector ranked first across all four economic measures.

With $6.15 billion in direct output, the forest sector generated 73.9 percent of the total output produced by Maine's natural resource base. This is more than six times larger than the Agricultural sector ($998.5 million) and nine times larger than Mining ($667.2 million). Further, the sector's lead in Value-Added is equally pronounced. Contributing $1.79 billion to the state GDP, the forest industry generated nearly 59 percent of the total Value-Added for the entire natural resources group. The forest sector supported 16,067 jobs, accounting for 43.0 percent of the total natural resources workforce. This exceeds Agriculture (11,874 jobs) and is nearly double the Commercial Fishing workforce (8,405 jobs).

The comparative trend analysis reveals that while the Forest Products sector has experienced a moderate contraction (-6.3% Output), it has acted as a stabilizing force relative to the extreme volatility seen in other sectors. The Agriculture sector faced a severe structural recession over the study period, with employment falling by 48.4% and real output collapsing by 55.3%. By comparison, the single-digit declines in the forest sector reflect significantly higher resilience. The Commercial Fishing sector exhibited a troubling divergence: while employment grew by 21.9% (adding roughly 1,500 jobs), real output plummeted by 46.9%. This indicates a massive drop in revenue per fisher. Conversely, the small Mining sector (-8.8% jobs) saw an explosive increase in financial intensity, with Value-Added surging by 694.7%. However, given its small baseline size, even this massive percentage growth does not challenge the forest sector's aggregate leadership.

Table 15: Natural Resources and Agricultural Production Industries in Maine state, 2023. †

Industry	Employment	Δ2017	Labor Income	Δ2017††	Value-Added	Δ2017††	Output	Δ2017††
1. Forest Products	16,067	-14.9%	$1,166,317	-3.7%	$1,787,856	-8.0%	$6,147,705	-6.3%
2. Commercial fishing, hunting & trapping	8,405	21.9%	$395,521	-41.3%	$502,144	-39.9%	$508,068	-46.9%
3. Mining, and oil & gas production	997	-8.8%	$92,027	346.3%	$315,740	694.7%	$667,197	322.9%
4. Agriculture production (plant crops and animals)	11,874	-48.4%	$382,626	-63.8%	$445,159	-69.5%	$998,498	-55.3%
Total	**37,343**	**-25.1%**	**$2,036,491**	**-31.2%**	**$3,050,899**	**-28.7%**	**$8,321,467**	**-16.0%**

† 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 Maine'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 the forest sector is a top-tier industrial anchor, ranking as either the first or second largest manufacturer across all major economic metrics.

In terms of gross revenue, Forest Products Manufacturing is the state's dominant industrial leader. In 2023, the sector generated $5.81 billion in direct output. This figure surpasses the closest competitor, Transportation Equipment Manufacturing ($4.17 billion), by over $1.6 billion. This indicates that while other sectors may employ slightly more people, the forest sector's throughput and sales volume are unmatched in the Maine industrial economy.

The manufacturing landscape is defined by a "Big Two" dynamic between Forest Products and Transportation Equipment. Transportation Equipment ranked first with 11,146 jobs, followed closely by Forest Products with 10,790 jobs. Together, these two sectors alone account for 38.5 percent of Maine's entire manufacturing workforce (21,936 out of 56,900 jobs). The third-largest employer, Food Manufacturing (7,338 jobs), is significantly smaller. A similar hierarchy exists in wealth creation. Transportation Equipment generated the highest Value-Added ($1.63 billion), with Forest Products a close second ($1.56 billion).

The Forest Products sector is a massive component of Maine's manufacturing capacity. In 2023, it accounted for 19.0 percent of all manufacturing jobs, 22.9 percent of all manufacturing output, and 20.6 percent of all manufacturing Labor Income. *T*he data highlights the high productivity of forest manufacturing. The sector generates approximately $538,000 in output per worker ($5.81B / 10,790). This is significantly higher than the state manufacturing average of $445,000 and well above Transportation Equipment ($374,000 per worker). This suggests that Maine's paper mills and sawmills are operating with high capital efficiency relative to other heavy industries in the state.

