

***Employment, Income, Products, and
Costs in Manitoba's Primary
Wood-Using Industry, 1972***



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CHAPTER I

PURPOSE AND APPROACH

This study was requested by the Regional Program Advisory Committee (Northern Forest Research Centre) and the Manitoba Department of Mines, Resources and Environmental Management. Its purpose was to better understand the size of Manitoba's forest industry and its economic impact on the provincial economy. Indicators used to assess this impact included employment, salaries and wages, sales, products, and value added.

THE PROBLEM

Manitoba's forest resources are the responsibility of the provincial government. This responsibility includes management of the timber, forest land, wildlife, and water resources over most of the province. It also includes promoting the development of new forest industry and managing the forest resources to yield increased net benefits to the provincial economy. Because of the government's expanding role in the economic life of the province, it needs new information on the economic impacts of forest industry and resource development to make decisions on optimum resource allocation, use, and management. Forest resources are limited. Should they be developed? If they are, who should receive the benefits? At what rate should the forest industry expand? Answers to these and other questions depend largely on the impact of the forest industry on the welfare of Manitoba residents. At present reliable information on the economic impacts of the forest industry on Manitoba's

economy is not available. Data on the number of sawmills, total round-wood harvested, and size of labor force are hardly sufficient for an in-depth assessment of forest-based industry. Thus the problematic situation centers on a scarcity of relevant quantitative information on the forest industry's economic impact.

The problem, as defined by the study's Ad Hoc Steering Committee, was:

To provide a comprehensive statistical description of some major economic impacts of forestry and forest-based industry to the prairie and local economies for the purpose of more effective utilization and management of forest resources.¹

OBJECTIVES OF THE STUDY

For Manitoba, the objectives of the study were to:

- a) describe the land and forest resources of the province
- b) identify and describe some of the major product flows from the forest to the consumer, including the raw wood requirements of selected product groups
- c) identify and estimate the major economic benefits and impacts of the forest resource and its utilization to the province
- d) indicate briefly some of the alternative (competitive and complementary) uses of the forest in addition to the production of wood fiber.

This report deals with the first three objectives. As such it provides a quantitative perspective of the contribution of sawmills

¹ Minutes of the first inter-government Ad Hoc Steering Committee meeting held on July 26, 1972.

and planing mills, pulp and paper mills, and wood-preserving plants to Manitoba's economy. Measuring this contribution requires the selection of specific items or statistics as economic parameters.

SELECTED ECONOMIC IMPACT VARIABLES

Economic impact parameters or variables must be quantifiable and should reflect the more important economic goals of the province. Although such goals are not well defined we have assumed them to include a high and sustained level of full-time employment, increased personal incomes, reasonable price stability, and significant export earnings. Variables that measure these effects can also be examined for their direct and indirect components. For example, when salaries and wages earned by sawmill employees are spent, they create additional jobs and income for people working in other sectors of the economy. Demand for foodstuffs, clothing, entertainment, medical care, and transportation, to name a few, depends in large part on the level of basic employment and earnings in the economy. This indirect or multiplier effect may include other secondary processing establishments such as furniture factories.

Because no single economic variable clearly measures all the economic and social impacts policy-makers are concerned with, each study must identify those which best meet its objectives. In this report emphasis was placed on describing the array of inputs and outputs associated with primary wood-using industries. Within this

natural transformation process, emphasis was placed on labor inputs, wood inputs, and types and quantities of products produced.

Seasonality of labor, number of salaried and hourly workers, and native participation in the industry were of particular concern. Similarly, documenting the quantities of board, dimension stock, and timbers produced, as well as their markets and mode of transportation, was necessary to indicate the importance of Manitoba lumber production to Manitoba consumers.

CLASSIFICATION OF PRIMARY WOOD-USING INDUSTRIES

This report uses specific meanings for the terms "forest products industries" and "forest industry" or "primary wood-using industry". Forest products industry includes all industries classified under Major Groups 8 and 10, Division 5 (Manufacturing Industries) of the Standard Industrial Classification Manual (Statistics Canada, 1970). A list of these industries is given in Appendix H. Note that Logging (Major Group 1, Division 2 (Forestry)) is not included.

The term forest industry (primary wood-using industry) has a more restricted definition in the context of the Northern Forest Research Centre (N.F.R.C.) Wood Industry Survey, 1972. It includes only those firms using roundwood or wood chips in their manufacturing process. Data for the logging industry (Major Group 1, Division 2 (Forestry)) were included where available and applicable. Primary wood-using industries included in the N.F.R.C. Wood Industry Survey are listed in Table 1. Due to the closing of Manitoba's only particle board plant at Sprague in

mid-1972 and because data for that period of operation were not available it was omitted (SIC 2593). So that there would be confidentiality of data for individual firms, roofing manufacturers and fiberboard plants were combined with the province's two pulp and paper mills for purposes of analysis.

Table 1. MANITOBA N.F.R.C. WOOD INDUSTRY SURVEY, 1972.

Industry	Standard Industrial Classification Code
FORESTRY	
Logging	031
WOOD INDUSTRIES	
Sawmills and Planing Mill (Except Shingle Mills)	2513
Wood Preservation Industry	2591
PAPER AND ALLIED INDUSTRIES	
Pulp and Paper Mills	271
Asphalt Roofing Manufacturers	272

SOURCE: Appendix H.

SAMPLING PROCEDURES AND SURVEY TECHNIQUES

A lack of existing detailed data on the economic variables being considered necessitated a survey of Manitoba's primary wood-using industry².

