The structure and economic contribution of secondary manufacturing in British Columbia 1990 - 1999

Bill Wilson, Brad Stennes, Sen Wang, and Louise Wilson

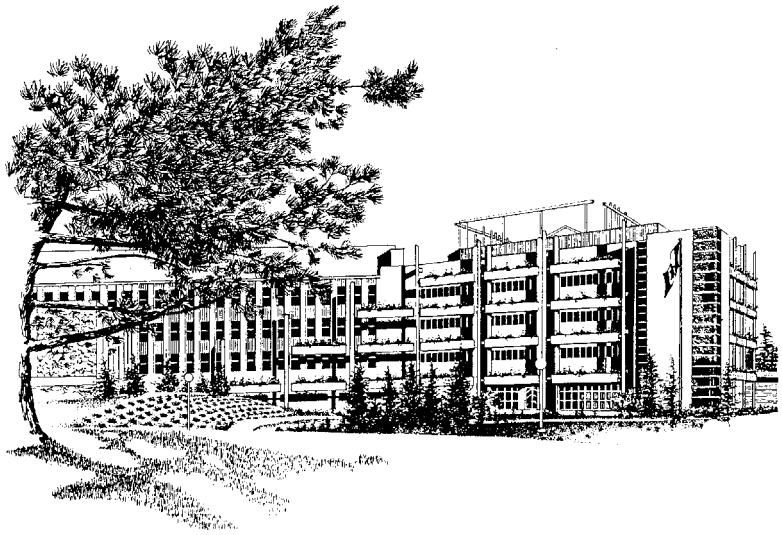
FOREST RENEWAL BC

Funding for this research was provided in part by Forest Renewal BC.

Information Report BC-X-390
Pacific Forestry Centre
Victoria, British Columbia

Natural Resources Canada
Canadian Forest Service
Ressources naturelles Canada
Service canadien des forêts

Canada



The Pacific Forestry Centre, Victoria, British Columbia

The Pacific Forestry Centre of the Canadian Forest Service undertakes research as part of a national network system responding to the needs of various forest resource managers. The results of this research are distributed in the form of scientific and technical reports and other publications.

Additional information on Natural Resources Canada, the Canadian Forest Service, and Pacific Forestry Centre research and publications is also available on the World Wide Web at **http://www.pfc.cfs.nrcan.gc.ca/.**

The structure and economic contribution of secondary manufacturing in British Columbia, 1990 - 1999

by

Bill Wilson, Brad Stennes, and Sen Wang
Industry, Trade and Economics
Canadian Forest Service
Victoria, British Columbia

and

Louise Wilson
Department of Agricultural Economics
University of British Columbia
Vancouver

Natural Resources Canada
Canadian Forest Service
Pacific Forestry Centre
Information Report BC-X-390

2001

Canadian Forest Service
Pacific Forestry Centre
506 West Burnside Road
Victoria, British Columbia
V8Z 1M5
Phone (250) 363-0600
http://www.pfc.cfs.nrcan.gc.ca

ISSN 0830-0453

Printed in Canada

Microfiches of this publication may be purchased from:

MicroMedia Inc.
240 Catherine Street
Ottawa, ON K2P 2G8

The report and an associated directory of secondary manufacturing companies and products are electronically downloadable from the Canadian Forest Service Bookstore at www.pfc.cfs.nrcan.gc.ca

National Library of Canada cataloguing in publication data

Main entry under title :

The structure and economic contribution of secondary manufacturing in
British Columbia, 1990-1999

(Information report ; BC-X-390)
Includes bibliographical references.
ISBN 0-662-31013-6
Cat. No. Fo46-17/390E

1. Forest products industry — British Columbia.
2. Lumber trade — British Columbia.
3. Forest policy — British Columbia.
4. Forest products industry — British Columbia — Statistics.
I. Wilson, Bill, 1950- .
II. Pacific Forestry Centre.
III. Series : Information report (Pacific Forestry Centre) ; BC-X-390.

HD9764.C33B74 2001 338.4’7674’09711 C2001-980300-1

Acknowledgements

This project was delivered in cooperation with the following groups:

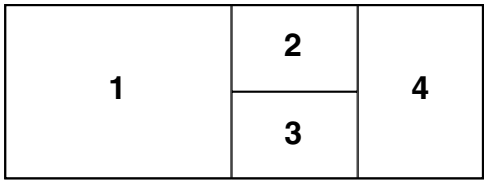
BC Wood Specialties Group
Canadian Plywood Association
BC Log Building Industry Association
Central Interior Wood Processors' Association
Interior Value Added Wood Association
Independent Lumber Remanufacturers' Association
Vancouver Island Association of Wood Processors
BC Ministry of Employment and Investment
Forintek Canada Corp.

The participation of British Columbia companies made this research report possible and their cooperation is appreciated. The authors are also grateful for the inputs of John Talbot, Robert Gunn, and Dave Shaw.

Funding for this research was provided in part by Forest Renewal BC – a partnership of forest companies, workers, environmental groups, First Nations, communities and government. Forest Renewal BC funding – from stumpage fees and royalties that forest companies pay for the right to harvest timber on Crown lands - is reinvested in the forests, forest workers, and forest communities.

Funding assistance by Forest Renewal BC does not imply endorsement of any statements or information contained herein.

Cover Photos:



1. Brian Moore Log Homes, Abbotsford, B.C. www.brianmoreloghomes.bc.ca
2. Bill Wilson, Canadian Forest Service
3. Bill Wilson, Canadian Forest Service
4. Canwood Furniture Inc., Kelowna, B.C. www.canwood.com

Abstract

As in many other jurisdictions, British Columbia can no longer readily expand forest sector production and employment by drawing upon additional timber reserves, so it is seeking to expand value-added (i.e., secondary) manufacturing in forest products. Given the significance of the forest sector it is important that decision-makers seeking to promote an expansion in secondary manufacturing have accurate information. This report presents the results of a survey of the 1999 business year of the British Columbia solid wood secondary manufacturing industry, and compares these results with those of similar sector surveys undertaken for the 1990, 1994 and 1997 business years. The survey gathered operational, employment, production, marketing and financial information on nine defined product groups or business types for 1999. The sector information is analyzed to provide a quantitative and qualitative examination of the current structure and significance of the sector, and an analysis of sector trends.

Sector employment for nine business types totaled 20 191 person years and total sector sales an estimated $4.68 billion (about 26% of total British Columbia forest product sales). Sales for seven business types (excluding panelboards, shakes and shingles) totaled $2.90 billion, up about 8% from 1997 measured in nominal dollars. Direct employment coefficients for a standard volume of timber equivalent are estimated for each of the business types.

Key words: forest industry, value-added, secondary manufacturing, employment, markets, policy.

Résumé

Tout comme bien d'autres administrations, la Colombie-Britannique ne peut plus augmenter la production et le nombre d'emplois dans le secteur forestier en puisant dans d'autres réserves forestières de grumes. Elle cherche donc à augmenter sa production de produits forestiers à valeur ajoutée (c.-à-d. de transformation secondaire). Étant donné l'importance du secteur forestier, il est essentiel que les décideurs qui cherchent à favoriser l'expansion de l'industrie manufacturière secondaire disposent des informations exactes. Le présent rapport expose les résultats d'une étude l'industrie manufacturière secondaire de produits en bois massif de la Colombie-Britannique pour l'exercice 1999. Le rapport met ces résultats en comparaison avec ceux qui proviennent d'études de secteurs similaires pour les exercices 1990, 1994 et 1997. L'étude a recueilli des informations liées aux activités, à l'emploi, à la production, à la mise en marché et aux finances dans neuf groupes de produits ou types d'entreprises particuliers pour l'exercice 1999. L'information est analysée de façon à faciliter l'examen quantitatif et qualitatif de la structure et de l'importance actuelles du secteur, de même que l'analyse des tendances qui s'y dessinent.

Pour les neuf types d'entreprises, le nombre d'emplois totalisait 20 191 années-personnes tandis que les ventes totales s'élevaient à près de 4,68 milliards de dollars (environ 26 % du total des ventes de produits forestiers de la Colombie-Britannique). Les ventes pour sept types d'entreprises (sauf les panneaux, les bardeaux de fente et les bardeaux) ont atteint 2,90 milliards de dollars, soit une augmentation d'environ 8 % par rapport aux données de 1997, mesurées en dollars historiques. Une estimation des coefficients d'emplois directs pour un volume moyen de bois est effectuée dans chacun des types d'entreprises.

Mots clefs : industrie forestière, à valeur ajoutée, industrie manufacturière secondaire, emploi, marchés, politique.

Contents

Tables

Figures

Summary

- This report provides the results of a survey on secondary manufacturing activity in British Columbia for the 1999 business year. The survey population totaled 774 firms and 393 firms returned the survey for a response rate of 51%.

- The survey was designed to gather information on production, fibre use, sales, employment, markets, operating costs, capacity use, expansion plans and constraints, and internet use. The results are compared with similar surveys completed for 1990, 1994 and 1997.

- In these surveys, major products of the secondary manufacturing industry were classified into the following business types: remanufactured products; millwork; engineered wood products; cabinets; furniture; pallets and containers; other wood products; panelboards; and shakes and shingles. The surveys in 1990 and 1994 did not include the panelboards or shakes and shingles business types. The survey reported here and the survey of the 1997 business year used all nine business types.

- Employment (full-time equivalents) in British Columbia's secondary manufacturing sector in 1999 is estimated at 20 191. Sector employment for the seven business types totaled 14 410 workers, about the same as in 1994. Firms employed an average of 34 people while median employment was in the 11-15 range.

- Total sector sales are estimated at $4.68 billion in 1999. This constitutes about 26% of total British Columbia forest product sales in that year. Sales for the seven business types totaled $2.90 billion, up about 50% from 1994 measured in nominal dollars. Average respondent sales were $8.3 million, while median sales were in the $1.1-3.0 million range.

- Adjusting for inflation (using constant 1990 dollars), total sector sales in 1999 were $4.22 billion versus $3.53 billion in 1997, an increase of 20%. Making the same adjustment for inflation, sales for the seven business types are $1.54 billion in 1990 and $2.62 billion in 1999, an increase of 70% over the 1990-99 period.

- The sector is estimated to have processed approximately 23.8 million m^3 of fibre (roundwood equivelant) in 1999.

- The industry is concentrated in the Vancouver forest region (59% of firms) and the Kamloops forest region (22% of firms).

- Estimated capacity utilization (on a single shift basis) ranged from 65% to 93% among all the business types and averaged 72%.

- Approximately 40% of the respondents relied on British Columbia for over half of their sales and 27% of the respondents had at least one-half of their sales to the United States. British Columbia was the most common market among respondents, 92% had sales into British Columbia, 73% reported sales into the United States and 42% had sales in Asia (39% in Japan).

- Remanufactured products firms constitute the largest business type in this sector, accounting for about 22% of all firms. Remanufactured products firms tended to be larger than those in other business types (except for panelboards) and accounted for an estimated 29% of employment and 34% of sales revenue generated in secondary manufacturing.

Introduction

The Canadian Forest Service partnered with Forest Renewal British Columbia to examine the structure and economic contributions of solid wood secondary manufacturing in British Columbia. Earlier efforts by the Canadian Forest Service to collect primary data on the sector provide the statistical basis to examine trends within secondary manufacturing (Wilson *et al.* 2001, 1999; Wilson 2000; A survey of secondary manufacturing in British Columbia, unpublished report, 1996, Forest Economics and Policy Analysis Research Unit, University of British Columbia, Vancouver; Price Waterhouse 1992; Forintek Canada Corp. and Jim McWilliams 1993).

The Canadian Forest Service research interest reflects a commitment to delivering timely research on the sustainability and competitiveness of forestry. The British Columbia government is actively delivering programs in an effort to maintain or increase forestry employment. Information on current sector status will complement assessments of the opportunities and options for increasing the contributions of secondary manufacturing. Updated data will also be useful to industry associations in their efforts to improve performance in and expansion of the sector and to those involved in multi-stakeholder policy discussions. This study defines secondary manufacturing as the further processing of primary mill wood or wood-based material into semi-finished or finished products.

The major wood products in the secondary manufacturing industry, clustered into business types, include:

- remanufactured products (Reman),
- millwork (MW),
- engineered wood products (EWP),
- cabinets (Cab),
- furniture (Furn),
- pallets and containers (P&C),
- other wood products (OWP),
- panelboards (PBS), and
- shakes and shingles (S&S).

Previous surveys for the 1990 and 1994 business years did not include the panelboards or shakes and shingles business types. The survey reported here and the survey for the 1997 business year used all nine business types.

Although there is a wide range of specific products within these groupings, a reasonably comprehensive listing and logical taxonomy of the products produced in solid wood secondary manufacturing are presented in Appendix A (see also Cohen *et al.* 1996). The product clusters include some significant specific manufacturing activity. For example, log home manufacturing, one of the fastest growing sub-sectors of secondary wood processing in British Columbia, is included within results for the engineered wood products business type. Given the interest in this subsector and the high rate of survey participation by log home firms, an analysis of the survey results for log home manufacturers is presented in Appendix B.

Fundamentals in the forest sector are increasingly challenging commodity grade products. Access to timber is often decreasing, cost of access is increasing, technology is shifting demand to competing factors of production, substitute products drive down demand and reduce margins, and the public demands for sustainability create investment uncertainty. These conditions, among others, have fostered a strong interest in creating conditions that encourage secondary manufacturing. This interest is typical to most jurisdictions, including those with an indigenous timber base but also those limited to imported timber.

In many jurisdictions there is a commitment to increasing direct employment from the timber that is being harvested. Secondary manufacturing provides such additional economic activity from a given harvest volume. The measures of employment and sales per unit of roundwood equivalent (RWE) harvests per 1000 m^3 are given in Table 1. These jobs are incremental to those generated by woodlands and primary sawmill operations (Delcourt and Wilson [1998] estimate the British Columbia forest sector job coefficient at 1.1 jobs per 1000 m^3 of timber).

This report examines the structure and economic contribution of secondary manufacturing in British Columbia based on a survey of 1999 commercial activity by British Columbia companies. The results of this survey are compared against similar surveys completed during the past decade to examine employment, sales, wood use and company number trends within the industry.

Table 1. Jobs and sales coefficients per 1000 m^3 (RWE)

Business type	Jobs	Sales ($1000)
Remanufactured products	0.41	113
Millwork	2.75	358
Engineered wood products	1.03	222
Cabinets	23.29[a]	2,470
Furniture	6.19	689
Pallets and containers	0.64	114
Other wood products	0.41	94
Panelboards	0.64	230
Shakes and shingles	1.20	238

[a] As a result of comparing Table 1 with job coefficients estimated from the 1997 survey (Wilson *et al.* 2001, 1999) a data entry correction led to a revision for Cabinets. The job coefficient for Cabinets was revised for 1997 to 19.83 jobs per 1000 m^3.

