

Secondary manufacturing of solid wood products in British Columbia 2021: Structure, economic contribution, and trends

Final Report

Prepared for BC Wood Specialties Group

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Table of Contents

1 Executive Summary

1.1 Background

This report is the latest in a series of studies of British Columbia's (BC) secondary wood products manufacturing sector that began in the 1990s, with reports published for the years 2006, 2012, and 2016. Representing the state of the sector in 2021, this report is informed by a survey designed to capture operational, employment, production, marketing, and financial information on various business types across the sector.

The final survey population included 516 firms, of which 136 completed the full questionnaire, yielding a 26% response rate. The results reflect not only the profound transition BC's forest industry underwent and continues to experience, but also the unprecedented events that occurred in 2021 such as those associated with the Coronavirus (COVID-19) pandemic and climate change.

1.2 Key Points

Firms

- The 2021 survey population included 516 firms, of which 136 completed, yielding a 26% response rate (same as 2016 survey response rate)
- Remanufacturers made up 36% of respondents, while millwork & finished products firms comprised 18% of all respondents (compared to 2016, when millwork was represented at 22%, engineered wood products at 20%, and cabinets at 17%)
- 71% of respondents indicated that their firm was a corporation; 18% a sole proprietorship; 8% a partnership; and 4% as other
- 1% of respondents indicated that their firm was wholly owned by Indigenous people and/or an Indigenous organization; 4% indicated they were partially owned by Indigenous people and/or an Indigenous organization
- 7% of respondents indicated that their firm was wholly owned by one or more of the following: women, visible minorities, and/or people with disabilities; 32% were partially owned by one or more people from this group

Capacity

- Average capacity utilization was 73% (compared to 76% in 2016, 66% in 2012, and 77% in 1994)
- 50% of respondents planned to add capacity from 2023-2025

Employment

- The sector employed an estimated 17,100 full time employees. With the exclusion of commodity lumber producers, there were 14,100 jobs in 2021 (compared to 16,888 total in 2016)
- In terms of employment, 24% of employees in the sector worked at remanufacturing firms (25% in 2016; 26% in 2012). Engineered wood product manufacturers employed 9% in 2021 (22% in 2015 and 19% in 2012)

Sales

- The sector generated an estimated $5.63 billion of sales in 2021. With the exclusion of commodity lumber producers, revenue was $4.63 billion (compared to $4.46 in 2016)
- 24% of responding firms had revenue greater than $12 million/year; 40% had $1.1 - $12 million/year
- In terms of sales, producers of remanufactured products made the greatest economic contribution at 49% (20% in 2016), while engineered wood product manufacturers contributed 11% of sales for the sector (19% in 2016)
- All business types reported an average increase in sales revenue from 2019 to 2020 followed by a larger rise in sales revenue from 2020-2021

Markets

- 98% of firms sold their products to BC markets (compared to 96% in 2016). 54% of responding firms relied on the BC market for at least half of their sales revenue (compared to 69% in 2016)
- 57% of respondent firms sold to the US market and 54% sold elsewhere in Canada

Materials Used

- Western red cedar was the most used species by responding firms in terms of roundwood equivalent volume, accounting for 25% of materials in total (compared to 19.5% in 2016), followed by Douglas-fir at 18% (compared to 26% in 2016)
- The main input materials were lumber (44%), other (18%) and logs (15%)
- 21% of all respondents relied on Douglas-fir and Western red cedar for at least half of their raw material inputs (28% and 18% respectively in 2016; 29% and 19% in 2012)
- Douglas-fir and Western red cedar were the most frequently used species at 68% and 54% (compared to 57% for Douglas-fir and 49% for Western red cedar in 2016)

Location

- Coastal:
  - 53% of firms were located in the Vancouver-Fraser Valley region (compared to 55% in 2016)
  - Island-Coast region: 10%
- Interior:
  - Northern region: 11%
  - Southern region: 26% (compared to 20% in 2016)

2 Introduction

2.1 Background and Purpose

Since 1990, regular surveys and their associated reports have provided a snapshot of the economic impact, trends, and structure of British Columbia's (BC) secondary wood product manufacturing (value-added) sector. The results of these surveys provide information that informs the decisions and activities of forestry stakeholders including policy makers, industry, forestry-dependent communities, and industry associations. The ability to generate the most value and jobs from BC's lumber and forest products, including from forest residuals and waste streams, is viewed by the provincial government and others as a key benefit of the value-added manufacturing sector. In 2022, MNP was engaged to undertake the eighth of such surveys in order to provide a snapshot of the sector in 2021. This report presents the findings of this survey.

2.2 BC's Secondary Manufacturing Sector

Definition

Primary manufacturing is the breakdown of logs into products such as lumber or timbers. Secondary, or "value-added", manufacturers further process primary sector outputs and by-products (i.e., chips, sawdust, shavings, trim blocks) into semifinished or finished products[1].Products include remanufactured wood products, engineered wood products, mass timber products, millwork, cabinets, furniture, pallets and containers, plywood and panelboards, commodity lumber products, and others.

History

The value-added sector expanded throughout the 1990s, but growth stalled in the early 2000s and the number of firms decreased between 1999 and 2006.[2] From 2006 to the early 2010s, there was a downturn in the United States housing market which bottomed-out during the great recession (2007-2009). This weakened the secondary manufacturing sector and led to a shift in production in which products targeting the domestic market grew, while production of panelboards and remanufactured products contracted.[3] By 2016, the sector experienced a rebound with its sales, employment, and number of firms increasing.[4]

[1] Pacific Forestry Centre, Canadian Forest Service, Natural Resources Canada. *National Secondary Wood Product Manufacturing Survey: A Prevue.* (March 2019)

[2] Stennes, B., Wilson W.R., & Wang, S. Secondary manufacturing of solid wood products in British Columbia, 2006; structure, economic contribution, and changes since 1990. (2008)

[3] Stennes, B., Bogdanski, R., Secondary manufacturing of solid wood products in British Columbia 2016: Structure, economic contribution and changes since 1990. (2019)

[4] Pacific Forestry Centre, Canadian Forest Service, Natural Resources Canada. *National Secondary Wood Product Manufacturing Survey: A Prevue.* (March 2019)

The Sector in 2021

BC's value-added sector in 2021 continued to provide jobs and contribute to domestic and export markets. Secondary manufacturers were consumers of the province's wood resources, some relying on BC's primary manufacturing industry for their raw materials. The sector also played a role in maximizing the full value extracted from forests.

Companies in the sector have always faced challenges, but 2021 represented an unprecedented time for the sector. Global events such as the ongoing COVID-19 pandemic that began in 2020, have and continue to profoundly impact the sector. Combined with climate change, evolving ecosystems, dynamic market prices, interest rate rises, labour shortages, supply chain issues, and fibre supply issues, firms operating in the secondary wood manufacturing sector have evolved and adapted as they underwent both a myriad of challenges, as well as opportunities within the changing landscape.

2.3 Structure of the Report

The remainder of the report is organized as follows:

- Section 3 describes the methodology used in conducting the Survey.
- Section 4 provides an overview of the Survey Results.
- Section 5 provides an overview of the Secondary Manufacturing Trends.
- Section 6 provides the Summary and Conclusion.

3 Methodology

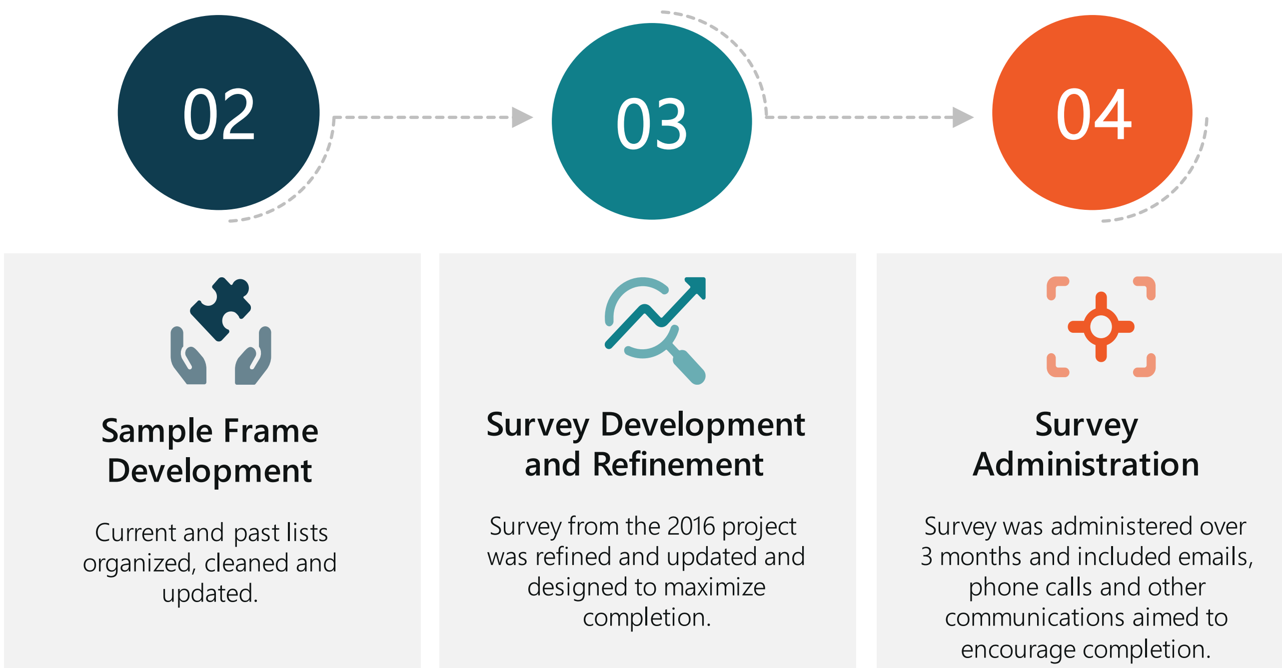
3.1 Approach

The project was launched in November 2022 and completed in April 2023. An overview of the project approach and timeline is outlined in ***Figure 1*** below.

Figure 1: Timeline of approach

In steps 2, 3, and 4, the data collection tools were developed, and primary research activities were undertaken. ***Figure 2*** outlines the main activities in each of these steps and a more detailed description follows.

Figure 2: Summary of primary research activities



3.2 Sample Frame Development

The sample frame used in identifying BC secondary wood manufacturers was based on those used for past surveys, with some updates. Primary manufacturers who produce secondary wood products were invited to participate to ensure the full scope of secondary wood product manufacturing was reflected. These producers are referred to as "commodity producers". Mass timber products were separated from engineered wood products in the data collection tools.

As with previous surveys, the 2021 survey excluded manufacturing conducted by contractor/builders, and custom and/or specialty one-off operations. This influenced the inclusion of some engineered wood product firms and cabinet manufacturers. For example, companies that manufactured pre-built homes for offsite-final assembly were included in the engineered wood product category while a contractor or a builder who constructs on-site was excluded.

The contact list was compiled from the list used for the 2016 survey and contact lists provided by BC associations that contributed to the previous studies. The lists were consolidated and a total of 849 records were identified. These records contained duplicates, out-of-date contact information, not-in-service numbers, and companies no longer operating. Addressing these errors reduced the final sample frame to 516. The sample frame was compared with business counts from Statistics Canada's Business Register. In 2021, there were 527 firms with employees producing veneer, plywood, panel boards, engineered wood products, millwork, remanufactured products, log and timber frame homes, and other products. In addition, there were estimated to be between 50 and 75 businesses producing cabinets, furniture and fixtures that fit within the definition of secondary manufacturers used for this study. This comparison suggests that the sample frame captured the majority of secondary wood products manufacturers in BC in 2021. Industry experts reviewed and verified the sample frame. ***Table 1*** below provides a summary.

Table 1: Summary of sample frame

Frame	Count
Records Identified	849
Out-of-Scope	333
Final Sample Frame	516

3.3 Survey Development and Refinement

To support the comparison of results over time, the 2016 survey questionnaire was used as a starting point for the development of the 2021 questionnaire. The 2016 survey took participants an estimated two hours and forty minutes to complete and was distributed by fax as well as hard copy in two phases. The 2021 survey was optimized to allow completion of the survey in approximately one hour and, in turn, increase the likelihood of completion.

The revisions to the questionnaire included removing redundant questions and updating categories to reflect the current context. For example, the 2021 questionnaire included questions about the involvement of Indigenous people, women, and visible minorities in the sector. The electronic commerce section was updated to correspond with the changes in online commercial activity and platforms since 2016. Also, some open-ended questions were added to capture changes or trends in the sector that are still in early stages and not yet widely anticipated. Along these lines, the survey also asked future-facing questions, including those relating to product and market expansion plans. Once the questionnaire was finalized, it was piloted to ensure clarity of direction, ease of flow, and accessibility. The questionnaire is included in ***Appendix B***.

3.4 Survey Administration

Prior to the release of the survey, organizations were notified by email of the upcoming request to participate and of the important future uses for the soon-to-be collected information, all in an aim to support the sector. Notice of the survey's opening was emailed to participants and the survey was completed online through a website link. It took respondents, on average, under one hour to complete.

The survey was launched by email on December 14, 2022, with an initial closing date of February 3, 2023. To allow more respondents to complete the survey, the administration period was extended until March 17, 2023.

Throughout the administration period, regular reminders were sent to the potential respondents via email, phone call, social media, letter, and newsletter. In addition, the survey administrator made targeted phone calls to companies that had not yet responded or that had started, but not completed the survey. BC Wood, sector associations, and FII also sent customized communications encouraging participation. Finally, incentives were offered to participants including a customized benchmark report and market exposure for their company on BC Wood's website. "Survey fatigue", or a reduction in willingness to respond to a long survey that requires significant time investment was observed during the administration.

3.5 Survey Response Rate

The survey achieved a response rate of 26%, consistent with that of the 2016 survey. ***Table 2*** below shows the responses that came from the final sample frame of 516.

Table 2: Overall survey responses

Survey Responses	Count
Final Survey Frame	**516**
Non-response	328
Refusal	53
Completes	136
Response Rate	***26%***

3.6 Survey Analysis

Data were collected for BC secondary wood manufacturers that made products in the following business types or categories:

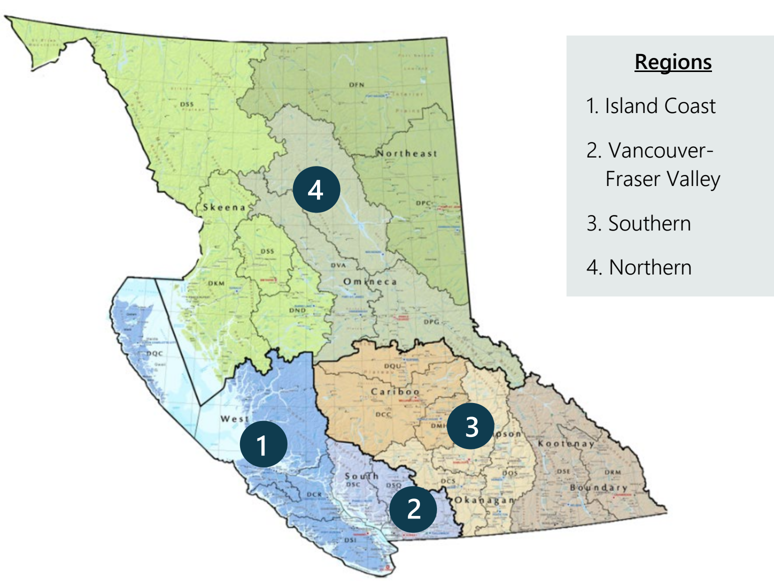
- Remanufactured products (examples include: finger joint lumber, lumber specialties, fencing, panels, rig mats).
- Engineered wood products (examples include: laminated veneer lumber, I-joists, laminated posts/beams, trusses, prefab buildings, log homes, treated wood).
- Mass timber products (examples include: glulam beams, nail laminated timber, dowel laminated timber, cross laminated timber).
- Millwork (examples include: doors, windows, architectural and custom woodwork, turned wood products, mouldings).
- Cabinets (examples include: kitchen/vanity cabinets, cabinet doors, countertops).
- Furniture (examples include: household, ready-to-assemble, commercial, institutional and patio).
- Pallets and containers (examples include: pallets, boxes, bins, and crates).
- Plywood & Panelboards (examples include: plywood, oriented strand board, fibreboard but excluding veneer).
- Commodity lumber products.
- Specialty Wood Products (other products not included in the other categories).

3.6.1 Data Cleaning

Survey responses were reviewed for completeness and consistency. Scans for outliers and response rates by business type were conducted. Based on these checks, several adjustments were made to the data set. To protect respondent confidentiality, it was necessary to aggregate some categories:

- **Region:** The Kootenay region was merged with the Okanagan to create a "Southern" region. ***Figure 3*** shows the map with the specified regions used in this report.

Figure 3: Regions specified for BC secondary wood products manufacturers in 2021



- **Business Type:** Plywood & panelboard were grouped into commodity lumber products; mass timber products were grouped into engineered wood products; and specialty products were grouped into remanufactured products. ***Table 3*** below shows these groups.

Table 3: Groupings of business types

Business Type	Count
Cabinets	**10**
Cabinets	10
Commodity lumber products	**9**
Commodity lumber products	8
Plywood & Panelboard	1
Engineered Wood Products	**15**
Engineered Wood Products	14
Mass timber products	1
Furniture & Fixtures	**9**
Furniture & Fixtures	9
Log Home & Timber Frame	**19**
Log Home & Timber Frame	19
Millwork & Finished Products	**25**
Millwork & Finished Products	25
Remanufactured Products	**49**
Remanufactured Products	47
Specialty Products	2
Grand Total	**136**

For several quantitative questions, values were grouped in the same way as the 2016 survey. These were:

- Number of employees: 1 to 15; 16 to 50; and +50.
- Sales Revenue: less than $1 million; $1-$3 million; $3-$12 million; and greater than $12 million.

Some discrepancies were identified in the way that sales revenue data were entered in Question 12, which requested that respondents provide three years of gross sales revenue. These were resolved with the following strategies:

- In cases where revenue was less than $100, the assumption was made that this represented a "choose not to answer" response. Accordingly, these entries were omitted from the analysis.
- In four cases, the given sales revenue was ten times greater or lower in one year compared to the other two. Participants entered data as free-form text for this question. Consequently, it was assumed that a typographical error was made in the entry of the numbers and an extra "0" was either added or missed. For these responses, the outlier year was brought into alignment with the other two years by dividing by or multiplying by ten, as applicable.

4 Survey Results

This section reports the results of the 2021 survey. The terminology and organization are consistent with those from previous studies.

