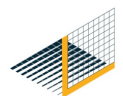


Economic Impacts of the Forestry Sector in Nova Scotia



November, 2023

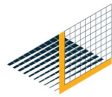
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ABOUT THIS REPORT

This report examines the economic activity of the forestry sector in Nova Scotia over the last 5 years (2018-2022). The views expressed, and any errors or omissions, are the sole responsibility of the authors.

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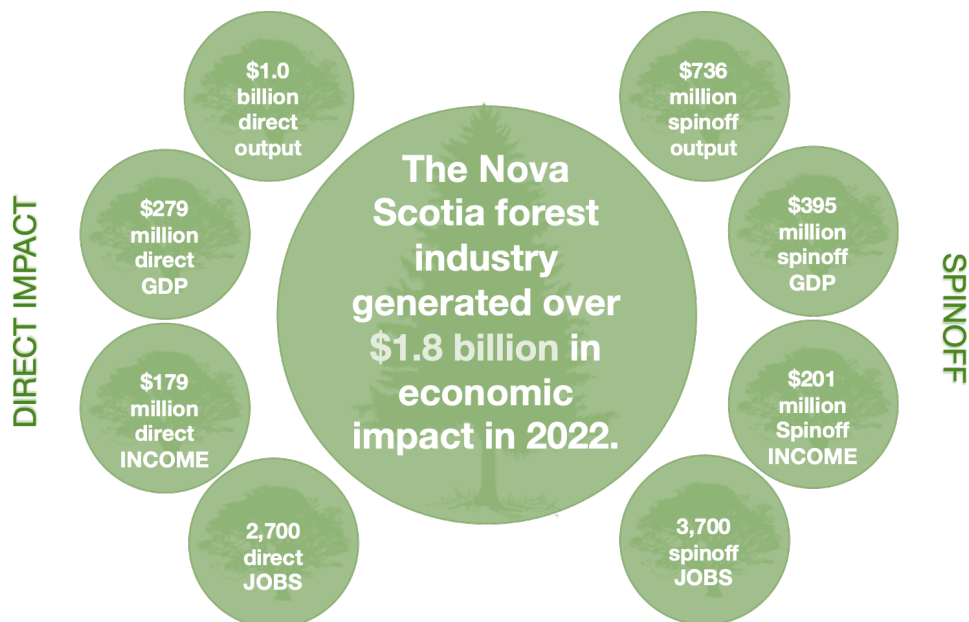
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EXECUTIVE SUMMARY

In 2022, the Nova Scotia forestry sector generated \$1.8 billion in economic impact, including \$674 million (GDP) to the provincial economy, over 6,400 full-time equivalent (FTE) jobs, and contributed \$84 million in taxes to the provincial government and \$87 million to the federal government.

The economic benefits span the entire province with about 22% in the western region, 44% in the central region, and 33% in the eastern region. The breakdowns within the sector are:

- ❑ **Forestry and logging** – generates \$73 million in added-value (GDP), 601 FTE jobs, \$5 million in provincial taxes, and \$5 million in federal taxes.
- ❑ **Support for logging** - generates \$36 million in added-value (GDP), 279 FTE jobs, \$2 million in provincial taxes, and \$2 million in federal taxes.
- ❑ **Wood product manufacturing** - generates \$322 million in added-value (GDP), 3,874 FTE jobs, \$30 million in provincial taxes, and \$31 million in federal taxes.
- ❑ **Paper product manufacturing** - generates \$243 million in added-value (GDP), 1,660 FTE jobs, \$47 million in provincial taxes, and \$49 million in federal taxes.



At \$606 million (2022), the forestry sector is the third largest exporter behind the seafood sector (fishery and seafood manufacturing) and tire manufacturing. Forestry exports represented 9%-13% of all Nova Scotia exports in the past five years.

Demand for wood fibre-based products remains strong and there are opportunities for growth. The current harvest levels of 2.3 million m³ are ~40% below sustainable harvest levels. At today's economic impact and productivity rate, a harvest of 5 million m³ would move the NS forestry sector toward \$1.5 billion in added-value (GDP), with \$820 million in salaries and wages, nearly 14,000 FTE jobs, and \$181 million in taxes generated to the provincial government.

1 INTRODUCTION

1.1 Background

An economic impact report was originally prepared for Forest Nova Scotia (FNS) in 2016, which outlined contributions from the activities of the forestry sector. Key metrics, including GDP and employment were presented, including an allowance for both indirect and induced contribution. This analysis refreshes a similar report completed in 2016, and builds upon it by examining the regional and business segment level impacts within the Province where possible.

1.2 Scope and Data

The scope and data set used to develop this report mirrors the methodology used in the 2016 FNS report, as outlined below:

This report is grounded in Statistics Canada’s North American Industry Classification System (NAICS) where the following subsectors are included:

- ❑ NAICS 113 – Forestry and logging
- ❑ NAICS 1153 – Support activities for forestry
- ❑ NAICS 321 – Wood product manufacturing
- ❑ NAICS 322 – Paper manufacturing

Christmas trees and maple tree products are excluded since these are found in NAICS 111 – the crop production subsector. Statistics Canada economic indicators are available for these forest activities up to 2022.

In addition to the economic indicators provided by Statistics Canada, economic impact analysis is used to estimate tax revenues generated to federal and provincial governments. This also helps appreciate additional spinoff impacts, particularly the spending of incomes by those employed in the forest sector and supply-chain. Economic impact analysis is described in more detail in the next section.

The Province of Nova Scotia’s Registry of Buyers of primary forest products (i.e. harvested trees) provides key information contained in annual reports. The 2023 report shows 2022 data regarding softwood and hardwood harvest volumes in counties across the province, and the processing capacity of major mills by county. This supports the estimated geographic distribution of impacts.

2 ECONOMIC IMPACTS

2.1 Approach

The following provides explanation of the approach, key terms, and economic linkages in the forestry sector, before proceeding with the impact results.

In order to determine the full impacts of forestry sector in Nova Scotia, the direct expenditures (output) are used to drive the Statistics Canada Inter-provincial Input-Output model (2019 version). To avoid double-counting, we do not use the output of forestry and logging or support activities to forestry, since these are inputs to the manufacturing plants (mills).

The model captures the relationship amongst industries in the province (and the extent to which spending in Nova Scotia triggers impacts elsewhere in Canada), measuring how direct expenditures on goods and services by the sector create output, jobs and income in the economy:

- **Direct impact:** refers to the impact generated by the sector. Direct GDP refers to the value added created by the sector while direct employment and labour income refers to the actual jobs and payroll within the sector.
- **Indirect impact:** refers to the modeled impacts arising from purchased inputs triggered by the direct activity. For example, a woods contractor buys equipment from manufacturers, maintenance from service companies and fuel and consumables from various suppliers. These suppliers in turn buy their inputs from other companies, and so on. Taken together, the process of producing these goods and services creates profits, employment and income generating indirect impacts.
- **Induced demand:** refers to the modeled demand created in the broader economy through consumer spending of incomes earned by those employed in direct and indirect activities. It may take a year or more for these rounds of consumer spending to work their way through an economy.

To prepare data to drive the I-O model, direct expenditures are first classified by industry using standard industry classification codes (NAICS). The model accepts this detailed expenditure information and generates the direct, indirect and induced impacts according to the standard economic indicators:

- **Output:** Economic impact arises as industry expenditures work their way through the economy. Spending within the sector on inputs becomes the revenue of many another companies, which in turn they spend on inputs for the goods and services they produce, and so on. Gross value of output, then, is the cumulative sum of these sales and purchases of intermediate and final goods and services. These transactions occur in Nova Scotia, and also spill over to other provinces where supply and service industries may be located.

- ❑ **Gross Domestic Product:** GDP captures the value of final goods and services produced in the economy, providing a measure of the value-added or income generated (wages and salaries for labour and returns to and of capital in the form of profit and depreciation).
- ❑ **Employment:** This captures the numbers employed, expressed in full-time equivalent jobs (FTE).
- ❑ **Labour Income:** this captures payments in the form of wages and salaries earned in a sector. Returns to labour in the form of wages, salaries and earnings form a key component of GDP.
- ❑ **Taxes:** the I-O model captures federal, provincial and municipal direct and indirect taxes. Using industry-specific income tax rates from the Statistics Canada, custom calculations of federal and provincial income taxes are estimated. The Statistics Canada I-O Model does not estimate corporate income taxes because of wide differences in accounting assumptions across companies.

Each of the economic impact indicators are important, however more attention is generally given to GDP and jobs. GDP is also described as the true “added-value” to the economy, and jobs are a particular focus of policy and public interest.

2.2 Impact Results

The total estimated forestry sector output in 2022 produces the following economic impacts based on the Statistics Canada input-output model:

Table 2.1: Nova Scotia forestry sector economic impacts in 2022

(\$M)	Direct	Indirect	Induced	Province	Canada ³
Output	\$1,185 ¹	\$564	\$172	\$1,780	\$2,605
GDP	\$279	\$284	\$111	\$674	\$1,035
Income	\$179	\$156	\$45	\$380	\$582
Jobs (FTE)	2,694	2,672	1,048	6,414	9,545
Prov taxes ²	\$31	\$28	\$25	\$84	
Fed taxes ²	\$29	\$20	\$13	\$62	\$87

Source: Statistics Canada Inter-Provincial Economic Input-Output Model, 2019

Notes: 1. The direct output includes \$142 million for logging & forestry and support services, but these are excluded from the model run to avoid double-counting, 2. Tax impacts include a Gardner Pinfold custom calculation of income taxes based on Statistics Canada marginal effective tax rates, and 3. Canada-wide impacts are totals, not additions to the provincial impacts.