One of the early recommendations of the Ad Hoc Steering Committee was

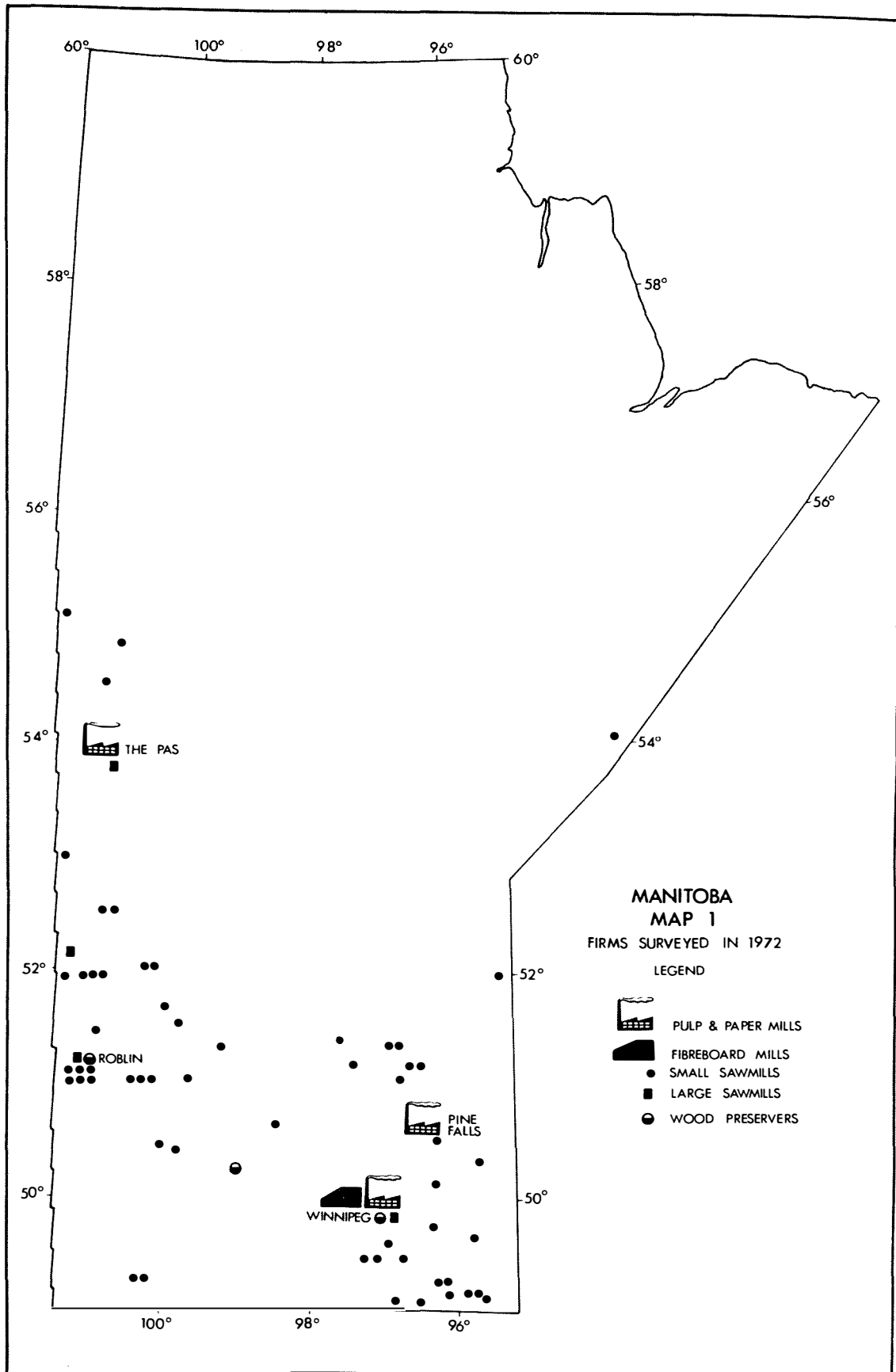
² Design of questionnaires and data requirements were discussed and cleared through Mr. N. Hartgerink of the Forestry Statistics Section of the Manufacturing and Primary Industries Division of Statistics Canada.

that this study should go beyond the information provided by the Forestry Statistics Section of the Manufacturing and Primary Industries Division of Statistics Canada. This desire for a detailed analysis of the forest industry required a complex questionnaire which in turn required enumeration by personal interview.

The sampling frame (universe of primary wood-using firms) was constructed from the *Directory of Primary Wood-Using Industries in Alberta, Saskatchewan and Manitoba, 1972* (Teskey and Smyth, 1973). Intensity of sampling and success rates in surveying are indicated in Table 2. All large sawmills, pulp and paper mills (including asphalt roofing manufacturers), and wood preservation plants were surveyed. Throughout this report large sawmills are classified as those operations whose production in 1972 was equal to or in excess of 11 799 m³ (5000 Mfbm). Sawmills whose production in 1972 was less than 11 799 m³ (5000 Mfbm) are designated as small sawmills. This group of 119 small mills required random sampling, which was done with replacement using random number tables. Repeat draws of a sample firm were ignored, thus providing a sample equivalent to one drawn without replacement. A list of 65 mills (55% of this group) was constructed and of these 57 were surveyed. These surveys were used to estimate totals for all parameters under consideration. Location of firms surveyed is shown in Map 1.

Interviewing commenced in August 1973 after questionnaires had been developed, field-tested, and modified³. Early returns were monitored to determine if any problems existed with the questionnaires, but none were found. All questionnaires were given a preliminary audit for internal

³ Copies of questionnaires are available upon request.



consistency and accuracy. Initial interviewing was completed by November 1973, with late returns and resolution of data inconsistencies completed by June 1974.