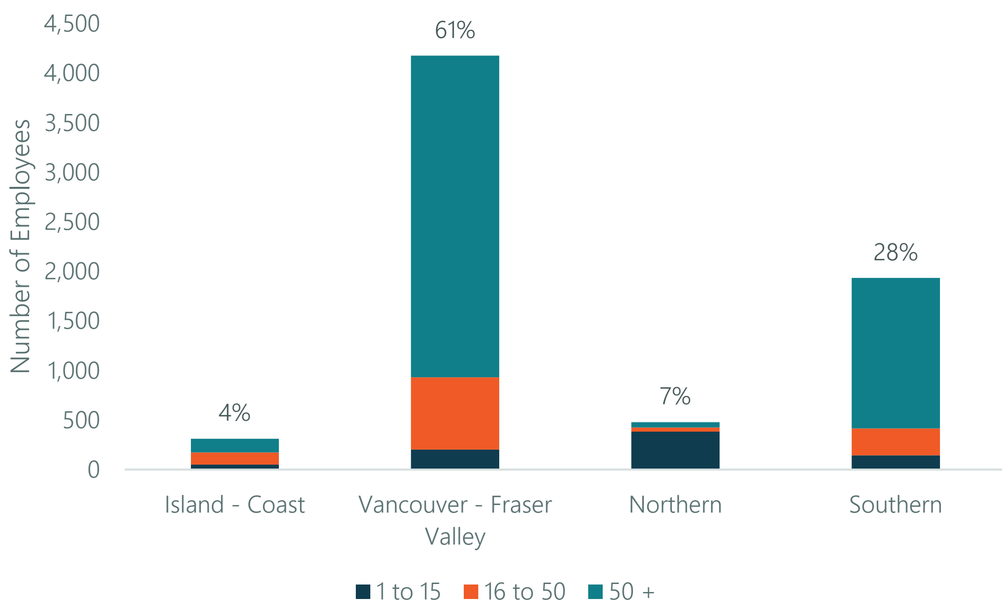
The survey asked respondents for information about the legal status of their firms. Approximately 71% of respondents indicated their business was a corporation; 18%, a sole proprietorship; 8%, a partnership, and 4% as other.

4.1 Employment

The survey respondents were asked to indicate the number of employees in their company. The median number of employees reported was 20 and the average number of employees was 50. Although large firms with greater than 50 employees only made up 26% of all firms, they accounted for almost 77% of all employment. By comparison, while 43% of firms had no more than 15 employees, they employed 6% of the sector's workers.

Figure 4 shows the distribution of employment by region[5] and firm size. Regionally, the Coast – comprised of the Island-Coast region and the Vancouver-Fraser Valley region – accounted for 65% of employment. The Southern (Interior) region accounted for 28% while the Northern (Interior) region accounted for 7% of employment.

Figure 4: Number of employees for firms with employment data, by size of firm (employees per firm) and region of primary location (n=136)



[5] In order to protect the confidentiality of responses, the Thompson-Okanagan and Kootenays regions are combined into a single "Southern" region.

Figure 5 shows that the majority of responding firms were small or medium-sized in 2021, employing fewer than 50 people. In the Southern region, 50% of firms reported having between 1 and 15 employees. The region with the greatest proportion of large firms (50 employees or more) was the Northern region (33%).

Figure 5: Geographical distribution of secondary manufacturers by size of firm (n=136)

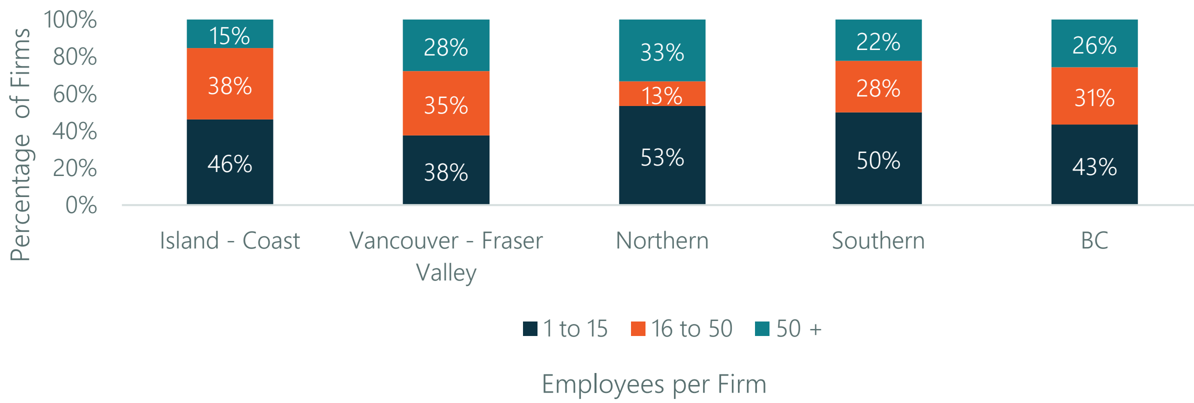
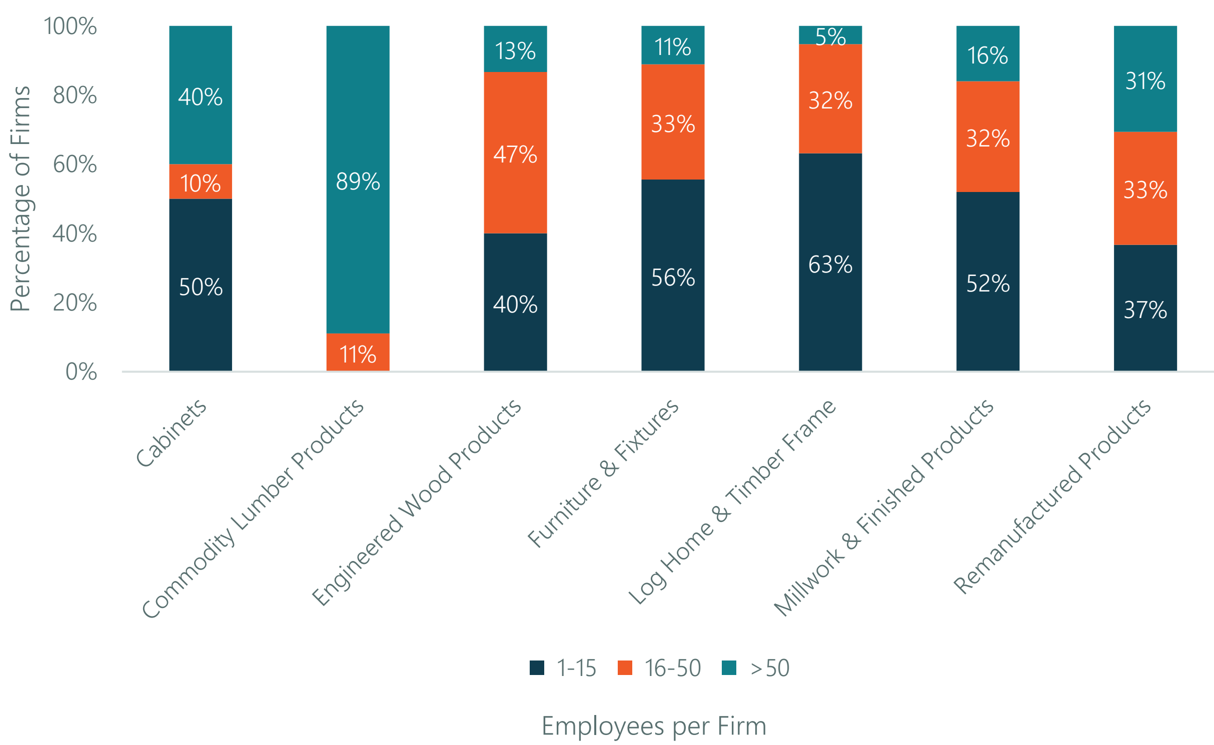


Figure 6 illustrates the relative size of firms in each business type based on number of employees. All business types, except commodity lumber, showed at least 37% of the responding firms to be small with 1-15 employees. By comparison, more than 30% of respondents in cabinets and remanufactured business types reported having 50 or more employees, and almost 90% of respondents in the commodity lumber business type reported having 50 or more employees.

Figure 6: Distribution of secondary manufacturers by business type and size of firm (n=136)



4.2 Demographics

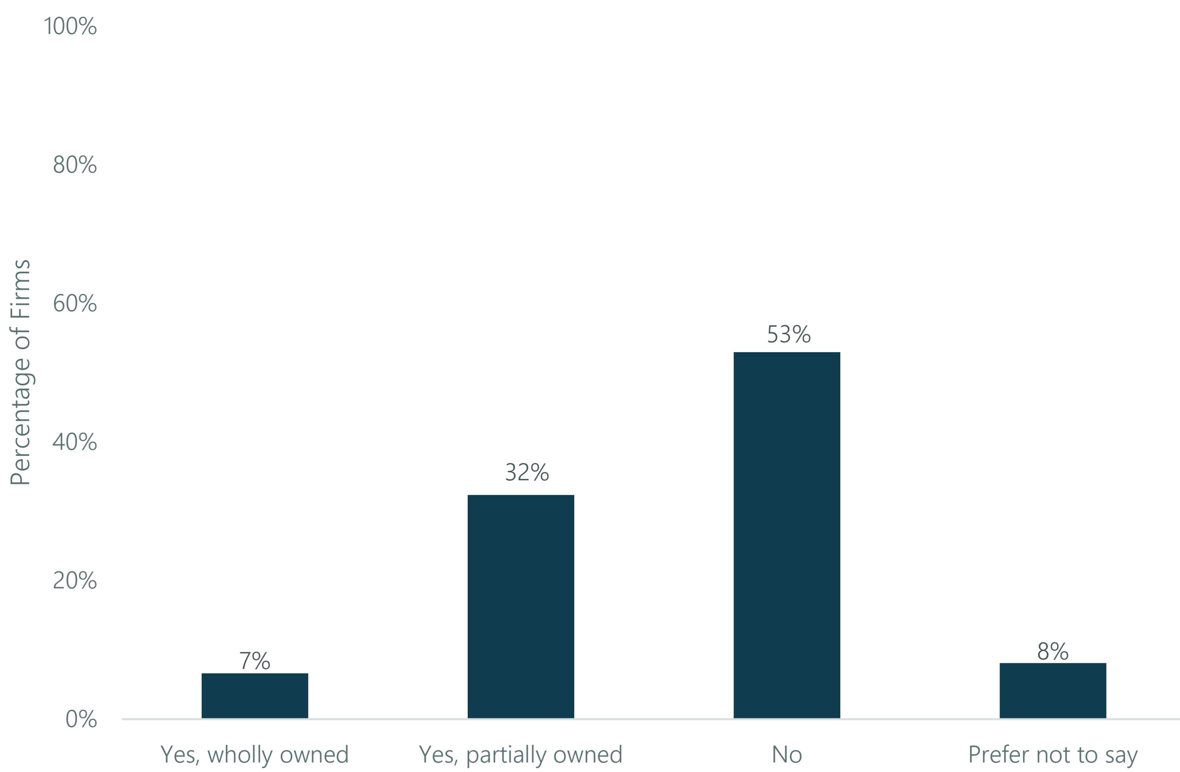
Respondents were asked about demographic diversity in their ownership and employee base.

Diversity of Ownership

When asked about Indigenous ownership, 4% of respondents indicated that their firms were partially owned by Indigenous people and/or an Indigenous organization. One percent indicated that their firms were wholly owned by Indigenous people and/or an Indigenous organization.

Figure 7 shows the responses of firms when asked if any one or more of the following: women, visible minorities, and/or people with disabilities had an ownership stake in their firm. Seven percent indicated that their firm was entirely owned by one or more from this group; 32% indicated that they were partially owned by one or more from this group.

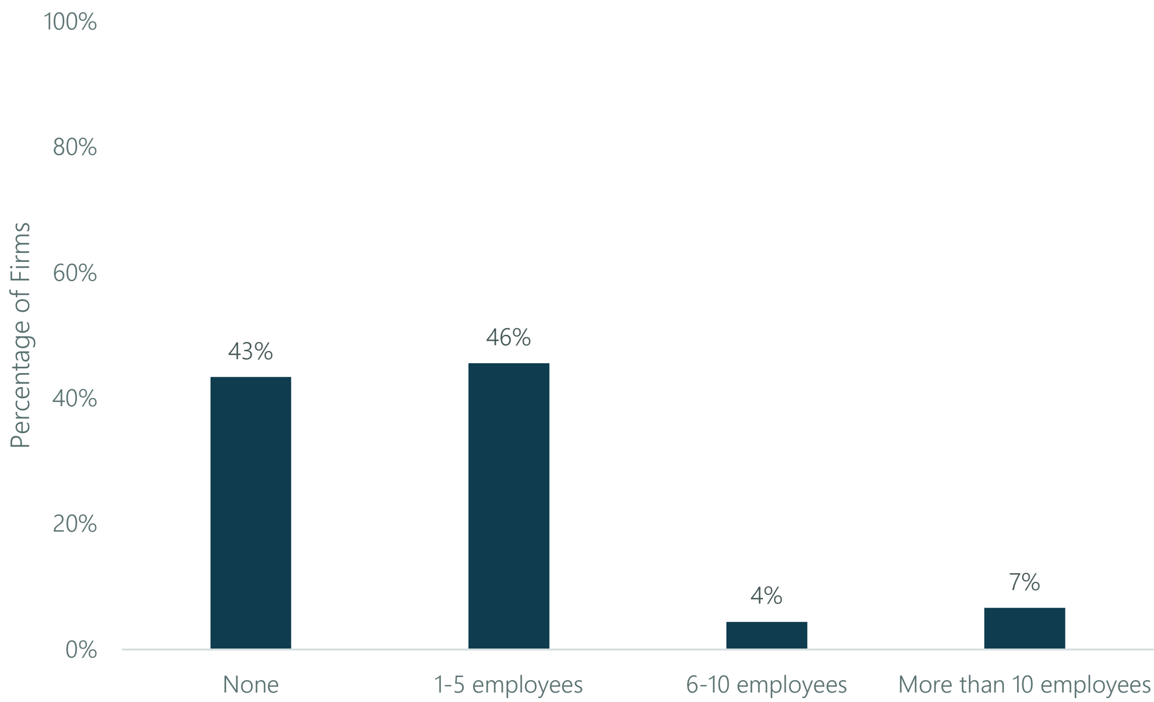
Figure 7: Firm ownership by women, visible minorities, and/or people with disabilities (n=136)



Indigenous Employment

Figure 8 shows the estimated number of Indigenous employees working for respondent firms in 2021. Over half of respondents reported that some of their full-time equivalent employees included Indigenous people. 46%estimated that 1-5 of their employees were Indigenous, 4% estimated that between 6-10 of their employees were Indigenous, while 7% estimated that more than 10 of their full-time equivalent employees were Indigenous.

Figure 8: Number of Indigenous employees (n=136)



Respondents were also asked about the number of full-time equivalent employees who identify as women, visible minorities, and people with disabilities. ***Table 4*** presents their responses, averaged per firm.

Table 4: Number of employees who are women, visible minorities, people with a disability (n=136)

Groups	Average number of staff
Women	8
Visible Minorities	10
People with Disabilities	0

4.3 Sales

A total of $2.5 billion in sales revenue was reported by the 111 respondents who provided their estimated revenue figure in the survey. Of this, an approximate $500 million was attributed to Commodity Producers. Sales of less $1 million were reported by 20% of survey respondents, while 28% reported more than $12 million in revenue. ***Figure 9*** provides the revenue distribution across secondary wood manufacturers. Producers of remanufactured products accounted for 58% of total sales revenue in 2021 and accounted for the largest number of respondents, comprising almost one-third of all. Commodity lumber producers accounted for the next largest share with sales revenue at 30%. Other business types each accounted for less than 3% of sales revenue of all responding firms.

Figure 9: Revenue distribution of secondary wood manufacturing respondents in 2021 (Total $2.5 billion) (n=111)[6]

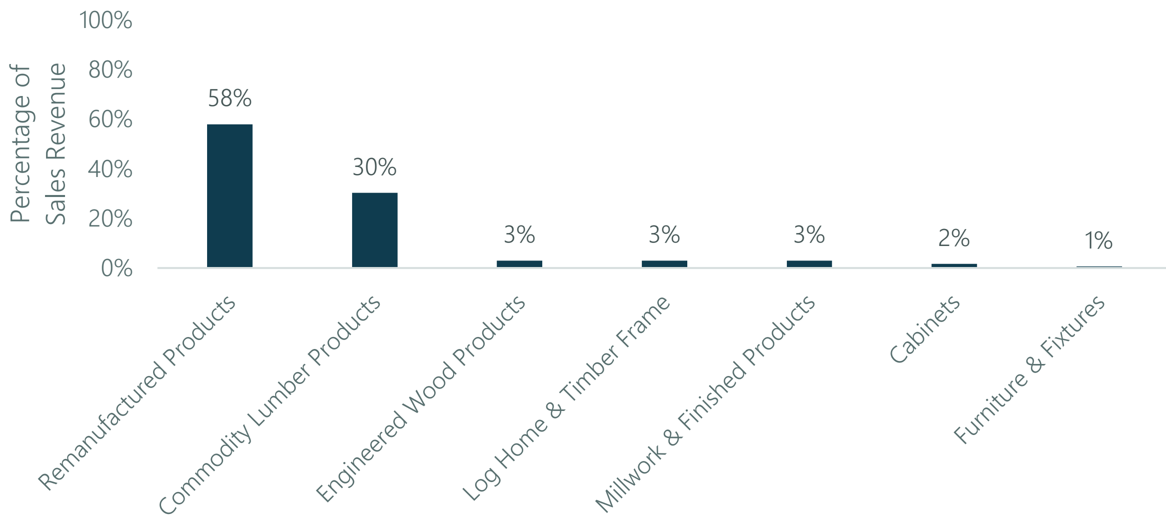
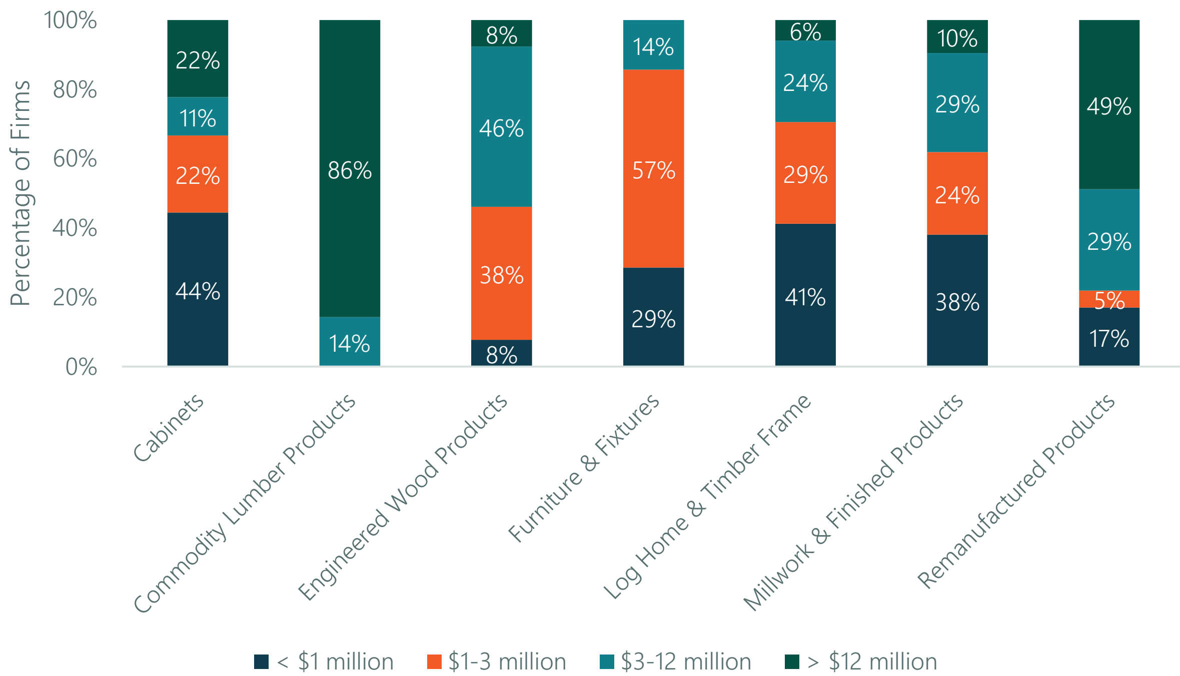


Figure 10 shows that 86% of respondents producing commodity lumber products and 49% of remanufactured products reported sales revenue over $12 million in 2021. In contrast, approximately 40% of responding manufacturers of cabinets, log homes and timber frames, and millwork and finished products had sales revenues under $1 million that same year.