Research Methods

An inventory of British Columbia companies involved in secondary manufacturing of solid wood products (i.e., the survey population) was developed as part of a 1997 Canadian Forest Service survey on secondary manufacturing in British Columbia (Wilson *et al.* 2001, 1999). This inventory was updated from membership lists of producer associations, commercial directories, regional lists compiled by Forest Renewal British Columbia, information from sector experts, and company contacts by mail or phone. The update resulted in a population of 774 firms.

Based on the definition of secondary manufacturing, plywood producers, the major component in the panelboards business type, were asked to complete the survey net of all mill activity related to veneer operations that are considered primary breakdown operations.

A two-part questionnaire (Appendix C) was used to provide confidentiality to the respondents. The first part (Part A) asked for contact information, products, species and markets to be used in the completion of a British Columbia company and product directory. The second part of the questionnaire (Part B) asked for information on mill location, association affiliation, products, markets, employment, plant capacity utilization and any expansion plans, machinery, custom services, wood raw material use, species, source of lumber/log supply, sector challenges, sales, operating costs, and use of the internet. In order to protect respondent confidentiality with respect to the information provided in Part B, the survey results for Part B are only presented in aggregate.

The questionnaire was first distributed in July 2000, with a follow-up in the early fall. Firms that did not respond to the mail-outs were contacted by phone during November - December 2000 and asked to complete and return the survey. A total of 393 surveys were returned, for a response rate of 51%.

The survey population and respondents are summarized by business type in Table 2. Each firm in the sample was classified into a business type based on the firm's reported distribution of and type of product sales. Table 2 summarizes the number of firms, by business type, in the sector population and responding to the survey. Most firms are classified as remanufactured products firms (25%), engineered wood products (20%), and millwork (16%). A description of the products nominally included within each business type is provided in Appendix D.

The sections titled "Survey results" and "Results by business type" are calculated based on the survey respondents. There is no extrapolation of these results to the total population until the section titled "Sector trends", where estimates of population employment, sales and raw material use are presented. Survey results are scaled up to population estimates by multiplying the number of non-respondents by the sample medians.[1]

[1] Extrapolation is done using medians rather than means because the distributions for sales and employment are heavily weighted towards the origin, and we assumed that we were more successful in eliciting responses from the large firms. Under these conditions using means to scale sample results would overestimate the true population parameters.

Table 2. Survey population, response, and working sample

Business type	Number of firms		Response[a]
	Population	Respondents	(%)
Remanufactured products	171	99	58
Millwork	121	62	51
Engineered wood products	188	90	48
Cabinets	90	38	42
Furniture	73	39	53
Pallets and containers	20	11	55
Other wood products	39	17	44
Panelboards	18	13	72
Shakes and shingles	54	24	44
Total	774	393	51

[a] The response rate is calculated by dividing the number of survey respondents by the population.

Survey Results

As indicated above, this survey was broadened to include both panelboard producers and shake and shingle producers; both of these activities fit within a definition of secondary manufacturing as the further processing of primary mill wood or wood-based material into semi-finished or finished products (Wilson *et al.* 2001, 1999). In order to facilitate comparisons with previous surveys and the analysis of sector trends, sector totals are provided both with and without shake and shingles and panelboards business types. Selected results are reported by forest region. The forest regions of British Columbia are illustrated in Figure 1.

Business types

Table 3 provides a regional distribution summary of the population of firms by business type. The majority of firms are located in the Coast (58%) and the rest are Interior operators, primarily in the Kamloops (22%) and Nelson (8%) forest regions. Among the nine business types the Interior region had a higher proportion of engineered wood products (58% of the total) and panelboards firms than the Coastal region.

Employment

Figure 2 shows plant size distribution by number of employees (full-time equivalents) in 1999. The median employment size of respondent plants was in the 11-15 employee range, with 51% of the plants employing 15 or fewer people and 82% employing less than 50 people. There were few large firms and average employment was 34 people per firm. The Vancouver forest region accounted for 51% of reported employment, the Kamloops forest region 27%, and the Prince George forest region 9%.

Table 3. Regional distribution of firms by business type for population

Business Type	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Interior Total	Coast (Vanc.)
Remanufactured products	10	33	12	14	4	73	98
Millwork	0	22	8	7	0	37	84
Engineered wood products	19	59	26	6	4	114	74
Cabinets	0	20	5	2	0	27	63
Furniture	1	18	2	1	0	22	51
Pallets & Containers	0	5	0	0	1	6	14
Other wood products	1	7	5	3	1	17	22
Panelboards	4	3	2	3	1	13	5
Shakes and shingles	1	3	5	3	1	13	41
Total	36	170	65	39	12	322	452
Percentage	5	22	8	5	2	42	58

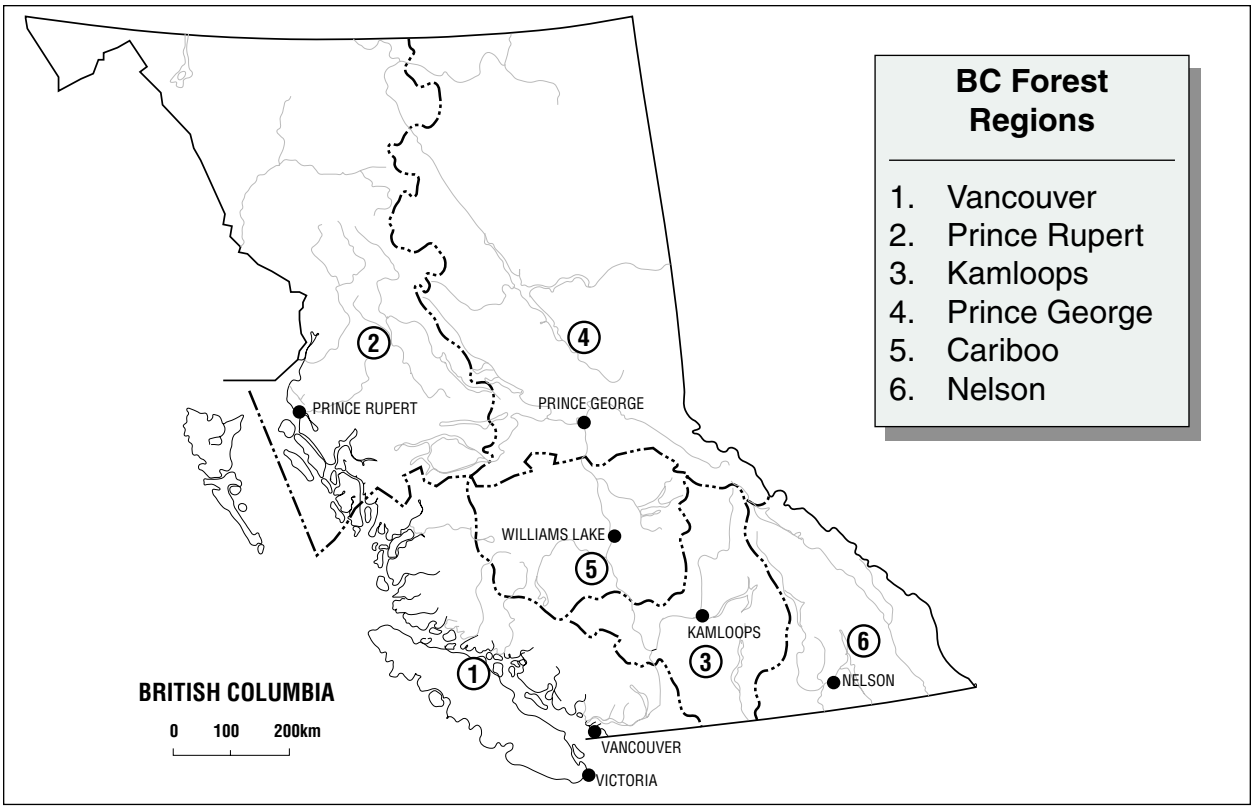


Figure 1. British Columbia forest regions

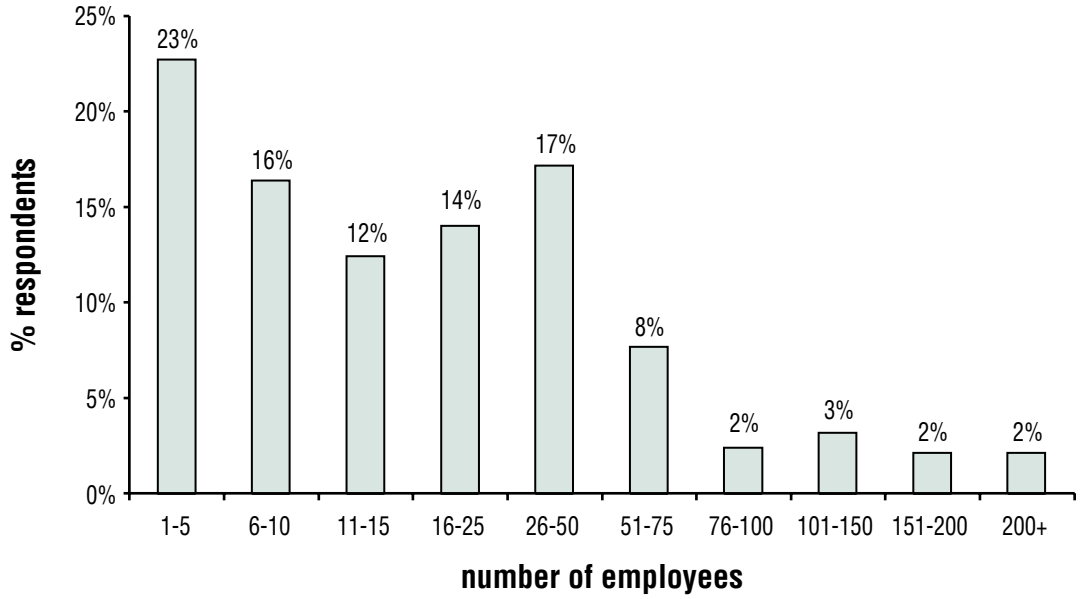


Figure 2. Distribution of firms by number of employees
(Note – percentages may not total to 100 due to rounding.)

Sales revenue

The distribution of sales revenue is highly skewed towards smaller firms (Figure 3). Median revenue from product sales lies in the $1.1 to $3.0 million range, with 70% of plants earning revenues of $5 million or less. However, plants with sales revenue of more than $10 million earned approximately three-quarters of total respondent sales, and the average respondent had sales worth $8.3 million. Firms in the Vancouver forest region earned 42% of the estimated total earnings of respondents, firms in the Kamloops forest region accounted for 31%, and those in the Prince George region for 11%.

Survey respondents were asked to provide the change in sales from the previous production year (1998). The average change in sales from 1998 to 1999 was an increase of approximately 13%.

Raw material use

Firms were asked to estimate their wood use in 1999, including questions on both product form (i.e, logs, lumber or panel products) and species. This fibre use was converted into roundwood equivalents (RWE).[2] The total roundwood utilization level is estimated at 16 million m^3 for the full sample (all nine business types). Lumber accounted for 62% of the total, logs 29%, and panel products the remainder.

Western redcedar, Douglas-fir, lodgepole pine and spruce are the species with the highest frequency of use (Figure 4). In terms of total RWE volumes used (Figure 5), Western redcedar accounted for the largest portion (25%), followed by lodgepole pine (20%), SPF (15%), spruce (14%), Douglas-fir (10%), and hemlock (7%).

The main source of supply for secondary wood manufacturing in British Columbia is through British Columbia market purchases that accounted for 75% of raw material purchases (Figure 6). Tenures, other than Small Business Forest Enterprise Program (SBFEP) sales, accounted for 14%, followed by imports from the rest of Canada (ROC) at 6% and SBFEP sales at 4.4%.

Although SBFEP wood was 4.4% of the total used by the respondents, a total of 18% of firms used some SBFEP wood. An estimated 36% of survey respondents had, at some point, applied for SBFEP wood.

[2] Conversion and mill recovery factors are based on Delcourt and Wilson (1998) and Nielson *et al.* (1985).

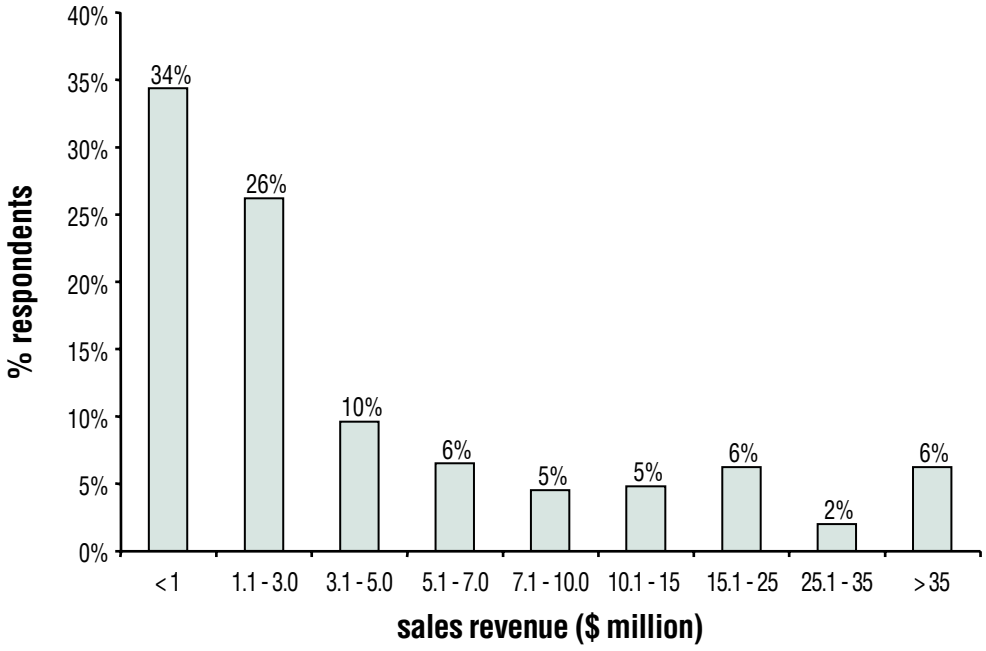


Figure 3. Distribution of firms by sales revenue
(Note – percentages may not total to 100 due to rounding.)