- ❑ **Output:** A supply chain with thousands of companies in Nova Scotia supports forestry sector operations. The total value of output produced by mills and the supply companies amounted to \$1.8 billion in 2022. As supply chains extend into other provinces the total output in Canada is \$2.6 billion.
- ❑ **GDP:** The sector generates \$674 million in provincial GDP, \$279 million at the mills and another \$395 million elsewhere in the economy. The mill’s contribution to GDP represents about 8.9% of the province’s goods manufacturing.

- **Employment:** There are 2,694 direct full-time equivalent (FTE) jobs in the forestry sector, and another 2,672 indirect jobs including about 900 in wood supply and support services. Another 1,048 jobs are created by the spending of incomes earned by those employed in direct and indirect activities (induced impacts). Although logging and support services are considered part of the forestry sector, the economic input-output analysis recognizes these as inputs to the mills and are part of the indirect impacts.
- **Income:** Through its direct and spinoff activities, the sector creates about \$380 million in labour income in Nova Scotia. The direct employees at the mills are well paid with an average income of \$66,500. Average incomes for those employed in indirect activities including forestry and support services is \$58,200. The average annual earnings in Nova Scotia in 2020 (latest Census) was \$43,120. The direct salaries and indirect are about 54% and 35% above the provincial average respectively.
- **Taxes:** Through taxes on personal income, production (e.g., payroll tax) and products (e.g., sales and excise taxes) in direct and spinoff activities, the forest sector generates about \$84 million annually in Nova Scotia, and about \$87 million to the federal government.

The 2022 economic impacts may be compared with previous analysis based on 2015 data before the closure of Northern Pulp NS. In 2015, the direct output was \$1.2 billion (15% higher than in 2022), and this generated \$800 million in GDP (19% higher than 2022), \$501 million of income (19% higher than 2022), and 9,600 FTE jobs¹ (50% more than 2022) in total across the province (direct and spinoff impacts).

2.3 Regional & Subsector Impacts

2.3.1 Impacts by Region

Of the 2,315,054 m³ of softwood and hardwood harvested in Nova Scotia in 2022, 36% was harvested in the Eastern Region, 36% in the Central Region, and 28% came from the Western Region. However, there is more processing capacity in Central and Eastern regions. Based on where forestry and processing takes place, the following is an estimated distribution of economic impacts across the regions.

Table 2.2: Regional distribution of Nova Scotia economic impacts, 2022

	Western	Central	Eastern	Total
Distribution	22%	44%	33%	100%
Output	\$399	\$785	\$596	\$1,780
GDP	\$158	\$286	\$229	\$674
Income	\$88	\$163	\$129	\$380
Jobs	1,505	2,731	2,178	6,414
Prov taxes	\$19	\$36	\$28	\$84
Fed taxes	\$14	\$27	\$21	\$62

¹ 2015 previously reported job impacts are revised from 11,500 to 9,600 for consistency with updated methods applied to 2022 data in this report.

2.3.2 Impacts by Forestry Subsector

The provincial impacts for output, GDP, jobs, and taxes are distributed by forestry subsector in the table below. Some impact figures are based on Statistics Canada tables, and the remaining model impacts are distributed on a proportional basis.

Table 2.3: Forestry subsector share of provincial economic impacts, 2022

(\$M)	Wood	Paper	Logging	Support	Total
Output					
Direct	\$404	\$639			\$1,044
Indirect	\$164	\$259	\$100	\$41	\$564
Induced	\$61	\$96	\$11	\$4	\$172
Prov Total	\$629	\$995	\$111	\$46	\$1,780
GDP					
Direct	\$159	\$120			\$279
Indirect	\$110	\$83	\$61	\$30	\$284
Induced	\$53	\$40	\$12	\$6	\$111
Prov Total	\$322	\$243	\$73	\$36	\$674
Jobs (FTE)					
Direct	1,886	808			2,694
Indirect	1,355	581	503	233	2,672
Induced	633	271	98	46	1,048
Prov Total	3,874	1,660	601	279	6,414
Taxes					
Province	\$30	\$47	\$5	\$2	\$84
Canada	\$31	\$49	\$5	\$2	\$87

Notes: Subsector shares are estimated based on Statistics Canada tables and Gardner Pinfold estimates. The balance of impacts may be slightly tilted toward wood and paper mills. The totals in this table match the provincial totals in Table 2.1, except the Canada taxes, which reflect the national total.

3 ANALYSIS

3.1 Industry Challenges

3.1.1 Closure of Northern Pulp

In January of 2020, Northern Pulp, the Province's single largest user of wood fibre, was compelled to cease operations, following their inability to meet conditions set forth under the 2015 "Boat Harbour Act".

Although the closure did not have the catastrophic impacts originally projected for the sector—largely the result of historic highs in lumber markets, and the willingness of sawmills to take smaller diameter wood, the 2020 closure of Northern Pulp brought about substantial change for Nova Scotia's forest industry, across economic, environmental, and social spheres.

Economically, the closure carried substantial impact through all aspects of the supply chain and supporting services, resulting in multiple cases of job loss and financial hardship to those most closely tied to the mill's operation.

Having long been the subject of critique by environmentalists and others, especially concerning effluent treatment and its impact on the Northumberland Strait, Northern Pulp's closure was hailed as a step forward by some, spurring broader dialogues about the province's forestry practices and industrial regulations.

Recognizing the breadth and depth of the implications, the provincial government unveiled funding and initiatives aimed at aiding the affected workforce and businesses. These measures encompassed transition support for the impacted workers and strategies to diversify the regional economy.

Beyond these economic and environmental discussions, the closure also left a deep social imprint. For households whose sustenance depended on the mill, the future appeared fraught with uncertainty and stress. The community, too, was divided — some residents welcomed the mill's closure due to ecological apprehensions, while others mourned the evaporation of economic stability.

3.1.2 COVID-19 Pandemic

The COVID-19 pandemic starting in 2020 left a marked impact on the Nova Scotia forest industry, echoing the challenges felt across the global economy. One of the most immediate issues was supply chain disruptions which hindered activities reliant on imported equipment and supplies. The labour-intensive nature of forestry saw significant disruptions as well. Reduced workforce numbers, whether due to illness, quarantine measures, or caution regarding close-proximity work, inevitably slowed production in some sectors.

The pandemic also reshaped demand. The broader economic downturn, characterized by reduced spending and a cautious stance towards infrastructure and housing projects, meant a dip in demand for wood-based construction materials. The export-dependent aspect of Nova Scotia's forest industry grappled with the double blow of a global recession and logistical issues, leading to significant setbacks. Smaller forestry operators felt the financial squeeze. With

dwindling cash flows, many faced tough decisions regarding layoffs, operational hours, and even potential closures. Operational challenges compounded these difficulties. To comply with health and safety guidelines, many mills and processing plants either curtailed hours of operation or restructured their shifts, affecting efficiency.

3.1.3 Wood Acquisition

Table 3.1 compares wood acquisition by sawmills for three regions of Nova Scotia (Eastern, Central, and Western) in 2019 and 2022. Between 2019 and 2022, there was a notable reduction in wood acquisition activity in all regions. The data indicates a trend towards smaller volume acquisitions and a decline or complete loss of acquisitions in specific larger volume segments in some regions.

In the Eastern Region, there was a slight decrease in sawmills acquiring wood from 26 in 2019 to 24 in 2022. The majority of these were in the 1 to 1,000 m³ category. While acquisitions for volumes between 10,001 to 30,000 m³ saw a small increase, those in the 30,001 to 200,000 m³ category were gone by 2022.

The Central Region similarly experienced a mild drop in total sawmills acquiring wood, with a drop from 25 in 2019 to 23 in 2022. The 1,001 to 3,000 m³ volume range saw a significant change, with three in 2019 dropping to no mills acquiring wood in 2022. Mills acquiring 3,001 to 10,000 m³ saw a marginal increase.

The Western Region saw a more significant decline with total sawmills acquiring wood dropping from 38 in 2019 to 31 in 2022. The region experienced the loss of acquisitions in the 1,001 to 3,000 m³ and 30,001 to 200,000 m³ ranges from 2019 to 2022.

Overall, between 2019 and 2022, there has been a discernible reduction in wood acquisition activities in all regions. Most notably, the data indicates a trend leaning towards smaller volume acquisitions and a decline or complete halt in specific larger volume segments in some regions.