Table 16: Manufacturing Industries in Maine state, 2023. †

Manufacturing Industries	Employment	Labor Income	Value-Added	Output
Transportation Equipment	11,146	$1,030,158	$1,626,877	$4,174,690
Forest Products	10,790	$971,342	$1,555,046	$5,813,438
Food	7,338	$420,395	$770,459	$3,485,113
Fabricated Metal	5,203	$401,401	$618,379	$1,641,501
Textiles and Apparel	3,366	$193,102	$237,451	$760,522
Chemical	3,329	$428,713	$830,438	$2,546,530
Beverage and Tobacco Product	2,810	$200,969	$577,734	$1,584,319
Miscellaneous	2,564	$179,563	$255,123	$743,586
Plastics and Rubber Products	2,155	$174,501	$305,396	$912,484
Machinery	1,945	$156,440	$263,005	$842,311
Computer and Electronic Product	1,878	$204,897	$427,857	$1,119,152
Printing	1,695	$97,910	$149,724	$327,037
Nonmetallic Mineral Product	1,512	$122,687	$178,130	$527,977
Electrical Equipment	435	$41,604	$49,165	$177,269
Petroleum and Coal	428	$73,560	$152,318	$522,893
Primary Metal	304	$25,605	$46,687	$165,717
Total	**56,900**	**4,722,847**	**8,043,786**	**25,344,538**
Compared to 2017	**2%**	**29%**	**40%**	**23%**

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

Summary

The forest products industry in Maine functions as a highly integrated economic system, spanning land management, extraction, primary processing, and advanced manufacturing. Using 2023 IMPLAN data, this study aggregates 32 economic sectors (but only 30 are presents in Maine) into seven industry groups to capture the full scope of direct activity and supply-chain ripples. In 2023, the sector directly supported 16,067 jobs and generated $6.15 billion in direct output. When accounting for indirect supply-chain purchases and induced household spending, the total economic contribution reached 31,650 jobs, $9.39 billion in output, and $3.64 billion in Value-Added. The industry exhibits strong economic leverage, evidenced by multipliers of 1.97 for employment and 2.03 for Value-Added. These figures underscore that the sector creates more wealth and supports nearly as many jobs in the broader economy as it does within its own fence lines.

Performance trends since 2017 reveal a sector in transition. While direct employment fell by 14.9 percent and direct output by 6.3 percent, productivity has risen. Real output per job increased from approximately $347,500 in 2017 to $382,600 in 2023, reflecting increased automation and capital investment. Within the industry groups, Pulp, Paper, and Paperboard Mills remain the dominant revenue generator, while Logging and Primary Solid Wood Products serve as the primary employment engines. Notable resilience was observed in Secondary Paperboard (packaging) and Secondary Solid Wood manufacturing, both of which maintained or grew their economic footprint relative to pre-pandemic levels.

At the individual sector level, the economy is anchored by Paper Mills and Sawmills, which lead in value creation, and Commercial Logging, which leads in employment. The economic impact extends well beyond the woods and mills; the top ten non-forest industries impacted include Wholesale Trade, Truck Transportation, Real Estate, and Hospitals, which together account for over $1.39 billion in supported output. Overall, while Maine's forest products industry has consolidated in size since 2017, it remains the foundational pillar of the state's rural economy, driving the majority of its natural resource output and providing critical high-wage manufacturing employment.

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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	Nonupholstered 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***

Sectors denoted by "***" indicate that the corresponding FPI is not present in Maine.

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

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

Sectors denoted by "***" indicate that the corresponding FPI is not present in Maine.