Table 2. SAMPLE SURVEY OF THE PRIMARY WOOD-USING INDUSTRY IN MANITOBA, 1972.

Industry Group	Total Number of Firms	Number in Sample	% Completed
Sawmill Industry			
Large Sawmills ¹	4	4 (census)	100
Small Sawmills ²	119	65	88
Pulp and Paper Industry ³	4	4 (census)	100
Wood Preservation Industry	3	3 (census)	100
TOTAL	130	76	89

¹ Mills where production was equal to or exceeded 11 799 m³ (5000 Mfbm) in 1972.

² Mills where production was less than 11 799 m³ (5000 Mfbm) in 1972.

³ Includes asphalt roofing manufacturers.

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

Interviewers were given instructions on interpretation of the questionnaire, methods of conducting a proper interview, and the reasons for obtaining data as specified in the forms. This was followed by field training sessions to assure uniformity in interviewing method among enumerators. In general enumerators were well received by industry and field personnel of the Manitoba government. The latter were helpful in locating some of the smaller sawmill operations.

ANALYTICAL PROCEDURES

Analysis of questionnaires consisted of two phases after the preliminary audit following the interview. First, each questionnaire was subjected to a detailed and comprehensive audit for internal consistency. Where inconsistencies were revealed, call backs (either in person or by telephone) were made in an effort to resolve them. In some instances important additional information was collected. Secondly, after individual questionnaires were edited group totals⁴ and summaries of data for all industry groups were compiled. Many of the tables appearing in the appendixes were constructed from these summaries.

Data were collected in Canadian units, requiring conversion to metric units before publication (in keeping with Canadian Forestry Service policy). Metric conversion was carried out on data in the appendixes at the most disaggregated level. Totals and subtotals were summed after conversion and not converted directly into metric equivalents.

⁴ Except where samples were 100% of the universe, estimates of parameters were made by expanding sample statistics in the same proportion as the sample size was of the universe.

CHAPTER II

THE RELATIVE IMPORTANCE OF WOOD-USING INDUSTRIES TO MANITOBA'S ECONOMY

FOREST INDUSTRY DEVELOPMENT IN MANITOBA

Historically, most of the area that is now Manitoba was owned by the Hudson's Bay Company prior to the Dominion of Canada acquiring it in 1869. Jurisdiction and management of the natural resources were retained by the Dominion government until 1930 when ownership was transferred to the province. Prior to this transfer Manitoba's forest lands were managed by the Dominion Forest Service.

Commercial logging operations were in existence in the southern part of the province by 1870. Expansion of the pulp and paper industry during the 1920's accelerated the use of timber in this region. Coupled with continued logging for sawtimber, poles, pilings, and railway ties to meet the demands of agricultural settlement, this resulted in the logging over of most of Manitoba's southern forests by the mid 1930's. Much of this early logging was done without regard to proper forestry practices, and the southern forests decreased in productivity. After World War II the Manitoba government implemented new forest management practices and cutting restrictions to improve the productivity of its forest lands.

Simultaneously, efforts were being made to use more timber from the northern forests. During the 1960's these efforts led to the development of an integrated pulp and sawmill complex at The Pas. This development generated a significant increase in the consumption of round-

wood from provincial crown lands in the area (Table 27, Chapter 3).

Provincially, annual production of roundwood from provincial forests has increased more than 150% since 1961. Pulpwood harvesting is the single largest activity on provincial forest lands, followed by sawtimber. Posts, poles, piling, and other wood products account for only a small proportion of the annual cut.

MANITOBA'S FOREST PRODUCTS INDUSTRIES, A PERSPECTIVE

The steady growth of Manitoba's forest products industries during the 1960's has increased job opportunities and income in the province. It has also raised new conflicts in integrated resource management and resulted in more intensive forest management. But where do the forest products industries fit in the Manitoba economy? How important are they in the Canadian context? These and related questions confront policy-makers and the answers help determine and explain the priority forestry programs receive.

In 1971 Canada's forest products industries employed 258 840 people, paid \$2.1 billion in salaries and wages, and produced almost \$8.0 billion in sales (Environment Canada, 1974). With a value added of \$3.5 billion, or 44% of sales, this output generated nearly \$3.1 billion in foreign exchange. These exports of wood, wood products, and paper represent 18% of all Canadian exports. Since Canada imports very little of these products, the forestry sector, more than most people realize, is very important as a net earner of foreign exchange.

In spite of its national importance, forest products industries' real domestic product has grown at a relatively slow rate since 1961, particularly logging and the paper and allied industry (Table 3). For example, with the exception of agriculture and fishing and trapping, the logging industry (forestry) had the smallest increase in real domestic product. Pulp and paper grew slightly faster but was still in the bottom half of the commodity group. On the other hand wood industries performed much better, increasing output by 71 points from 1961-1971 and an additional 18 points in both 1972 and 1973. This performance placed this group above the national average which had an index of 175, 185, and 197 in 1971, 1972, and 1973, respectively. During the 1960's the sawmill and planing mill industry recorded the highest real growth rates of any major primary wood-using industry. It even outperformed service-producing industry groups.

Forest-based activity in Manitoba has always been relatively unimportant, although in the context of manufacturing industries it assumes some significance. Regionally it can be very important. It is the economic basis of several communities within the province. Combined value added of logging, wood industries, and paper and allied industries at \$54 million was only 1.2% of the province's Gross Domestic Product (GDP) in 1972. Relative to the goods-producing sector with a value added of \$1534 million, the forest products industries (logging included) represented 3.5% (Figure 1). The forest products industries' share (logging excluded) of manufacturing value added was 7.8%.