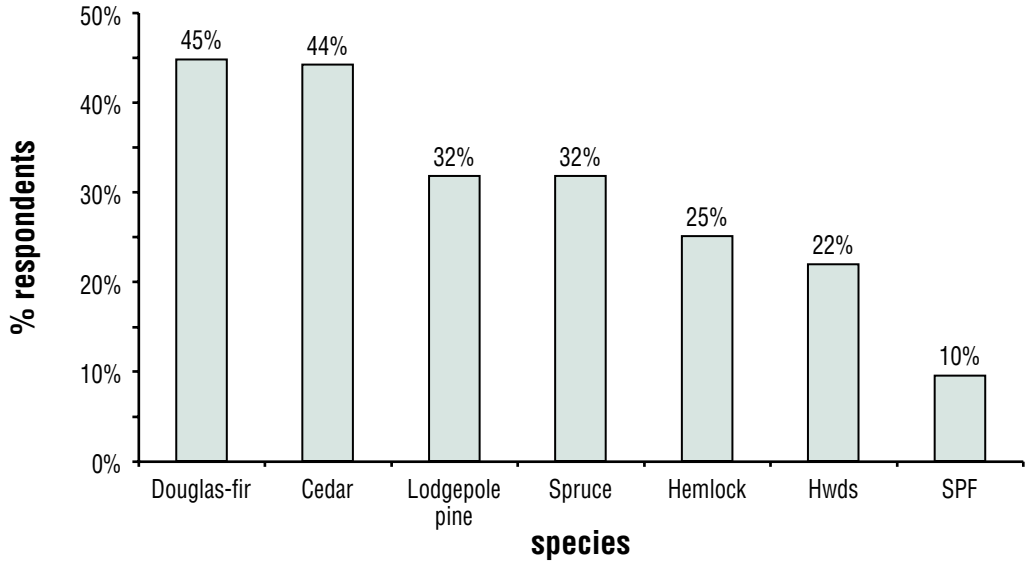


Figure 4. Distribution of firms by species use

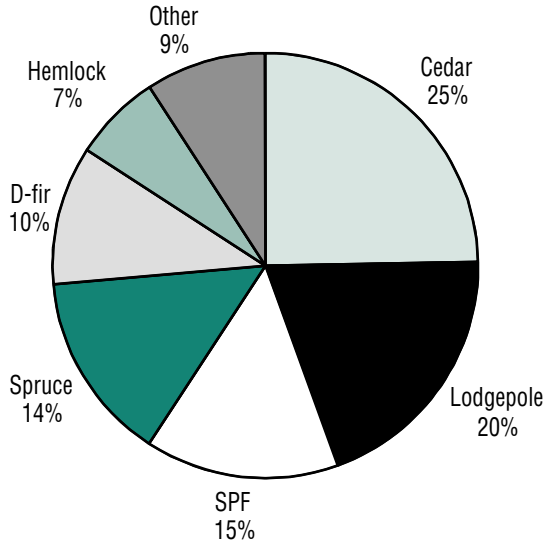


Figure 5. Roundwood equivalent volume use by species for survey respondents

Operating costs

Respondents were asked to list the proportion of their operating costs attributable to wood, labour, interest payments, depreciation and amortization, and other production costs. Proportions varied among respondents, but on average the two main cost components were wood purchases (45%) and labour costs (30%) (Figure 7).

Markets

British Columbia was the major market in 1999 for approximately 40% of the responding firms. About 90% of the respondents reported some sales in the British Columbia market (Figure 8). Market diversification within firms was limited. In addition to a heavy British Columbia market concentration, nearly 30% of the companies sold more than half of their shipments in the US market and almost 10% sold more than half to Japan. The rest of Canada and Europe were major markets for a small number of respondents.

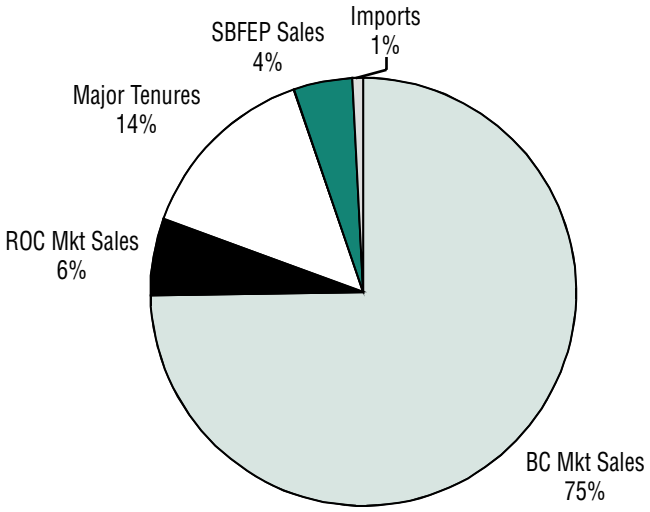


Figure 6. Sources of supply

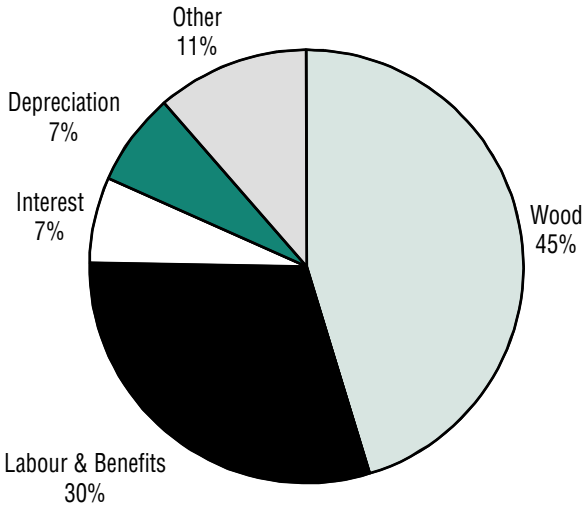


Figure 7. Average distribution of operating costs

The US was the major market in 1999 with 46% of total sales (Figure 9). The domestic market was second with 39% (19% in British Columbia and 20% in the rest of Canada), followed by Japan at 10% and Europe at 4%. The survey asked companies selling into British Columbia to estimate the percentage of such sales that were to wholesalers and consolidators. For the nine business types in total and for remanufactured products, 37% of British Columbia sales were to wholesalers and consolidators.

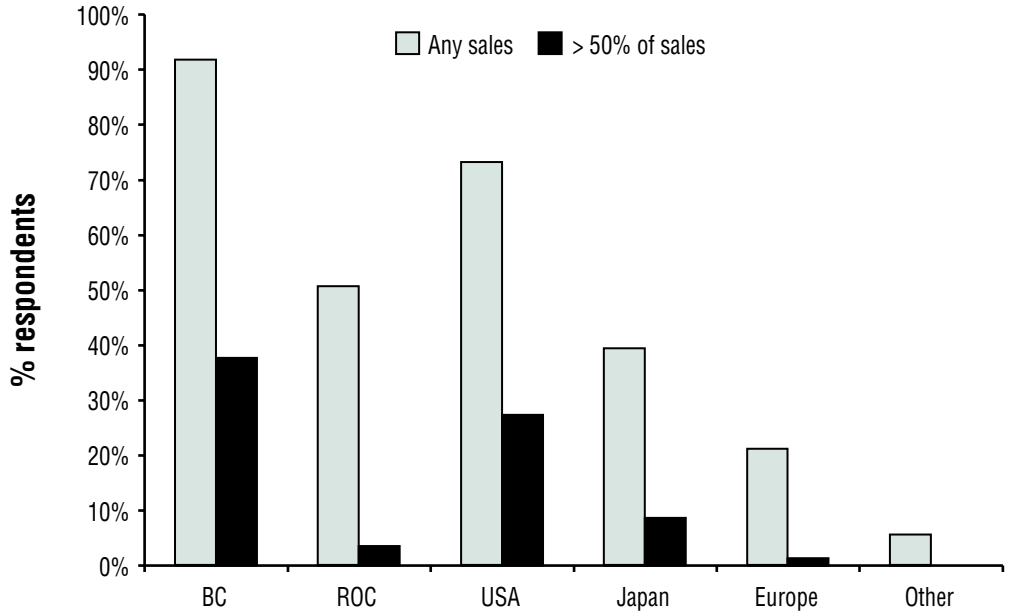


Figure 8. Percentage of respondents reporting sales in various markets

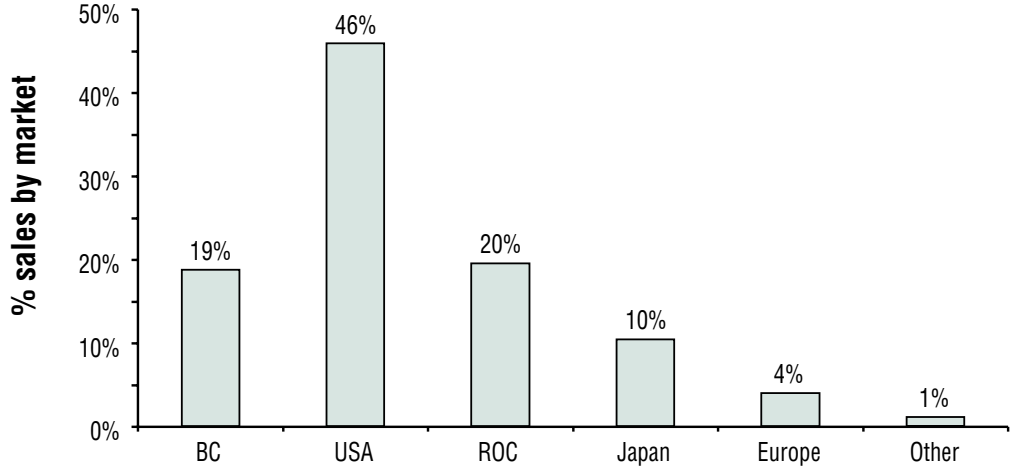


Figure 9. Sales revenue by market

Capacity utilization and expansion plans

Firms operated at an average capacity utilization level of 72% in 1999 (Table 4). Firms operating two shifts (25% of respondents) reported 77% capacity utilization and the few firms operating three shifts (3% of respondents) reported 84% capacity utilization. Rates varied considerably across the six forest regions. The highest capacity utilization was in the Nelson region at 78% and the lowest rate was in the Prince Rupert region at 63%.

Overall, 77% of respondents plan to increase their capacity over the 2000-2002 period by an average amount of 72% (Table 5). Firms in the Vancouver region were notable for having both the lowest percentage of firms planning expansion and for those planning to expand, the smallest average level of planned expansion.

Survey respondents were also asked to rank (from 1 to 4) their perceived constraints to capacity expansion, with 1 ranked as the most important factor up to 4 as the least important. The overall ranking of constraints to expansion is given in Table 6.

Within each of these four categories of constraints, firms were asked to rank more detailed constraints to expansion, again from 1 to 4. The results are given in Table 7.

Within "Markets", which was ranked as the most serious constraint to capacity expansion, the most important characteristic is market diversity (Table 7). Within wood supply, respondents perceived quality/grade to be the most important constraint to expansion. Experience was the most limiting factor for labour, and availability was identified as the key financial constraint to expansion.

Table 4. Average capacity utilization by forest region

Region	Shifts			All
	1	2	3	
	%			
Vancouver	71	78	85	73
Prince George	49	80	82	70
Prince Rupert	57	58	95	63
Nelson	80	67	80	78
Kamloops	65	78	75	68
Cariboo	74	70	100	75
British Columbia total	**69**	**77**	**84**	**72**

Table 5. Expansion plans by forest region

Region	Planning expansion	Level of expansion
	%	
Vancouver	62	60
Prince George	77	86
Prince Rupert	100	77
Nelson	67	95
Kamloops	67	95
Cariboo	79	100
British Columbia total	**66**	**76**

Table 6. Constraints to capacity expansion in secondary manufacturing (1 = most important, 4 = least important)

General constraint	Rank[a]
Markets	1
Wood supply	2
Labour	3
Finance	4

[a] The constraints are ranked on the basis of ordinal rankings for six pairwise comparisons.

Table 7. Detailed constraints to capacity expansion (1 = most important, 4 = least important)

Detailed constraint	Rank	Detailed constraint	Rank
Markets		**Finance**	
Market diversity	1	Availability	1
Product diversity	2	Cost	2
Market research	3	Flexibility	3
US SWL[a] Quota	4	Scheduling	4
Wood supply		**Labour**	
Quality/Grade	1 [b]	Experience	1
Price	1	Training/skills	2
Volume	3	Cost	3
Price volatility	4	Flexibility	4

[a] SWL = Softwood lumber

[b] The paired comparison for these two factors resulted in an exact split of 50% of respondents choosing quality/grade as more important than price and 50% choosing price as more important than quality/grade.

Results by Business Type

Remanufactured products is the dominant business type in British Columbia secondary wood manufacturing both in terms of employment and overall sales (Table 8). The next largest, again in terms of both sales and jobs, is panelboards, followed by engineered wood products and then shakes and shingles.

When all nine business types are considered, remanufactured products firms accounted for an estimated 32% of respondents' 1999 direct employment (full-time equivalents), panelboards 20%, engineered wood products 18%, millwork 9%, shakes and shingles 9%, furniture 6%, cabinets 4%, and pallets and containers and other wood products a combined 3%. With the older definitions using seven business types, remanufactured products firms account for 45% of employment.

Again, using nine busines types, firms classified in the remanufactured products business type accounted for 36% of the estimated total 1999 sales revenue of firms in the sample, panelboards 31%, engineered wood products14%, shakes and shingles 7%, millwork 4%, furniture 3% and cabinets 2%.

Table 8. Percentage of economic contribution by business type

Business type	7 Business types		9 Business types	
	Sales	Jobs	Sales	Jobs
	% of total			
Remanufactured products	58	45	36	32
Millwork	7	12	4	9
Engineered wood products	23	25	14	18
Cabinets	3	5	2	4
Furniture	4	8	3	6
Pallets and containers	2	2	1	1
Other wood products	2	2	1	2
Panelboards	-	-	31	20
Shakes and shingles	-	-	7	9

Employment by business type

Figure 10 shows the employment size distribution by business type.

The classifications are:

- small (under 16 employees),
- medium (16-50 employees), or
- large (over 50 employees).

Firms classified as small employers dominated the sector overall as well as most business types. The main exception was panelboards where over 90% of responding companies employ more than 50 employees (in fact 90% employed more than 100 employees), remanufactured products where two-thirds of respondents were either medium or large, and shakes and shingles which was dominated by the medium class. Panelboard firms employ an average of 228 workers, remanufactured products firms employed an average of 40 people, engineered wood products firms averaged 28 employees, and cabinet manufacturers were the smallest with an average of 13 workers. The average for all secondary manufacturers is 34 employees per firm.

Sales revenue by business type

Figure 11 shows 1999 sales revenue distribution by firm size and business type.

Respondents were classified as:

- small (under $5 million sales),
- medium ($5-$10 million sales), or
- large (over $10 million sales).