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	503	$4,224	$4,780	$14,712
Forestry, forest products, and timber tract production	174	$7,091	$7,649	$9,359
Support activities for agriculture and forestry	1,196	$36,023	$36,738	$39,331
Total	**1,874**	**$47,338**	**$49,167**	**$63,402**

† 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	3,286	$133,750	$131,759	$145,225
Total	**3,286**	**$133,750**	**$131,759**	**$145,225**

† 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	117	$13,887	$51,885	$125,640
Sawmills	2,396	$190,785	$300,662	$1,212,011
Wood preservation	51	$3,334	$8,646	$42,277
Veneer and plywood manufacturing	48	$3,686	$6,426	$18,715
Reconstituted wood product manufacturing	340	$31,589	$86,401	$313,447
Total	**2,952**	**$243,281**	**$454,018**	**$1,712,090**

† 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	362	$31,634	$45,281	$152,620
Wood windows and door manufacturing	115	$8,389	$11,484	$34,806
Cut stock, resawing lumber, and planing	21	$1,485	$2,618	$8,417
Other millwork, including flooring	59	$3,620	$5,869	$18,580
Wood container and pallet manufacturing	420	$30,441	$39,355	$112,001
Manufactured home (mobile home) manufacturing	99	$6,756	$7,867	$29,921
Prefabricated wood building manufacturing	298	$20,254	$33,348	$108,420
All other miscellaneous wood product manufacturing	1,016	$68,702	$97,270	$287,155
Total	**2,391**	**$171,281**	**$243,093**	**$751,920**

† 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	268	$16,711	$18,815	$50,014
Upholstered household furniture manufacturing	132	$8,948	$10,084	$29,533
Nonupholstered wood household furniture manufacturing	320	$18,627	$20,599	$58,779
Institutional furniture manufacturing	226	$19,602	$21,882	$56,362
Wood office furniture manufacturing	6	$441	$534	$1,659
Custom architectural woodwork and millwork	259	$18,304	-$5,103	$35,637
Showcase, partition, shelving, and locker manufacturing	257	$15,704	$18,849	$65,114
Total	**1,468**	**$98,338**	**$85,660**	**$297,098**

† 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	116	$15,098	$20,962	$81,885
Paper mills	2,524	$314,870	$550,241	$2,075,800
Paperboard mills	0	$0	$0	$0
Total	**2,640**	**$329,968**	**$571,203**	**$2,157,684**

† 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	308	$27,307	$38,588	$176,788
Paper bag and coated and treated paper manufacturing	91	$8,361	$11,988	$43,117
Stationery product manufacturing	0	$0	$0	$0
Sanitary paper product manufacturing	835	$87,871	$173,666	$706,819
All other converted paper product manufacturing	223	$18,822	$28,714	$93,561
Total	**1,456**	**$142,361**	**$252,956**	**$1,020,285**

† 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	567	$8,953	$9,937	$23,893
Forestry, forest products, and timber tract production	169	$5,805	$6,058	$10,494
Support activities for agriculture and forestry	1,590	$45,595	$44,052	$50,155
Total	**2,326**	**$60,352**	**$60,048**	**$84,542**

† 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	5,052	$159,369	$305,440	$416,480
Total	**5,052**	**$159,369**	**$305,440**	**$416,480**

† 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	187	$11,536	$84,375	$161,559
Sawmills	2,230	$120,135	$138,203	$629,511
Wood preservation	103	$6,145	$11,558	$60,579
Veneer and plywood manufacturing	159	$9,463	$11,604	$44,755
Reconstituted wood product manufacturing	308	$24,794	$41,257	$170,472
Total	**2,986**	**$172,074**	**$286,996**	**$1,066,877**

† 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	200	$11,464	$13,049	$45,252
Wood windows and door manufacturing	270	$14,266	$17,807	$60,346
Cut stock, resawing lumber, and planing	91	$3,999	$5,662	$20,329
Other millwork, including flooring	103	$3,871	$4,971	$19,341
Wood container and pallet manufacturing	449	$18,324	$21,294	$67,014
Manufactured home (mobile home) manufacturing	0	$0	$0	$0
Prefabricated wood building manufacturing	382	$17,365	$19,316	$62,677
All other miscellaneous wood product manufacturing	989	$41,099	$50,559	$170,500
Total	**2,484**	**$110,389**	**$132,658**	**$445,458**