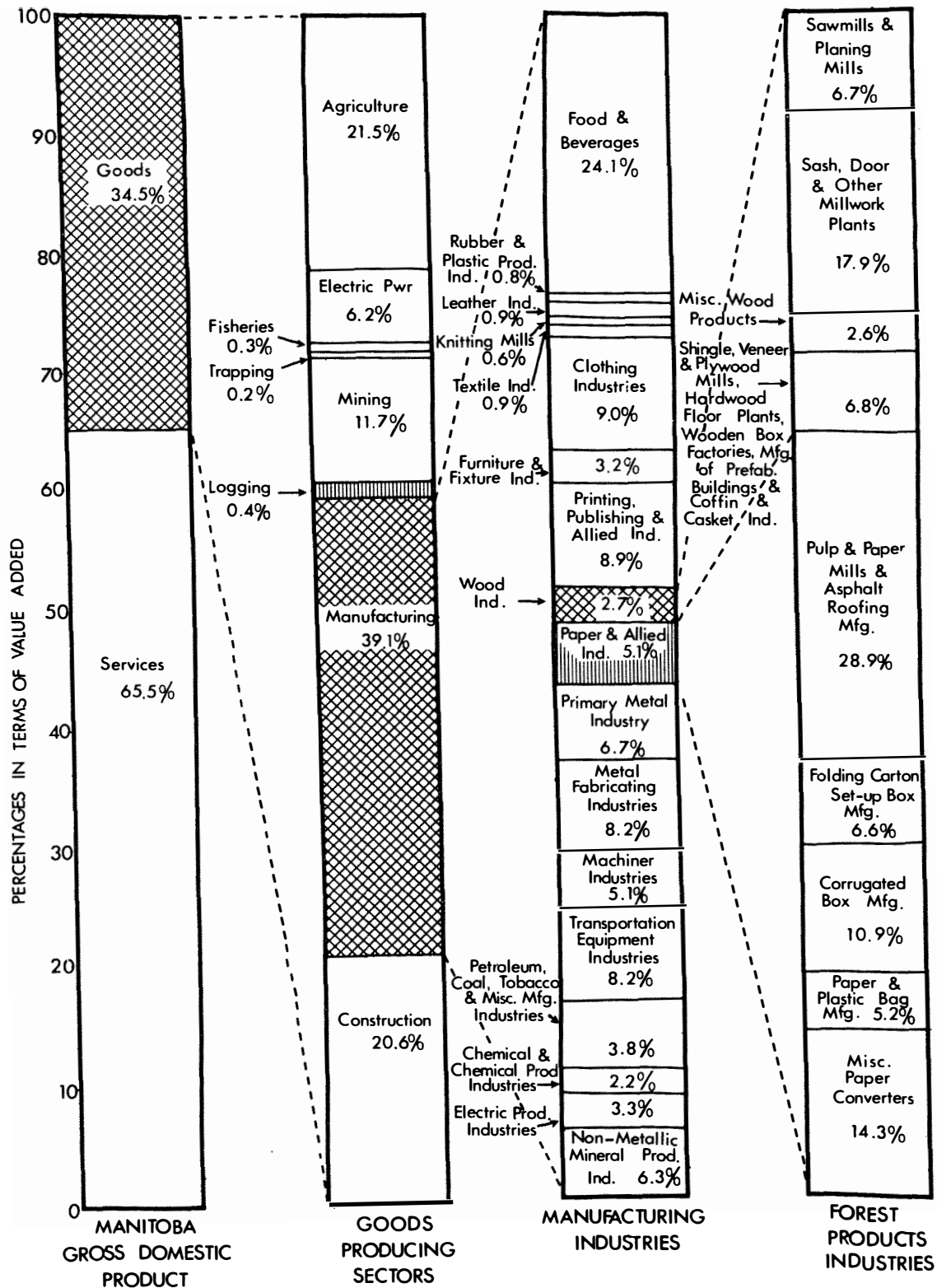
Table 3. INDEXES OF REAL DOMESTIC PRODUCT BY INDUSTRY FOR CANADA, 1971, 1972 AND 1973.

SIC		1971	1972	1973
1-11	Real domestic product ¹	175.4	184.5	197.2
1-6, 7:04	Goods-producing industries	177.5	185.8	200.4
1	Agriculture	152.7	140.8	142.3
2	Forestry	129.7	129.0	158.0
3	Fishing and trapping	110.0	102.4	102.7
4	Mines (includes milling), quarries, and oil wells	183.1	192.2	210.5
5	Manufacturing	183.3	195.8	211.9
5:10	Paper and Allied Industries	140.5	152.7	160.1
5:271	Pulp and Paper Mills	134.3	146.4	153.9
5:08	Wood Industries	170.7	188.9	207.0
5:251	Sawmills and planing mills	183.2	202.4	223.5
5:252	Veneer and plywood mills	167.4	185.6	200.7
6	Construction	165.6	166.5	177.9
7:04	Electric power, gas and water utilities	208.2	229.4	247.2
7:01-:03, 8-11	Service-producing industries	173.6	183.6	194.7
7:01-:03	Transportation, storage and communication	184.3	198.8	216.7
8	Trade	170.6	182.6	192.5
9	Finance, insurance and real estate	176.9	186.0	197.4
10	Community, business and personal service industries	187.6	194.8	202.7
11	Public administration and defense	132.4	138.9	148.9

¹ Base year was 1961 = 100. These indexes have been adjusted for price changes and represent industry changes in real production.

SOURCE: Statistics Canada, Indexes of Real Domestic Product by Industry, Catalogue 61-005, Monthly, 1974 Supplement, June 1974.