Small firms characterize most business types except panelboard firms (average sales $83 million) which are all in the large category and remanufactured products firms (average sales $11 million) which are evenly split between the small and large categories. Conversely, cabinet manufacturers are almost all in the smallest category of sales, with median sales of less than $500,000, and average sales of $1.4 million.

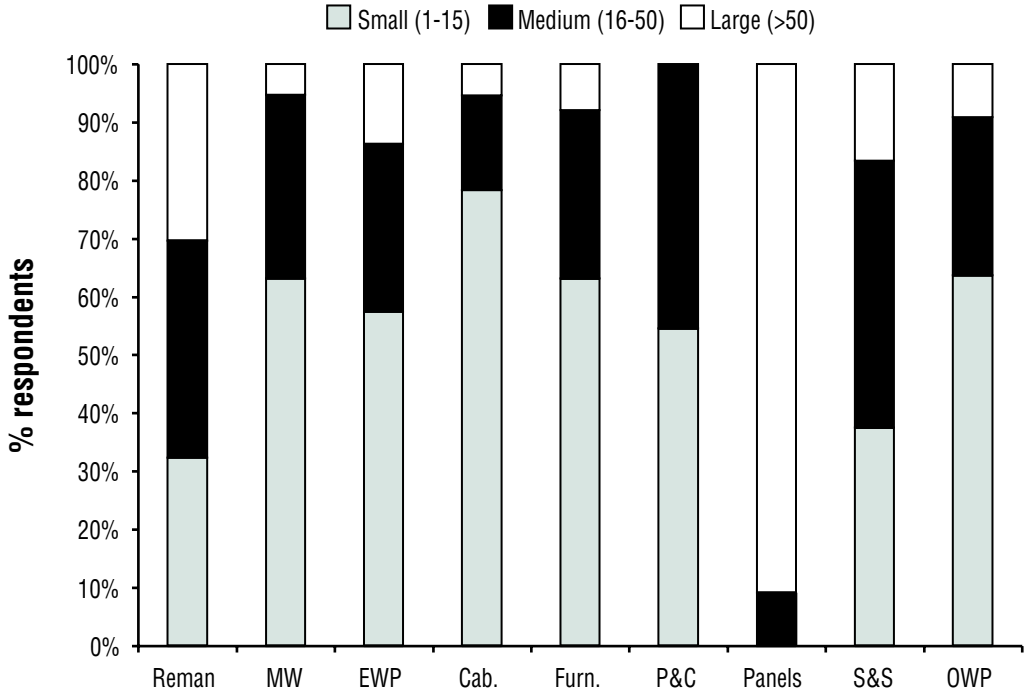


Figure 10. Number of employees by business type

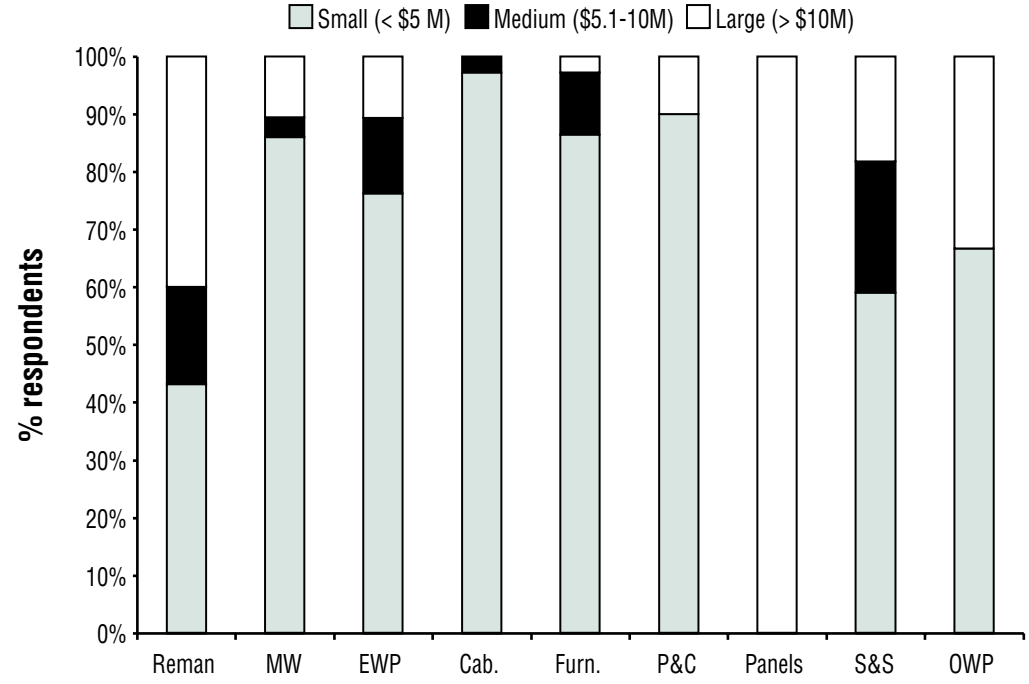


Figure 11. Sales revenue by firm size and business type

Figure 12 shows the estimated proportion of sales of firms by business type in the five major markets for the British Columbia industry. Shake and shingle manufacturers were the most export-oriented of business types, generating in excess of 90% of their sales from exports, followed by remanufactured products firms with approximately 75% of total sales being into export markets. Engineered wood products are also heavily export-based with 70% of sales exported and over 20% of sales exported to Japan (the largest proportion of any business type). In contrast, more than 80% of sales in the cabinets and pallets and containers business types were into the domestic market.

Firms were asked to provide the percentage change in gross sales revenue in 1999 versus 1998. In aggregate, all business types reported an increase. The increase in gross sales revenue ranged from a high of 32% to a low of 3% (Figure 13).

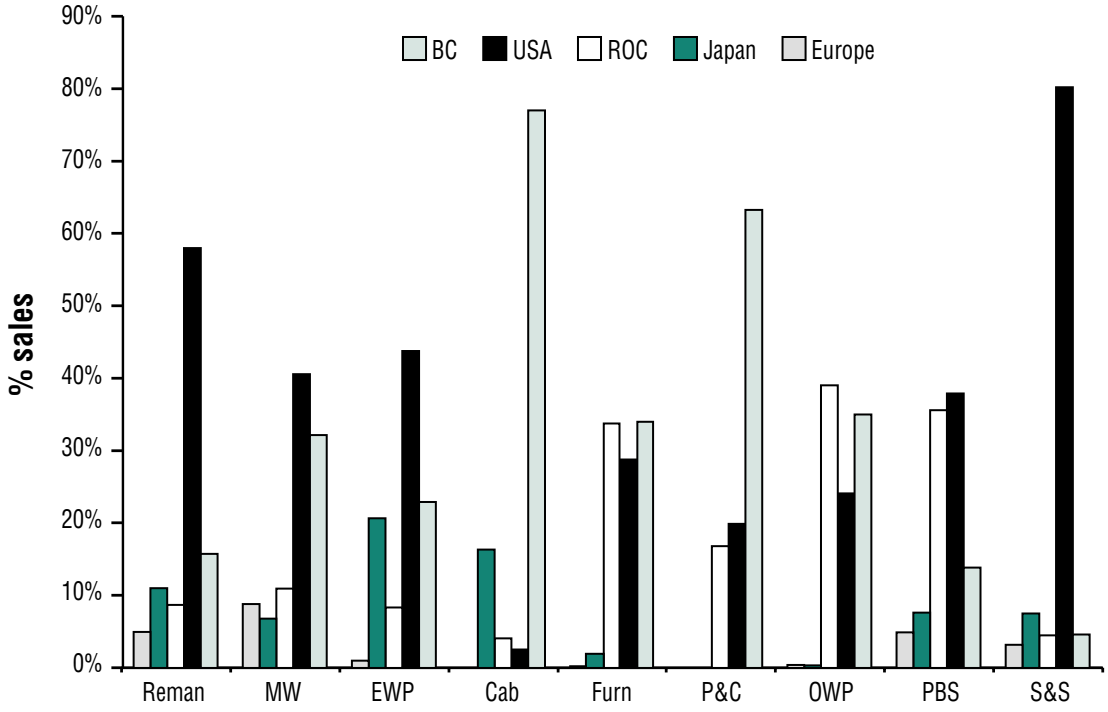


Figure 12. Sales revenue by market and business type

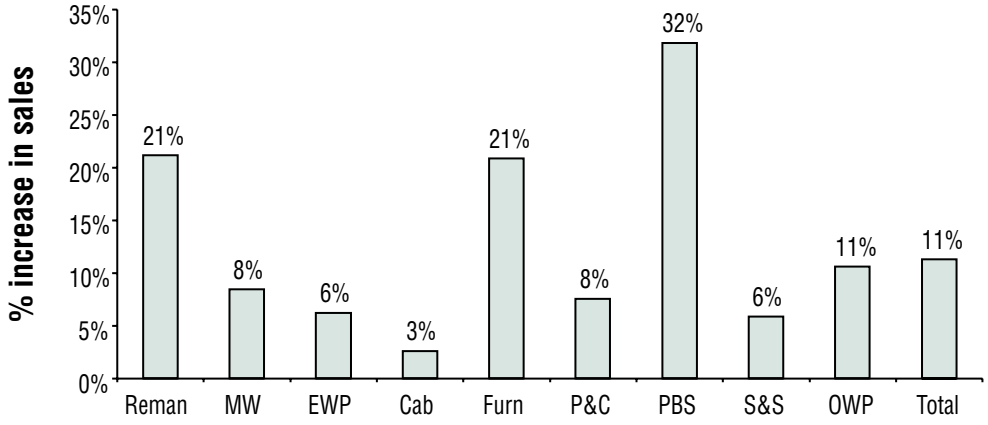


Figure 13. Average sales increase from 1998 to 1999 by business type

Raw material use by business type

When the various types of raw material are converted to roundwood equivalents, remanufactured products firms used 54% of the total wood used by the sector, panelboards 22%, engineered wood products 12%, shakes and shingles 5%, and the remaining business types used 7%. These figures reflect both the relative sizes of the various product groups (in terms of the number and average size of plants) and the clear differences among them in their raw material requirements.

A comparison of species utilization across business types illustrates a large degree of variation (Table 9). In the remanufactured products business type the major species used by volume were cedar (33%), lodgepole pine (21%) and spruce/pine/fir (SPF) (18%), whereas in millwork they are hemlock (33%), Douglas-fir (32%) and cedar (21%). Lodgepole pine (46%) and cedar (34%) are the main species used in furniture manufacturing. Panelboards are 23% spruce, 22% Douglas-fir and 19% lodgepole pine. Pallets and containers are about 60% SPF species. Cabinets utilize the highest proportion of hardwood species at 85% (primarily oak and maple). Shake and shingle producers utilize nearly 100% cedar.

Table 9. Top species utilization by business type[a]

Business type	Cedar	Douglas-fir	Spruce	Lodgepole pine	Hemlock	Spruce/Pine/Fir	Hard-wood
				% of total			
Remanufactured products	33	5	12	21	8	18	1
Millwork	21	32	1	9	33	0	5
Engineered wood products	4	9	16	24	7	35	2
Cabinets	2	7	0	1	2	0	85
Furniture	34	1	3	46	0	0	7
Pallets & Containers	1	25	25	1	7	34	7
Other wood products	16	22	27	28	2	0	1
Panelboards	2	22	23	19	3	0	26
Shakes and shingles	98	0	0	0	0	2	0

[a] Only dominant use species are listed so totals may not add to 100.

Table 10. Sources of wood supply by business type

Business Type	BC Market	ROC Market	Major Tenures	SBFEP	Imports
			% of total		
Remanufactured products	85	7	2	6	0
Millwork	88	6	0	1	5
Engineered wood products	78	15	2	3	2
Cabinets	57	27	0	0	16
Furniture	53	9	0	31	7
Pallets & Containers	98	2	0	0	0
Other wood products	95	2	0	0	3
Panelboards	36	0	62	2	0
Shakes and shingles	99	0	0	1	0

Sources of supply varied considerably across the different business types (Table 10). The largest (in percentage terms) users of wood purchased on the British Columbia market are shake and shingle firms, pallets and containers, and other wood products, all with British Columbia market purchases in excess of 95% of total purchases. Measured as a proportion of total wood use within a business type, the largest users of the SBFEP are furniture manufacturers at about 30% of raw material supplied through SBFEP sales. Cabinet manufacturers are the largest importers of wood (largely hardwoods) from the rest of Canada (16%) and from outside Canada (27%). Panelboards are the only business type sourcing a large percentage of their wood supply from major tenures.

Although only furniture producers received a large percentage of supply from the SBFEP, many business types received some SBFEP wood. In the remanufactured products, engineered wood products, shake and shingle, and other wood products business types, approximately 25% of firms obtained some wood from the SBFEP. Over 60% of remanufactured products and shake and shingle firms, and 50% of engineered wood products firms, have applied for SBFEP wood in the past.

Operating costs by business type

Survey results provide a breakdown of operating costs across the various business types (Figure 14). Measured as a share of total operating costs, wood costs were the largest cost component of remanufactured products and shake and shingle operations, and wood was the lowest cost for cabinet and furniture business types. The typical remanufactured products operator in the survey spends approximately 60% of total operating costs on wood and 23% on labour (including benefits). In contrast, labour costs were greater than wood costs for furniture makers and nearly as important for both millwork and cabinet firms.

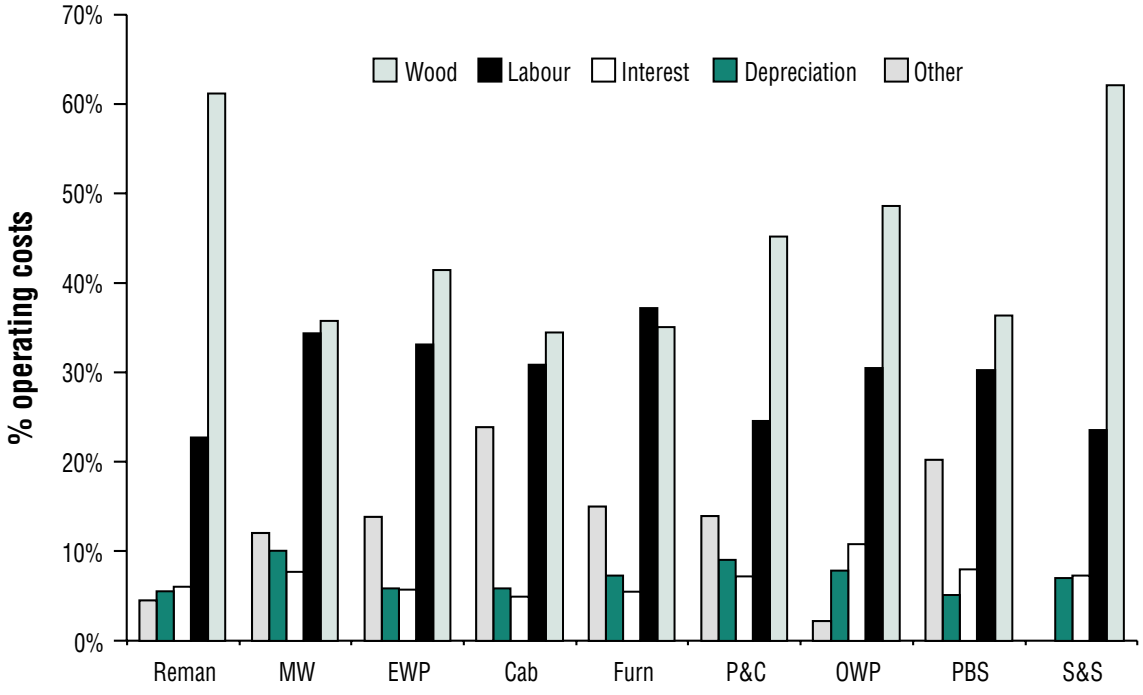


Figure 14. Distribution of operating costs by business type

Capacity utilization and expansion plans by business type

There was considerable variation in the capacity utilization numbers across business types (Figure 15). For the 1999 production year panelboard firms had the highest level of capacity utilization at 93%, followed by shakes and shingles (77%), other wood products (76%) and millwork firms (73%). The lowest capacity utilization rate was in engineered wood products.