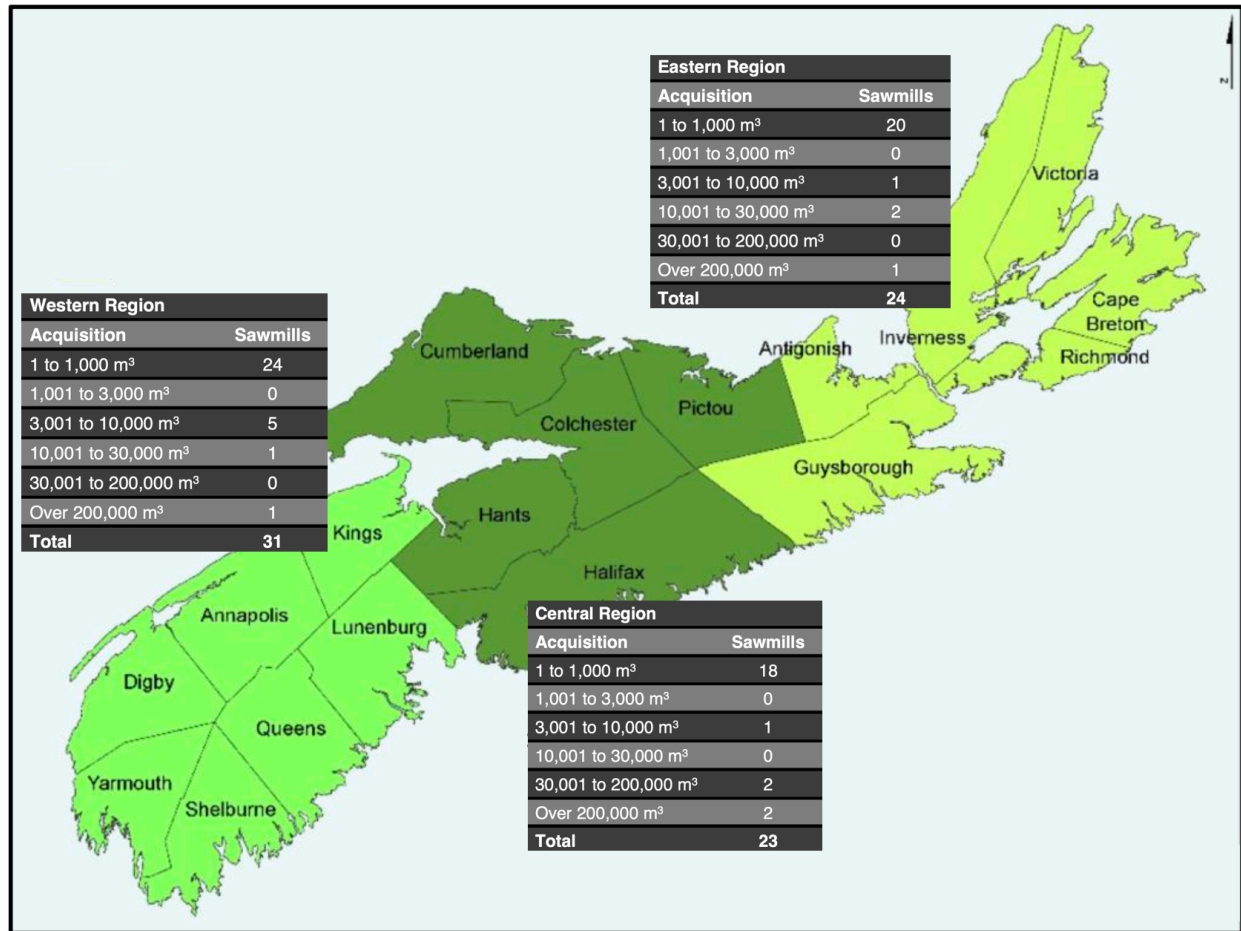
Table 3.1: Sawmill sector wood acquisition by region, 2019 and 2022

Wood Acquisition per Year	Eastern Region		Central Region		Western Region	
	2019	2022	2019	2022	2019	2022
1 to 1,000 m ³	22	20	18	18	25	24
1,001 to 3,000 m ³	0	0	3	0	5	0
3,001 to 10,000 m ³	1	1	0	1	5	5
10,001 to 30,000 m ³	1	2	0	0	1	1
30,001 to 200,000 m ³	1	0	2	2	1	0
Over 200,000 m ³	1	1	2	2	1	1
Total	26	24	25	23	38	31

Source: Nova Scotia Registry of Buyers.

Figure 3.1 shows the number of sawmills acquiring wood by volume category in each of the three forestry regions across the province.

Figure 3.1: Sawmill sector wood acquisition by region, 2022

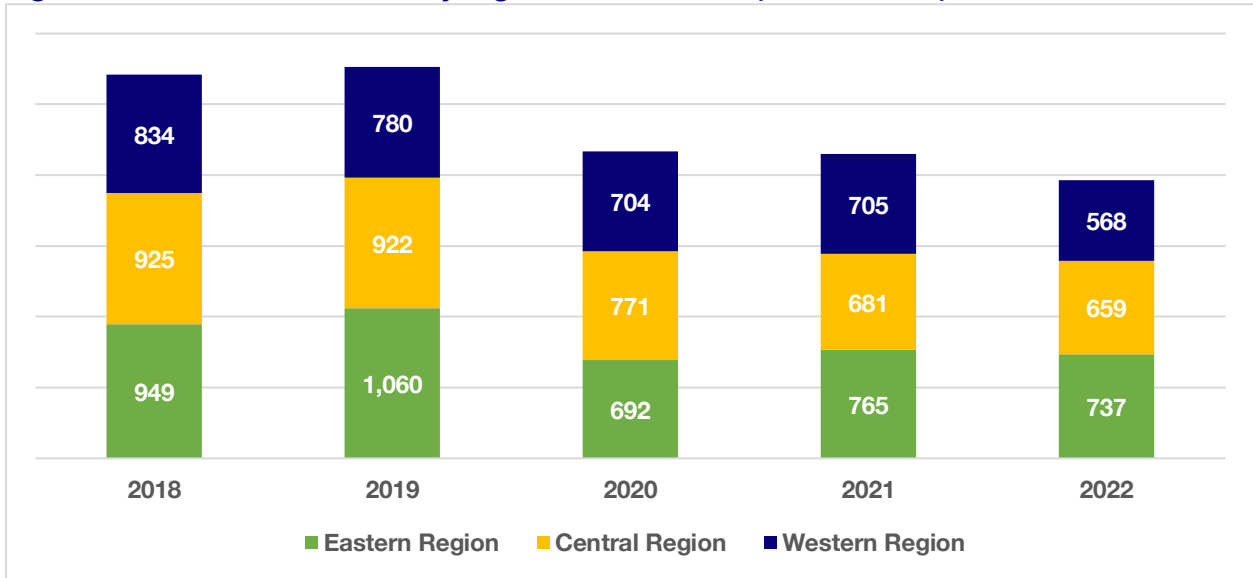


3.1.4 Decline in Provincial Harvest

3.1.4.1 Softwood

Figure 3.2 summarizes softwood harvest in the Eastern, Central, and Western regions of Nova Scotia from 2018 to 2022. The Eastern region harvested 949,156 m³ of softwood in 2018. The harvest increased in 2019, dropped significantly in 2020, and totaled 737,089 m³ in 2022. Harvest in the Central dropped from 924,000 m³ in 2018 to 658,549 m³ in 2022. The Western region also saw significant change with harvests declining from 834,394 m³ in 2018 to 568,319 m³ in 2022.

Figure 3.2: Softwood harvest by region, 2018 to 2022 (thousand m³)

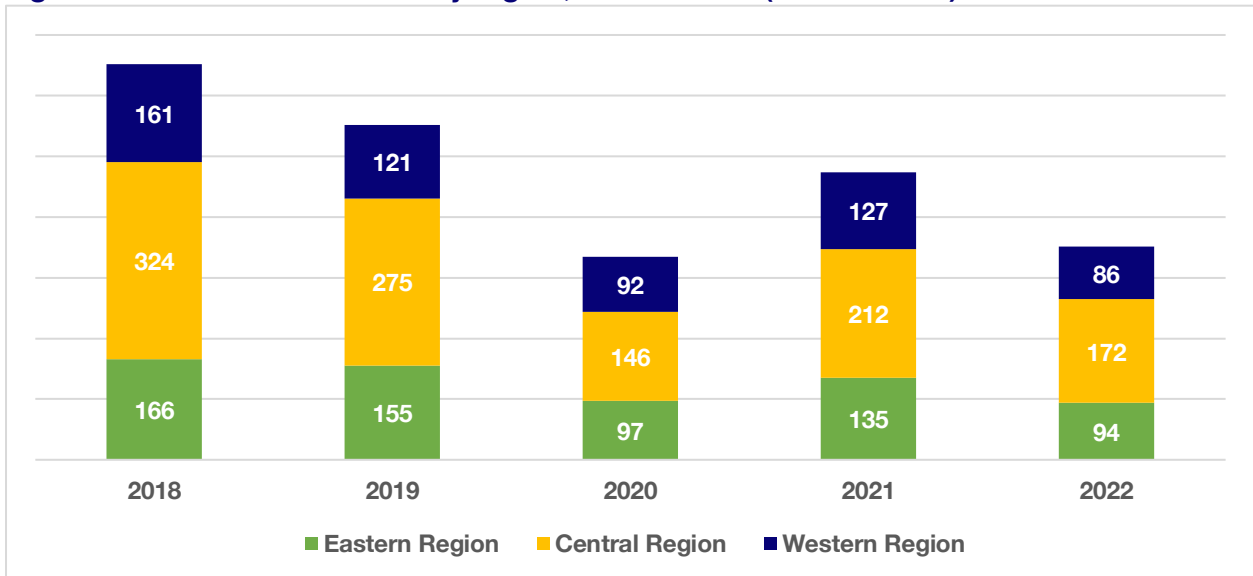


Source: Nova Scotia Registry of Buyers.

3.1.4.2 Hardwood

Figure 3.3 summarizes the volume of hardwood harvested across the Eastern, Central, and Western regions of Nova Scotia from 2018 to 2022. Each region experienced fluctuations in volume with a notable decline in 2020. The Eastern region’s hardwood harvest was 165,849 m³ in 2018, took a sharp drop in 2020, rebounded partially in 2021, and retreated again in 2022 to 93,646 m³. The Central region mirrored this trajectory while the Western region, which harvested 161,114 m³ in 2018, experienced a consistent decline over the subsequent years, landing at 85,728 m³ in 2022.

Figure 3.3: Hardwood harvest by region, 2018 to 2022 (thousand m³)



Source: Nova Scotia Registry of Buyers.

3.1.5 Pulp and Paper Exports

The Nova Scotia pulp and paper sector saw a 44% decline in exports from 2018 to 2022, with a 42% drop in 2020 alone. While the closure of Northern Pulp undeniably played a significant role in the shifting dynamics of pulp and paper exports from Nova Scotia, various macro and microeconomic factors also came into play.

One predominant influence was the COVID-19 pandemic. The outbreak led to pervasive global supply chain disruptions, potentially hindering the sourcing of raw materials and the export of finished products. Furthermore, as measures were introduced to mitigate the spread of the virus, many manufacturing facilities faced workforce reductions or were compelled to halt operations entirely.