FIG. 1 The Relative Position of MANITOBA'S FOREST PRODUCTS INDUSTRY in 1972



Of Manitoba's goods-producing industries, manufacturing dominated with 39.1%, followed by agriculture and construction with 21.5 and 20.6%, respectively, by value added in 1972 (Table 4). Mining was in fourth place with 11.7% and forestry at 0.4% was insignificant.

Table 4. CENSUS VALUE ADDED IN GOODS-PRODUCING INDUSTRIES AND RELATIVE SHARES, MANITOBA, 1971 AND 1972.

Goods-producing industries	Census value added			
	1971 \$'000	%	1972 \$'000	%
Agriculture	303 504	22.3	330 270	21.5
Forestry ¹ (logging)	4 520	0.3	6 478	0.4
Fisheries	2 403	0.2	4 523	0.3
Trapping	1 719	0.1	2 660	0.2
Mining	147 921	10.9	179 124	11.7
Electric Power	85 147	6.3	95 503	6.2
Manufacturing ²	534 472	39.2	599 790	39.1
Construction	282 674	20.7	316 096	20.6
TOTAL	1 362 360	100.0	1 534 444	100.0
(Corresponding totals for Canada)	(38 921 156)		(43 363 889)	

¹ Forestry data excludes stumpage

² Includes the Wood Industries group (SIC 5:08 - sawmills, planing mills, plywood mills, etc.) and the Paper and Allied Industries group (SIC 5:10 - pulp and paper mills, etc.). Consult the Standard Industrial Classification (SIC) Manual for a complete listing of industries included.

SOURCE: Statistics Canada, 1972. Survey of Production. Catalogue No. 61-202. Annual. Ottawa, 1972.

A detailed examination of Manitoba's manufacturing industry groups using five major statistics, or criteria, for comparative purposes reveals several significant features (Tables 5, 6, 7, 8, and 9). The

Table 5. VALUE OF SHIPMENTS OF GOODS OF OWN MANUFACTURE OF THE MANUFACTURING INDUSTRIES OF MANITOBA AND CANADA BY INDUSTRY GROUP, 1972.

Industry Group	Manitoba		Canada	
	\$'000	%	\$'000	%
Wood Inds	35 503	2.4	3 084 899	5.5
Paper & Allied Inds	74 782	5.0	4 414 017	7.9
Sub Total	110 285	7.3	7 498 916	13.3
Food & Beverage Inds	560 945	37.2	10 244 826	18.2
Tobacco Products Inds	-	-	596 236	1.1
Rubber & Plastic Products Inds	8 714	0.6	1 317 310	2.3
Leather Inds	14 185	0.9	443 389	0.8
Textile Inds	14 124	0.9	1 887 430	3.4
Knitting Mills	10 150	0.7	470 083	0.8
Clothing Inds	117 131	7.8	1 644 606	2.9
Furniture & Fixture Inds	38 275	2.5	958 348	1.7
Printing, Publishing & Allied Inds	77 042	5.1	1 853 532	3.3
Primary Metal Inds	77 498	5.1	4 193 421	7.5
Metal Fabricating Inds	97 916	6.5	3 821 990	6.8
Machinery Inds	73 192	4.8	2 134 648	3.8
Transportation Equipment Inds	88 483	5.9	7 747 271	13.8
Electrical Products Inds	43 263	2.9	3 062 536	5.5
Non-Metallic Mineral Products Inds	58 157	3.9	1 665 455	3.0
Petroleum & Coal Products Inds	X	X	2 441 065	4.3
Chemical & Chemical Products Inds	27 380	1.8	2 943 118	5.2
Miscellaneous Manufacturing Inds	X	X	1 267 828	2.3
Sub Total	1 399 049	92.7	48 693 092	86.7
Total all Industry Groups ¹	1 509 334	100.0	56 192 009	100.0

¹ Totals may not add due to rounding

X Confidential

- Nil or zero

SOURCE: Statistics Canada, 1974. 1972 Annual Census of Manufacturers (preliminary). Catalogue No. 31-201P, -203P, -204P, -205P, -206P, -207P, -208P. Ottawa, August, 1974.

Table 6. VALUE ADDED BY MANUFACTURING ACTIVITY OF THE MANUFACTURING INDUSTRIES OF MANITOBA AND CANADA BY INDUSTRY GROUP, 1972.

Industry Group	Manitoba		Canada	
	\$'000	%	\$'000	%
Wood Inds	15 940	2.7	1 397 320	5.8
Paper & Allied Inds	30 809	5.1	1 928 434	7.9
Sub Total	46 749	7.8	3 325 754	13.7
Food & Beverage Inds	144 570	24.1	3 470 445	14.3
Tobacco Products Inds	-	-	252 091	1.0
Rubber & Plastic Products Inds	4 646	0.8	719 828	3.0
Leather Inds	5 399	0.9	214 226	0.9
Textile Inds	5 508	0.9	836 937	3.4
Knitting Mills	3 761	0.6	218 950	0.9
Clothing Inds	54 167	9.0	788 878	3.2
Furniture & Fixture Inds	19 162	3.2	496 173	2.0
Printing, Publishing & Allied Inds	53 497	8.9	1 239 417	5.1
Primary Metal Inds	40 409	6.7	1 917 318	7.9
Metal Fabricating Inds	49 423	8.2	1 962 345	8.1
Machinery Inds	30 390	5.1	996 776	4.1
Transportation Equipment Inds	49 090	8.2	2 631 462	10.8
Electrical Products Inds	19 592	3.3	1 553 347	6.4
Non-Metallic Mineral Products Inds	37 878	6.3	973 218	4.0
Petroleum & Coal Products Inds	X	X	462 565	1.9
Chemical & Chemical Products Inds	13 303	2.2	1 524 064	6.3
Miscellaneous Manufacturing Inds	X	X	708 352	2.9
Sub Total	553 041	92.2	20 966 392	86.3
Total all Industry Groups ¹	599 790	100.0	24 292 148	100.0

¹ Totals may not add due to rounding

X Confidential

- Nil or zero

SOURCE: Statistics Canada, 1974. 1972 Annual Census of Manufacturers (preliminary). Catalogue No. 31-201P, -203P, -204P, -205P, -206P, -207P, -208P. Ottawa, August, 1974.