Shown along with capacity utilization rates in Figure 15 are the percentage of firms planning expansion over the 2000-2002 period, and the mean level of anticipated expansion. The greatest percentage of firms with expansion plans are in the pallets and containers business type, although the level of expansion is low at only 33%. Furniture respondents also had a large percentage of firms with expansion plans and the average level of expansion was very high at 105%. Remanufactured products, engineered wood products and panelboard business types all indicated strong plans for capacity expansion.

Internet use by business type

The use of the internet by forest companies was a new question included in the 1999 survey. Overall, 54% of all respondents maintain a company web site. In terms of e-commerce, 24% sold products or services over the internet, and 46% used it to search for inputs. Figure 16 shows the use of the internet for survey respondents by business type.

Engineered wood products firms are both the most likely to maintain a website (69%) and most likely to sell over the web (37%). Panelboard (64%), furniture (58%) and other wood products (55%) are the other business types most likely to maintain a web site. The business types most likely to purchase inputs over the net are furniture (74%), other wood products (55%) and remanufactured products (52%). Those most likely to use the internet as a marketing outlet (besides engineered wood products firms) are the other wood products (36%), furniture (32%) and panelboards (27%) business types.

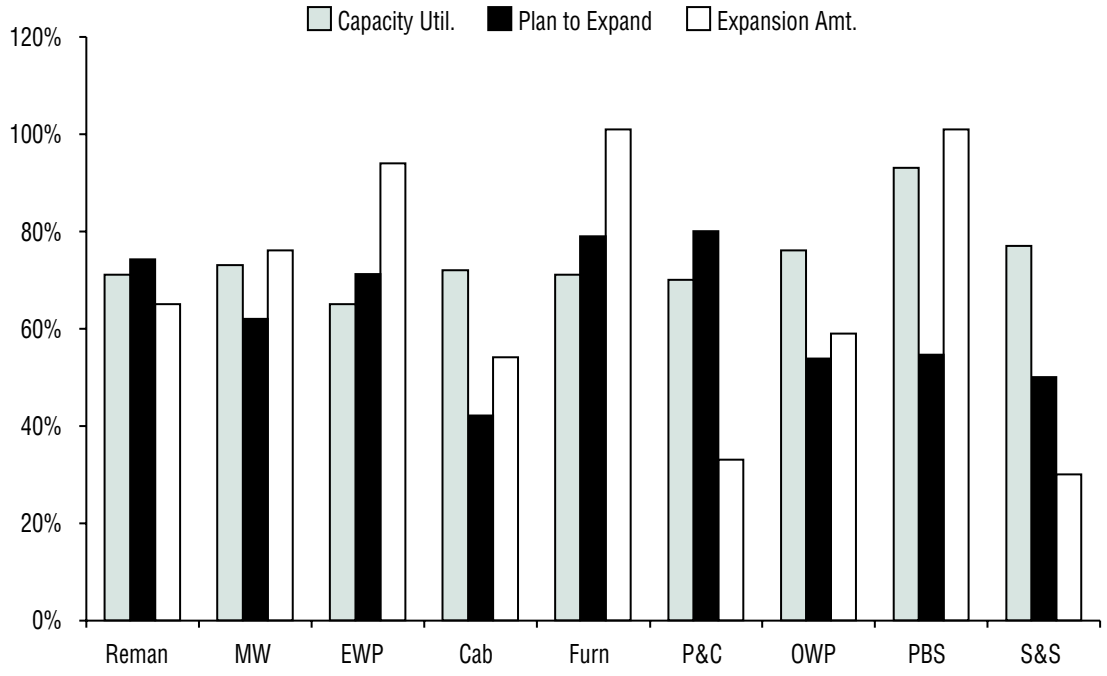


Figure 15. Capacity utilization and expansion plans

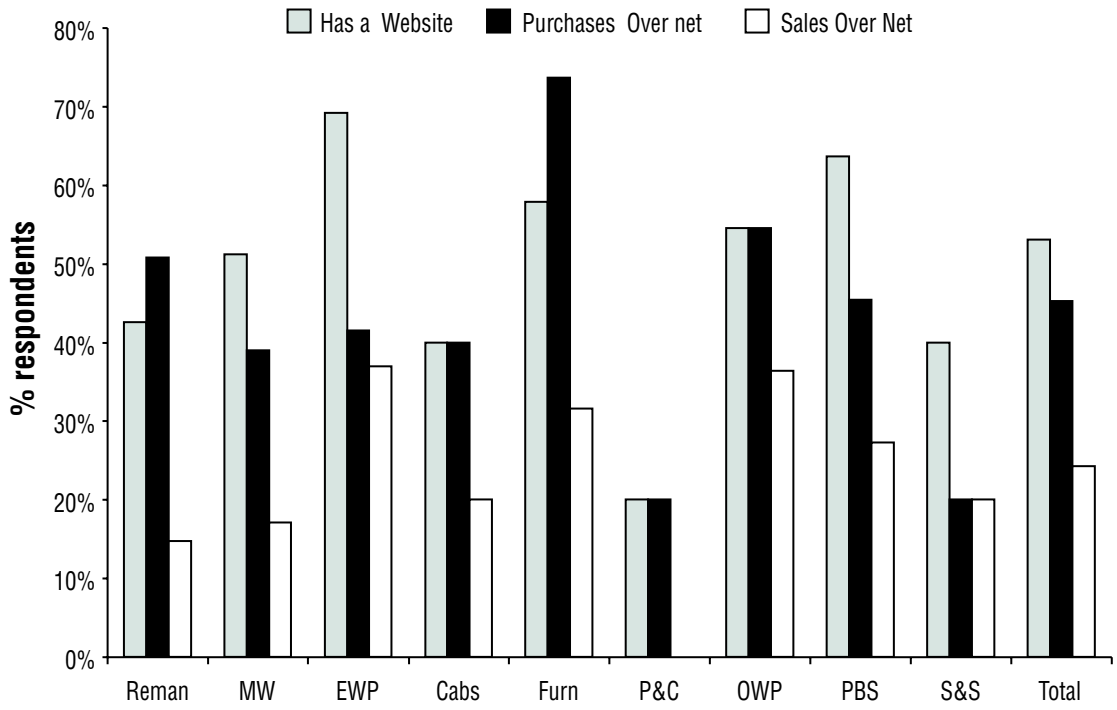


Figure 16. Internet use by business type

Sector Trends

Table 11 provides a summary of the major trends in British Columbia secondary manufacturing over the 1990-99 period. This comparison is based on four distinct sector surveys completed during the decade. Estimates of the number of firms, employment, raw material use and sales revenue are provided for the sector. In order to facilitate comparisons across the full decade, the 1997 and 1999 sector totals are also presented based on the seven business types used in the 1990 and 1994 surveys (i.e., excluding panelboards and shakes and shingles).

Sector sales totaled $4.68 billion in 1999 and $2.9 billion for the seven business types (Table 11). Adjusting for inflation, sector sales increased about 21% in 1999 versus 1997. Sales for the seven business types increased in real terms (net inflation) by 70% over the 1990-99 period.[3] Employment increased by about 24% over the 1990s and sales, measured in nominal terms, increased by about 88%.

The sector (nine business types) is estimated to have processed approximately 23.8 million m^3 of fibre (RWE) in 1999. In comparison total fibre use by the sector in 1997 was estimated at 17.9 million m^3 RWE.

Examining changes between the two most recent surveys (1999 versus 1997), there was very little change in overall sector employment, but sales increased by nearly 21% in nominal terms. The distribution of firms by employment level for the 1990 through 1999 secondary manufacturing surveys is given in Table 12.

The distribution of firms on the basis of employment level has been quite stable through the 1990s. There are proportionally as many small firms in 1999 as there was in 1990, slightly less in the medium range (11-50), and 6% more of the largest firms (> 50 employees). Estimated total population employment levels by business type for 1997 and 1999 are shown in Figure 17.

[3] The implicit GDP deflator index was used to convert sales values to constant 1990 dollars.

Table 11. Trends in British Columbia secondary manufacturing

7 Business types	1990	1994	1997	1999	% Change 1999/90
Firms	565	525	683	703	24%
Sales ($ billions)	1.54	1.93	2.69	2.90	88%
Employment	11 660	14 010	14 457	14 410	24%
9 Business types					**1999/97**
Firms	n.a.	n.a.	774	774	0%
Sales ($ billions)	n.a.	n.a.	3.87	4.68	21%
Employment	n.a.	n.a.	19 491	20 191	4%

Source: Canadian Forest Service database.

Table 12. Distribution of firms by employment level, 1990-99

Employees	1990	1994	1997	1999
	----------% of Total ----------			
1-10	36	27	37	39
11-25	37	35	32	26
26-50	16	18	16	17
>50	11	20	15	17

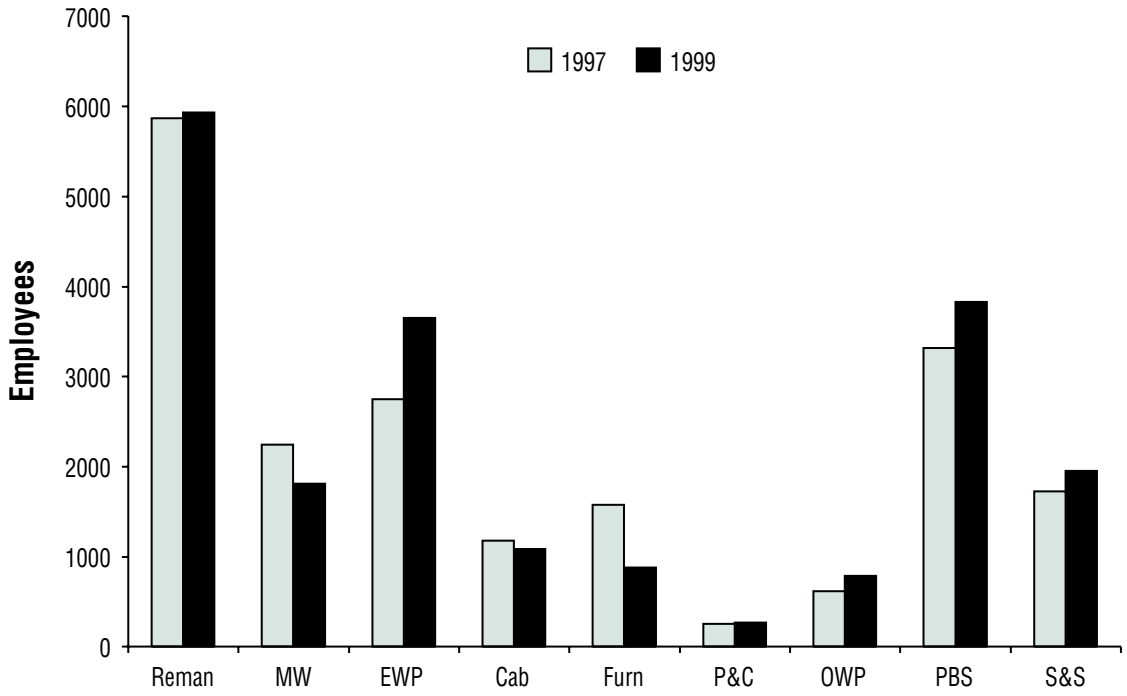


Figure 17. Total sector employment by business type in 1997 and 1999

Table 13. Distribution of firms by sales revenue, 1990-99

Range of sales ($ million)	1990	1994	1997	1999
		% of total		
< 1	45	26	31	34
1.1-5.0	38	45	39	35
5.1-15.0	13	24	19	16
15.1-25.0	2	3	4	6
> 25	2	3	7	8

Employment levels across the different business types were generally quite consistent between the 1997 and 1999 surveys. The largest increases were for engineered wood products and panelboards. The largest decrease in overall employment since 1997 was in cabinet manufacturing. The distribution of firms by sales revenue through the 1990s (all four surveys) is given in Table 13.

When examining the distribution of firm size through the 1990s on the basis of sales revenue, there are proportionally fewer of the very small firms at the end of the decade and more with sales in excess of $15 million (an increase of 10%). The distribution of estimated total sales revenue by business type for 1997 and 1999 is shown in Figure 18.