The demand landscape also evolved, with numerous offices and institutions shutting down, leading to diminished requirements for certain paper products, such as office paper. Conversely, the surge in online shopping boosted the demand for packaging materials. Logistics, a crucial backbone of exports, faced its own set of challenges, ranging from a scarcity of shipping containers to intermittent port closures and restrictions.

Beyond the pandemic, global market dynamics were also influential. Nova Scotia had to contend with competing producers from other countries, some of whom may have ramped up production or undercut prices. Furthermore, the inexorable march of digitization led to reduced appetites for specific paper products, such as newsprint, as digital alternatives gained traction.

From an economic perspective, the oscillations in the Canadian dollar's strength could have swayed export decisions. A robust dollar often makes exports pricier for international buyers. Simultaneously, the economic health of trading partners – especially those pivotal to Nova Scotia's pulp and paper market – had the potential to affect demand patterns.

Table 3.2 summarizes data on the annual exports in millions of dollars for the wood the pulp, paper, and paperboard mills industry (NAICS 3221) over a five-year period from 2018 to 2022.

Table 3.2: Nova Scotia pulp and paper exports, 2018 to 2022

	2018	2019	2020	2021	2022	% Change 2018-2022
	thousands of CAD					
Pulp, paper, and paperboard mills (NAICS 3221)	526,984	429,453	249,041	272,713	295,272	-44%

Source: Trade Data Online.

3.1.6 Forest Industry GDP

Over the same period and due to many of the same local and global factors, the contribution to provincial GDP of the forest industry declined significantly. While wood product manufacturing GDP remained relatively constant, the forestry and logging and paper manufacturing sectors' contribution to GDP dropped by one-quarter, with the largest declines happening in 2020.

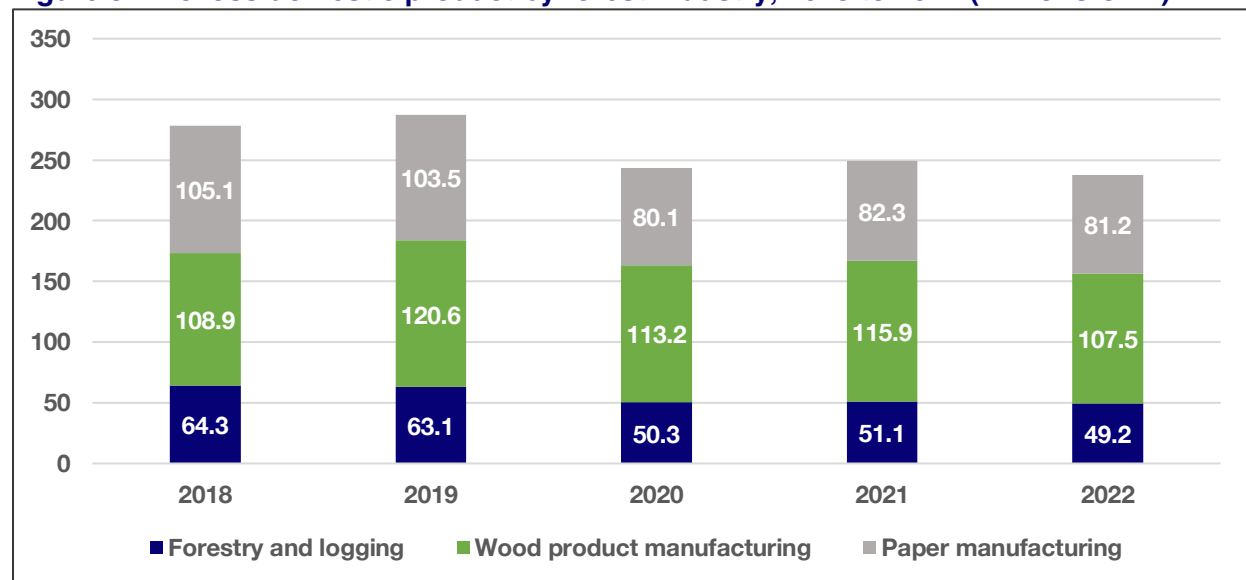
Table 3.3 and Figure 3.4 outline the contribution to provincial gross domestic product (GDP) of the Nova Scotia forestry and logging, wood product manufacturing, and paper manufacturing sectors from 2018 to 2022.

Table 3.3: Nova Scotia gross domestic product by forest industry, 2018 to 2022

	2018	2019	2020	2021	2022	% Change 2018-2022
	millions of CAD					
Forestry and logging	64.3	63.1	50.3	51.1	49.2	-23%
Wood product manufacturing	108.9	120.6	113.2	115.9	107.5	-1%
Paper manufacturing	105.1	103.5	80.1	82.3	81.2	-24%

Source: Statistics Canada. Table 36-10-0402-01 gross domestic product (GDP) at basic prices, by industry, provinces and territories.

Figure 3.4: Gross domestic product by forest industry, 2018 to 2022 (millions CAD)



Source: Statistics Canada. Table 36-10-0402-01 gross domestic product (GDP) at basic prices, by industry, provinces and territories.

The Nova Scotia forestry and logging sector exhibited a declining trend in GDP with value-added decreasing from \$64 million in 2018 to \$49 million in 2022 (-23%). Although there was a slight recovery between 2020 and 2021, the overall trend remained downward.

Although the wood product manufacturing sector experienced 6% growth in GDP from \$109 million in 2018 to \$116 million in 2021, 2022 saw a decline to \$108 million. Overall, sector GDP was relatively stable declining 1% over the five-year period.

There was a decline in GDP in the paper manufacturing sector from \$105 million in 2018 to \$80 million in 2020. Like in other sectors, there was a slight recovery in 2021 and 2022 with GDP increasing to \$82 million and \$81 million, respectively. Despite this, the overall trend was a 24% decline over the five-year period.

In terms of the forest industry’s GDP contribution as a percentage of all goods-producing industries, all sectors declined between 12% and 33% from 2018 to 2022.

Table 3.4 presents the GDP contribution of the Nova Scotia forestry and logging, wood product manufacturing, and paper manufacturing sectors as a percentage of all goods-producing industry GDP from 2018 to 2022.

Table 3.4: Forestry industries gross domestic product as a percentage of all Nova Scotia goods producing industries, 2018 to 2022

	2018	2019	2020	2021	2022	% Change
	millions of CAD					
Goods-producing industries (T002)	100%	100%	100%	100%	100%	-
Forestry and logging (NAICS 113)	0.9%	0.8%	0.7%	0.7%	0.6%	-33%
Wood product manufacturing (NAICS 321)	1.6%	1.6%	1.6%	1.6%	1.4%	-12%
Paper manufacturing (NAICS 322)	1.5%	1.4%	1.1%	1.1%	1.1%	-27%

Source: Statistics Canada. Table 36-10-0402-01 Gross domestic product (GDP) at basic prices, by industry, provinces and territories.

3.1.7 Employment

The Nova Scotia forest industry, like many other traditional industries, faces several workforce challenges. Historically, while forestry has been a foundational pillar of many rural communities, its role has changed in recent decades, especially among younger generations. This is partly because the allure of burgeoning sectors, such as technology and services in urban areas, often overshadows the perceived traditionalism of forestry. Economic volatilities within the sector, exemplified by events like the Northern Pulp closure, further compound these challenges and raise concerns over stability and future growth.

This challenge is intensified by the demographic dynamics of Nova Scotia. Rural communities in Nova Scotia are grappling with population reductions and the migration of youth to other areas, consequently shrinking the local talent reservoir. The inherent nature of forestry work, often characterized by its physical rigor and the necessity to operate in remote locales, can deter individuals who prioritize comfortable working environments and proximity to urban amenities.

These factors and others are reflected in the forest industry workforce, which saw an overall 14% decline in employment in the industry from 2018 to 2022.

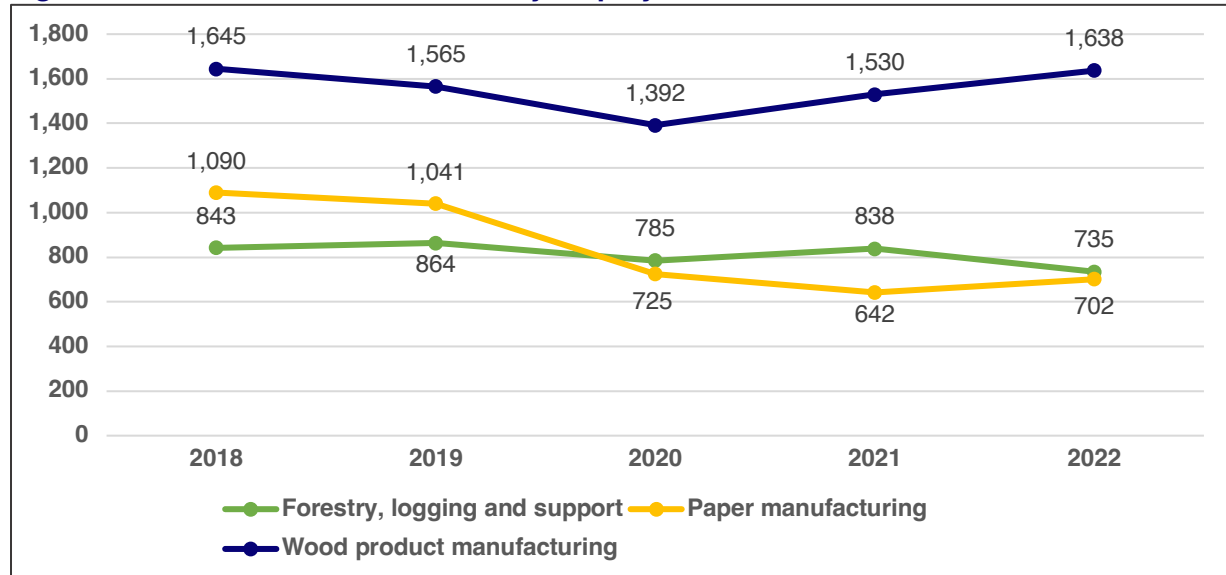
Table 3.5 and Figure 3.5 summarize the number of full-time and part-time employees in the Nova Scotia forest industry from 2018 to 2022.