Table 7. VALUE ADDED ON A TOTAL ACTIVITY BASIS OF THE MANUFACTURING INDUSTRIES OF MANITOBA AND CANADA BY INDUSTRY GROUP, 1972.

Industry Group	Manitoba		Canada	
	\$'000	%	\$'000	%
Wood Inds	16 230	2.6	1 422 423	5.5
Paper & Allied Inds	31 176	5.0	1 961 576	7.5
Sub Total	47 406	7.5	3 383 999	13.0
Food & Beverage Inds	157 786	25.1	3 689 605	14.2
Tobacco Products Inds	-	-	254 645	1.0
Rubber & Plastic Products Inds	4 610	0.7	762 823	2.9
Leather Inds	5 646	0.9	224 234	0.9
Textile Inds	5 673	0.9	862 211	3.3
Knitting Mills	3 740	0.6	218 299	0.8
Clothing Inds	54 989	8.7	800 840	3.1
Furniture & Fixture Inds	19 340	3.1	505 673	1.9
Printing, Publishing & Allied Inds	53 573	8.5	1 263 749	4.9
Primary Metal Inds	40 910	6.5	1 960 592	7.5
Metal Fabricating Inds	54 186	8.6	2 049 396	7.9
Machinery Inds	31 739	5.0	1 144 875	4.4
Transportation Equipment Inds	51 052	8.1	3 150 950	12.1
Electrical Products Inds	19 747	3.1	1 787 865	6.9
Non-Metallic Mineral Products Inds	38 875	6.2	1 010 146	3.9
Petroleum & Coal Products Inds	X	X	465 518	1.8
Chemical & Chemical Products Inds	14 917	2.4	1 676 041	6.4
Miscellaneous Manufacturing Inds	X	X	802 803	3.1
Sub Total	582 024	92.5	22 630 265	87.0
Total of Industry Groups ¹	629 430	100.0	26 014 264	100.0

¹ Totals may not add due to rounding

X Confidential

- Nil or zero

SOURCE: Statistics Canada, 1974. 1972 Annual Census of Manufacturers (preliminary). Catalogue No. 31-201P, -203P, -204P, -205P, -206P, -207P, -208P. Ottawa, August, 1974.

Table 8. EMPLOYMENT ON A TOTAL ACTIVITY BASIS OF THE MANUFACTURING INDUSTRIES OF MANITOBA AND CANADA BY INDUSTRY GROUP, 1972.

Industry Group	Manitoba		Canada	
	No.	%	No.	%
Wood Inds	1 634	3.2	102 699	6.1
Paper & Allied Inds	2 192	4.3	120 758	7.2
Sub Total	3 826	7.6	223 457	13.3
Food & Beverage Inds	11 185	22.1	220 184	13.1
Tobacco Products Inds	-	-	9 525	0.6
Rubber & Plastic Products Inds	482	1.0	49 098	2.9
Leather Inds	689	1.4	27 238	1.6
Textile Inds	706	1.4	73 304	4.4
Knitting Mills	334	0.7	24 732	1.5
Clothing Inds	7 361	14.5	102 012	6.1
Furniture & Fixture Inds	1 891	3.7	46 942	2.8
Printing, Publishing & Allied Inds	4 087	8.1	86 071	5.1
Primary Metal Inds	2 768	5.5	113 958	6.8
Metal Fabricating Inds	4 242	8.4	138 309	8.3
Machinery Inds	2 909	5.7	77 437	4.6
Transportation Equipment Inds	5 038	10.0	158 105	9.4
Electrical Products Inds	1 621	3.2	121 135	7.2
Non-Metallic Mineral Products Inds	1 346	2.7	53 087	3.2
Petroleum & Coal Products Inds	X	X	15 409	0.9
Chemical & Chemical Products Inds	668	1.3	74 731	4.5
Miscellaneous Manufacturing Inds	X	X	60 085	3.6
Sub Total	46 776	92.4	1 451 362	86.8
Total all Industry Groups ¹	50 602	100.0	1 674 819	100.0

¹ Totals may not add due to rounding

X Confidential

- Nil or zero

SOURCE: Statistics Canada, 1974. 1972 Annual Census of Manufacturers (preliminary). Catalogue No. 31-201P, -203P, -204P, -205P, -206P, -207P, -208P. Ottawa, August, 1974.

Table 9. SALARIES AND WAGES ON A TOTAL ACTIVITY BASIS OF THE MANUFACTURING INDUSTRIES OF MANITOBA AND CANADA BY INDUSTRY GROUP, 1972.