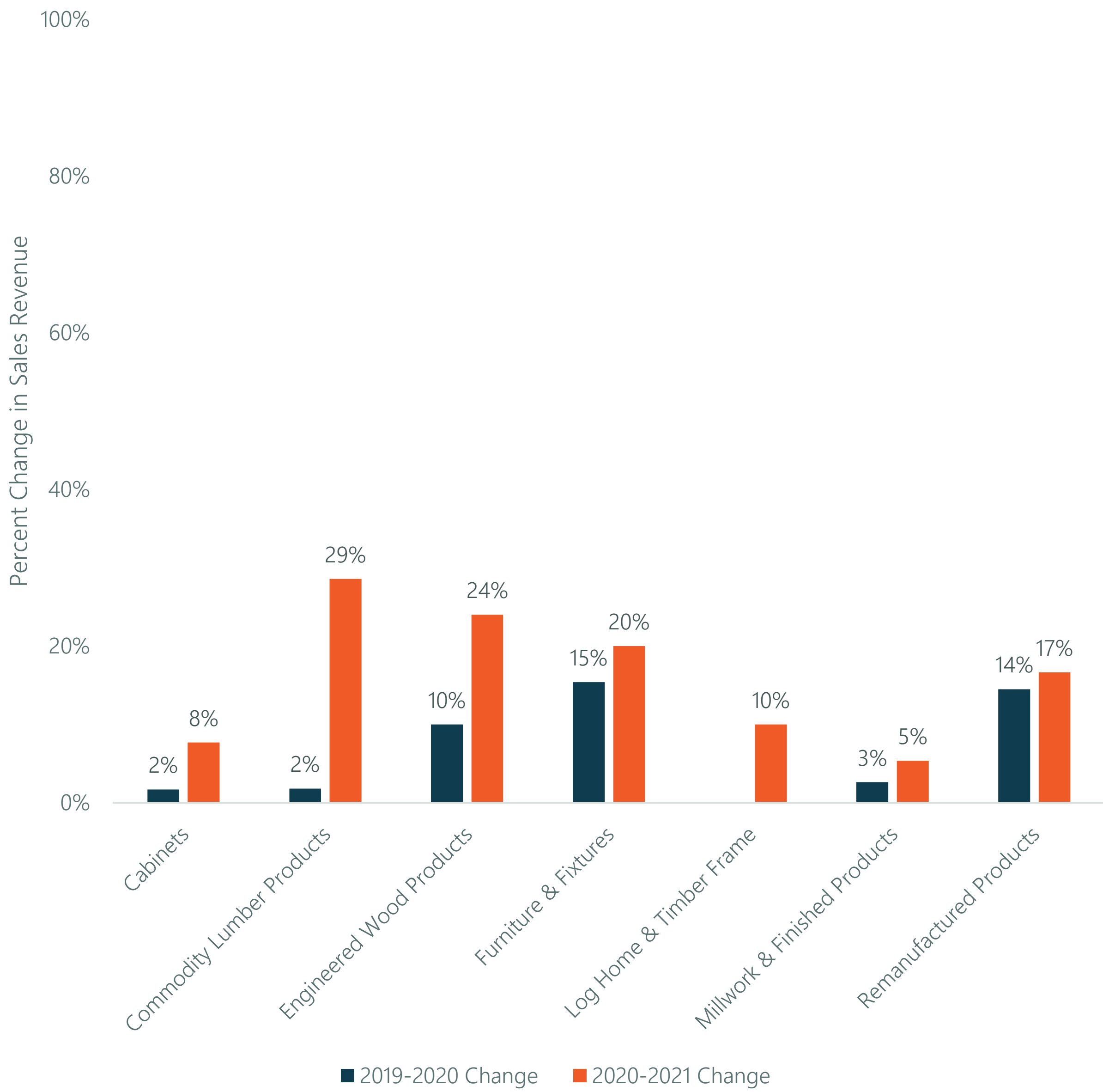
Figure 10: Distribution of respondents by revenue class and business type (n=115)[7]



[6] 25 respondents did not provide sales revenue data.
[7] 21 respondents did not provide revenue range data.

Respondents were asked to provide estimates of the changes in sales revenue between 2019 and 2020 as well as between 2020 and 2021. ***Figure 11*** shows their responses. From 2019 to 2020 most business types reported sales revenue increases of up to 15%. From 2020 to 2021, all business types reported a larger jump in sales revenue with commodity lumber producers, engineered wood product manufacturers, furniture and fixtures producers, and remanufactured product producers showing rises between 17% and 29%.

Figure 11: Percentage change in sales revenue (n=107)[8]



[8] 7 respondents did not indicate the changes in sales revenue data.

4.4 Products and Services

Table 5 shows the percentage of respondents in each business type that manufacture for specific end-uses. The majority of respondents produced for the new residential building market (76%), remodelling market (57%), and for the commercial building market (51%). By comparison, 26% of respondents produced for the industrial buildings market and 31% of respondents produced for industrial uses. 41% produced for the multiple unit housing market.

Table 5: Percentage of respondents that produce products for select end-use markets (n=136)

	New Residential	Remodeling	Multiple-unit Housing	Industrial buildings	Industrial Uses	Commercial Buildings
Cabinets	80	100	40	20	30	30
Commodity Lumber Products	89	78	78	44	44	56
Engineered Wood Products	93	53	53	47	27	67
Furniture & Fixtures	89	44	22	0	0	33
Log Home & Timber Frame	89	53	42	32	32	68
Millwork & Finished Products	72	64	20	16	8	56
Remanufactured Products	61	45	45	24	47	43
All Businesses	76	57	41	26	31	51

Figure 12 shows the number of targeted end-use markets by business type. 65% of companies targeted one or two markets – 34% targeted just one, and 31% targeted two. Furniture and fixture manufacturers were most likely of all the business types to sell to one market. Of all business types, respondents producing engineered wood products and commodity lumber products were the most likely to sell to three or more markets while respondents producing furniture and fixtures sold into the fewest number of markets, with 47% producing for one market and 33% producing for two markets.

Figure 12: Number of targeted end-use markets by business type (n=136)

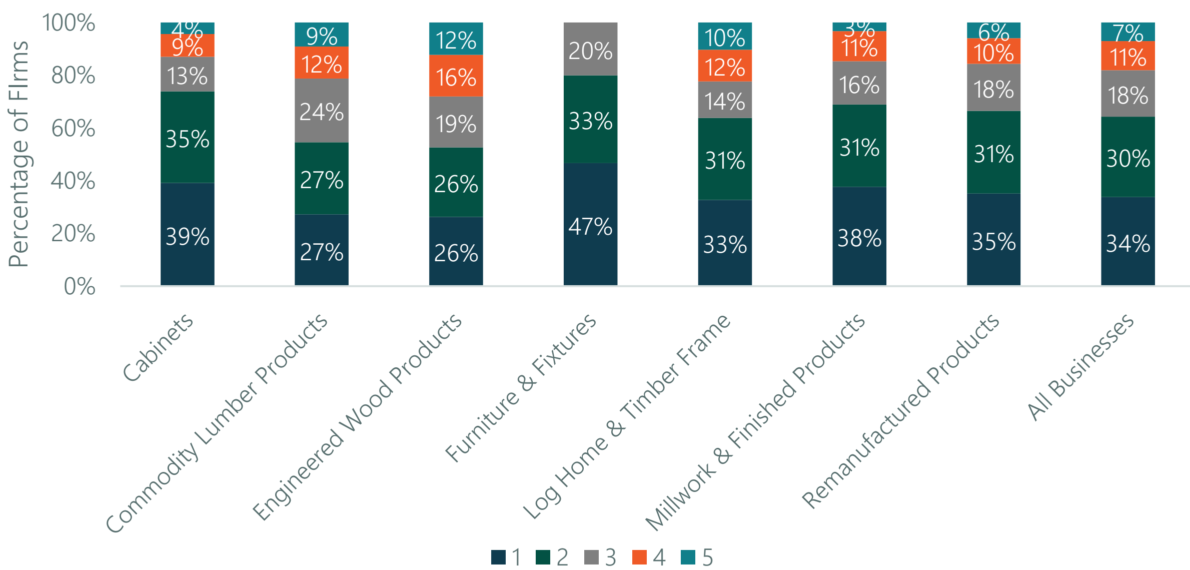


Table 6 and *Figure 13* summarize the data collected from respondents regarding the purchase and sale of various custom services. As with previous surveys, custom services were identified as manufacturing (planing, kiln drying, sawmilling, resawing, other) and non-manufacturing (marketing, distribution, and logistics).

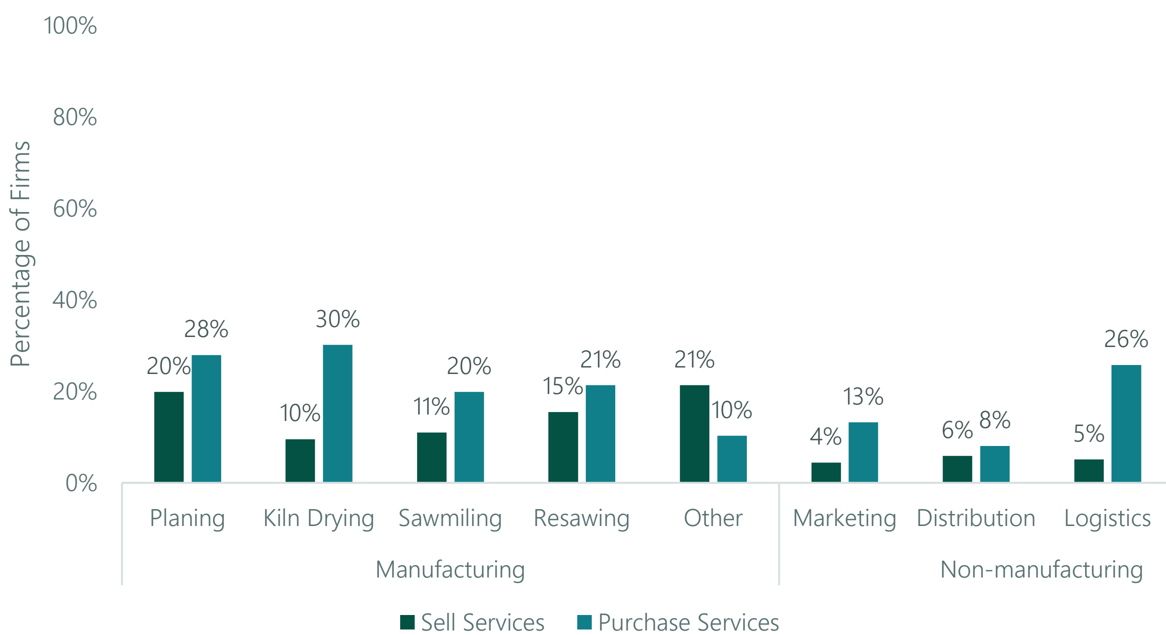
46% of respondents provided custom services and 63% purchased them. Of the businesses that sold custom services, 65% provided manufacturing services only, 11% provided non-manufacturing services only, and 24% provided both. ***Figure 13*** shows that the most sold services of survey respondents were other planing (20%), followed by resawing (15%) and sawmilling at 11%. The least sold service was marketing at 4%.

The top three purchased services were kiln drying (30%), planing (28%) and logistics (26%). The least purchased custom service was distribution at 8%.

Table 6: Percentage of respondents buying or selling custom services in 2021 (n=136)

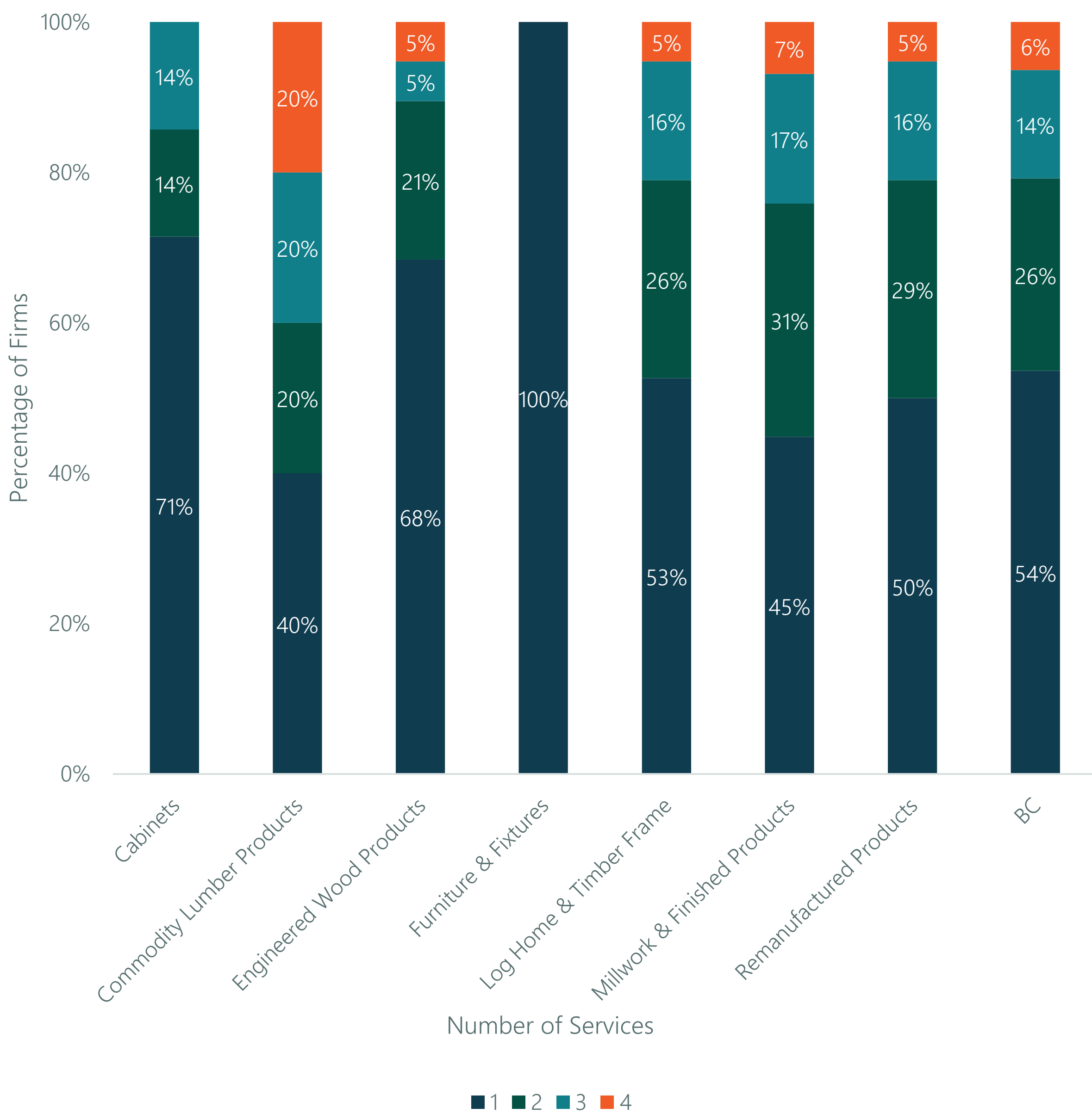
	Purchase Custom Services (%)	Sell Custom Services (%)	Plan to Expand Services (%)
Island - Coast	62	46	31
Vancouver - Fraser Valley	69	44	25
Northern	53	40	27
Southern	56	50	36
BC	63	46	29

Figure 13: Percentage of respondents selling or purchasing custom services in 2021 (n=136)



Of the respondents who provided custom services, 54% provided one, 26% provided two while the remaining 20% provided three or more (see ***Figure 14***). 40% of respondents producing commodity lumber products and 24% of those producing millwork and finished products provided three or more services. 68% of respondents who produced engineered wood products provided one custom service while 21% provided two. The top two custom services sold by respondents were planing (34%) and other custom products (13%). 29% of all respondents planned to expand into new business services. These were primarily remanufacturing firms from Vancouver-Fraser Valley that intended to add planing, custom products, and millwork.

Figure 14: Number of services offered by business type (n=136)



4.5 Markets

Figure 15 identifies the main markets, both domestic and overseas, for BC's secondary wood products manufacturing sector. 98% of respondents counted on the BC market for a portion of their sales revenue and, for 54% of respondents, BC provided over half of their sales revenue in 2021. 54% owed some of their sales revenue to markets throughout the rest of Canada, while only 1% relied on the rest of Canada for most of their sales revenue. 57% of respondents sold into US markets with 9% relying on the US for at least half of their sales revenue.