Table 3.5: Nova Scotia forest industry full-time and part-time employment, 2018 to 2022

	2018	2019	2020	2021	2022	% Change 2018-2022
	persons					
Forestry & logging	569	595	476	520	503	-11.6%
Support for forestry & logging	274	270	309	318	233	-15.0%
Pulp & Paper manufacturing	1,090	1,041	725	642	702	-35.6%
Wood product manufacturing	1,645	1,565	1,392	1,530	1,638	-0.4%
Total	3,578	3,470	2,902	3,010	3,075	-14.0%

Source: Statistics Canada. Table 36-10-0489-01 (formerly CANSIM 383-0031): Labour statistics consistent with the System of National Accounts (SNA), by job category and industry. Note: these are not comparable to full-time equivalent (FTE) employment reported in economic impact results.

Figure 3.5: Nova Scotia forest industry employment, 2018 to 2022



Source: Statistics Canada. Table 36-10-0489-01 (formerly CANSIM 383-0031): Labour statistics consistent with the System of National Accounts (SNA), by job category and industry.

Overall, the total number of people employed in the Nova Scotia forest industry declined from 3,578 in 2018 to 3,075 in 2022, reflecting a 14% decline during this period.

- **Forestry and logging** saw an employment decrease from 569 in 2018 to 503 in 2022, resulting in an overall decline of 11.6% during these five years.
- **Support activities for forestry** employment decreased from 274 in 2018 to 233 in 2022 reflecting a 15.0% decrease.
- **Pulp and paper manufacturing** employment declined from 1,090 in 2018 to 702 in 2022 (down 35.6%).
- **Wood product manufacturing** dipped in 2020, but remained steady from 2018 to 2022.

3.1.8 Paper Manufacturing Capital Expenditure

Since 2018, the Nova Scotia paper manufacturing industry has witnessed a 54% contraction in capital expenditure, with a precipitous drop of more than 50% occurring in 2020 alone. This major decline in 2020 can be largely attributed to the closure of Northern Pulp, a major player in the province's pulp & paper industry.

Beyond this specific event, several overarching factors have contributed to the trend. Economic headwinds, influenced by the COVID-19-related global downturn may have restricted available capital and curtailed the appetite for investment. External competition, heightened by more cost-effective products from international markets may have further compounded the challenge. Lastly, considerations intrinsic to Nova Scotia, such as demographic dynamics and specific labor market conditions, may have also influenced investment behavior.

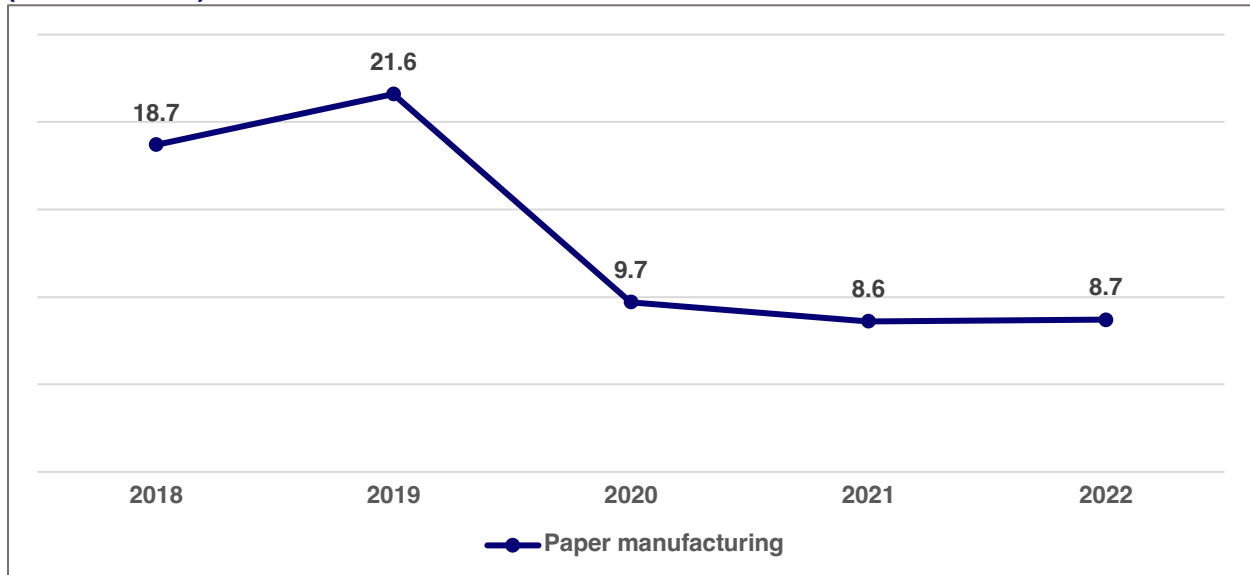
Table 3.6 and Figure 3.6 provide data on levels of capital expenditure in the Nova Scotia paper manufacturing industry from 2018 to 2022.

Table 3.6: Nova Scotia paper manufacturing industry capital expenditures, 2018 to 2022

	2018	2019	2020	2021	2022	% Change 2018-2022
	millions CAD					
Paper manufacturing	18.7	21.6	9.7	8.6	8.7	-54%

Source: Statistics Canada Table: 34-10-0035-01 Capital and repair expenditures, non-residential tangible assets, by industry and geography.

Figure 3.6: Nova Scotia paper manufacturing capital expenditures, 2018 to 2022 (millions CAD)



Source: Statistics Canada Table: 34-10-0035-01 Capital and repair expenditures, non-residential tangible assets, by industry and geography.

The paper manufacturing sector faced a notable -53% decline in capital expenditure over the same period. The sector's capital expenditure decreased from \$18.7 million in 2018 to \$8.7 million in 2022. In light of challenges, there is still cautious capital spending for paper manufacturing.

3.1.9 Forestry, Logging, and Wood Product Manufacturing Capital Expenditure

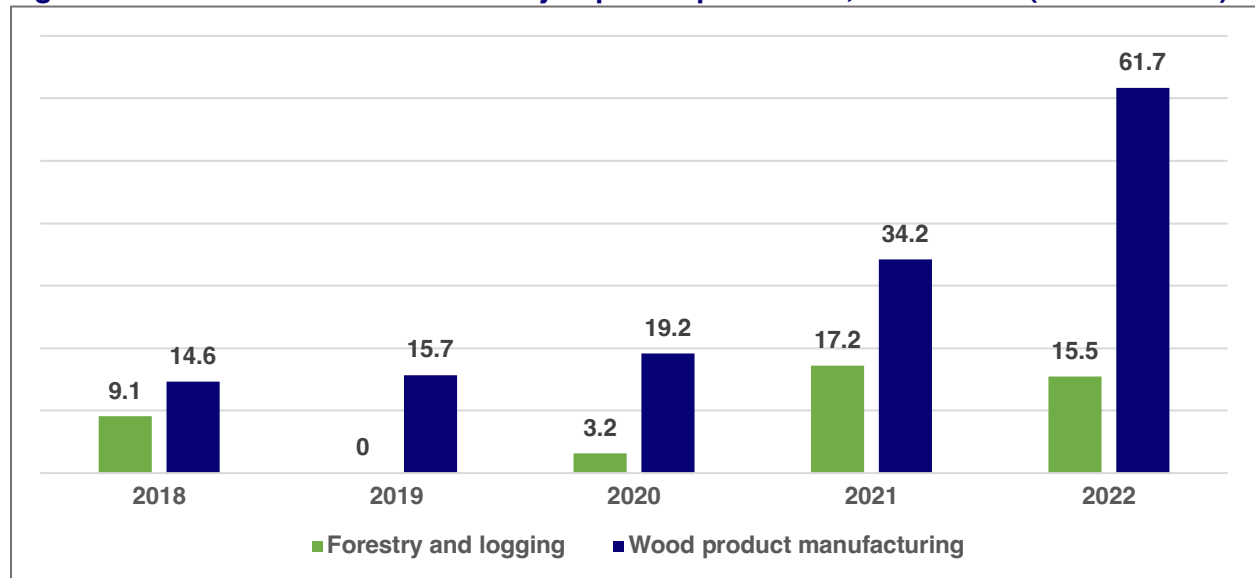
Table 3.7 and Figure 3.7 provide data on levels of capital expenditure in the Nova Scotia forest industry from 2018 to 2022.

Table 3.7: Nova Scotia forest industry capital expenditures, 2018 to 2022

	2018	2019	2020	2021	2022	% Change 2018-2022
	millions CAD					
Forestry and logging	9.1	-	3.2	17.2	15.5	70%
Wood product manufacturing	14.6	15.7	19.2	34.2	61.7	323%
Paper manufacturing	18.7	21.6	9.7	8.6	8.7	-53%
Total	42.4	37.3	32.1	60	85.9	

Source: Statistics Canada Table: 34-10-0035-01 Capital and repair expenditures, non-residential tangible assets, by industry and geography

Figure 3.7: Nova Scotia forest industry capital expenditures, 2018 - 2022 (millions CAD)



Source: Statistics Canada Table: 34-10-0035-01 Capital and repair expenditures, non-residential tangible assets, by industry and geography.

