An empirical examination of growth in BC secondary wood manufacturing industry since 1990

by

Lili Sun and Brad Stennes

Industry, Trade & Economics

Canadian Forest Service

Outline of Presentation

- Definition and research background
- Overview of BC secondary wood manufacturing industry from 1990 to 2006
- Expansion plan of the companies and empirical examination of the relationship between firm's characteristics and expansion decision
- Constraints to expansion for the Secondary manufacturing sector
- Summary and conclusions

Secondary Manufacturing Definition

- Cabinets & Furniture
- Engineered Wood Products
- Log Home & Timber Frames
- Millwork
- Pallets & Containers
- Remanufacturing
- Shake & Shingles
- Panelboards
- Other Wood Products

Why Secondary Manufacturing?

- Ability to generate additional employment and economic activity per unit timber
- Diversification away from commodity markets/products

Why Secondary Manufacturing?

Business Type	Jobs/’000 m3 Fibre Input	Sales/m3 RWE
Cabinets & Furniture	8.05	910
Engineered wood products	0.80	390
Log home & timber frame	3.03	470
Millwork	7.60	900
Other wood products	1.01	110
Remanufactured products	0.51	160
Shakes & Shingles	0.78	200

Research Background

- CFS Victoria has surveyed the secondary manufacturing sector 5 times dating back to 1990.

- It provides comprehensive information on the existing structure and dynamics of secondary manufacturing in BC, which will provide policy makers with accurate and timely information allowing for a realistic assessment of various options.

Overview of BC SM

— A Typical Secondary Manufacturing Firm in BC (2006)

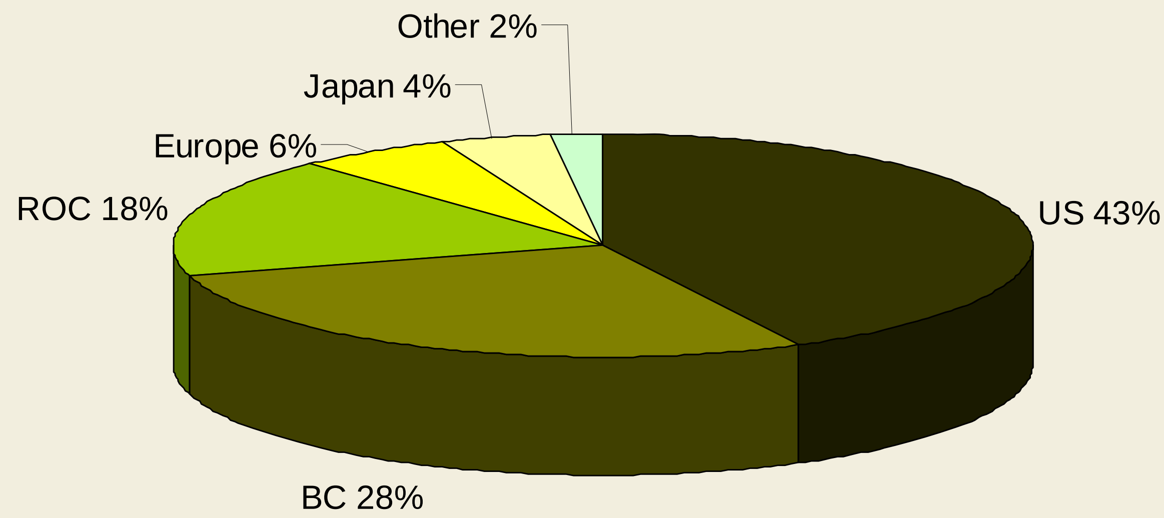
- The median number of employees is 12, with 45% of the firms employing 10 or fewer and 88% employing fewer than 50 people. Regionally, the coast accounted for 57% of reported employment.
- Median revenue from product sales lies in the $1.1 million to $3 million range (with 1/3 of firms selling $1 million or less in 2006).Coastal firms accounted for 54% of earnings.
- Operating costs: 41% of wood purchases, labor 32%, interest & depreciation 7%, other 20%.