† 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	369	$12,666	$14,523	$47,889
Upholstered household furniture manufacturing	17	$805	$969	$3,370
Nonupholstered wood household furniture manufacturing	402	$14,487	$19,220	$49,781
Institutional furniture manufacturing	259	$20,122	$24,611	$57,375
Wood office furniture manufacturing	8	$297	$466	$1,608
Custom architectural woodwork and millwork	290	$15,473	$18,743	$46,349
Showcase, partition, shelving, and locker manufacturing	244	$9,943	$12,966	$46,167
Total	**1,590**	**$73,792**	**$91,498**	**$252,539**

† 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	634	$64,024	$88,926	$415,447
Paper mills	2,503	$257,241	$462,533	$1,925,517
Paperboard mills	0	$0	$0	$0
Total	**3,137**	**$321,265**	**$551,459**	**$2,340,964**

† 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	332	$21,943	$30,028	$150,115
Paper bag and coated and treated paper manufacturing	104	$7,011	$10,284	$44,714
Stationery product manufacturing	0	$0	$0	$0
Sanitary paper product manufacturing	394	$33,566	$83,635	$289,583
All other converted paper product manufacturing	482	$30,421	$37,933	$145,445
Total	**1,312**	**$92,942**	**$161,880**	**$629,856**

† 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	567	$10,947	$12,151	$29,946
Forestry, forest products, and timber tract production	169	$7,098	$7,408	$13,153
Support activities for agriculture and forestry	1,590	$55,750	$53,864	$62,860
Total	**2,326**	**$73,794**	**$73,423**	**$105,958**

† 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	5,052	$194,866	$373,470	$521,982
Total	**5,052**	**$194,866**	**$373,470**	**$521,982**

† 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	187	$14,106	$103,168	$202,485
Sawmills	2,230	$146,893	$168,985	$788,979
Wood preservation	103	$7,514	$14,132	$75,925
Veneer and plywood manufacturing	159	$11,571	$14,188	$56,092
Reconstituted wood product manufacturing	308	$30,317	$50,446	$213,656
Total	**2,986**	**$210,400**	**$350,919**	**$1,337,138**

† 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	200	$14,017	$15,955	$56,716
Wood windows and door manufacturing	270	$17,443	$21,773	$75,633
Cut stock, resawing lumber, and planing	91	$4,890	$6,923	$25,478
Other millwork, including flooring	103	$4,734	$6,079	$24,240
Wood container and pallet manufacturing	449	$22,406	$26,037	$83,989
Manufactured home (mobile home) manufacturing	0	$0	$0	$0
Prefabricated wood building manufacturing	382	$21,233	$23,619	$78,554
All other miscellaneous wood product manufacturing	989	$50,253	$61,820	$213,691
Total	**2,484**	**$134,975**	**$162,205**	**$558,301**

† 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	369	$15,488	$17,758	$60,020
Upholstered household furniture manufacturing	17	$984	$1,185	$4,223
Nonupholstered wood household furniture manufacturing	402	$17,714	$23,500	$62,391
Institutional furniture manufacturing	259	$24,604	$30,092	$71,910
Wood office furniture manufacturing	8	$363	$570	$2,016
Custom architectural woodwork and millwork	290	$18,919	$22,917	$58,090
Showcase, partition, shelving, and locker manufacturing	244	$12,157	$15,854	$57,863
Total	**1,590**	**$90,228**	**$111,878**	**$316,512**

† 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	634	$78,284	$108,733	$520,688
Paper mills	2,503	$314,536	$565,552	$2,413,289
Paperboard mills	0	$0	$0	$0
Total	**3,137**	**$392,820**	**$674,286**	**$2,933,977**

† 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	332	$26,831	$36,717	$188,142
Paper bag and coated and treated paper manufacturing	104	$8,573	$12,574	$56,040
Stationery product manufacturing	0	$0	$0	$0
Sanitary paper product manufacturing	394	$41,042	$102,263	$362,940
All other converted paper product manufacturing	482	$37,197	$46,381	$182,290
Total	**1,312**	**$113,643**	**$197,935**	**$789,412**

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