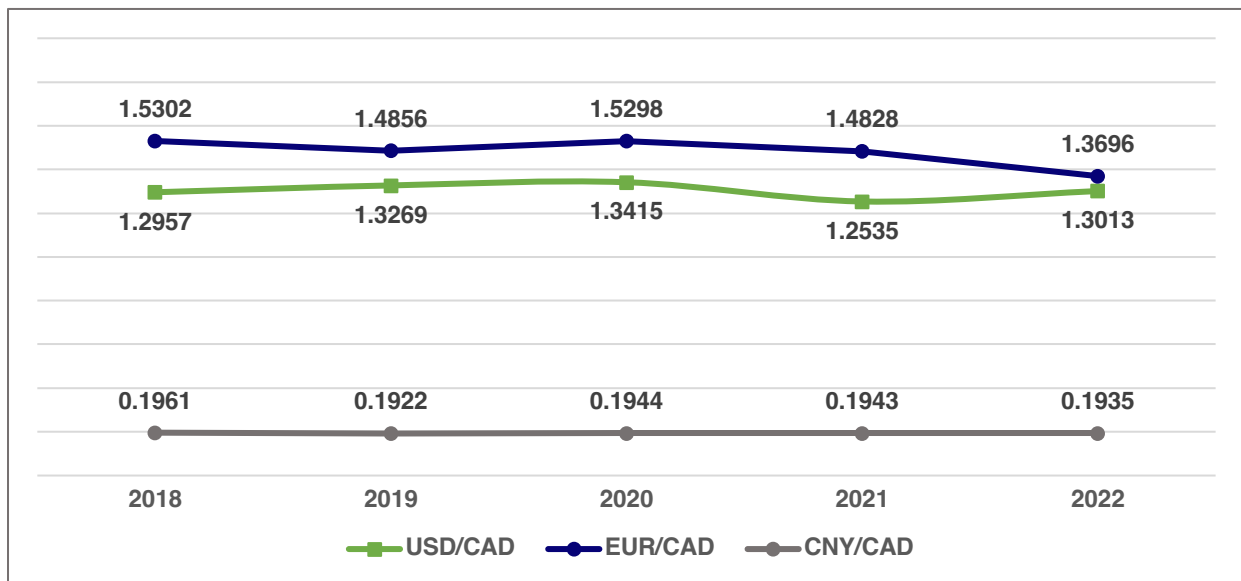
3.2 Forestry Sector Development

Nova Scotia’s forestry sector is export-oriented so the following presents the key factors and recent developments that are shaping sector health. Exchange rates with key trading partners are an important starting point below.

3.2.1 Exchange Rate Stability

Figure 3.8 summarizes historical US dollar (USD), Euro (EUR), and Chinese renminbi (CNY) to Canadian dollar exchange rates from 2018 to 2022. Exchange rates remained relatively stable from 2018 to 2022.

Figure 3.8: US dollar, Euro, and Chinese renminbi to Canadian dollar exchange rates, 2018 to 2022



Source: Bank of Canada.

The US is Nova Scotia’s largest export market and the Canada-US exchange rate plays a significant role in in the Nova Scotia forest products industry. When the Canadian dollar (CAD) is weaker compared to the US dollar (USD), it makes Nova Scotia forest products more competitive in the US market as they become relatively cheaper for US buyers, leading to increased demand and export opportunities. Conversely, when the CAD strengthens against the USD, Nova Scotia forest products become more expensive for US buyers, potentially reducing demand and exports to the US. This can have negative effects on the Nova Scotia forest products industry affecting revenue and profitability.

3.2.2 Forest Product Exports

The forestry sector brings \$606 million into Nova Scotia to help grow the economy and improve the balance of trade. The table below shows the seafood sector including both fishery exports and seafood manufacturing exports is the top exporter, followed by tire manufacturing (Michelin tire plant), then forestry takes third place. The forestry exports include wood, paper, and a small amount of logging exports.

Table 3.8: Forestry sector exports compared to other sectors, 2022

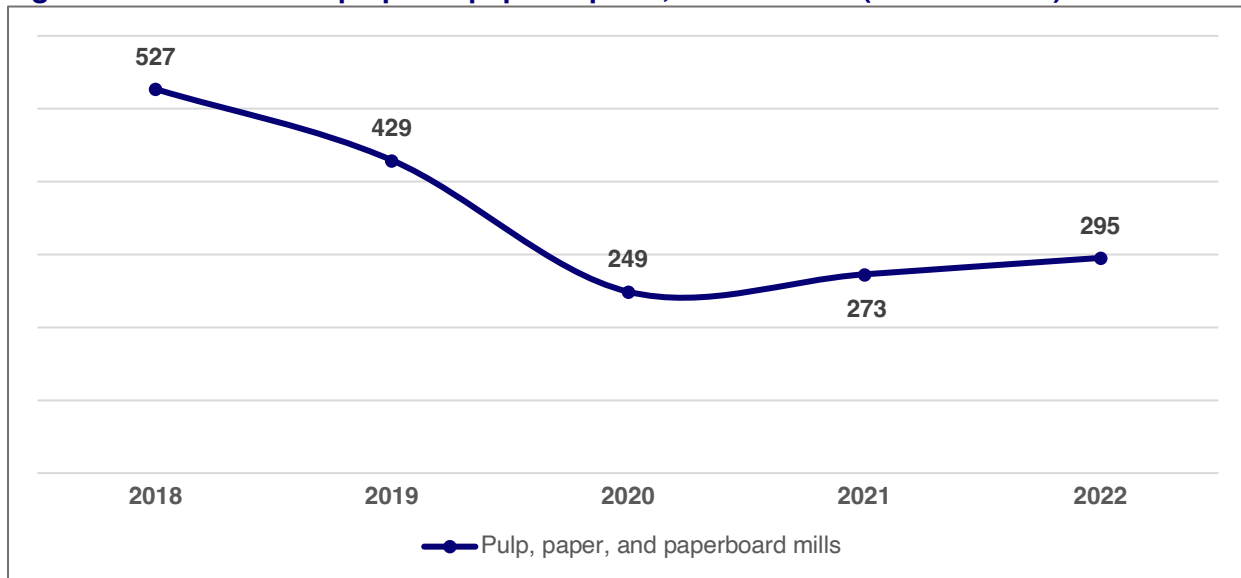
Rank	Industry	Exports \$000s
1	Seafood Sector ¹	\$2,568,835
2	Tire Manufacturing	\$1,191,275
3	Forestry Sector ²	\$605,725
4	Frozen Food Manufacturing	\$232,782
5	Navigational and Control Instruments Manufacturing	\$138,389
6	Recyclable metal merchant wholesalers	\$128,722
7	Laminated Plastic, Sheet and Shape Manufacturing	\$102,814
8	Plastic Film Products Manufacturing	\$78,663
9	Other Rubber Product Manufacturing	\$73,358
10	All others	\$1,632,592
Total	All sectors	\$6,685,000

Source: Industry Canada Trade Data Online.

3.2.3 Pulp and Paper Product Exports

Figure 3.9 shows Nova Scotia pulp and paper exports slid 14.8% from 2018 to 2020, then gained 18.4% from 2020 to 2022.

Figure 3.9: Nova Scotia pulp and paper exports, 2018 to 2022 (millions CAD)

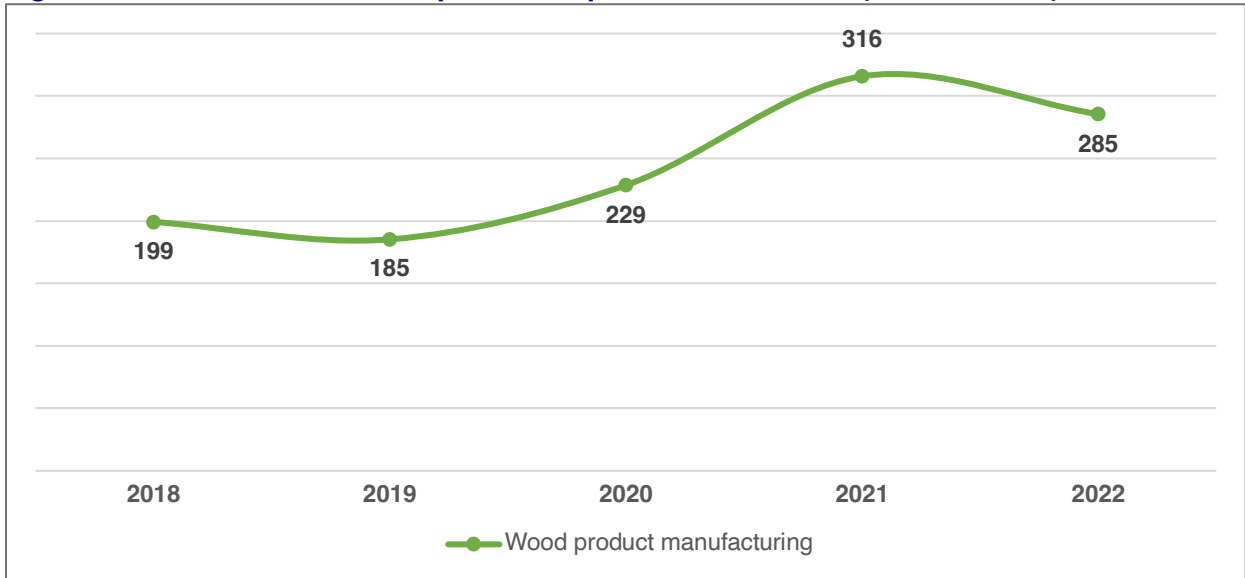


Source: Trade Data Online.

3.2.4 Wood Product Exports

Figure 3.10 summarize the annual exports in millions of dollars for the wood product manufacturing industry (NAICS 321) over a five-year period from 2018 to 2022. Export value has increased 43% over the period.