Figure 15: Percentage of firms reporting sales to various markets in 2021 (n=136)

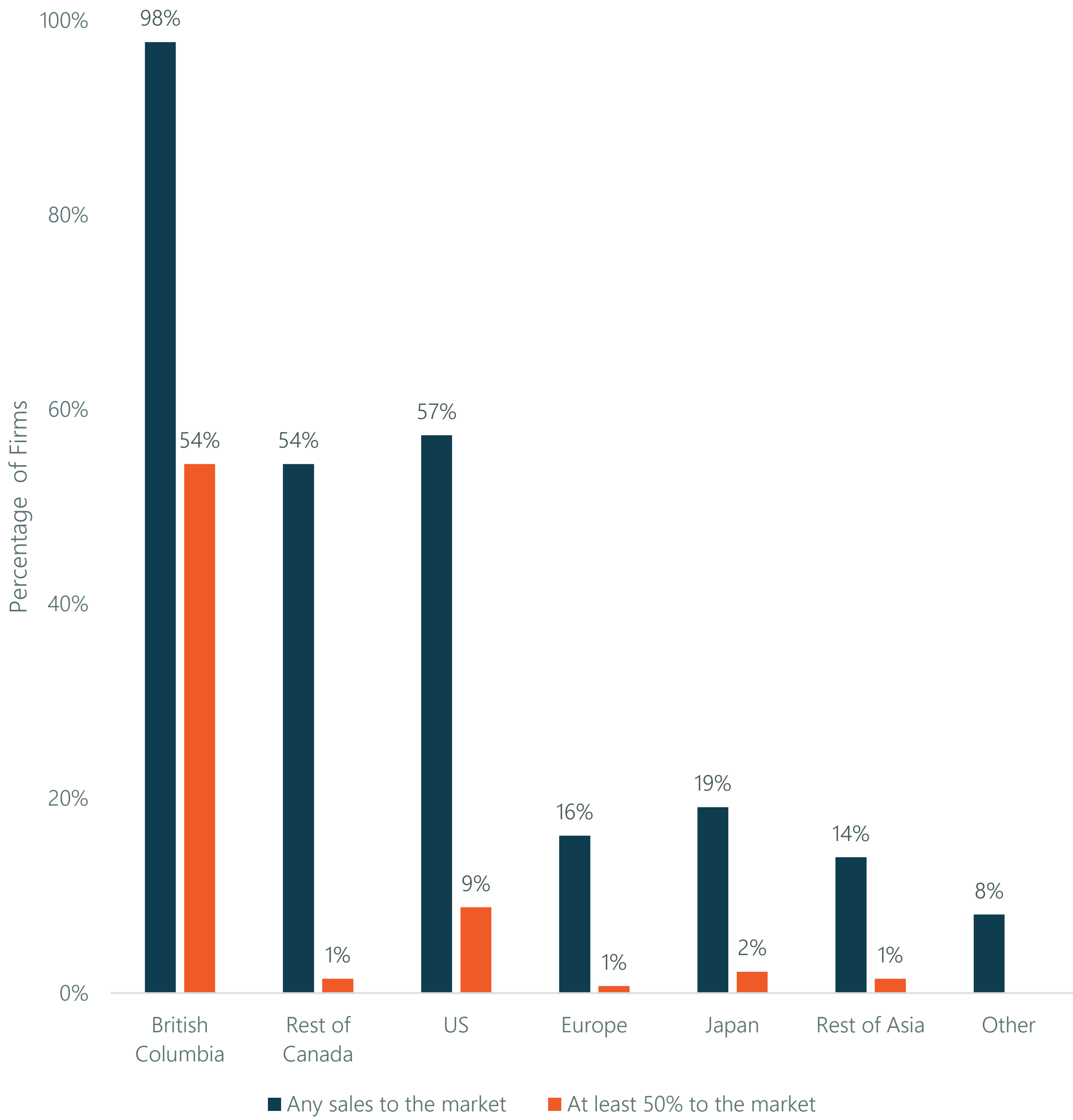


Figure 16 shows the market sources of sales revenue for responding firms. The BC market is responsible for 50% of all respondents' sales revenues, while 10% of revenue came from the rest of Canada. Outside of Canada, the US was responsible for 20% of all sales revenue. Japan was the largest overseas market, providing 12% of sales revenue to respondents. Europe was responsible for 6% of the respondents' sales revenue and the remaining 1% came from the rest of Asia.

Figure 16: Distribution of sales revenue by market in 2021 (n=136)

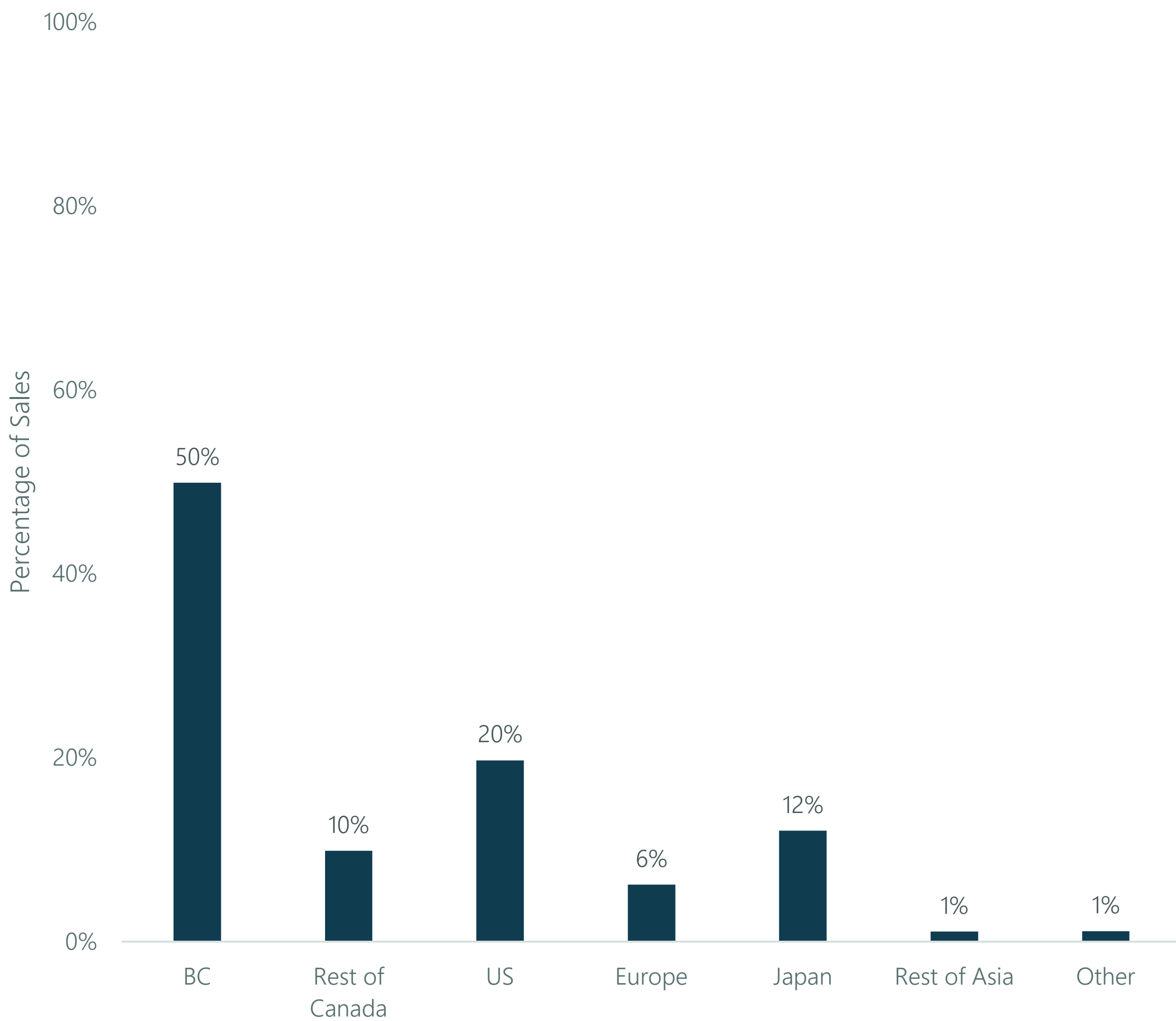
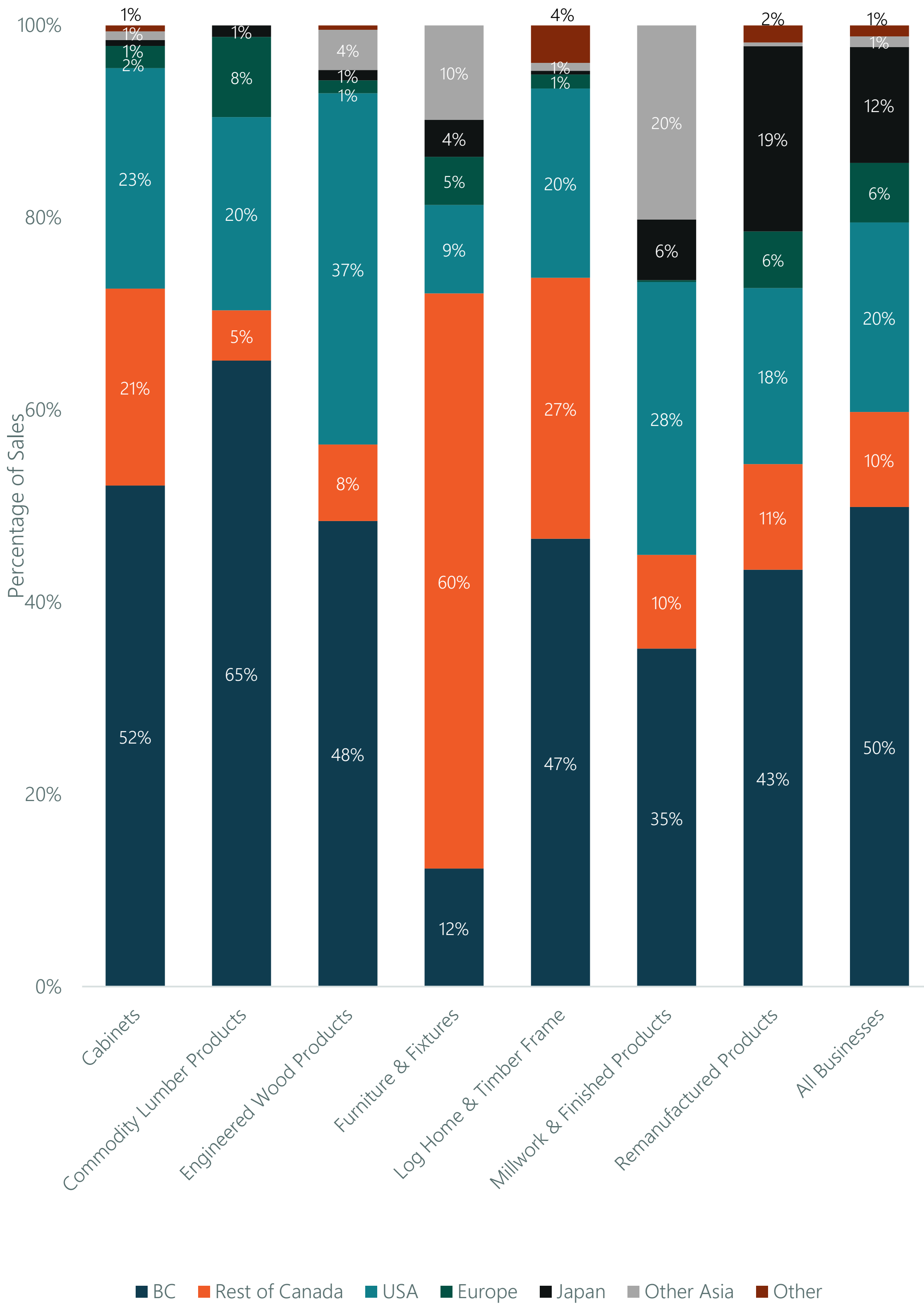


Figure 17 details the share of revenue earned by each business type in various markets. Domestic markets accounted for over half of all sales revenue for most business types. Log home and timber frame producers, producers of cabinets and furniture, and fixture producers were the most reliant on domestic markets, with almost three-quarters of their sales revenue coming from this source. The business types which relied the most on export markets were millwork and finished product producers, with 55% of their sales revenue coming from exports. Remanufacturers were next at 46%, followed by engineered wood product producers at 44%.

Figure 17: Distribution of 2021 sales by market type and business type (n=136)



Respondents were asked whether they intended to expand their sales into new market regions and, if so, to indicate which ones. ***Figure 18*** illustrates the target markets for expansion by respondent type. Of those that planned expansion, 30% indicated interest in expanding into Canadian provinces outside of BC, while 23% were looking at expanding into the US market. For overseas markets, 8% planned to expand into Europe, 6% in Japan, 7% the rest of Asia, and 6% into other markets.

Figure 18: New market regions of interest for firms that plan expansion (n=136)

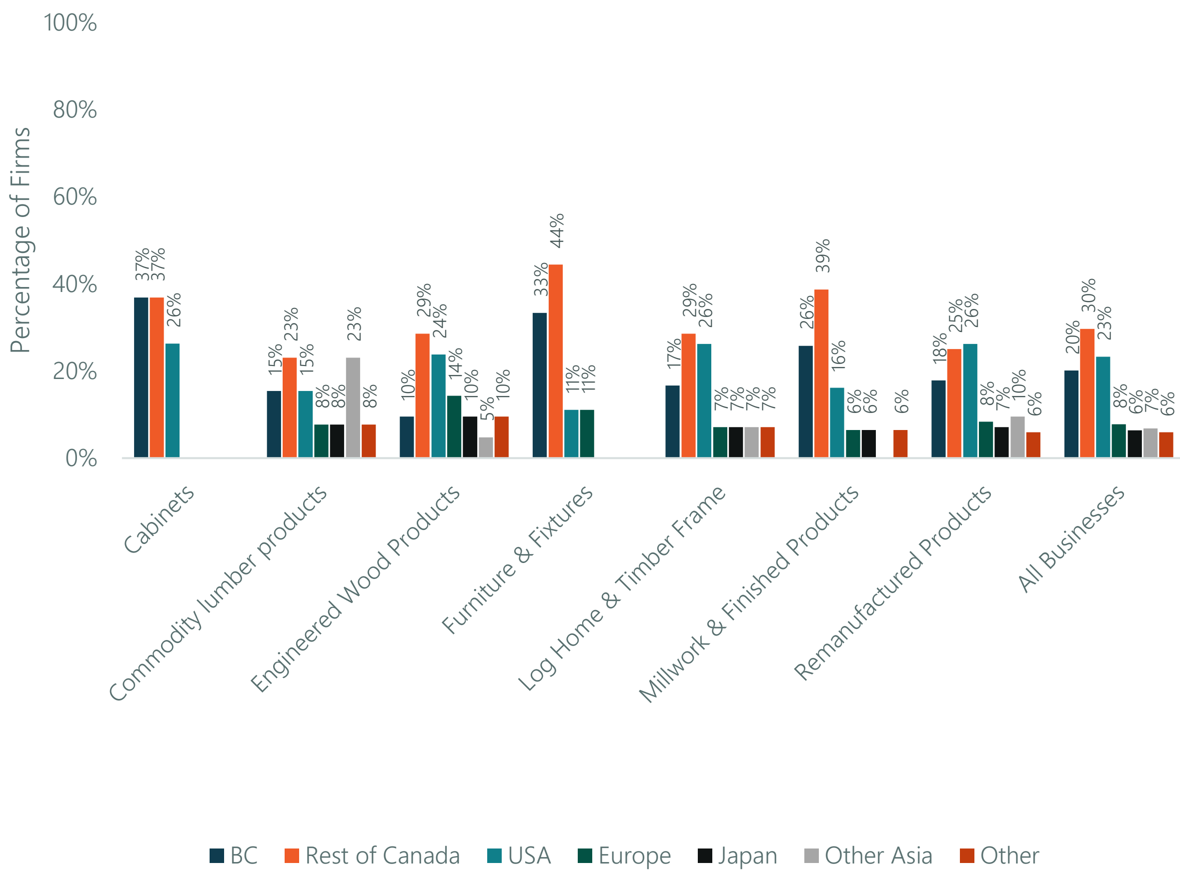
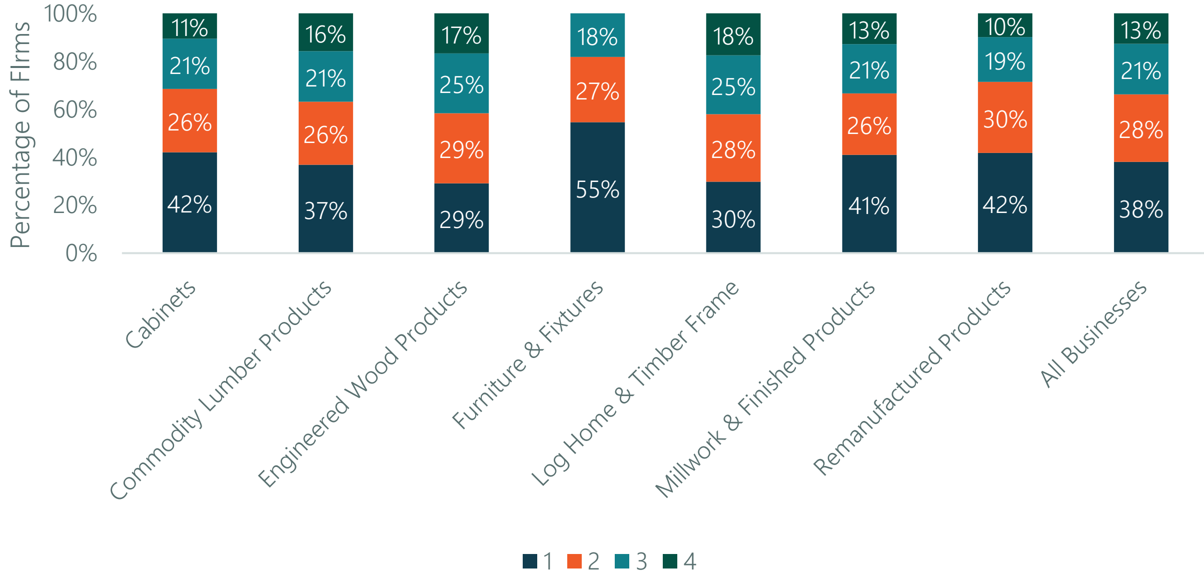


Figure 19 shows the number of new market regions that respondents planned to expand into. With the exception of furniture and fixtures producers, all business types had some respondents who planned to expand into four or more markets. Most furniture and fixture producers (55%) planned to expand into a single market only. Producers of log and timber frame homes expressed the broadest plans of all, with 18% of respondents planning to expand to four or more markets. Of all who planned to expand, two thirds planned to expand into one or two markets, while 13% planned to expand into four or more.