Industry Group	Manitoba		Canada	
	\$'000	%	\$'000	%
Wood Inds	10 457	3.0	770 902	5.8
Paper & Allied Inds	17 314	5.0	1 135 298	8.5
Sub Total	27 771	8.0	1 906 200	14.2
Food & Beverage Inds	82 028	23.6	1 593 301	11.9
Tobacco Products Inds	-	-	82 540	0.6
Rubber & Plastic Products Inds	3 298	0.9	372 587	2.8
Leather Inds	3 761	1.1	145 694	1.1
Textile Inds	3 385	1.0	474 585	3.5
Knitting Mills	1 802	0.5	127 626	1.0
Clothing Inds	33 495	9.6	514 281	3.8
Furniture & Fixture Inds	11 532	3.3	299 296	2.2
Printing, Publishing & Allied Inds	28 924	8.3	712 463	5.3
Primary Metal Inds	23 506	6.8	1 108 809	8.3
Metal Fabricating Inds	32 220	9.3	1 150 517	8.6
Machinery Inds	20 758	6.0	676 016	5.0
Transportation Equipment Inds	36 820	10.6	1 517 008	11.3
Electrical Products Inds	11 634	3.3	965 915	7.2
Non-Metallic Mineral Products Inds	10 164	2.9	458 227	3.4
Petroleum & Coal Products Inds	X	X	186 037	1.4
Chemical & Chemical Products Inds	5 148	1.5	697 117	5.2
Miscellaneous Manufacturing Inds	X	X	417 134	3.1
Sub Total	319 694	92.0	11 499 153	85.8
Total all Industry Groups ¹	347 465	100.0	13 405 353	100.0

¹ Totals may not add due to rounding

X Confidential

- Nil or zero

SOURCE: Statistics Canada, 1974. 1972 Annual Census of Manufacturers (preliminary). Catalogue No. 31-201P, -203P, -204P, -205P, -206P, -207P, -208P. Ottawa, August, 1974.

five statistics used in the examination were

1. value of shipments of goods of own manufacture
2. value added by manufacturing activity
3. value added on a total activity basis
4. employment on a total activity basis
5. salaries and wages on a total activity basis.

Corresponding national figures are provided in each case as a means of comparing the relative importance of Manitoba manufacturing to that of Canada.

Each of the five indicators examined showed that the food and beverage industries dominated Manitoba manufacturing. Provincially this group accounted for between 22.1 and 37.2% of the totals for each of the respective indicators. At the national level these industries were relatively less important, accounting for between 11.9 and 18.2%. Of the twenty Manitoba manufacturing industry groups, the paper and allied industries ranked 7th, 8th, 8th, 8th and 8th, respectively, in terms of the above indicators. The smaller wood industries group ranked 12th, 12th, 12th, 10th and 11th, respectively.

Manitoba's manufacturing sector accounts for 2.7% of the Canadian total based on value of shipments (Table 5). Other principal statistics show similar proportions (Tables 6, 7, 8, and 9). Using these same parameters, Manitoba's wood industries group represents 1.2% of the national figure while paper and allied industries make up 1.7%. The two groups combined had shipments of \$110 million in 1972 compared to a total for Canada of \$7499 million.

Each of the five principal statistics examined for Manitoba revealed that its forest products industries represented between 7 and 8% of total manufacturing in 1972 (Table 10). The paper and allied industries represented about 5% and the remaining 2-3% was accounted for by the wood industries. Comparatively, the forest products industries are nearly twice as important nationally, having between 13 and 14% of total manufacturing activity. One similarity at both the Manitoba and national levels is the continued dominance of the paper and allied industries over the wood industries. However, the magnitude of this dominance is not as large nationally as provincially.

A breakdown of the wood industries and paper and allied industries at the S.I.C. three and four digit level is provided in Tables 11 through 15. A comparison of these codes with those of the primary wood-using industries surveyed and reported on in this study (establishments which utilized roundwood or wood chips in their manufacturing processes) will help the reader relate the study's findings to the data presented in this chapter. These tables also provide ample illustration of a problem that faces users of Statistics Canada information for detailed analysis of an industry that has very few respondents in a given province. As clearly illustrated in Tables 11-15, requirements of confidentiality resulted in data being suppressed for between 20 and 50% of the listed forest products industries in Manitoba.

SOME STRUCTURAL FEATURES OF MANITOBA'S FOREST INDUSTRY

As elsewhere in Canada, Manitoba's forest industry includes the very large, sophisticated enterprise and the very small, rudimentary

Table 10. A COMPARISON OF FIVE PRINCIPAL STATISTICS OF THE FOREST PRODUCTS INDUSTRIES IN MANITOBA AND CANADA, 1972.

Selected Principal Statistics	Respective Percentages of Manufacturing Industry	
	Manitoba	Canada
Value of shipments of goods of own manufacture		
Wood Industries	2.4	5.5
Paper and Allied Industries	5.0	7.9
Total	7.3	13.3
Value added by manufacturing activity		
Wood Industries	2.7	5.8
Paper and Allied Industries	5.1	7.9
Total	7.8	13.7
Value added on a total activity basis		
Wood Industries	2.6	5.5
Paper and Allied Industries	5.0	7.5
Total	7.5	13.0
Employment on a total activity basis		
Wood Industries	3.2	6.1
Paper and Allied Industries	4.3	7.2
Total	7.6	13.3
Salaries and wages on a total activity basis		
Wood Industries	3.0	5.8
Paper and Allied Industries	5.0	8.5
Total	8.0	14.2

SOURCE: Tables 4, 5, 6, 7 and 8

Table 11. VALUE OF SHIPMENTS OF GOODS OF OWN MANUFACTURE OF LOGGING AND WOOD, PAPER AND ALLIED INDUSTRIES IN MANITOBA AND CANADA, 1972.