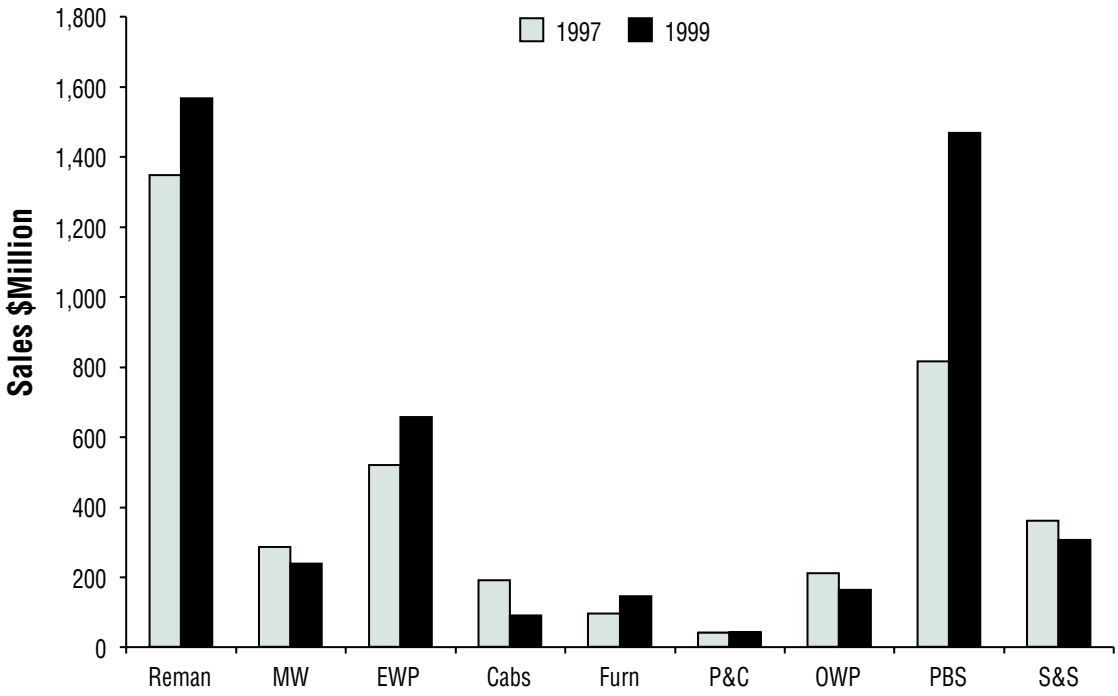


Figure 18. Total sector sales by business type, 1997 and 1999

Table 14. Regional distribution of total sector sales, 1997 and 1999

Region	1997	1999
	% of total	
Vancouver	56.4	51.1
Prince George	8.3	8.9
Prince Rupert	0.3	1.9
Nelson	6.5	5.4
Kamloops	22.2	26.3
Cariboo	6.3	6.4
Total	**$3.9 billion**	**$4.7 billion**

Sector sales by business type are similar to the results for employment, except for the much larger increase in sales (relative to jobs) for the remanufactured products and panelboards business types. The regional distribution for estimated total sales is given in Table 14.

Every region saw an increase in sales between 1997 and 1999, although the proportions of total sales for the Vancouver region fell from 56% to 51%. The estimated total sales for the Coast increased by 9% while those from the Interior increased by 35%. These increases occurred while provincial lumber sales fell by 9% from $7.9 billion to $7.3 billion (PriceWaterhouseCoopers 2000). Interior mills shipped 4% more lumber in 1999 than in 1997 while production from Coastal mills fell by 7.4%.

The total contribution to sector employment changed very little from the 1997 to 1999 surveys (Table 15). The only noticeable differences were an increase in the relative importance of engineered wood products, with reductions in cabinets and millwork. The same breakdown on the basis of sector sales is given in Table 16.

The proportion of sector sales attributable to the different business types did show some changes from 1997 to 1999. When examining the results based on seven business types, the changes are similar to those for employment. A large increase in panelboards sales results in an increase in its proportion of total sector sales on the basis of nine business types. Sales into the different markets through the 1990s are given in Figure 19.

Table 15. Percentage of total sector employment by business type, 1997 and 1999[a]

Business type	7 Business types		9 Business types	
	1997	1999	1997	1999
Remanufactured products	41	41	30	29
Millwork	16	13	12	9
Engineered wood products	19	25	14	18
Cabinets	11	6	8	4
Furniture	8	8	6	5
Pallets and containers	2	2	1	1
Other wood products	4	5	3	4
Panelboards	-	-	17	19
Shakes and shingles	-	-	9	10

[a] These percentages are slightly different from those in Table 8; these are based on population estimates and those in Table 8 are based on the survey totals.

Table 16. Percentage of total sector sales by business type, 1997 and 1999[a]

Business type	7 Business types		9 Business types	
	1997	1999	1997	1999
Remanufactured products	50	54	35	34
Millwork	11	8	7	5
Engineered wood products	19	23	13	14
Cabinets	7	3	5	2
Furniture	4	5	2	3
Pallets and containers	2	1	1	1
Other wood products	8	6	5	3
Panelboards	-	-	21	31
Shakes and shingles	-	-	9	7

[a] These percentages are slightly different from those in Table 8; these are based on population estimates and those in Table 8 are based on the survey totals.

There was a large increase in sales to the US market in 1999 (46%) compared to 1990 (28%). Sales into the rest of Canada also increased from 1990 to the end of the decade. Offsetting (proportional) decreases in sales came primarily from local British Columbia and European sales. Sales into the Asian market increased from 1990 to 1994, then steadily declined from a peak of 20% down to 11% of total sales in 1999 (the same proportion of total sales as in 1990).

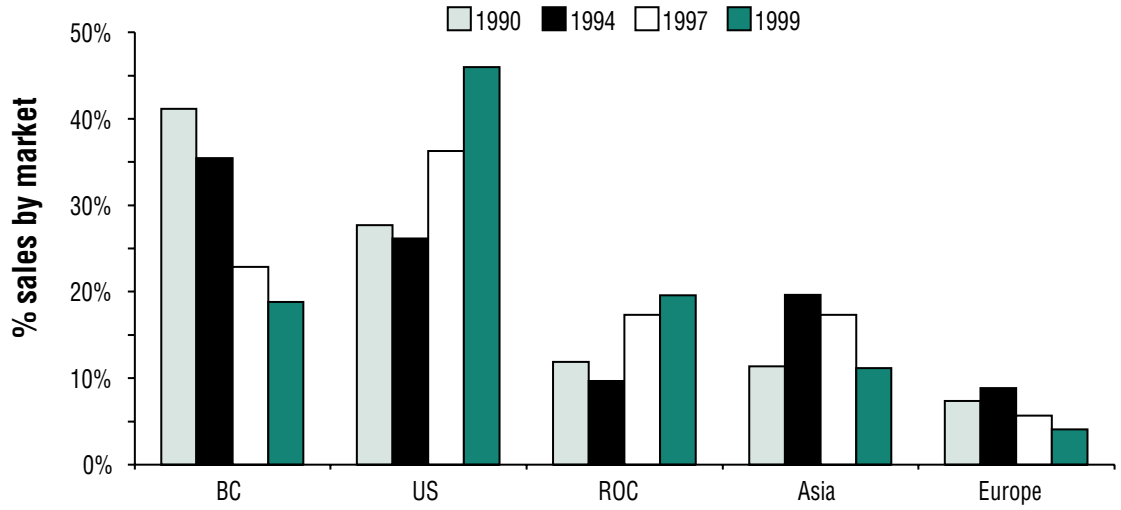


Figure 19. Sales to different markets, 1990-1999

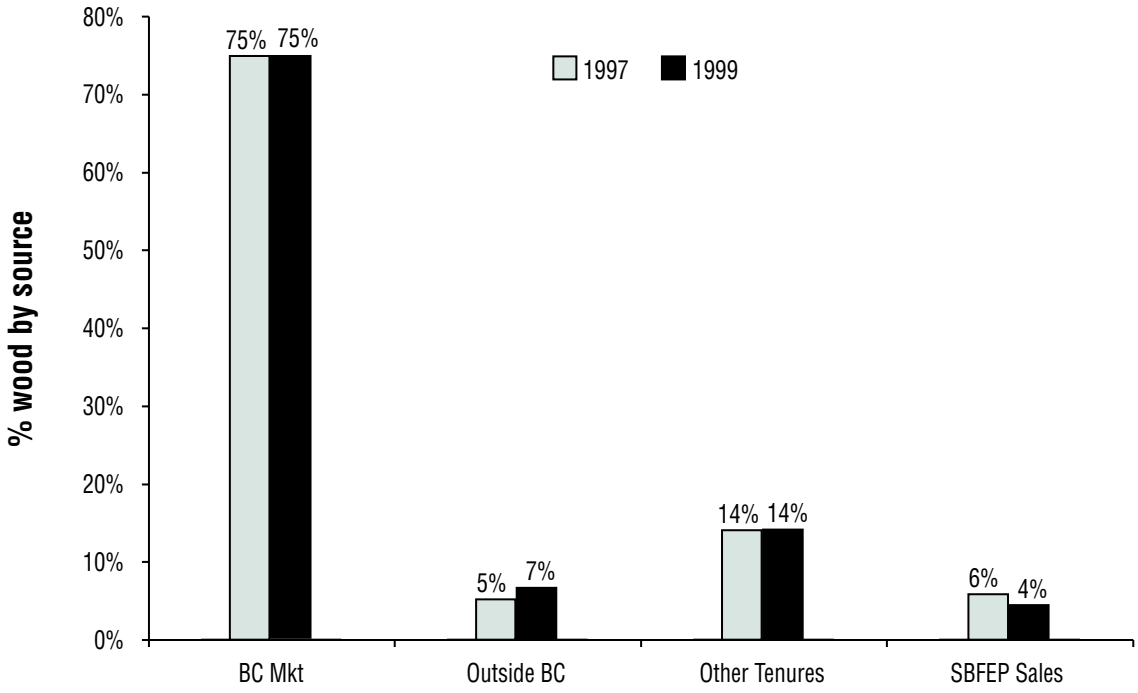


Figure 20. Sources of wood supply in 1997 and 1999

Overall sources of wood supply did not change much between the 1997 and 1999 production years (Figure 20). The percentage of wood from SBFEP sales decreased from 6% of overall sector wood supply to 4.4%, while purchases outside of British Columbia (i.e., from the rest of Canada and the US) increased by 2%. By extrapolation an estimated 1.05 million m^3 of SBFEP fibre in RWE is utilized by the population of secondary wood processors.[4]

Conclusions

The economic contributions of the forest sector to British Columbia are well established; however, the sustainability of these contributions is increasingly challenged. Changes in social expectations on forest land management, technological progress, and the emergence of competing sources of fibre (both wood and non-wood), among other factors, are combining to restructure sector fundamentals. Policy makers are struggling to respond effectively to the impacts of reduced timber access and highly competitive global markets (Wilson 2000). The policy response will benefit from accurate sector information in order to complete a realistic assessment of various options. This project provides timely, accurate and comprehensive information on the magnitude and trends of secondary manufacturing in British Columbia.

Creating an institutional setting to complement and promote sustainable growth in secondary manufacturing is an objective in many jurisdictions that have a substantial commercial forestry sector or at least a domestic market for forest products. British Columbia is working to facilitate a forest sector transition that reflects a more balanced use of the public forestlands and one which has a larger share of secondary manufacturing in the product mix. Fortunately, British Columbia has a number of strengths to build upon in promoting secondary manufacturing. These strengths include high quality fibre, competitive energy costs, an established position in the major markets, research and development facilities, worker training facilities, and institutional support. The latter includes programs such as the British Columbia Ministry of Forests' Small Business Forest Enterprise Program (SBFEP) and the value-added program of Forest Renewal British Columbia delivered in cooperation with producer associations.

These strengths are important but they are not sufficient to generate sustainable growth in secondary manufacturing. Effective responses to the market, wood supply and pricing challenges, and the real costs of labour will be required to complement the existing strengths. Developing and implementing such responses will not be easy and there is no established formula for success. However, topics which can be expected to be productive include a comprehensive examination of program and policy initiatives in competing jurisdictions, targeted and rigorous market research, and a review of the impacts of existing programs and policies on the performance of secondary manufacturing.

There are reasons to be optimistic about the future of secondary manufacturing in British Columbia. The increase in demand for industrial timber that is forecast to accompany rising incomes and population growth and the inherent renewable nature of timber are positive factors. However, this optimism needs to be tempered against social concerns on commercial forestry practices, market segmentation, competing substitute products, rapid technological change, and highly competitive markets. In summary, market success requires accurate strategic development, tight cost control in manufacturing and product positioning, nimble management, complementary public policy, and a degree of serendipity.

[4] The actual billed volume under Section 21 of SBFEP is approximately 2.9 million m^3. The difference reflects trading of logs on a ratio greater than 1:1, billed SBFEP volumes include "deciduous and waste", and some Section 21 wood is going to processors not included in the secondary manufacturing definition used in this study.

References

Cohen, D.; Ellis, S.; Kozak, R.; Wilson, B. 1996. A new taxonomy to wood products. Canadian Forest Service, Pacific Forestry Centre, Working Paper 96.05. Victoria, British Columbia.

Delcourt, G.; Wilson, B. 1998. Forest industry employment: A jurisdictional comparison. Canadian Public Policy Vol. 24 (supplement): S11-S25.

Forintek Canada Corporation; McWilliams, J. 1993. Structure and significance of the value-added industry in British Columbia. Forestry Canada, Pacific Forestry Centre, FRDA Report 203. Victoria, British Columbia.

Nielson, R.; Dobie, J.; Wright, D. 1985. Conversion factors for the forest products industry in western Canada. Forintek Canada Corp., Special Publication No. SP-24R. Vancouver, British Columbia.

Price Waterhouse. 1992. Performance of the value-added wood products industry in British Columbia. Forestry Canada, Pacific Forestry Centre, FRDA Report 193. Victoria, British Columbia.

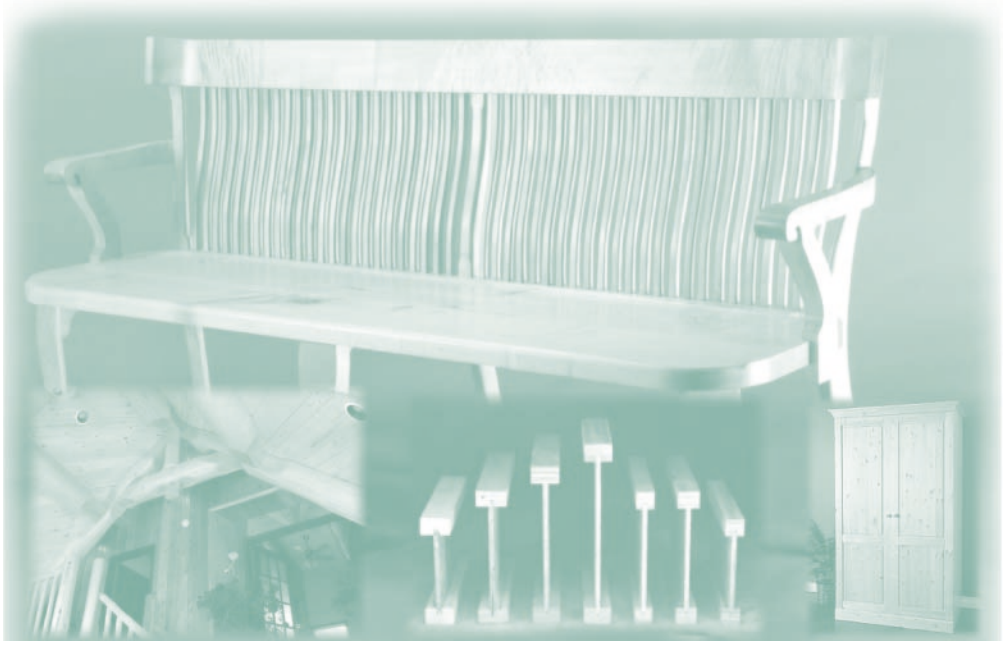
PriceWaterhouseCoopers. 2000. The forest industry in British Columbia 1999. Vancouver, British Columbia. (web site accessed September, 2001: http:www.cofi.org/reports/report-pwc_1999report.htm).