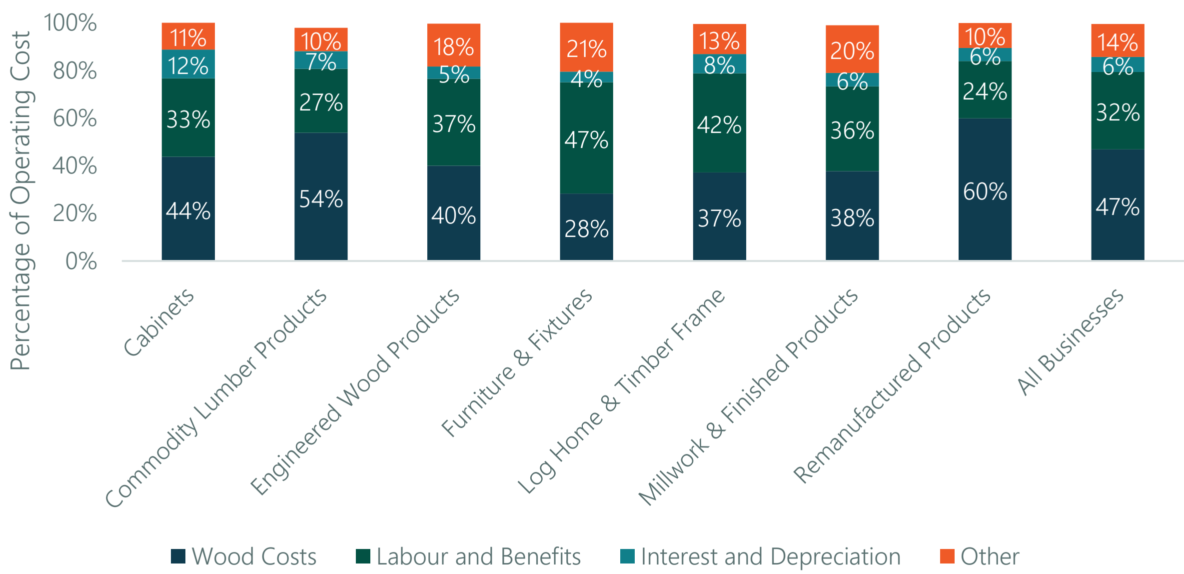
Figure 19: Number of new market regions of interest for firms that plan expansion (n=136)



4.6 Operating Costs

As shown in ***Figure 20***, wood costs represented the highest of all operating costs for all respondents in the sector (47%). Remanufacturers spent the most of their budget on wood costs at 60%, while furniture and fixture producers spent the least, with only 28% of their budget being spent on wood costs. Furniture and fixture producers spent 47% of their operating budget on labour, the most out of all the business types.

Figure 20: Operating cost mix by business type (n=127)



4.7 Raw Material Use

Responding firms in BC's secondary wood products manufacturing sector were asked to estimate their total wood fibre use in 2021 by form and species.

4.7.1 Form

In 2021, the main input materials for survey respondents were lumber (44%), other (18%) and logs (15%). ***Table 7*** shows their average material utilization by category and form. On average, cabinet manufacturers accounted for the largest volume used (1,739 m^3 used per firm), followed by producers of remanufactured products at 1,142 m^3.

Table 7: Average material utilization by form (cubic metres)

	Logs	Lumber	Plywood	Veneer	Oriented Strand Board	Medium Density Fiberboard	Wood Residues	Other	Total
Cabinets	-	590	227	165	109	206	14	428	**1,739**
Commodity lumber products	265	702	-	-	-	-	-	-	**967**
Engineered Wood Products	84	239	25	22	-	-	-	46	**416**
Furniture & Fixtures	42	179	279	128	-	101	-	166	**895**
Log Home & Timber Frame	356	23	14	-	13	-	-	229	**635**
Millwork & Finished Products	27	459	44	17	1	16	0	98	**662**
Remanufactured Products	217	643	54	3	3	0	7	215	**1,142**

4.7.2 Species

Figure 21 shows the percentage of firms reporting wood species used. 68% percent of respondents reported using Douglas-fir, the most of all species. Hardwoods were the next most frequently used material, with 65% of respondents using them. This was followed by Western red cedar at 54%. 21% of respondents relied on Douglas-fir and Western red cedar for at least half of their raw material inputs in 2021.

Figure 21: Percentage of secondary manufacturers reporting species of wood used (n=136)

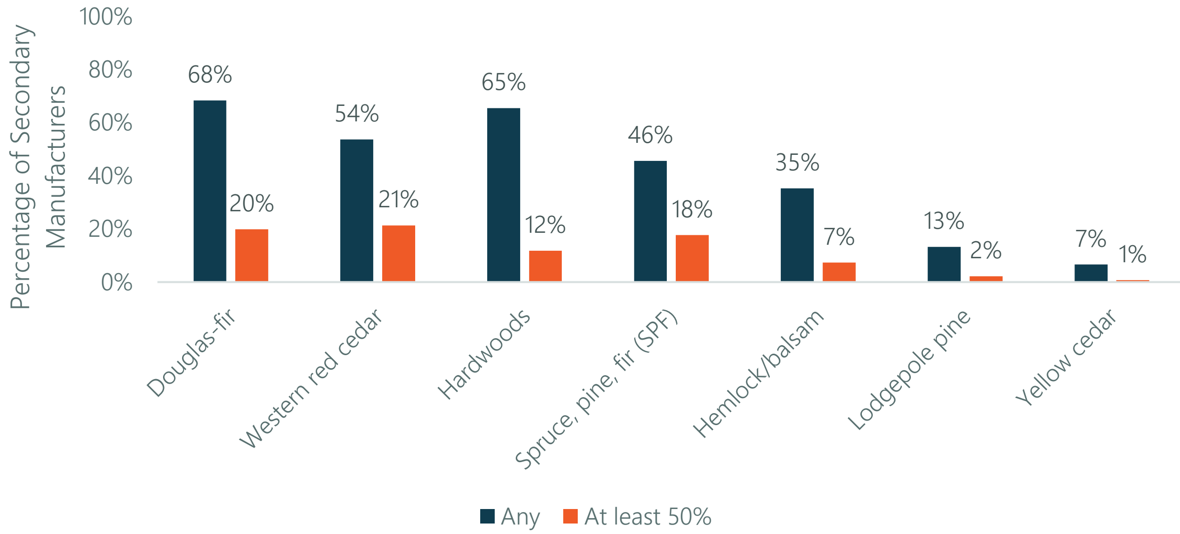


Figure 22 shows the distribution of roundwood equivalent (RWE) volume of species reported by survey respondents in 2021. Western red cedar was the most used species by all business in terms of RWE volume accounting for 25% in total. This was an increase from the 2016 survey when it accounted for 19.5%. The second most used species was Douglas-fir which accounted for 18% of volume reported by respondents (compared to 26% in 2016). Spruce, pine, fir (SPF) also accounted for 18% of volume used in 2021 however a comparison to the 2016 survey was not possible as, in that year, respondents elected to represent their volumes by separate species of lodgepole pine and spruce instead of SPF (in 2012, SPF represented 31% of all RWE volume used by respondents). One notable increase was in the use of hardwoods which accounted for 19% in 2021 while it accounted for 1% in 2016. This may have been influenced by the inclusion of the log home and timber frame business type in the 2021 survey (not included in previous surveys).

Figure 22: Roundwood equivalent volume used by species for survey respondents (n=121)

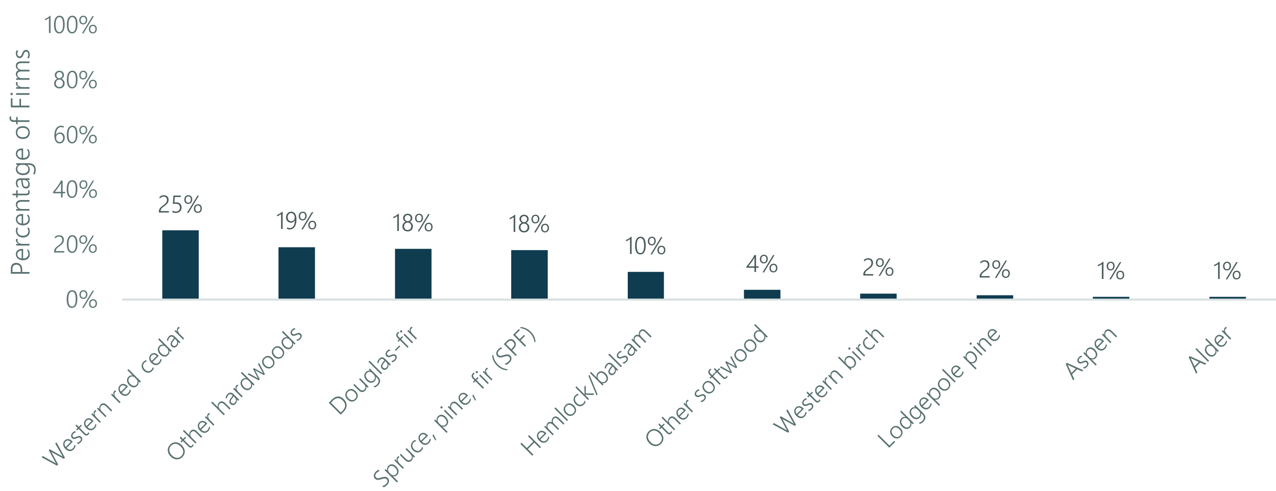


Table 8 shows species mix used across business types. It shows a more even distribution of species used than in the 2016 survey. In 2016, engineered wood product manufacturers relied on Douglas-fir for 69% of their volume while in 2021 this was 13% (with 41% being SPF for this business type). In 2016, cabinet manufacturer respondents relied on 86% of their volume coming from other hardwood while in 2021, this number was 51% while Alder was at 18%.

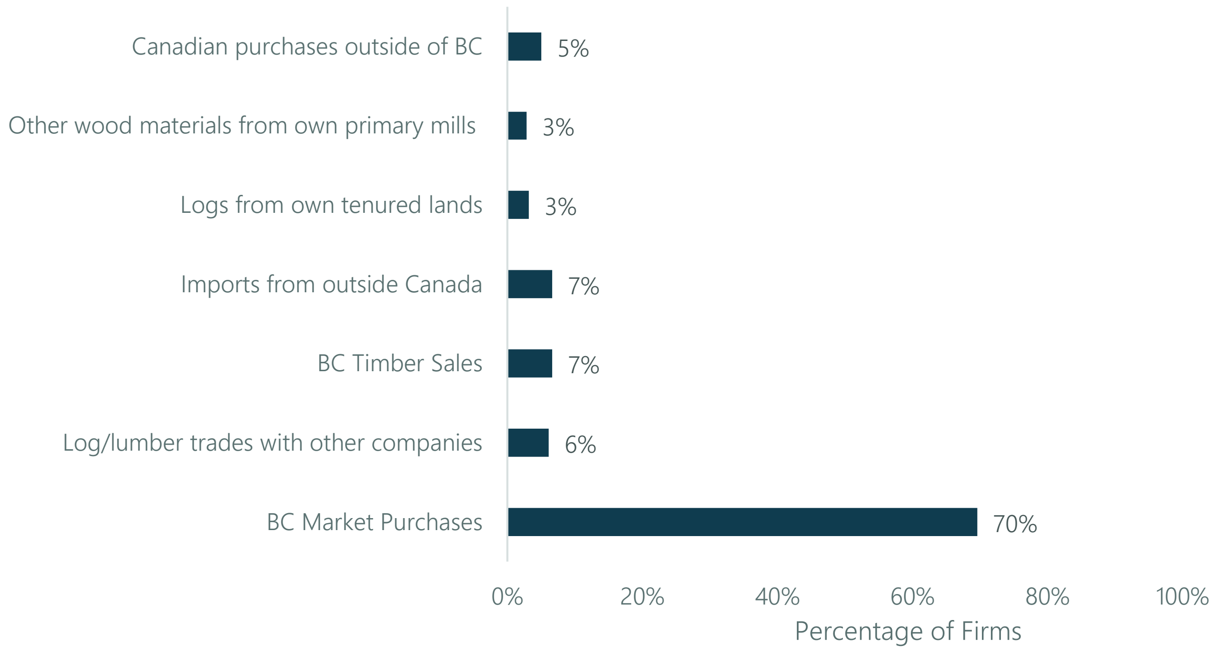
Western red cedar was the species most used by respondents producing remanufactured products (22%) while respondents producing log home and timber frame products relied on Douglas-fir for 38% of their species mix. By volume, the largest consumers of fibre of all respondents in the 2021 survey were remanufacturers (32%), millwork and finished product producers (23%) and log home and timber frame manufacturers (13%).

Table 8: Species mix by business type (%) (n=121)

	Douglas-fir	Western Red Cedar	Spruce, Pine, Fir (SPF)	Hemlock/ Balsam	Lodgepole Pine	Other Softwood	Aspen	Western Birch	Alder	Other Hardwood
Cabinets	13	7	5	0	0	3	0	3	18	51
Commodity lumber products	45	4	13	11	21	3	0	2	0	0
Engineered Wood Products	13	9	41	5	4	5	0	6	0	17
Furniture & Fixtures	3	7	36	2	0	0	0	7	26	18
Log Home & Timber Frame	38	2	2	7	4	10	0	16	0	22
Millwork & Finished Products	23	15	5	9	1	18	2	2	17	9
Remanufactured Products	16	22	15	20	2	7	1	12	1	6
All Businesses	**18**	**25**	**18**	**10**	**2**	**4**	**1**	**2**	**1**	**19**

In 2021, responding firms in the BC secondary wood manufacturing sector sourced fibre primarily from within the province, with 77% of fibre sourced from the BC market and BC Timber Sales alone (see ***Figure* 23**). Five percent of fibre was sourced within Canada but outside of the province.

Figure 23: Sources of fibre supply (n=136)



4.8 Capacity Utilization and Expansion Plans

Table 9 shows that survey respondents operated at an average level of 73% capacity. The Vancouver – Fraser Valley and Island - Coast regions had the highest averages at 79% and 69% respectively while the Northern (Interior) region had the lowest average at 60% capacity utilization. Firms operating two or more shifts had a slightly higher average utilization (76%) than firms operating one shift (72%).

Table 9: Average capacity utilization (%) (n=136)

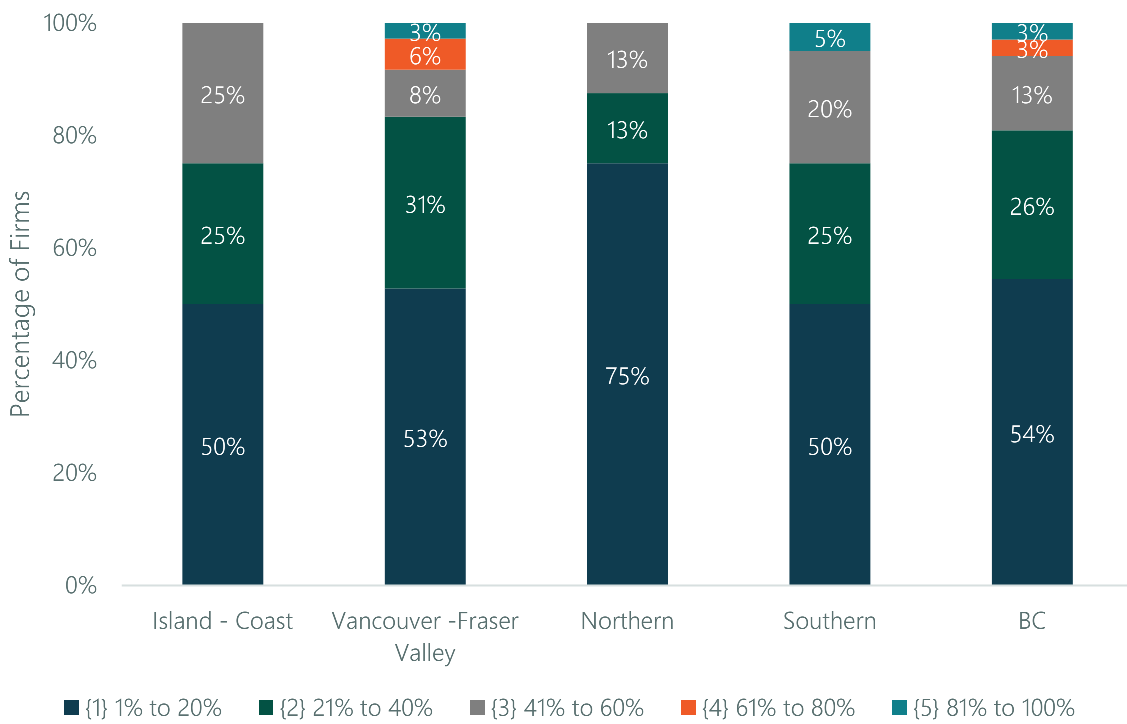
Region	1 shift	2 or more	All
Island - Coast	69	-	69
Vancouver -Fraser Valley	79	77	79
Northern	59	80	60
Southern	66	73	67
BC	**72**	**76**	**73**

Table 10 shows that 50% of respondents planned to increase capacity from 2023-2025. Coastal firms (Island-Coast and Vancouver-Fraser Valley) were, in general, less likely to plan to expand capacity than Interior firms in the Southern and Northern regions. ***Figure 24*** shows levels of expansion for 68 of the respondents. 54% of all BC firms planned to expand between 1-20% in that time period. Seventy-five percent of Northern region firms plan to expand by 1-20%, while nine percent of firms in the Vancouver-Fraser Valley region were planning to expand capacity by at least 61% or more, making a firm in that region the most likely to take on such a large expansion.

Table 10: Percentage of respondents planning to expand capacity from 2023-2025 (n=68)

Region	Planning Expansion (%)
Island-Coast	31
Vancouver-Fraser Valley	50
Northern	53
Southern	56
BC	**50**

Figure 24: Levels of expansion plans (n=68)

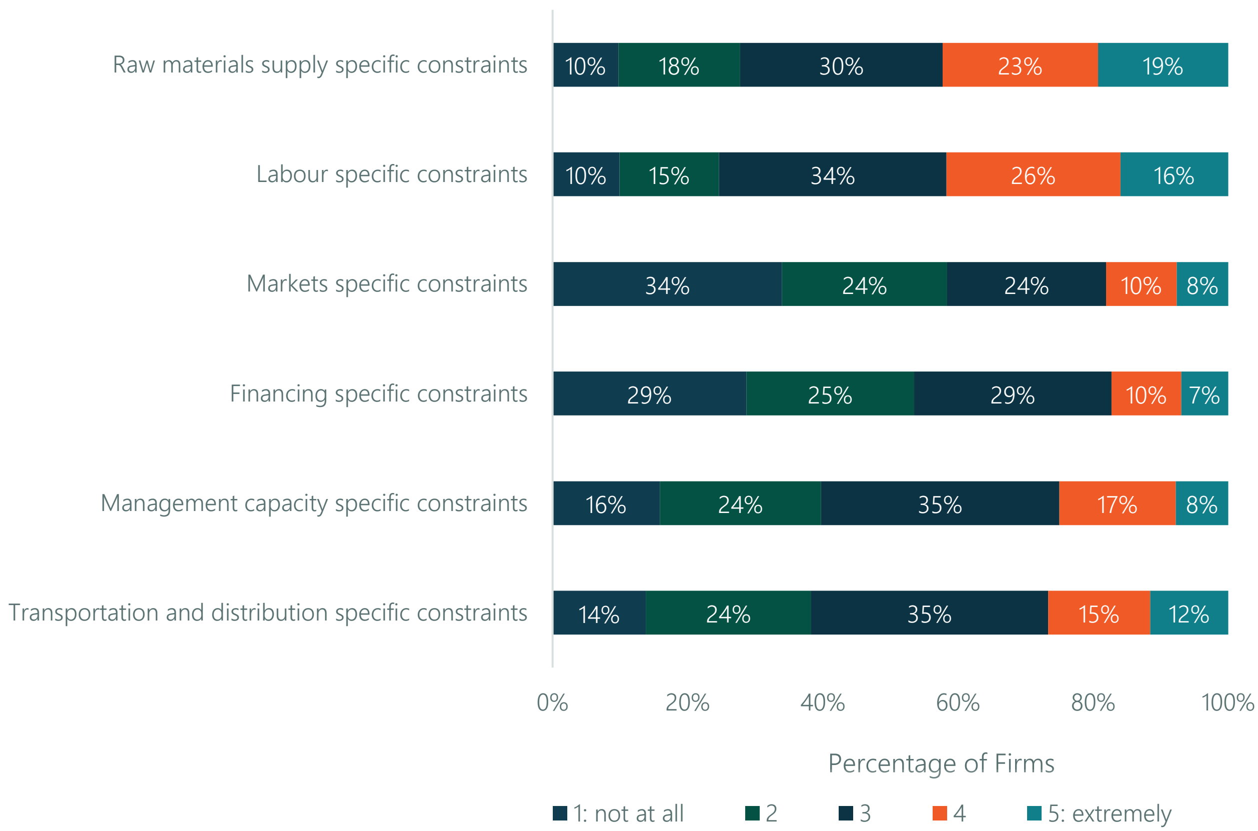


Survey participants were asked to estimate the rank of a predefined list of constraints to capacity expansion, using a five-point scale (1 equalled "not at all constraining" and 5 equalled "extremely constraining"). ***Table 11*** shows the average scores for each constraint, while ***Figure 25*** shows the distribution of these responses. Labour specific constraints and raw materials supply constraints were ranked as the highest of all measured constraints (3.5) while transportation and distribution, then management capacity specific constraints ranking as third (3.4) and fourth (3.1) respectively. Labour constraints were rated the highest on the Coast (Island-Coast and Vancouver-Fraser Valley regions) while respondents from the Northern and Southern (Interior) regions rated raw materials supply as the highest constraint.