Figure 3.10: Nova Scotia wood product exports, 2018 to 2022 (millions CAD)

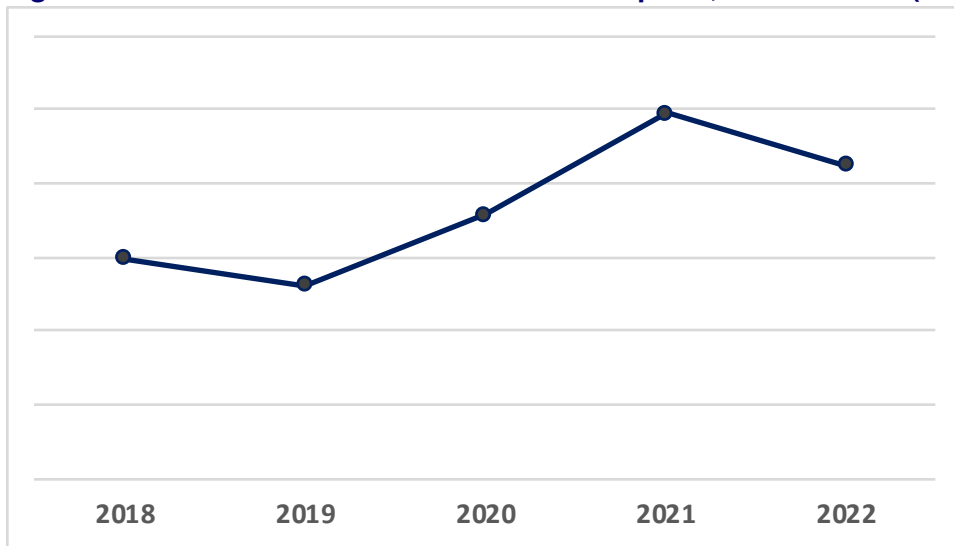


Source: Industry Canada Trade Data Online.

3.2.4.1 Softwood Lumber Exports

Figure 3.11 provides data on the annual exports of various Nova Scotia softwood lumber exports from 2018 to 2022. Nova Scotia softwood lumber exports grew significantly from \$149 million in 2018 to \$212 million in 2022 (+42%) indicating significant growth in the demand for softwood lumber over the five-year period.

Figure 3.11: Nova Scotia softwood lumber exports, 2018 to 2022 (000s CAD)



Source: Statistics Canada. Merchandise trade data (special extraction, March 8, 2022).

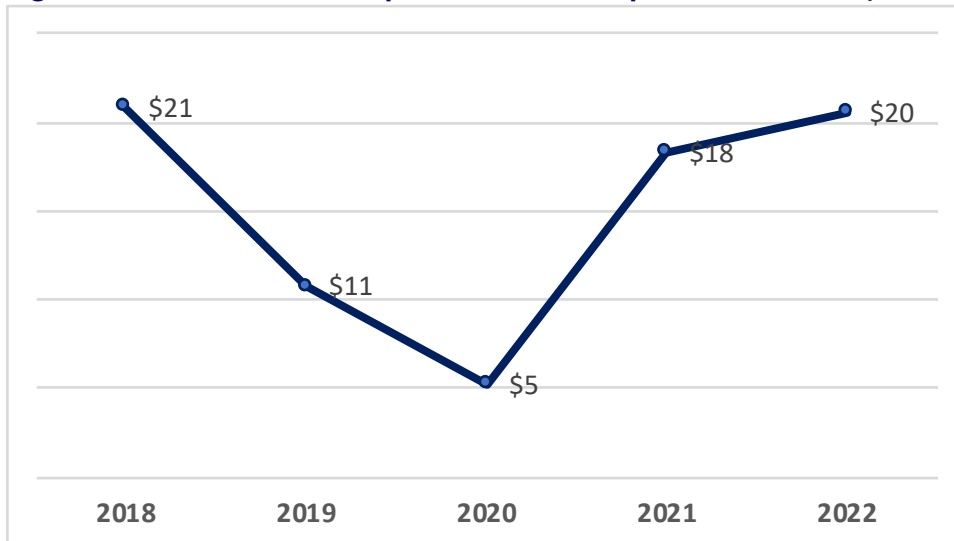
3.2.4.2 Wood Chip Exports

Figure 3.12 below provides data on the annual exports of Nova Scotia primary wood products (wood chips) from 2018 to 2022.

Nova Scotia wood chip exports saw considerable instability from 2018 to 2022. The sector exported \$21 million in 2018, followed by sharp declines in 2019 and 2020 with exports dropping to \$11 million and \$5 million respectively. There was a significant recovery in 2021 with exports reaching \$18 million, and another gain to \$20 million in 2022. Exports were relatively unchanged, only down 2% overall from 2018 to 2022.

The initial decline in wood chip exports could have been driven by changes in international demand for wood products, fluctuations in global market conditions, changes in supply chain dynamics, and shifts in economic growth trends in importing countries, namely the US. Other primary wood products experienced consistent growth, indicating potential opportunities for businesses in this sector due to increasing demand.

Figure 3.12: Nova Scotia exports of wood chips, 2018 to 2022 (millions CAD)

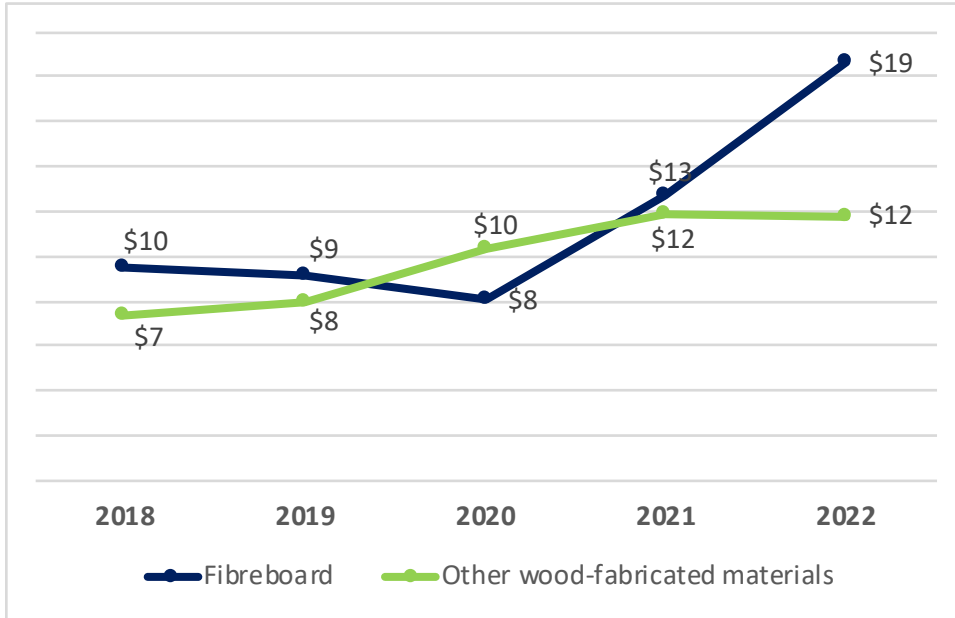


Source: Statistics Canada. Merchandise trade data (special extraction, March 8, 2022).

3.2.4.3 Fibreboard and Other Wood Fabricated Materials Exports

Figure 3.13 provides data on the annual exports of Nova Scotia fibreboard exports from 2018 to 2022. Fibreboard export values remained relatively stable with a slight decline by 2020 to \$8 million followed by notable increases to \$13 million in 2021 and \$19 million in 2022. The product saw an overall growth in export value of 96% over the five-year period. Other wood-fabricated materials saw a steady rise in exports from \$7 million in 2018 to \$12 million in 2021 (+60%) and remained relatively stable at \$12 million in 2022.

Figure 3.13: NS fibreboard & other wood products exports, 2018 to 2022 (millions CAD)

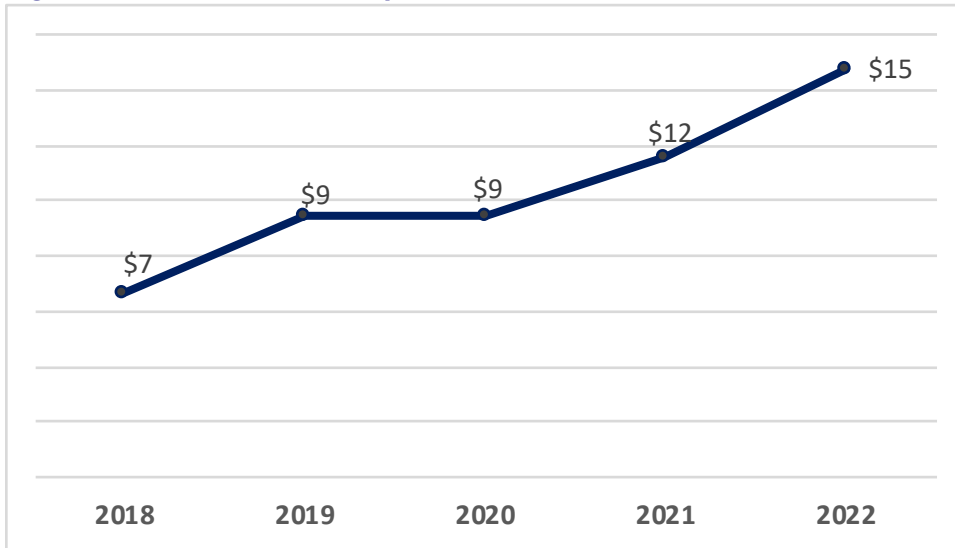


Source: Statistics Canada. Merchandise trade data (special extraction, March 8, 2022).

3.2.4.4 Christmas Tree Exports

Figure 3.14 shows data on the export value of Nova Scotia Christmas trees from 2018 to 2022.

Figure 3.14: Nova Scotia exports of Christmas trees, 2018 to 2022 (millions CAD)



Sources: Statistics Canada. Merchandise trade data (special extraction, March 8, 2022); CATSNet, June 2022.

From 2018 to 2022 there was a steady increase in the exported value of Nova Scotia Christmas trees resulting in growth of 120% over the five-year period. This increase in exports signals the strong international demand for Nova Scotia Christmas trees.