Wilson, B. 2000. The globalization of value-added wood products. Pages 21-30 in Quality lumber drying in the Pacific Northwest: vertical integration = improved profit. Forest Products Society. Madison, Wisconsin.

Wilson, B.; Ennis, R. 1993. Directory of secondary manufacturing of wood products in British Columbia. Forestry Canada, Pacific Forestry Centre. FRDA report. Victoria, British Columbia.

Wilson, B.; Stennes, B.; Wang, S. 1999. An examination of secondary manufacturing in British Columbia: structure, significance and trends. Canadian Forest Service, Pacific Forestry Center, Working Paper 99.02. Victoria, British Columbia.

Wilson, B.; Stennes, B.; Wang, S.; Wilson, L. 2001. Secondary manufacturing in British Columbia: structure, significance and trends. The Forestry Chronicle 77(2): 301-308.



APPENDIX A:
Taxonomy of secondary manufactured wood products

Table A1. Taxonomy of secondary manufactured wood products.

	Wood Products		
Log Products	**Primary[a]**	**Intermediate**	**Final**
Chopsticks	Boards	Building/Home Components	Boxes, Bins and Crates
Firewood	Cants	Cutstock	Cabinets
House Logs	Flitches	Door Stock	Coffins
Pilings	Lumber/Industrial	Edge Glued Components	Countertops
Poles	Timber	Finger-Jointed Stock	Decking
Posts	Treated Timber	Furniture Components	Doors
Log Homes	Veneer	Joinery Stock	Fencing
Shakes		Ladder Stock	Finger-Jointed Lumber
Shingles		Laminated Components	Flooring
Treated Pilings		Laminated Stock	Flooring/Engineered
Treated Poles		Metric Stock	Furniture/Commercial
Treated Posts		Moulding, Panel Blanks	Furniture/Household
Novelties		Pallet, Crating Stock	Furniture/Patio
		Medium Density Fibreboard	Furniture/RTA
		Particleboard	Garden Buildings, Products
		Pattern Stock	Laminated Veneer Lumber
		Sawmill Specialty Products	Millwork/Architectural, Custom
		Staircase Components	Medium Density Fibreboard
		Turning Squares	Mouldings
		Window Stock	MSR Lumber
			Oriented Strandboard
			Pallets
			Paneling
			Plywood
			Prefab Buildings and Manufactured Homes
			Siding
			Staircases
			Stakes, Lathe, Strips and Batten
			Structural Laminated Beams
			Treated Lumber
			Trusses
			Turned Wood Products
			Windows
			Wood Novelties

Source: Wilson and Ennis (1993)

[a] Products in this column are not secondary products but are included for completeness.

APPENDIX B:
Log home manufacturing in British Columbia

The regional distribution of both respondents and the population are given in Table B1. The results include timber framers and manufacturers of post and beam homes (six in total) and firms manufacturing some combination of log homes and either timber frames or post and beam homes (another six firms).

The region with the largest number of log home manufacturers is Kamloops, and the bulk of manufacturing takes place in the Interior. The identified population increased from 59 in the 1997 survey to 97 in 1999. Respondents to our survey totaled 47, for a response rate of 48%. Information on employment and sales is given in Table B2.

Although the number of firms and employment levels both increased from 1997 to 1999, estimated population sales saw only a modest increase. Figure B1 shows the proportion of sales into different markets.

Table B1. Regional distribution of the log home sector in British Columbia, 1999

Region	Population	Respondents
Vancouver	31	16
Kamloops	34	17
Nelson	13	6
Cariboo	12	7
Prince George	4	1
Prince Rupert	3	0
Total	**97**	**47**

Table B2. Sample totals and population estimates for British Columbia log home manufacturer sales and employment, 1997 and 1999

	1997	1999
Employment		
Sample total	460	740
Population estimate	670	1,140
Sales ($ million)		
Sample total	51	61
Population estimate	85	88

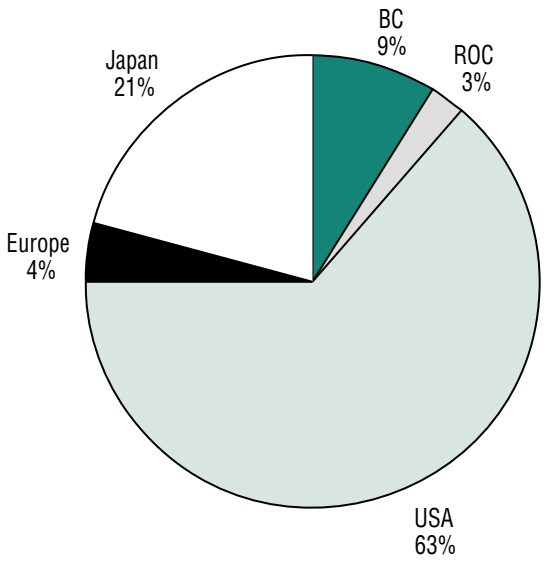


Figure B1. Sales by market for British Columbia log home manufacturers

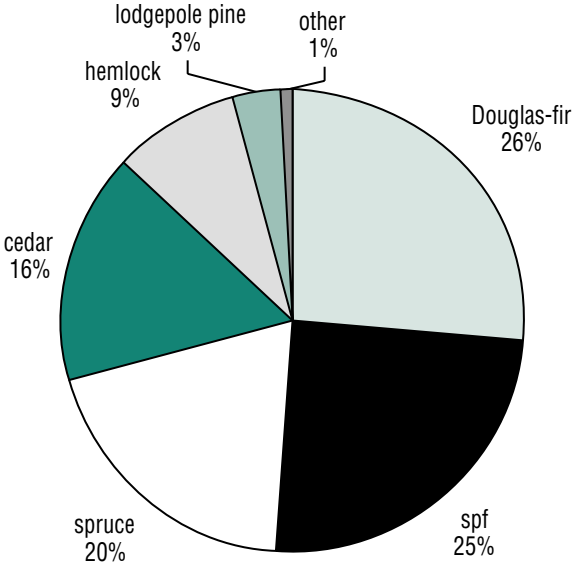


Figure B2. Species use distribution for log home manufacturers

The most important market for log homes sales is the US market, which comprised 63% of total sales of survey respondents. Log home manufacturing is primarily an export-oriented industry with nearly 90% of total sales derived from exports.

Log home manufacturing involves both machine-profiled logs and logs that are merely peeled. The species mix used by log home manufacturers is given in Figure B2.

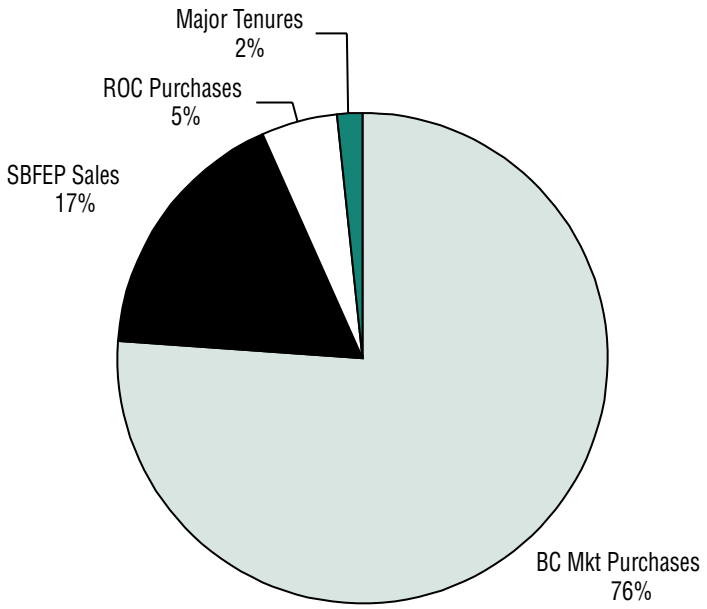


Figure B3. Sources of supply for log home manufacturers

Douglas-fir, SPF, spruce and cedar are the main species used by log home manufacturers in British Columbia. The sources of logs used are shown in Figure B3.

The main source of fibre for the log home producers is through market log purchases at 76% of the total. The other important source is the Small Business Forest Enterprise Program (SBFEP) which supplies 17% of the total. In the 1997 survey, British Columbia market sales were less important at 57%, and the SBFEP was a more important source of logs, providing 41% of the total.

An attribute of log home manufacturing that is particularly attractive from an employment perspective is the large number of jobs per unit of fibre consumed. This is shown in Figure B4, with the job coefficients from some of the business types defined in the main report.

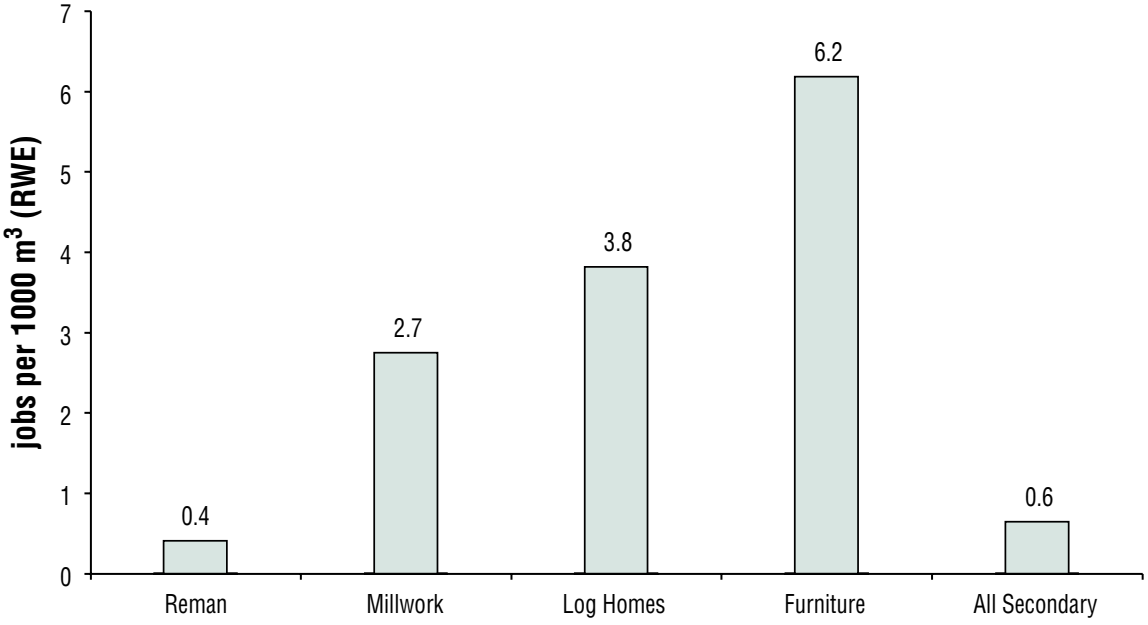


Figure B4. Jobs per 1000 m^3 (RWE) for log home manufacturers and select secondary wood business types

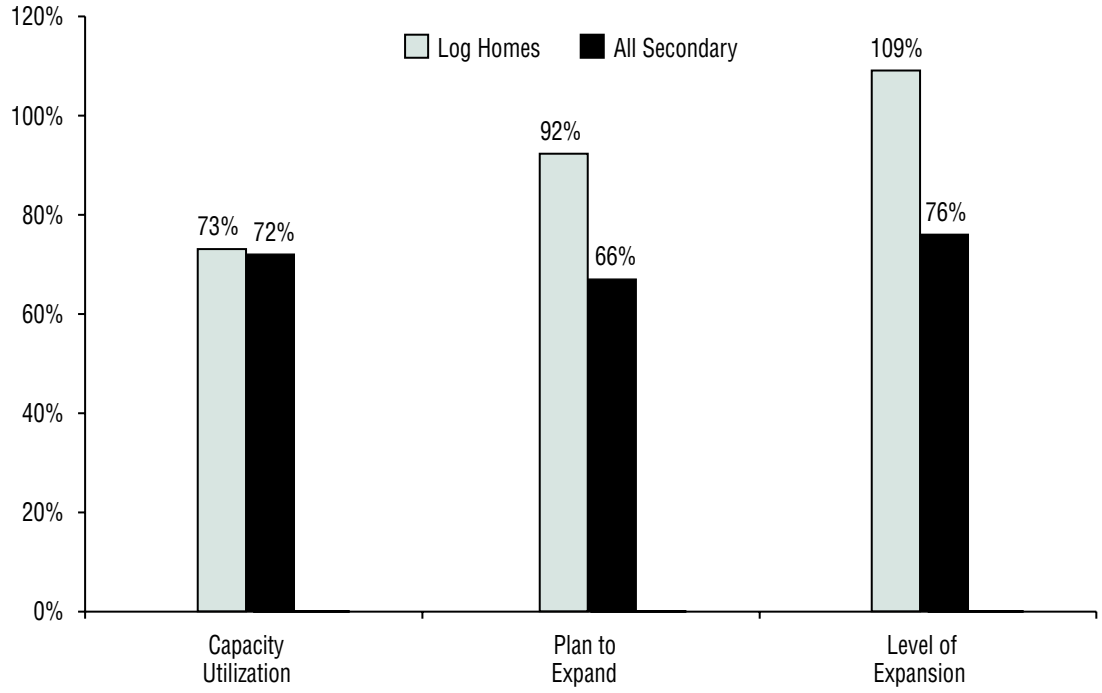


Figure B5. Capacity utilization and expansion plans of log home manufacturers and all secondary wood manufacturers

At nearly 4 jobs per 1000 m^3 (RWE), log home manufacturing provides a high level of employment per unit of fibre consumed. The only business types that are more labour-intensive are furniture and cabinet manufacturing (Table 1). Figure B5 shows both capacity utilization and expansion plans.

Although capacity utilization is nearly identical to other secondary manufacturers, log home manufacturers are clearly a subsector of secondary manufacturing that is optimistic about expansion. Both the proportion of firms planning expansion (92%) and the level of expansion planned are much higher than the overall group of secondary manufacturers. Constraints to this expansion are given in Table B3.

When asked what the constraints to expansion are, log home manufacturers rated labour as the most constraining, followed by wood supply, finance and markets. This is quite different when compared to the rankings for the entire secondary manufacturing sector that rated markets as the most constraining factor and finance as the least.

Log home manufacturers are more likely to maintain a website than the overall group of secondary manufacturers, and more likely to sell over the web. Web procurement, however, is less likely by log home manufacturers than other secondary manufacturers.