Table 11: General constraints to expansion (n=136)

	Raw materials supply specific constraints	Labour specific constraints	Markets specific constraints	Financing specific constraints	Management capacity specific constraints	Transportation and distribution specific constraints
Island-Coast	3.1	3.6	2.8	2.6	3.4	2.8
Vancouver-Fraser Valley	3.4	3.5	2.6	2.4	2.7	3.1
Northern	3.5	3.4	2.3	2.3	2.6	3.4
Southern	3.5	3.4	2.8	2.4	2.9	3.1
BC	**3.4**	**3.5**	**2.7**	**2.3**	**3.1**	**3.2**

Figure 25: General constraints to expansion: distribution of rankings (n=136)



Within each constraint category, respondents were asked to provide estimates of the ranking of a more detailed set of constraints to their capacity expansion using the method described previously. ***Table 12*** presents the results.

Raw materials supply

Price-related constraints were rated the highest in this category overall with price volatility rated the highest for respondents from all regions of the province, except the Southern region. It was highest for those on the Coast (Island-Coast and Vancouver-Fraser Valley), with the two regions rating 4.0 and 3.6 respectively, while those in the Northern and Southern regions of BC rated this constraint as 3.5 and 3.4 respectively. Average price was also among the highest rated constraints in terms of raw materials supply overall, but highest for respondents in the Interior with those in the Southern region and Northern regions rating this as 3.5 and 3.4 respectively.

Volume was a greater constraint for those in the Interior (Northern and Southern regions) as opposed to those on the Coast (Island-Coast, Vancouver-Fraser Valley) while constraints pertaining to quality grade were rated highest in the Southern (Interior) region out of all regions in the province.

Labour

Experience was the greatest constraint when it came to respondents' reports of labour constraints; this was slightly higher in the Northern (Interior) region than the others. Cost constraints were reported highest on Island-Coast and in the Southern (Interior) regions. The Northern and Southern (Interior) regions reported training skills as the highest constraint among all regions.

Markets

In general, markets were not rated as high of a constraint as the other categories. Of all the market constraints, the Softwood Lumber Agreement (which expired in 2015) was rated the highest. Within this, the Vancouver-Fraser Valley region rated this a higher constraint than respondents in the other regions.

Finance

Finance specific constraints were not rated as high as the other categories. Cost was the highest rated of all constraints with Island-Coast respondents rating this as the highest at 3.2.

Manufacturing capacity

Reducing manufacturing costs and increasing labour efficiency constraints were rated the highest of all the constraints within this category. For both categories, Island-Coast respondents rated these the highest out of all the regions (3.5) with respondents from the Northern Region rating these as the second highest (3.3).

Transportation

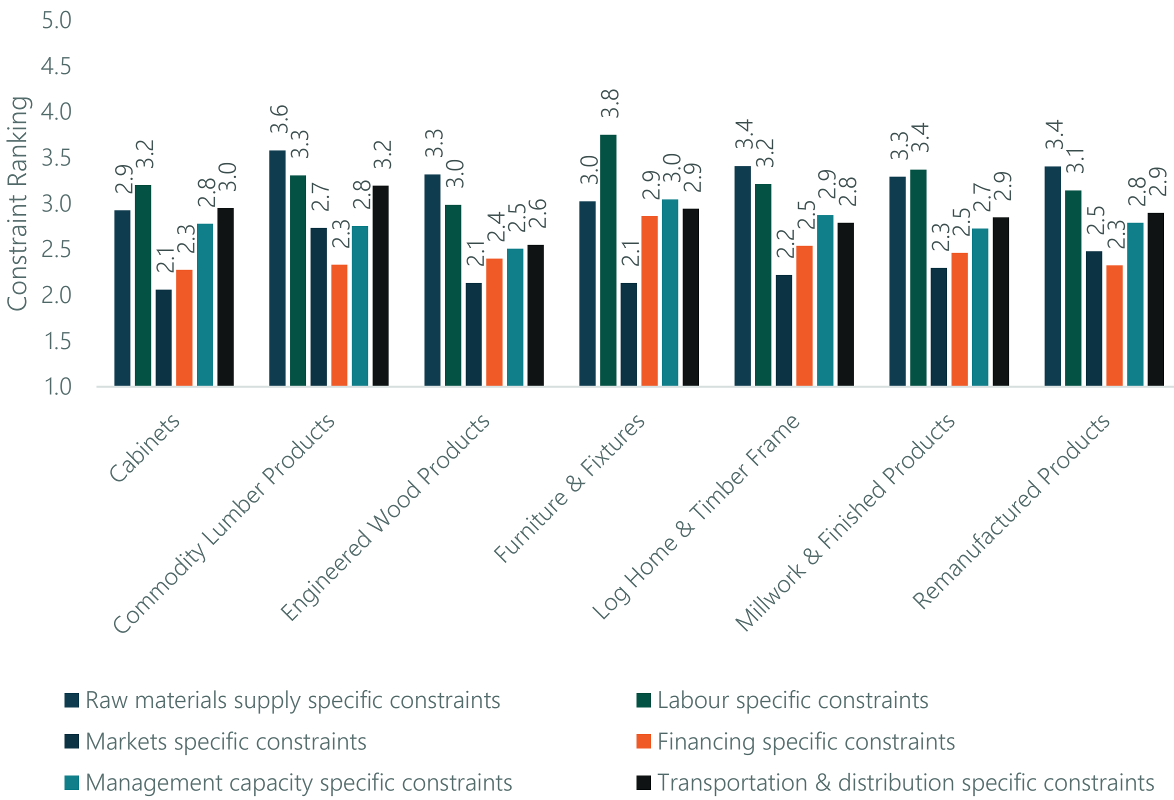
Costs related to transportation were rated the highest of all the categories especially by respondents in the Northern and Southern (Interior) regions who rated this as 3.9 and 3.7 respectively. Respondents from these regions also rated access, logistics and frequency as greater constraints than their Coastal counterparts in the Island-Coast and the Vancouver-Fraser Valley regions.

Table 12: Detailed constraints to expansion (n=136)

	Island-Coast	Vancouver-Fraser Valley	Northern	Southern	BC
Raw materials supply specific constraints					
Volume	2.6	3.0	3.1	3.3	**3.1**
Quality Grade	2.5	2.8	2.9	3.1	**2.9**
Average Price	3.3	3.3	3.4	3.5	**3.4**
Price Volatility	4.0	3.6	3.5	3.4	**3.6**
Labour specific constraints					
Training Skills	3.1	3.3	3.4	3.4	**3.3**
Flexibility	3.0	2.8	2.8	2.9	**2.9**
Cost	3.6	3.3	3.1	3.4	**3.3**
Experience	3.4	3.5	3.6	3.5	**3.5**
Markets specific constraints					
Softwood Lumber Agreement	2.6	2.7	2.2	2.6	**2.6**
Product Diversification	2.3	2.2	2.2	2.1	**2.2**
Market Diversification	2.4	2.3	2.6	2.4	**2.3**
Market Product Research	1.8	2.1	2.2	2.3	**2.1**
Foreign Regulations	2.6	2.3	2.2	2.4	**2.4**
Financing specific constraints					
Availability	2.5	2.2	2.3	2.4	**2.3**
Cost	3.2	2.8	2.6	3.1	**2.9**
Flexibility	2.2	2.3	2.2	2.3	**2.3**
Repayment Schedule Length	2.4	2.2	1.9	2.3	**2.2**
Management capacity specific constraints					
Improving Product Quality	2.6	2.2	2.3	2.6	**2.4**
Reducing Manufacturing Costs	3.5	3.0	3.1	3.3	**3.2**
Increasing Labour Efficiency	3.5	3.0	3.1	3.3	**3.1**
Improving Raw Material Recovery	2.8	2.7	2.5	2.6	**2.7**
Implementing Lean Just in Time Manufacturing Techniques	3.0	2.4	2.1	2.9	**2.5**
Transportation & distribution specific constraints					
Costs	3.2	3.1	3.9	3.7	**3.3**
Access	2.8	2.6	3.2	3.1	**2.8**
Logistics	2.5	2.6	3.3	2.9	**2.7**
Frequency	2.5	2.4	2.6	2.8	**2.5**

Figure 26 presents the average general constraints to expansion by all business types. Raw material supply was rated as among the highest constraint of all business types. It was rated as the highest constraint by remanufactured products producers (3.4). Their rating was also the highest of all the business types with the exception of commodity lumber producers that rated this constraint at 3.6. Labour specific constraints were also rated as high among the various business types. It was rated as the greatest constraint for expansion by furniture and fixtures manufacturers (3.8) closely followed by millwork and finished products who rated this constraint at 3.4.

Figure 26: General constraints to expansion by business type (n=136)

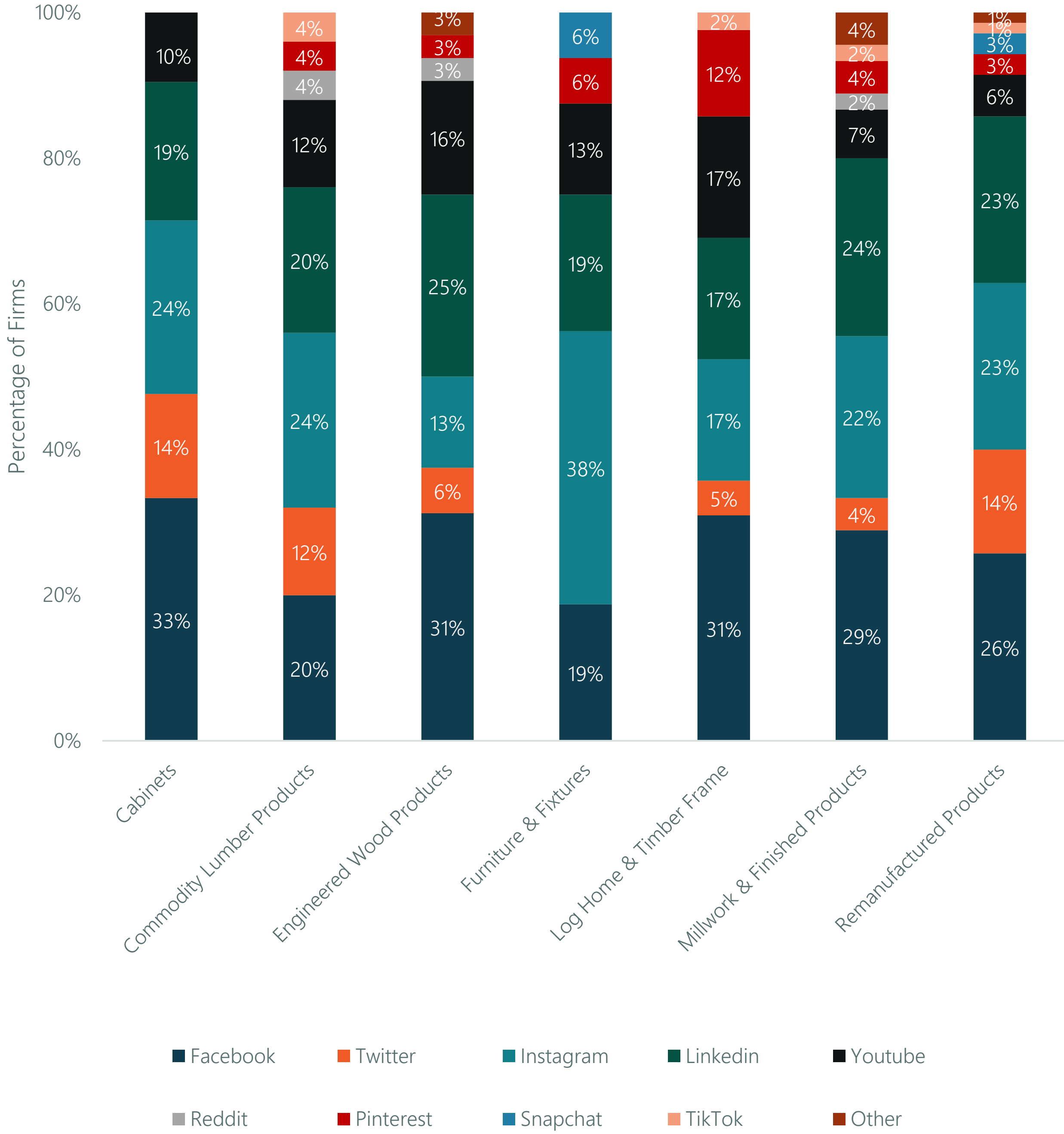


4.9 Electronic Commerce

Respondents were asked about their online presence and usage in 2021. Overall, 93% of responding firms hosted a website in 2021. 30% of firms sold products online and 51% purchased inputs online. 84% of respondents searched for manufacturing advice online in 2021.

Figure 27 shows social media use by responding firms. In total, 67% reported that they used various social media channels in 2021. Among those who were not on social media, only 13% were planning to do so in the next three years. Facebook was the most favored social media platform in 2021 among those who had a social media presence, with 76% of respondents using the platform. Instagram and LinkedIn were the next often used by respondents with 59% indicating that they used at least one of these platforms.

Figure 27: Social media use by responding secondary manufacturing firms in 2021 (n = 91)



5 Secondary Manufacturing Trends

5.1 Trends in Sales, Number of Firms, and Employment

Firms, sales revenue, and employment data trends were reviewed for the entire secondary wood products manufacturing sector in BC. As previous surveys did not include commodity producers, the following text refers to all business types excluding commodity producers unless otherwise specified.

During the early 2000's, there was a rise in these three indicators due to supportive public policy for the sector. This is reflected by the 2006 numbers in ***Table 13*** which also shows the values from the 2012, 2016 AND 2021 surveys for all business types as well as for all business types excluding commodity producer data.

The sector declined from 2006 to 2012 during which the Great Recession of 2008 occurred. Between 2012 and 2016, the sector rebounded however, since 2016, the data for all business types excluding commodity producers shows a reduction in the number of firms operating in the sector (-15% to -18% since 2016) as well as a reduction in employment (-17% since 2016). Inflation adjusted sales rose slightly to $4.63 billion in 2021, a 4% rise from 2016.

Table 13: Sector trends in number of firms, gross sales, and employment, 2006–2021

	2006	2012	2016	2021	% Change (2016–2021)
Excluding Commodity Producers					
Firms	732	589	680	560-580	-15 to -18
Employment	19,670	15,576	16,888	14,100	-17
Sales ($B)	4.88	3.82	4.46	5.33	+20
- inflation adj.	5.7	3.95	4.46	4.63	+4
All business types					
Firms	732	589	680	570-600	-12 to -16
Employment	19,670	15,576	16,888	17,100	+1.3
Sales ($B)	4.88	3.82	4.46	6.48	+45
- inflation adj.	5.7	3.95	4.46	5.63	+26

Table 14 illustrates the economic contribution by business type in terms of percentage of employment for surveys conducted on the sector from 1999 to 2021 (data from commodity producers was separated where applicable). In 2021, respondents producing millwork and finished products were responsible for 23% of the total economic contribution, the most of all business types. This was followed by manufacturers of remanufactured products and cabinet producers which were responsible for 19% and 18% of the total economic contribution respectively. Notable trends are the rise of the employment contribution from cabinet producers since 2016 while those from furniture and fixture producers and engineered wood product producers have shown decreases since that time.

Table 14: Economic contribution (% of total employment) by business type[9]

	% of Employment				
Business Type	**1999**	**2006**	**2012**	**2016**	**2021**
Cabinets	4	10	9	10	18
Commodity Lumber Products					
Non-Commodity Producers	20	18	17	18	13
Commodity Producers	Not available				12
Engineered Wood Products	18	21	19	22	9
Furniture and Fixtures	6	5	8	6	2
Millwork and Finished Products	11	15	22	19	23
Remanufactured Products					
Non-Commodity Producers	42	31	26	25	19
Commodity Producers	Not available				6

Table 15 illustrates the economic contribution by business type in terms of percentage of sales for surveys conducted on the sector from 1999 to 2021. The top two contributors in 2021 were remanufactured product producers (46%) followed by engineered wood product producers (11%). In particular, the sales contribution by remanufactured product producers in 2021 was 46% showing a rise from 2016 when the business type was still the highest contributor of all business types, but at 29%. Furniture and fixtures producers also showed a rise in terms of their economic contribution from sales at 7% in 2021 (compared to 4% in 2016 and 5% in 2012). Business types which fell since 2016 in terms of their economic contribution by sales percentage include producers of millwork and finished products and engineered wood products.