Overview of BC SM

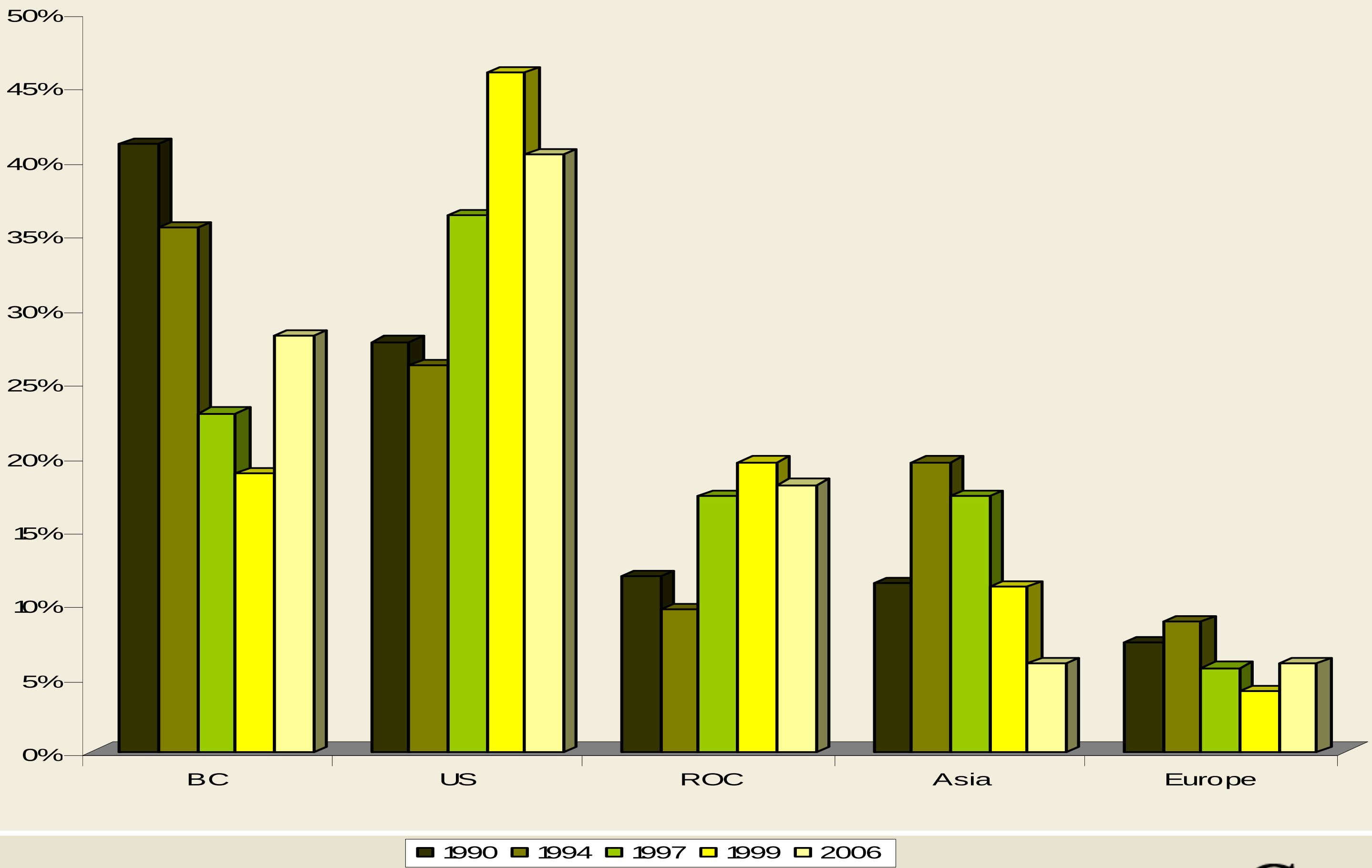
— Economic Contribution (1990 – 2006)

	1990	1994	1997	1999	2006
Excluding S&S and Panelboard Firms					
Firms	565	525	683	703	660
Sales ($B)	1.54	1.93	2.69	2.90	3.15
Sales (2006 real)	2.10	2.42	3.25	3.42	3.15
Employment	11,660	14,010	14,460	14,410	14,800
Including S&S and Panelboard Firms					
Firms	n.a.	n.a.	774	774	732
Sales ($B)	n.a.	n.a.	3.87	4.68	4.88
Sales (2006 real)	n.a.	n.a.	4.68	5.53	4.88
Employment	n.a.	n.a.	19,490	20,190	19,670

Overview of BC SM
— Total Sales to market (2006)



Overview of BC SM
— Percentage of BC SM Sales to Major Markets



Expansion Plan of the Companies

	1994	**1997**	**1999**	**2006**
Capacity Utilization	77%	72%	72%	73%
% of Firms Planning Expansion	48%	52%	64%	58%
Expansion Level	25% (12%)	53% (27%)	75% (48%)	56% (32%)