Table B3. Major constraints to expansion (1 is most important, 4 is least important)

Constraint	Ranking	Ranking for Sector
Wood supply	2	2
Markets	4	1
Labour	1	3
Finance	3	4

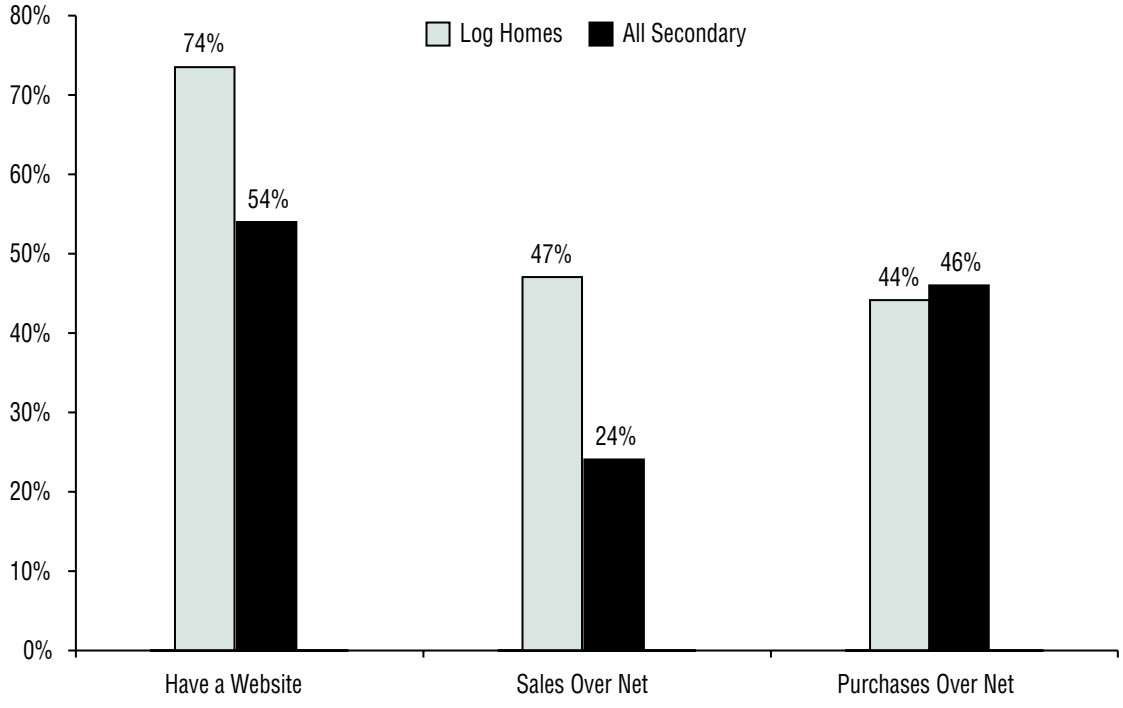


Figure B6. Internet use by log home manufacturers and all secondary manufacturers

APPENDIX C: Survey of BC Secondary Manufacturing

There are two parts to the survey. Part A asks for basic information to support the publication of a BC secondary manufacturing company/product directory.

Please fill out Part A regardless of whether or not you fill out part B.

The information in Part B will not be reported for individual companies.

Part A

Mail each part of the survey separately in one of the two envelopes provided.

Company Name:

_____

Mailing Address:

_____

_____

_____

Name of Contact Person:

❑ Mr. ❑ Ms. _____

Phone ( ) _____ Fax ( ) _____

Email _____

1. Will you be completing PART B to the questionnaire?

   ❑ Yes ❑ No

2. Do you want the company/product directory sent to you?

   ❑ Yes ❑ No

3. Do you want a copy of the final report sent to you?

❑ Yes ❑ No

4. Please check the Business Type that accounts for the majority (greater than 50%) of **1999** sales revenue.

❑ Roundwood mill (commodity, specialty, shakes/shingles)

❑ Reman products (FJ, lumber specialties, fencing, panels)

❑ Engineered wood products (glulam, LVL, I-joists, laminated posts/beams, trusses, prefab buildings, log homes, treated wood)

❑ Millwork (doors, windows, architectural and custom woodwork, turned wood products, mouldings)

❑ Cabinets (kitchen/vanity cabinets, cabinet doors, countertops)

❑ Furniture (household, RTA, commercial, institutional and patio)

❑ Pallets and containers (pallets, boxes, bins, crates)

❑ Plywood & Panelboards (net of veneer production)

❑ Other (please specify)

_____

5. List the major products manufactured at your plant

(a) _____

(b) _____

(c) _____

(d) _____

6. Which custom services do you provide? Please check.

❑ Kiln Drying ❑ Planing ❑ Resawing

❑ Other(specify) _____

7. Estimate the average number of full-time equivalent employees in **1999**. A full-time equivalent is 220 or more days worked in the year.

❑ 1-5 ❑ 6-10 ❑ 11-15 ❑ 16-25

❑ 26-50 ❑ 51-75 ❑ 76-100 ❑ 101-150

❑ 151-200 ❑ more (please specify) _____

8. What are your current market areas?

❑ BC ❑ Other Canada ❑ US

❑ Europe ❑ Japan ❑ Rest of Asia

❑ Other (please specify)

_____

_____

_____

9. Please indicate new market areas of interest.

_____

_____

_____

10. Identify the top five species used (measured in volume terms).

_____

_____

_____

_____

_____

11. Identify the major machinery used in the plant/mill.

_____

_____

_____

_____

12. Are you aware that BC Wood training and marketing programs in value-added products:

a. Are cost-shared by Forest Renewal BC and participating companies?

❑ Yes ❑ No

b. Are equally open to all BC value-added companies and not just those in BC Wood?

❑ Yes ❑ No

13. Would you like information on these training and marketing programs sent to you?

❑ Yes ❑ No

Thank you for taking the time to provide this information. We appreciate it.

Part B

Mail Part B separately in the envelope provided.

No information collected in Part B will be reported on an individual company basis. Some questions in Part A are repeated in Part B to allow value-added industry level analysis.

Location:

1. Check the Forest Region in which the mill/plant site is located.

❑ Vancouver Region ❑ Kamloops Region

❑ Cariboo Region ❑ Nelson Region

❑ Prince George Region ❑ Prince Rupert Region

or identify community _____

Products & Services:

2. List top 4 products manufactured and indicate approximate % of **1999** total sales revenue.

(a) _____ _____%

(b) _____ _____%

(c) _____ _____%

(d) _____ _____%

(e) others _____%

Total 100 %

3. Which custom services do you provide? Please check.

❑ Kiln Drying ❑ Planing ❑ Resawing

❑ Other(specify) _____

4. Check the Business Type that accounts for the majority (greater than 50%) of **1999** sales revenue.

- ❑ Roundwood mill (commodity, specialty, shakes/shingles)
- ❑ Reman products (lumber specialties, fencing, panels)
- ❑ Engineered wood products (glulam, LVL, I-joists, laminated posts/beams, trusses, prefab buildings, log homes, treated wood)
- ❑ Millwork (doors, windows, architectural & custom woodwork, turned wood products, mouldings)
- ❑ Cabinets (kitchen/vanity cabinets, cabinet doors, countertops)
- ❑ Furniture (household, RTA, commercial, institutional and patio)
- ❑ Pallets and containers (pallets, boxes, bins, crates)
- ❑ Plywood & Panelboards (net of veneer production)
- ❑ Other (please specify)

_____

Markets:

5.a. List **1999** market areas (based on % of total sales revenue).

BC _____ % Other Canada _____% US _____%

Europe _____% Japan _____% Rest of Asia _____%

Other (please specify country & % of sales)

_____ _____%

_____ _____%

others _____%

Total 100 %

5.b. If you sell into BC, estimate the percentage of your BC sales that are to wholesalers and consolidators.

_____ %

Employment & Production Inputs:

6. Check the average number of full-time equivalent employees in **1999**. A full-time equivalent is 220 days or more worked in the year.

❑ 1-5 ❑ 6-10 ❑ 11-15 ❑ 16-25

❑ 26-50 ❑ 51-75 ❑ 76-100 ❑ 101-150

❑ 151-200 ❑ more (please specify) _____

7. Estimate volume of wood raw material used in **1999**?

- Logs (m^3) _____
- Lumber (1,000 fbm) _____
- Plywood (Sq. Ft. 3/8" basis) _____
- OSB (Sq. Ft. 3/8" basis) _____
- Other (please specify what & units) :

  material _____

  volume & units _____

8. Sources of lumber/log supply in **1999** (approximate) percent:

- BC market purchases _____%
- Canadian purchases but outside of BC _____%
- Small Business Forest Enterprise Program Sales* _____%
- Other tenures (not SBFEP) _____%
- Imports from outside Canada _____%

Total 100 %

* either direct supply or in the form of lumber or log trades

9. Estimate species use by % of total volume:

- lodgepole pine _____ % spruce _____ %
- balsam _____ % Douglas-fir _____ %
- hemlock _____ % cedar _____ %
- Other Softwoods (specify species & %)

  _____ _____ %

  _____ _____ %

- Hardwoods (specify species & %)

  _____ _____ %

  _____ _____ %

Total 100 %

10. Have you ever applied for Small Business Forest Enterprise Program timber sale?

❑ Yes ❑ No

Capacity Utilization & Constraints:

11.a. Approximately what percentage of capacity was the plant operating in **1999**?

_____%

11.b. Was this a:

❑ 1 shift basis ❑ 2 shift basis

❑ Other (specify) _____

12.a. Do you plan to expand manufacturing capacity over the three-year period 2000 - 2002?

❑ Yes ❑ No

12.b. If yes, by what total % do you plan to expand capacity in this three-year period?

_____ %

13.a. Please rank the following possible constraints to capacity expansion for **your** firm (1 = the highest constraint, 2 = the second highest, and so on).

Wood supply	_____	Labour	_____
Markets	_____	Finance	_____

Other (specify & rank) _____

_____

13.b. Please rank **each** of the following aspects of the possible constraints to capacity expansion by **your** firm (1 = the highest constraint, 2 = the second highest and so on).

i. Wood Supply (please rank the following)

Volume	_____	Quality/grade	_____
Price	_____	Price volatility	_____

Other (specify & rank) _____

_____

ii. Labour (please rank the following)

Training/skills	_____	Cost	_____
Flexibility	_____	Experience	_____

Other (specify & rank) _____

_____

iii. Markets (please rank the following)

Access to US quota _____ Market diversification _____

Product diversification _____ Market/product research ____

Other (specify & rank) _____

_____

iv. Financing (please rank the following)

Availability _____ Cost _____

Flexibility _____ Repayment schedule length ___

Other (specify & rank) _____

_____

v. Other constraints (specify) _____

_____

Sales & Operating Costs:

14. Approximate **1999** gross sales revenue (FOB mill - C$).

❑ Less than 1 million ❑ 1.1 - 3.0 million ❑ 3.1 - 5.0 million

❑ 5.1 - 7.0 million ❑ 7.1 to 10 million ❑ 10.1- 15 million

❑ 15.1 - 25 million ❑ 25.1 - 35 million

❑ over 35 million (please specify) _____

15. Please estimate the percentage change in gross sales revenue for **1999 over 1998** and indicate whether this was an increase (+) or a decrease (-). Calculate using the formula 1999 sales divided by 1998 sales and multiplied by 100.

_____ %

16. What proportion of **1999** operating costs do each of the following represent (approximate)

- Wood costs _____ %
- Labour and benefits _____ %
- Interest _____ %
- Depreciation _____ %
- Other operating costs (specify top 2)

  _____ _____ %

  _____ _____ %

  others _____%

  Total **100 %**

Electronic Commerce:

17.a. Does your company maintain a website?

❑ Yes ❑ No

17.b. Does your company sell products or services through the web?

❑ Yes ❑ No

17.c. Does your company purchase or search the web for inputs?

❑ Yes ❑ No

APPENDIX D: Listing of products within each business type

1. Remanufactured Products

- lumber specialties
- custom processing
- cutstock
- decking
- sawmill specialties
- fencing
- siding

2. Engineered Wood Products

- laminated beams
- trusses
- prefab buildings
- log homes
- treated wood
- laminated veneer lumber

3. Millwork

- doors
- windows
- moulding
- flooring
- architectural woodwork
- turned wood
- stairs

4. Cabinets

- kitchen cabinets
- vanity cabinets
- cabinet doors
- countertops

5. Furniture

- household
- RTA
- commercial & institutional
- patio

6. Pallets and Containers

- pallets
- shipping materials
- boxes, bins & crates

7. Shakes and Shingles

8. Panelboards

- plywood
- particleboard
- oriented strandboard
- medium density fibreboard

9. Other Wood Products

- poles & posts
- veneer
- instruments
- wood novelties
- woodcrafts

Canadian Forest Service Contacts

For more information about the Canadian Forest Service, visit our website at
http://www.nrcan.gc.ca/cfs-scf/
or contact any of the following Canadian Forest Service establishments

1 Atlantic Forestry Centre
P.O. Box 4000
Fredericton, NB E3B 5P7
Tel.: (506) 452-3500 Fax: (506) 452-3525
http://atl.cfs.nrcan.gc.ca/

Atlantic Forestry Centre – District Office
Sir Wilfred Grenfell College Forestry Centre
University Drive
Corner Brook, Newfoundland A2H 6P9
Tel.: (709) 637-4900 Fax: (709) 637-4910

2 Laurentian Forestry Centre
1055 rue du P.E.P.S., P.O. Box 3800
Sainte-Foy, PQ G1V 4C7
Tel.: (418) 648-5788 Fax: (418) 648-5849
http://www.cfl.scf.rncan.gc.ca/

3 Great Lakes Forestry Centre
P.O. Box 490 1219 Queen St. East
Sault Ste. Marie, ON P6A 5M7
Tel.: (705) 949-9461 Fax: (705) 759-5700
http://www.glfc.cfs.nrcan.gc.ca/

4 Northern Forestry Centre
5320-122nd Street
Edmonton, AB T6H 3S5
Tel.: (403) 435-7210 Fax: (403) 435-7359
http://nofc.cfs.nrcan.gc.ca/

5 Pacific Forestry Centre
506 West Burnside Road
Victoria, BC V8Z 1M5
Tel.: (250) 363-0600 Fax: (250) 363-0775
http://www.pfc.cfs.nrcan.gc.ca/

6 Headquarters
580 Booth St., 8th Fl.
Ottawa, ON K1A 0E4
Tel.: (613) 947-7341 Fax: (613) 947-7396
http://www.nrcan.gc.ca/cfs/

To order publications on-line, visit the Canadian Forest Service Bookstore at:
bookstore.cfs.nrcan.gc.ca