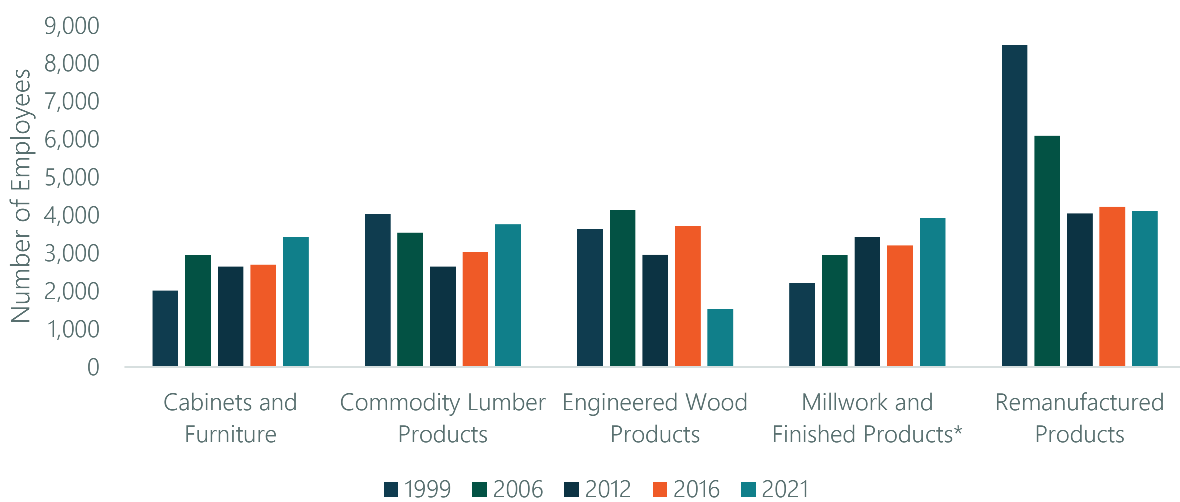
[9] Engineered wood products includes log homes and timber frames as per the description in the survey; millwork and finished products includes other products (as per previous years); remanufactured products includes pallets and shakes and shingles which were each reported separately in previous years; and commodity lumber products includes panels and plywood which were a category in previous years.

Table 15: Economic contribution (% of sales) by business type[10]

	% of Sales				
Business Type	**1999**	**2006**	**2012**	**2016**	**2021**
Cabinets	2	5	6	5	6
Commodity Lumber Products					
Non-Commodity Producers	31	28	24	20	10
Commodity Producers	Not available				10
Engineered Wood Products	14	15	18	19	11
Furniture and Fixtures	3	2	5	4	7
Millwork and Finished Products	5	13	23	22	9
Remanufactured Products					
Non-Commodity Producers	44	36	25	29	46
Commodity Producers	Not available				1

Figure 28 illustrates the trends in number of employees by business type since 1999. Most noticeable was the drop in contribution from engineered wood product producers in 2021 compared to previous years. Manufacturers of cabinets and furniture, commodity lumber, and millwork and finished products saw increases in the number of employees when compared to 2016. Remaining relatively stable since 2012 was the number of employees in remanufacturing firms, however the 2021 employment level was lower than it was in 1999 and 2006.

Figure 28: Trends in number of employees by business type, 1999-2021

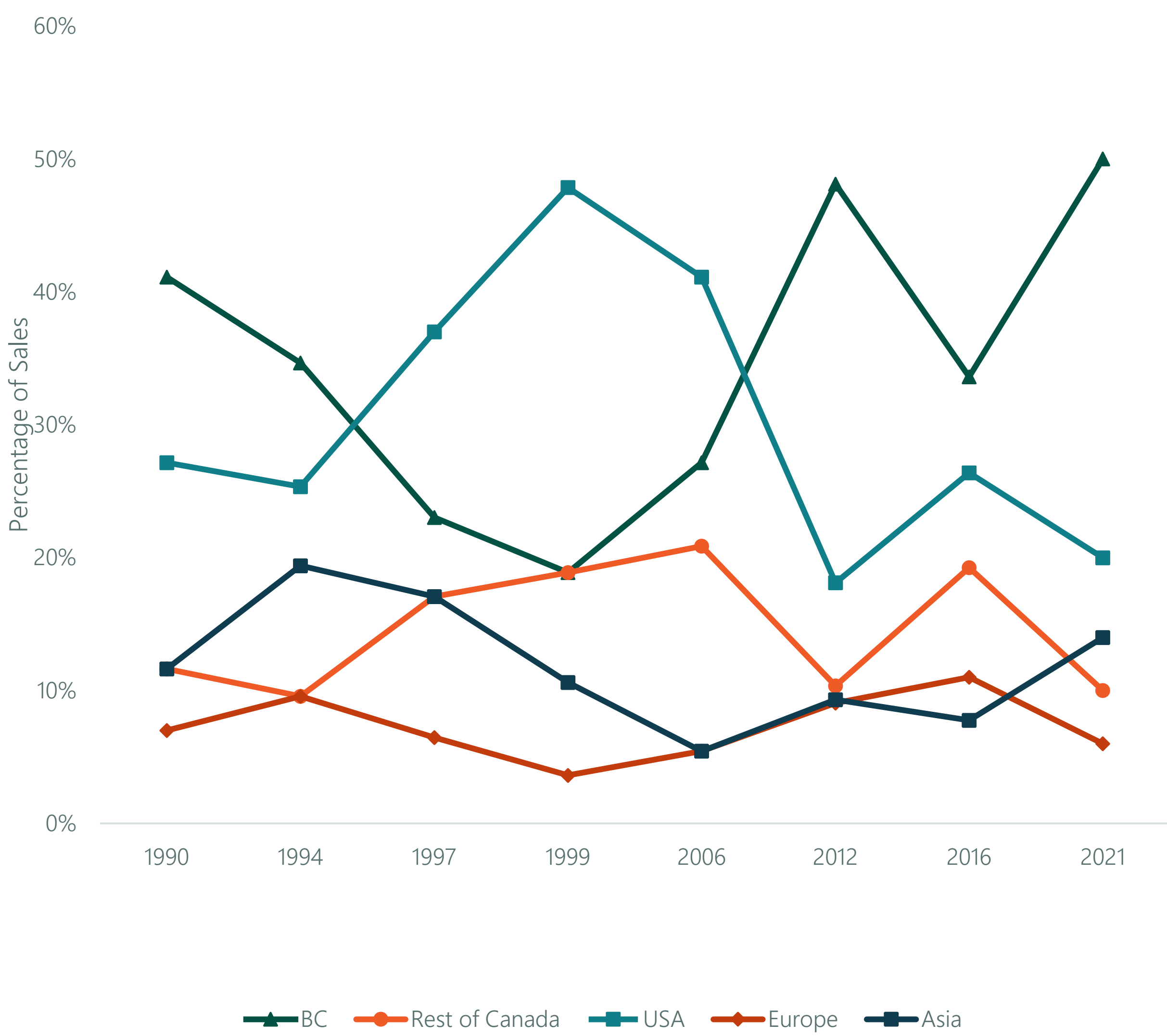


[10] Engineered wood products includes log homes and timber frames as per the description in the survey; millwork and finished products includes other products (as per previous years); remanufactured products includes pallets and shakes and shingles which were each reported separately in previous years; and commodity lumber products includes panels and plywood which were a category in previous years.

***Figure* 29** below shows the changes to the proportion of the sector sales going to domestic and export markets since 1990. Sales to the BC market trend in the opposite direction of those find to the US markets. The 1990s saw an overall increase in sales to the US until 1999; during this period, sales to BC markets dropped. From 1999 to 2012, sales to BC markets rose while sales to US markets fell. From 2012 to 2016, this trend reversed and there was a rise in sales to the US and a drop in sales to BC markets. Since 2016, sales to markets within BC rose while sales to the US fell.

Sales to the rest of Canada moved in tandem to those to the US market. Trends in sales to Asia and Europe have moved in opposite directions since 2012. Between 2012 and 2016, sales to Asia fell while sales to Europe rose. From 2016 to 2021, this reversed with sales to Europe falling and sales to Asia increasing.

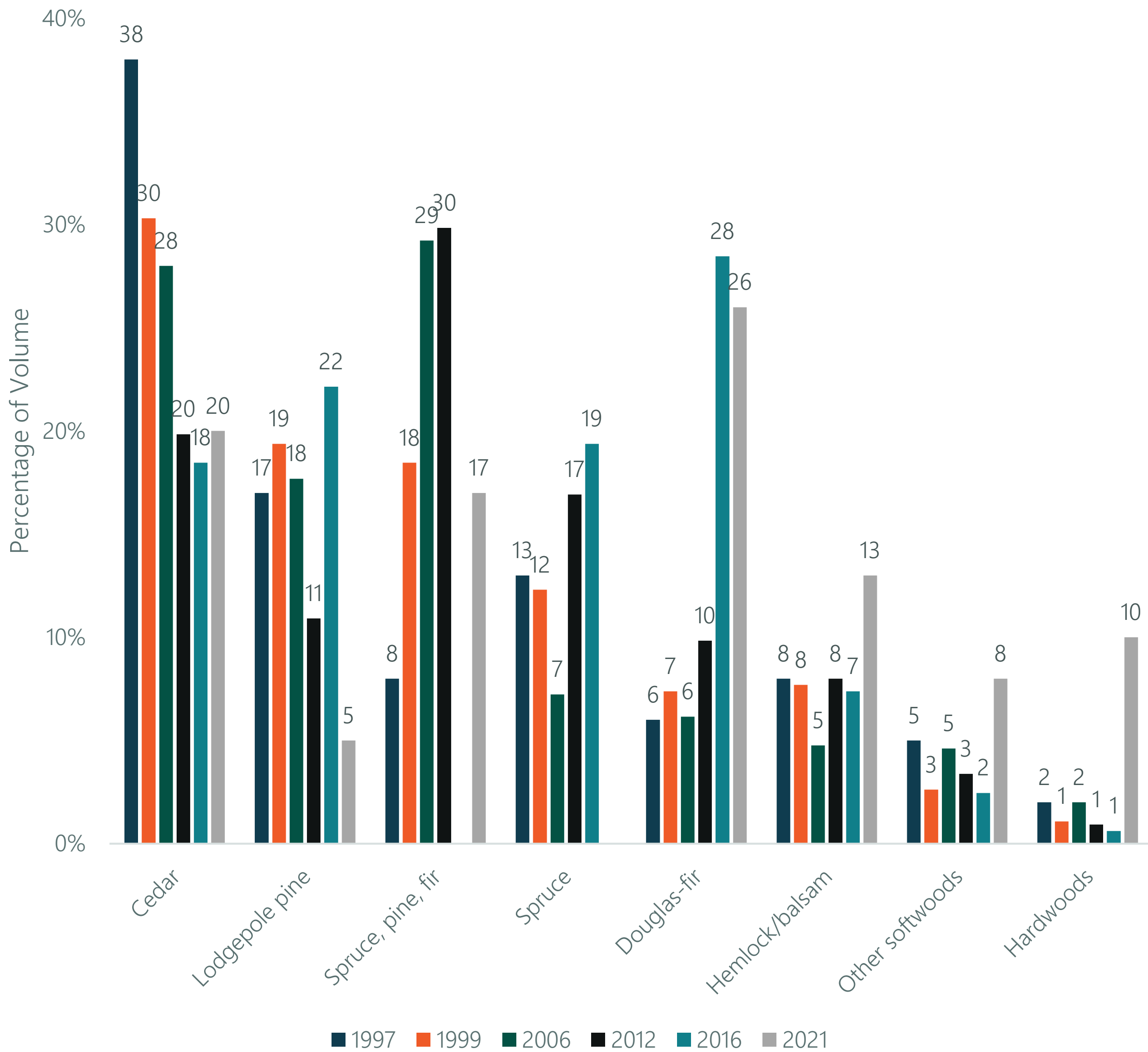
Figure 29: Trends in share of sales to major markets, 1990-2021



5.2 Trends in Wood Use

Figure 30 shows the trend in overall species use from 1997 to 2021. The table shows that SPF use has risen from nil in 2016, though it was noted that 2016 data may have included cross-labelling among SPF, lodgepole pine, and spruce by respondents[11]. Lodgepole pine use fell substantially from 2016 to 2021 while Douglas-fir use fell comparatively slightly during this time. Hardwoods, hemlock/balsam, and other softwoods rose in overall use while use of Western red cedar rose slightly since the 2016 survey.

Figure 30: Trends in overall species use, 1997-2021 (excludes panelboard users) [12]



[11] Stennes, B., Bogdanski, R., Secondary manufacturing of solid wood products in British Columbia 2016: Structure, economic contribution and changes since 1990. (2019)

[12] The 2021 survey included SPF as a category but not spruce on its own. Therefore, data for spruce in 2021 was unavailable.

5.3 Trends in Capacity and Expansion

***Figure* 31** shows capacity utilization, plans to expand capacity, and planned expansion for survey respondents since 1994. Capacity utilization has remained relatively stable over the years. Plans to expand rose from 1994 to 1999 then fell from this time until 2016 before rising again until 2021. This trend was reflected in the amount of planned expansion with the exception of the period between 2016 and 2021 when, though there was a rise in planned expansion, the amount of planned expansion was less than it was in 2016.

Figure 31: Trends in capacity utilization and expansion plans, 1994-2021

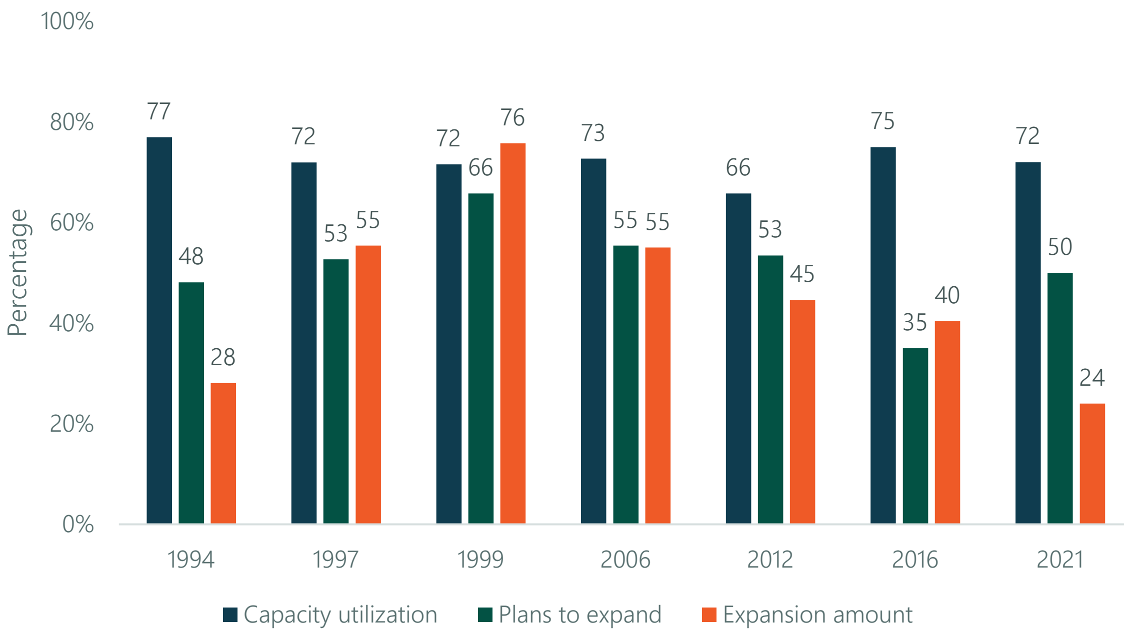


Table 16 shows the ordinal ranking of constraints to expansion since 1999. As with previous year's surveys, labour was the most important constraint in 2021 followed closely by wood supply. Market related constraints to expansion was ranked third while finance was ranked as the least significant constraint.

Table 16: Ordinal ranking of constraints to expansion, 1999-2021

	Ranking				
Constraint	1999	2006	2012	2016	2021
Labour	3	1	2	1	1
Wood supply	2	2	3	2	2
Markets	1	3	1	3	3
Finance	4	4	4	4	4

6 Summary and Conclusion

BC's secondary wood manufacturing sector, like much of the forest sector, is cyclic. The number of firms, sales revenue, and number of people working in the sector all grew through the 1990s and 2000s before declining throughout the 2008 Great Recession. By 2016, the sector had once again shown growth. By 2021, however, the world was undergoing massive change during a period widely described as "unprecedented." It was a year into the COVID-19 pandemic, lumber prices were breaking records, and the timber supply in BC was becoming increasingly constrained.

Results from the 2021 survey on BC's secondary wood products manufacturers suggest a sector in transition. Overall, since 2016, the number of firms decreased by 15% to 18% while sector employment decreased by 17%. Inflation adjusted sales for the sector showed an increase of 4% during that same period.

Several notable shifts were observed in the subsectors since the last survey. Remanufacturing firms employed 25% of all those working in the secondary manufacturing sector, an increase since 2016 when the business type employed 18%. Most firms continued to be concentrated in the Vancouver-Fraser Valley region and Southern Interior region (as they were in 2016). Sales to markets within BC rose since 2016 while sales to US markets fell during the period.

These findings suggest that in 2021, BC's secondary wood products manufacturing sector was subject to the same factors that not only impacted the primary forestry sector but also most other sectors around the globe. The COVID-19 pandemic impacted availability of labour, both short and long term, as well as transportation and global supply chains. BC's primary mills decreased in number as fibre supply shrank due to factors such as the last of the trees killed by the mountain pine beetle being harvested or deemed no longer harvestable. Finally, policy shifts and changes to how the province approached forest management impacted the sector.

Policies which address the headwinds faced by BC's secondary wood products manufacturing sector are contributing to the performance of the firms operating during these challenging periods. For example, several new provincial programs launched at the time of this writing (early 2023) were created for this purpose. The BC Manufacturing Jobs Fund, launched in February 2023 will provide $180 million in funding to support capital investments to manufacturers including those in the forest sector.[13] As well, the BC Timber Sales (BCTS) Value-Added Manufacturing Program, also launched early 2023, will support small and medium sized secondary manufacturers by providing fibre supply under a new category of timber sales.[14]

How the sector responds to opportunities and adapts to the challenges presented by these recent events and occurrences in the years following the 2021 survey will be reflected in future reports. In turn, these will provide a continued source of information to help guide decisions for policy makers as well as for those working within the BC secondary wood products manufacturing sector.

[13] Government of British Columbia. *BC Manufacturing Jobs Fund. Available here:* bc_manufacturing_jobs_fund_program_guide.pdf (gov.bc.ca). (Accessed: March 29, 2023)

[14] Government of British Columbia. *New forestry program will expand manufacturing, create jobs.* Available here: https://news.gov.bc.ca/releases/2023FOR0006-000079. (Accessed: March 27, 2023)

Appendix A: Taxonomy of secondary manufactured wood products

This taxonomy is based on Wilson and Ennis (1999). Some products can be intermediate as well as final.