Firms' Characteristics and Expansion Levels

- ***Location***: Coast and Interior
- ***Business type***: Remanufactured products, Engineered wood products, Furniture and Cabinets, Millwork, Pallets and containers, Shakes and shingles, Panel boards, Other wood products
- ***Major markets***: BC, U.S., Asia, Europe (>50% sale)
- ***Company size***: volume of wood raw material used
- ***Current Capacity Utilization***

Firms' Characteristics and Expansion Level

Explanatory Variable	Estimated Coefficients			
	2006	**1999**	**1997**	**1994**
Constant	28.39***	32.81***	53.72***	33.64***
Interior	-	21.42**	13.44**	-
Remanufactured wood	-	-	15.65**	6.44
Engineered wood	21.78*	-55.69***	-	-
Furniture and Cabinets	27.37	-41.77	49.61***	-
Log home	-	46.98***	-	-
Asia	32.37*	-	-	-
Europe	41.70**	-34.07**	-	-
BC		25.81***		
Company size	-0.01**	-	-	-
Capacity	-	-	-0.56***	-0.31***
# of observations	156	220	338	72
R-square	0.11	0.10	0.10	0.12

Regression Results summary

- Business located in interior BC tends to expand more in the 1997 and 1999 surveys.
- Furniture and cabinet business types are positively related to expansion level consistently from 1997-2006.
- The remanufactured wood product business type plans to expand more in the 1994 and 1997 surveys; while Engineered wood product intends to expand more in the 1999 and 2006 surveys.
- Log home business type is positively related to expansion level in the 1999 survey.

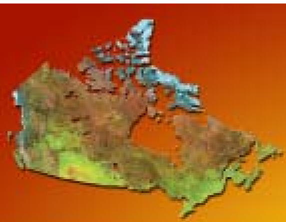
Regression Results summary

- Companies with major market share overseas (>50%) have greater expansion plans in the 2006 survey, while interestingly, companies with major market share in Europe tend to expand less in the 1999 survey.
- Companies' current size or current capacity levels are generally negatively related to the expansion decision.

Growth Constraints

- Closed-Ended questions were asked on the constraints to expansion (Labor, Wood supply, Markets, Finance and Manufacturing Advice), ranked from 1 to 5 with 1 being least constraining 5 most.

- Response means were tested to see if they were different.



Growth Constraints

General constraint	Mean Constraint Score		
	Coast	**Interior**	**All**
Labour	3.88	3.70	3.81
Wood supply	3.71	3.93	3.80
Markets	2.91***	3.05***	3.00***
Finance	2.53**	2.59**	2.58***
Mfg. Advice	1.83***	2.01***	1.92***

In 2000 markets was number 1 constraint, labor third.

Growth Constraints and Firms' Characteristics

	Wood	Labour	Markets	Finance	Advice
Interior	-	-0.58*	-	-	-
Remanufactured	1.70***	-1.88***	-	-	-0.72**
Engineered wood	-	-0.97*	0.99**	-	-
Furniture				1.10*	
Millwork	0.92**	-	-	-	-
Pallets&containers	-1.48	-2.16**	-	-	-
Shakes and shingles	3.71***	-1.29**	-1.07*	-0.82	-2.15***
Loghome	1.16**	-0.93**	-	-	-
BC	-0.70*	0.59*	-	0.88***	0.55*
U.S.	-0.65	-	-	-	-
Asia	-	1.29*	-	-	-
$\overline{R}^2$	0.10	0.09	0.02	0.04	0.05

Results summary of Growth Constraints and Firms' Characteristics

- Companies located in BC interior are more likely to have labor constraint for expansion.
- Business types that are more likely to have wood supply constraint are remanufactured wood products, millwork, shakes&shingles, and log home.
- Business type that tends to have market constraint is engineered wood products.

Results summary of Growth Constraints and Firms' Characteristics

- The business type that tends to have finance as a constraint is furniture.
- Companies with major market share in BC tend to have labor, finance and man. advice as constraints.
- Companies with major market share in Asia tend to have labor as a constraint to expansion.

Summary and Conclusions

- Companies in the SM sector are mostly smaller firms.
- The SM sector has remained fairly static since 1999. Fiber use and employment are steady and sales grown but slower than inflation (Real $ fall).
- SM sector is less optimistic of expansion in the 2006 survey.
- Labor and wood supply are the major constrains to SM expansion.

Thank you!

Questions and Comments?