3.2.5 Forestry Sector Transition and Outlook

From 2018 to 2022, the Nova Scotia forestry and logging sector made significant increases in capital expenditure resulting in 70% growth over the five-year period. After a decline in 2019, the sector rebounded strongly in 2020 and 2021 with capital expenditure growth reaching \$17.2 million and \$15.5 million, respectively. This trend continued with \$15.5 million in 2022, indicating the sector's focus on increasing investment and enhancing infrastructure.

Similarly, the wood product manufacturing sector saw a massive 323% increase in capital expenditure from 2018 to 2022 driven largely by investing \$34.2 million in 2021 and \$61.7 in 2022. The sector. These substantial growth rates indicate a clear commitment to expanding production capacity and adopting new technologies.

The closure of Northern Pulp in 2020 had a significant impact on the Nova Scotia forest industry. As a pivotal entity in the regional forestry landscape, the mill's shutdown led to the direct loss of hundreds of jobs, impacting not only the mill's direct employees but also those in related sectors like logging and trucking. Export dynamics underwent a notable change as the province witnessed a decline in kraft pulp exports. Meanwhile, the accumulation of low-grade wood and residuals, previously consumed by Northern Pulp, presented the challenge of finding alternative uses or markets. Sawmills, which once sold many of their residual products to Northern Pulp, grappled with higher costs due to the need for alternate outlets for sale.

While some of the sectors within the Nova Scotia forest industry have seen some recovery (e.g. primary wood products and wood fabricated materials) since 2020, there is still a challenge around markets for the volume of wood chips produced by sawmills and low-grade (small diameter) roundwood across the province. As it stands, the post-Northern Pulp economy has only three major entities with significant demand for these mill residuals and low-grade roundwood within the Province: Port Hawkesbury Paper in the east, Shaw Resources and Great Northern Timber in the central region. There are also smaller facilities that use wood chips for energy including the Dalhousie Agricultural campus (Truro) and Université Sainte Anne in Digby County. Export to European and other markets remains an alternative, however, despite the existence of demand, phytosanitary requirements into certain areas prevents market access from Canada. Compounding these challenges, especially in the west, is the limited truck availability for transporting mill residuals, often resulting in stockpiles and delayed deliveries².

Entities are individually, and in collaboration with other sector partners, rigorously exploring other options for the use of these materials in the Province.

However, the current low levels of harvest relative to historical norms means the volume and dimension of timber stock is growing. There will be high-value opportunities attracting attention for investment and sector growth. The current harvest levels of 2.3 million m³ could climb to 5 million m³ and this would still be well below the peak of nearly 7 million m³ reached before the 2008 financial crisis. At today's economic impact and productivity rate, a harvest of 5 million m³ could create a NS forestry sector worth \$1.5 billion in added-value (GDP), with \$820 million in salaries and wages, nearly 14,000 FTE jobs, and \$181 million in taxes generated to the provincial government.

² Adapted from Nova Scotia Forest Fibre Supply Analysis (FETF/AFRY 2022).

APPENDIX A - DEFINITIONS

North American Industry Classification System (NAICS)

NAICS is a standardized system used by government agencies and businesses in Canada, Mexico, and the United States to classify and categorize industries based on their primary economic activities. The NAICS system was developed to provide a common framework for statistical reporting, data analysis, and business comparisons across North America.

NAICS uses a hierarchical structure, organizing industries into sectors, subsectors, industry groups, and individual industries based on similarities in production processes and products. Each industry is assigned a unique code consisting of digits that help identify its specific category within the classification system. The classification is periodically updated to reflect changes in the economy and emerging industries. It enables policymakers, researchers, businesses, and other stakeholders to understand economic trends, analyze industry performance, and make informed decisions based on standardized industry definitions.

Goods-producing industries

Sectors of the economy involved in the production of tangible goods. These industries are primarily engaged in activities related to manufacturing, construction, agriculture, mining, and other forms of natural resource extraction. The goods-producing sector encompasses businesses that transform raw materials and components into finished products. It includes industries such as manufacturing of goods, construction of buildings and infrastructure, farming and agriculture, and mining and quarrying activities.

NAICS 113 – Forestry and logging

This industry includes establishments primarily engaged in the operation of timber tracts, tree farms, and forest nurseries. It involves activities such as growing, harvesting, and transporting timber, as well as producing various forest products. The forestry and logging industry plays a significant role in the management and utilization of forest resources, providing raw materials for various sectors such as construction, paper manufacturing, and wood products. It also involves activities related to reforestation and conservation efforts to maintain sustainable practices in forest management.

NAICS 1153 - Support activities for forestry

This industry includes establishments primarily engaged in providing support services to forestry and logging operations. Some examples of these support activities include conducting timber cruises and surveys, offering reforestation services, managing forest pests, providing forest fire fighting and prevention services, as well as offering timber evaluation services to assess the value of forest products. These support services play a vital role in the management, preservation, and sustainable utilization of forest resources.

NAICS 321 – Wood product manufacturing

This industry includes establishments primarily engaged in the production of a wide range of wood products, such as lumber, plywood, veneers, wood containers, and wood furniture. Activities within the wood product manufacturing industry may involve sawing, planing, shaping, laminating, and assembling wood materials to create various finished products. Some common products produced in this industry include wooden doors, windows, cabinets, wooden

containers, and furniture items. The wood product manufacturing industry plays a crucial role in providing essential building materials and finished goods for construction, home improvement, and various consumer and industrial applications.

NAICS 322 - Paper manufacturing

This industry includes establishments primarily engaged in the production of paper and paperboard from pulp obtained in the pulping process. It encompasses a wide range of products, including various types of paper used for writing, printing, packaging, and other purposes. The paper manufacturing industry involves several key processes, such as pulping, bleaching, and papermaking. These processes convert wood pulp or other raw materials into paper and paperboard products of different grades and qualities. Some of the common products produced in this industry include newsprint, writing paper, printing paper, tissue paper, cardboard, and various types of packaging materials.

The paper manufacturing industry plays a significant role in supplying essential materials for communication, printing, packaging, and numerous other applications in various sectors of the economy.

NAICS 3221 - Pulp, paper, and paperboard mills

This industry includes establishments primarily engaged in manufacturing pulp, paper, and paperboard products from wood pulp, rags, and other fibers. It covers a wide range of products, including writing and printing paper, packaging materials, cardboard, tissue paper, and other paperboard products. Pulp, paper, and paperboard mills play a significant role in providing essential materials for various applications, such as writing, printing, packaging, hygiene products, and more. The industry involves several processes, including pulping, bleaching, papermaking, and finishing, to produce a diverse array of paper and paperboard products.

CAD - Canadian dollars

USD - United States dollars

CNY - Chinese renminbi

APPENDIX B – SHARE OF EXPORTS

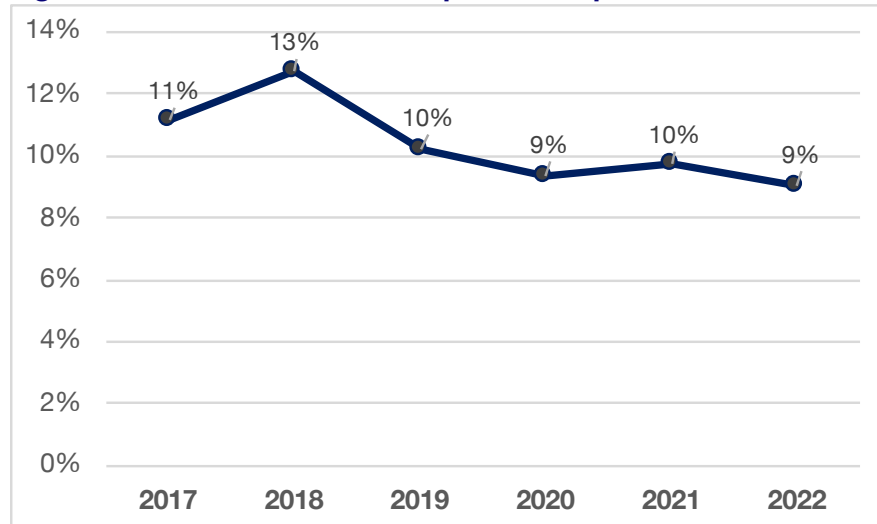
Table B.1 and Figure B.1 outline Nova Scotia forest product exports’ share of all Nova Scotia exports from 2017 to 2022.

Table B.1: Nova Scotia forest product exports share of total exports, 2017 to 2022

	2017	2018	2019	2020	2021	2022
All NS exports (\$ millions CAD)	5,459	5,805	6,152	5,290	6,282	6,693
Forestry exports (\$millions CAD)	608	738	627	495	610	606
Forestry % of all NS exports	11%	13%	10%	9%	10%	9%

Source: Trade Data Online, accessed Nov. 16, 2023.

Figure B.1: Nova Scotia forest product exports share of total exports, 2017 to 2022



Source: Trade Data Online.

In 2017, all Nova Scotia exports were valued at \$5.5 billion, which increased to \$5.8 billion in 2018 and to \$6.1 billion in 2019. There was a significant decline in 2020 followed by a notable recovery to \$6.3 billion in 2021, and further strengthening to \$6.7 billion in 2022.

Nova Scotia forest product exports also fluctuated during the same period. Exports went from \$608 million in 2017 to \$738 million in 2018, and then a decline to \$627 million in 2019. In 2020, there was a further drop to \$495 million, followed by a partial recovery to \$610 million in 2021 that remained stable at \$606 million in 2022.

Forest product exports represented between 9% and 13% of total Nova Scotia exports over the period. The recent exports highlight the dynamic nature of Nova Scotia's economy, with fluctuations in both overall exports and forest product exports over the years. The forestry sector plays a significant role in the province's export landscape, representing a notable percentage of total exports.