	Wood Products		
Log Products	**Primary**[15]	**Intermediate**	**Final**
Chopsticks	Boards	Building/home	Boxes, bins and crates
Firewood	Cants	Components	Cabinets
House Logs	Flitches	Cut stock	Coffins
Pilings	Flitches	Door stock	Countertops
Poles	Lumber/Industrial timber	Edge glued components	Decking
Posts	Treated timber	Finger-jointed stock	Fencing
Log Homes	Veneer	Furniture components	Finger-jointed lumber
Shakes		Joinery stock	Flooring
Shingles		Ladder stock	Flooring/ Engineered
Treated pilings		Laminated stock	Furniture/ Commercial
Treated poles		Metric stock	Furniture/ Household
Treated posts		Moulding, panel blanks	Furniture/ Patio
Novelties		Pallet, drafting stock	Furniture/ Ready-to-assemble (RTA)
		Medium density fibreboard	Garden buildings/ products
		Particleboard	Laminated veneer lumber
		Pattern stock	Millwork/ Architectural
		Sawmill specialty products	Medium density fibreboard
		Staircase components	Mouldings
		Turning squares	MSR Lumber
		Window stock	Oriented Strand board
			Pallets
			Paneling
			Plywood
			Prefab buildings/ manufactured homes
			Siding
			Staircases
			Stakes, lathe, strips and batten
			Structural laminated beams
			Treated lumber
			Trusses
			Turned wood products
			Windows
			Wood novelties
			Wood pellets

[15] This column does not include secondary products but is inserted to provide a more complete taxonomy.

Appendix B: 2022 survey of secondary wood product manufacturing in BC

Survey of Secondary Wood Product Manufacturing in British Columbia

ONLINE METHODOLOGY

Thank you very much for taking the time to complete this important survey of the secondary wood product manufacturing sector in BC. This survey is being conducted on behalf of BC Wood, a not-for-profit trade association that supports BC businesses that manufacture wood products, with funding and support from the Forestry Innovation Investment (FII) and Natural Resources Canada (NRCan). The report that will result from this survey will help to provide an accurate snapshot of the sector that can be used build support and understanding.

As a thank you for your completed survey, a benchmark report that compares your company to others in the sector will be made available for those who wish to receive it.

We recognize that you may view the information that is being collected as confidential and may be reluctant to share it with a third party. **However, we want to assure you that MNP and Mustel will maintain the confidentiality of your information and individual responses will not be shared with BC Wood or any other organization.** All results will be assessed and reported in aggregate form only.

If you have any concerns or issues with the survey, please send to secondarywoodsurvey@bcwood.com or reply to the email that was sent to you.

If your company operates at more than one location, please answer the survey for all. For example, if you have multiple plants or mills making the same product, please aggregate for all locations.

Qualifying Screener

To start, please tell us which of the following wood products your business produces? *Check all that apply:*

a) Remanufactured products (finger joint, lumber specialties, fencing, panels, rig mats)
b) Engineered wood products (LVL, I-joists, laminated posts/beams, trusses, prefab buildings, log homes, treated wood)
c) Mass timber products (glulam, nail laminated, dowel laminated, cross laminated timber.
d) Millwork (doors, windows, architectural and custom woodwork, turned wood products, mouldings)
e) Cabinets (kitchen/vanity cabinets, cabinet doors, countertops)
f) Furniture (household, ready-to-assemble, commercial, institutional and patio)
g) Pallets and containers (pallets, boxes, bins, crates)
h) Plywood & Panel boards (excluding/net of veneer production)
i) Commodity lumber products (for domestic or export sales)
j) None of the above TERMINATE

Please select the activity that accounted for the majority of your 2021 manufacturing sales revenue. *Please select one only:*

a) Remanufactured products (finger joint, lumber specialties, fencing, panels, rig mats)
b) Engineered wood products (LVL, I-joists, laminated posts/beams, trusses, prefab buildings, log homes, treated wood)
c) Mass timber products (glulam, nail laminated, dowel laminated, cross laminated timber
d) Millwork (doors, windows, architectural and custom woodwork, turned wood products, mouldings)
e) Cabinets (kitchen/vanity cabinets, cabinet doors, countertops)
f) Furniture (household, ready-to-assemble, commercial, institutional and patio)
g) Pallets and containers (pallets, boxes, bins, crates)
h) Plywood & Panel boards (excluding/net of veneer production)
i) Commodity lumber products (for domestic or export sales)

Does the majority of your sales revenue come from:

a) Construction/building at the job site TERMINATE
b) Making customized, one-off products for individual customers TERMINATE
c) None of the above

1. Please indicate the region where the mill site is located. If you have more than one mill or location, please list the primary mill/location.

a) Island Coast
b) Vancouver-Fraser Valley
c) Southern
d) Central
e) Northern

2. In what year did the primary mill/location begin operations?

3a. What is the legal status of your business?

1) Sole proprietorship
2) Partnership
3) Corporation
4) Other

3b. Is your business owned by Indigenous people and/or an Indigenous organization?

1) Yes, wholly owned
2) Yes, partially owned
3) No

3c. Is your business owned by any one or more of the following: women, visible minorities, and/or people with disabilities?

1) Yes, wholly owned
2) Yes, partially owned
3) No
4) Prefer not to say

Wood Use

4a. Please provide the estimated total volume of raw wood materials used by your business in 2021. Note: **m3**= cubic meters; **mbf** = thousand board feet; **msf** = 1000 square feet 3/8" basis; **odt** = oven-dried metric tonnes

Type of Raw Wood Material	Volume	Units of Measure
Logs		❑ m^3 ❑ mbf ❑ other
Lumber (including MSR)		❑ m^3 ❑ mbf ❑ other
Plywood		❑ m^3 ❑ mbf ❑ msf ❑ other
Veneer		❑ m^3 ❑ mbf ❑ other
Oriented Strand Board (OSB)		❑ m^3 ❑ mbf ❑ msf ❑ other
Medium density fibreboard (MDF)		❑ m^3 ❑ mbf ❑ other
Wood residues		❑ m^3 ❑ mbf ❑ other
Other wood material (please specify):		
		❑ m^3 ❑ mbf ❑ msf ❑ other
		❑ m^3 ❑ mbf ❑ msf ❑ other ___________________

4b. Please provide the sources of raw wood material used by your business in 2021 (provide best estimate):

Source of Wood Supply	%
BC Market Purchases	
Logs from own tenured lands	
Other wood materials from own primary mills	
Log/lumber trades with other companies	
BC Timber Sales	
Canadian purchases outside of BC	
Imports from outside Canada	
Total = 100%	

4c. If you sourced wood material from outside BC in 2021, please indicate where you sourced these raw materials from. *Please check all that apply.*

Alberta	❑	Europe	❑
Other prairie provinces	❑	Japan	❑
Eastern Canada	❑	China	❑
US West	❑	Korea	❑
US South	❑	Other Asia	❑
US Midwest	❑	Latin America	❑
US Northeast	❑	Africa	❑
		Australia/New Zealand	❑

97) We did not source wood material from outside BC in 2021.

4d.Were you able to acquire all the types of raw materials you wished to acquire in 2021? YES/NO

4e.**IF NO** Why not? OPEN END

4f. Of the raw materials you acquired in 2021, did you access the volume you wished to acquire? YES/NO

4g. **IF NO** Why not? OPEN END

5. Please provide an estimate of the wood species used by your business by percentage of total volume in 2021.

Category	Wood Species	%
Softwood	Lodgepole pine	
	Hemlock/balsam	
	Spruce, pine, fir	
	Douglas-fir	
	Western red cedar	
Other softwoods (please specify):		
Hardwoods	Aspen	
	Western birch	
Other hardwoods (please specify):	Alder	
	Total volume of wood fibre used	100%

Operations

6a. Please provide the percentage breakdown of operating costs for your business in 2021. (Provide your best estimate)

Main Operating costs	%
Wood Costs	
Labour and Benefits	
Interest	
Depreciation	
Other (please specify):	
Other (please specify):	
Other (please specify):	
Total Operating Cost =	

6b. Do you anticipate a change in your operating costs over the next 3 years (2023-2025)?

1) Yes, we anticipate an **increase** à Why do you anticipate an increase in your operating costs? OPEN END
2) Yes, we anticipate a **decrease** à Why do you anticipate a decrease in your operating costs? OPEN END
3) No change

Employment

7a. Please provide the average number of full-time equivalent employees working at this mill in 2021. A full-time equivalent is 220 or more days worked in the year.

Type of Staff	# of staff
Production (manufacturing) staff	
Non-production staff	
Total	

7b. Of the total number of full-time equivalent employees reported above, how many do you estimate are Indigenous people?

1) 0
2) 1-5
3) 6-10
4) more than 10

7c. Of the **{Q7aTOTAL}** full-time equivalent employees reported previously, how many are at least one of the following: women, visible minorities or people with disabilities?

Type of Staff	# of staff
Women	
Visible Minorities	
People with Disabilities	

7d. Do you anticipate a change in the number of employment positions in your company in the next 3 years (2023-2025)?

0% (No change)

Estimated Increase

1% to 20%

21% to 40%

41% to 60%

61% to 80%

81% to 100%

Estimated Decrease

1% to 20%

21% to 40%

41% to 60%

61% to 80%

81% to 100%

7e.**IF ANTICIPATES A CHANGE IN 8D.** Why do you anticipate an increase/a decrease in the number of employment positions in your company in the next 3 years (2023-2025)? OPEN END

7f. Do you anticipate an overall change in the compensation levels (including benefits) you will be paying your employees in the next 3 years (2023-2025)?

0% (No change)
Estimated Increase
1% to 20%
21% to 40%
41% to 60%
61% to 80%
81% to 100%
Estimated Decrease
1% to 20%
21% to 40%
41% to 60%
61% to 80%
81% to 100%

7g.**IF ANTICIPATES A CHANGE IN 8E.** Why do you anticipate an increase/a decrease in the overall wages you will be paying employees in the next 3 years (2023-2025)? OPEN END

Manufacturing Capacity and Expansion

Manufacturing capacity refers to the maximum volume of products that your mill is designed to produce for a one-year period.

8a. Approximately what percentage of manufacturing capacity was the primary location/mill operating at in 2021?

8b. How many production shifts were running in 2021 at your primary mill/location?

1) 0
2) 1
3) 2

8c. Do you anticipate your business capacity to change over the next 3-year period (2023 – 2025)?

0% (No change)

Estimated Increase

1% to 20%
21% to 40%
41% to 60%
61% to 80%
81% to 100%

Estimated Decrease

1% to 20%
21% to 40%
41% to 60%
61% to 80%
81% to 100%

8d. **IF ANTICIPATES A CHANGE IN 9C.** Why do you anticipate your business capacity to increase/decrease? OPEN END

Constraints to Expansion

9. For each general constraint category below, please indicate the extent to which each specific factor represents a constraint to expand your business with **1** being not at all constraining and **5** being extremely constraining.

i. Raw materials supply specific constraints	1	2	3	4	5
Volume	❑	❑	❑	❑	❑
Quality/Grade	❑	❑	❑	❑	❑
Average Price	❑	❑	❑	❑	❑
Price Volatility	❑	❑	❑	❑	❑
Other (specify)	❑	❑	❑	❑	❑
ii. Labour specific constraints	1	2	3	4	5
Training/Skills	❑	❑	❑	❑	❑
Flexibility	❑	❑	❑	❑	❑
Cost	❑	❑	❑	❑	❑
Experience	❑	❑	❑	❑	❑
Other (specify)	❑	❑	❑	❑	❑
iii. Markets specific constraints	1	2	3	4	5
Softwood Lumber Agreement	❑	❑	❑	❑	❑
Product Diversification	❑	❑	❑	❑	❑
Market Diversification	❑	❑	❑	❑	❑
Market/Product Research	❑	❑	❑	❑	❑
Foreign Regulations	❑	❑	❑	❑	❑
Other (specify)	❑	❑	❑	❑	❑
iv. Financing specific constraints	1	2	3	4	5
Availability	❑	❑	❑	❑	❑
Cost	❑	❑	❑	❑	❑
Flexibility	❑	❑	❑	❑	❑
Repayment Schedule Length	❑	❑	❑	❑	❑
Other (specify)	❑	❑	❑	❑	❑
v. Management capacity specific constraints	1	2	3	4	5
Improving Product Quality	❑	❑	❑	❑	❑
Reducing Manufacturing Costs	❑	❑	❑	❑	❑
Increasing Labour Efficiency	❑	❑	❑	❑	❑
Improving Raw Material Recovery	❑	❑	❑	❑	❑
Implementing Lean/Just-in Time Manufacturing Techniques	❑	❑	❑	❑	❑
Other (specify)	❑	❑	❑	❑	❑
vi. Transportation & distribution specific constraints	1	2	3	4	5
Costs	❑	❑	❑	❑	❑
Access	❑	❑	❑	❑	❑
Logistics	❑	❑	❑	❑	❑
Frequency	❑	❑	❑	❑	❑
Other (specify)	❑	❑	❑	❑	❑

Social Media and Web Presence/Activity

10a. Does your company use any of the following social media channels? *Please check all that apply.*

1) Facebook
2) Twitter
3) Instagram
4) LinkedIn
5) YouTube
6) Reddit
7) Pinterest
8) Snapchat
9) TikTok
10) Other (please specify):

97) Company does not currently use social media

10b. **ONLY ASK IF DO NOT CURRENTLY USE IN Q10a.** Does your company plan to use social media in the next 3 years (2022-2025)?

1) Yes
2) No
3) Don't know

10c. Does your company sell products or services through the internet?

1) Yes
2) No
3) Don't know

10d. Does your company search the internet for and purchase inputs online?

1) Yes
2) No
3) Don't know

10e. Does your company search the internet for manufacturing knowledge/information?

1) Yes
2) No
3) Don't know

10f. What is the domain name of your company's website?

____

1) We do not have a website

99) Don't know

Markets

11a. What was the percentage breakdown of sales revenue from the following markets in 2021?

Market	% of Sales Revenue
1) Alberta	
2) British Columbia	
3) Other Prairie	
4) Eastern Canada	
5) US West	
6) US South	
7) US Midwest	
8) US Northeast	
9) Europe	
10) Japan	
11) China	
12) Korea	
13) Other Asia	
14) Latin America	
15) Africa	
16) Australia/New Zealand	
Total = 100%	

11b. Please indicate any anticipated new market areas (provinces/states/countries/regions) of interest. *Mark all that apply.*

1) Alberta
2) British Columbia
3) Other Prairie
4) Eastern Canada
5) US West
6) US South
7) US Midwest
8) US Northeast
9) Europe
10) Japan
11) China
12) Korea
13) Other Asia
14) Latin America
15) Africa
16) Australia/New Zealand
17) Other (please specify) ____________________
18) No new market areas of interest

11c. **SKIP IF NO NEW MARKET AREAS OF INTEREST IN 11b** Please identify how you plan to access new markets. *Check all that apply.*

1) Own effort
2) Partnering with other manufacturers
3) Selling to wholesaler/distributors
4) Working with existing BC wood industry associations
5) Other
6) Don't know/unsure

11d. What end sectors do you target for your products? *Check all that apply.*

1) New Residential
2) Remodeling
3) Multiple-unit Housing
4) Industrial buildings
5) Industrial uses
6) Commercial buildings
7) Other

11e. What end sectors do you believe you will be targeting for your products in the next 3 years (2023-2025)? *Check all that apply.*

1) New Residential
2) Remodeling
3) Multiple-unit Housing
4) Industrial buildings
5) Industrial uses
6) Commercial buildings
7) Other

11f.When evaluating new markets, please identify resources your company considers important to develop. *Check all that apply.*

1) Timely market intelligence
2) Evaluation of new products and market opportunities
3) Coordinated presence on international market development missions and at trade shows
4) In-market support from organizations like BC Wood
5) Other
6) Don't know/unsure

Sales Revenue

12a. Please indicate your business' **gross revenue** (to the nearest dollar) for the following years: (Free On Board at mill – C$).

Gross 2019 revenue:_____________
Gross 2020 revenue:_____________
Gross 2021 revenue:_____________

12b. Please indicate the **percentage** of your business' **2021** gross revenue that was attributed to custom **manufacturing services** (such as planing or kiln drying) for other businesses and **non-manufacturing services** such as (marketing or distribution) for other businesses.

Percentage of custom manufacturing services for other businesses
Choose one: %: none 1-20 21-40 41-60 61-80 81-100
Percentage of non-manufacturing services for other businesses
Choose one: %: none 1-20 21-40 41-60 61-80 81-100

Services

13a. If your company sells custom services for other businesses, please check all that apply.

Manufacturing Services		Non-manufacturing Services	
Planing	❑	Marketing	❑
Kiln Drying	❑	Distribution	❑
Sawmilling	❑	Logistics	❑
Resawing	❑	Other (specify):	❑
Other (specify):	❑		

1) We do not sell custom services

13b. In relation to your company, where are the businesses you provide services to generally located?

1) within 50 km
2) within 51 to 100 km
3) greater than 100 km
4) Don't know

13c. If your company plans to expand into new custom services for other businesses in the next 3 years (2023-2025), please indicate which ones by checking all that apply.

Manufacturing Services		Non-manufacturing Services	
Planing	❑	Marketing	❑
Kiln Drying	❑	Distribution	❑
Sawmilling	❑	Logistics	❑
Resawing	❑	Other (specify):	❑
Other (specify):	❑		

1) Not applicable

13d. If you purchased services from other businesses **in 2021**, please indicate which services you currently purchase? *Please check all that apply.*

Manufacturing Services		Non-manufacturing Services	
Planing	❑	Marketing	❑
Kiln Drying	❑	Distribution	❑
Sawmilling	❑	Logistics	❑
Resawing	❑	Other (specify):	❑
Other (specify):	❑		

1) Not applicable

IF PURCHASED <u>ANY MANUFACTURING SERVICES</u> IN 13d

13e. Please estimate the percentage of the volume of logs or lumber used by your business in **2021** that were custom processed by another business?

Choose one: 1-20% 21-40% 41-60% 61-80% 81-100%

Unknown/unsure

1) Not applicable

IF PURCHASED <u>ANY SERVICES</u> IN 13d

13f. In relation to your mill, where are the businesses you purchase services from generally located?

1) within 50 km
2) within 51 to 100 km
3) greater than 100 km

14a. Please list up to **4** of the top grossing products manufactured in 2021.
14b. Please indicate the closest percentage range of **2021** total sales revenue.

Main Products	Estimated %
All other products	

14c.. If your company plans to expand its product offering in the next 3 years (2023-2025), what would they be?

Possible New Products

1) We have no plans to expand our product offering in the next 3 years.

Thank you for completing the survey!

We appreciate the time and effort you took to complete this survey. Your contribution will help provide an overview of the important role of British Columbia's secondary wood products manufacturing sector.

We would like to offer all participants who completed the survey in full and on time the following perks: Please check all that apply:

- ❑ I would like to be included in the BC secondary wood product manufacturers' directory
- ❑ I would like to receive a digital copy of the company/product directory
- ❑ I would like to receive a digital copy of the final survey report
- ❑ I would like to receive a digital copy of the benchmark report

Contact Person (name of person to contact about this survey):

First name:
Last name:
Title:
Email:
Telephone number ( )   Fax number (   )

How long did you spend to collect the data and complete the survey? ______ hours ______ minutes

We invite your comments. Please be assured we read all comments with the intent of improving the survey.

Remember, all questionnaire responses are confidential. Thank you again for your time.

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