SIC No.	Industry	Manitoba		Canada	
		\$'000	%	\$'000	%
031	Logging	13 775	100	1 872 572	100
Major Group 8	Wood Industries ¹	35 503	100	3 084 899	100
2511	Shingle Mills	-	-	55 657	1.80
2513	Sawmills & Planing Mills	8 567	24.13	1 893 573	61.38
252	Veneer & Plywood Mills	-	-	393 336	12.75
2541	Sash, Door & Other Millwork Plants	17 731	49.94	290 516	9.42
2542	Hardwood Flooring Plants	-	-	26 949	.87
2543	Mfs. of Pre-Fab. Bldgs.	-	-	128 077	4.15
2544	Mfs. of Wooden Kitchen Cabs.	X	X	63 356	2.05
256	Wooden Box Factories	X	X	62 295	2.02
258	Coffin and Casket Industry	X	X	18 422	.60
259	Miscellaneous Wood Inds. ²	2 539	7.15	152 719	4.95
Major Group 10	Paper and Allied Inds. ³	74 782	100	4 414 017	100
271	Pulp and Paper Mills	X	X	3 127 821	70.69
272	Asphalt Roofing Mfs.	X	X	62 572	1.42
2731	Folding Carton & Set-up Box Mfs.	6 697	8.95	214 355	4.86
2732	Corrugated Box Mfs.	11 889	15.90	345 291	7.83
2733	Paper and Plastic Bag Mfs.	6 470	8.65	210 958	4.78
274	Miscellaneous Paper Converters	14 801	19.79	453 020	10.26

¹ Wood Industries include SIC 251 (2511, 2513), 252, 254 (2541, 2542, 2543, 2544), 256, 258, 259 (2591, 2592, 2593, 2599).

² Miscellaneous Wood Industries include SIC 2591, 2592, 2593, 2599.

³ Paper and Allied Industries include SIC 271, 272, 273 (2731, 2732, 2733), 274.

X Confidential

- Nil or zero

SOURCE: Statistic Canada, Catalogue Number 25-202; 35-203, -205, -208, -209, -210; 36-205, -206, -207, -213, -214.

Table 12. VALUE ADDED BY MANUFACTURING ACTIVITY OF LOGGING AND WOOD, PAPER AND ALLIED INDUSTRIES IN MANITOBA AND CANADA, 1972.

SIC No.	Industry	Manitoba		Canada	
		\$'000	%	\$'000	%
031	Logging	6 478	100	814 264	100
Major Group 8	Wood Industries ¹	15 940	100	1 397 320	100
2511	Shingle Mills	-	-	29 105	2.08
2513	Sawmills & Planing Mills	3 149	19.75	864 865	61.84
252	Veneer & Plywood Mills	-	-	181 920	13.02
2541	Sash, Door & Other Millwork Plants	8 397	52.68	122 781	8.78
2542	Hardwood Flooring Plants	-	-	10 429	.75
2543	Mfs. of Pre-Fab. Bldgs.	-	-	42 381	3.03
2544	Mfs. of Wooden Kitchen Cabs.	X	X	33 799	2.42
256	Wooden Box Factories	X	X	30 218	2.16
258	Coffin and Casket Industry	X	X	9 988	.71
259	Miscellaneous Wood Inds. ²	1 222	7.66	71 833	5.14
Major Group 10	Paper and Allied Inds. ³	30 809	100	1 928 434	100
271	Pulp and Paper Mills	X	X	1 374 129	71.18
272	Asphalt Roofing Mfs.	X	X	28 219	1.46
2731	Folding Carton & Set-up Box Mfs.	3 083	10.01	98 353	5.10
2732	Corrugated Box Mfs.	5 094	16.53	135 318	7.02
2733	Paper and Plastic Bag Mfs.	2 439	7.92	79 423	4.12
274	Miscellaneous Paper Converters	6 664	21.63	212 992	11.04

¹ Wood Industries include SIC 251 (2511, 2513), 252, 254 (2541, 2542, 2543, 2544), 256, 258, 259 (2591, 2592, 2593, 2599).

² Miscellaneous Wood Industries include SIC 2591, 2592, 2593, 2599.

³ Paper and Allied Industries include SIC 271, 272, 273 (2731, 2732, 2733), 274.

X Confidential

- Nil or zero

SOURCE: Statistics Canada, Catalogue Number 25-202; 35-203, -205, -208, -209, -210; 36-205, -206, -207, -213, -214.

Table 13. VALUE ADDED ON A TOTAL ACTIVITY BASIS OF LOGGING AND WOOD, PAPER AND ALLIED INDUSTRIES IN MANITOBA AND CANADA, 1972.

SIC No.	Industry	Manitoba		Canada	
		\$'000	%	\$'000	%
031	Logging	6 577	100	829 421	100
Major Group 8	Wood Industries ¹	16 230	100	1 422 423	100
2511	Shingle Mills	-	-	29 178	2.05
2513	Sawmills & Planing Mills	3 134	19.31	869 320	61.11
252	Veneer & Plywood Mills	-	-	186 555	13.11
2541	Sash, Door & Other Millwork Plants	8 657	53.34	130 099	9.15
2542	Hardwood Flooring Plants	-	-	10 545	.74
2543	Mfs. of Pre-Fab. Bldgs.	-	-	49 519	3.48
2544	Mfs. of Wooden Kitchen Cabs.	X	X	33 867	2.38
256	Wooden Box Factories	X	X	30 385	2.14
258	Coffin and Casket Industry	X	X	10 301	.72
259	Miscellaneous Wood Inds. ²	1 216	7.49	72 654	5.11
Major Group 10	Paper and Allied Inds. ³	31 176	100	1 961 576	100
271	Pulp and Paper Mills	X	X	1 380 052	70.24
272	Asphalt Roofing Mfs.	X	X	30 997	1.58
2731	Folding Carton & Set-up Box Mfs.	3 085	9.9	99 257	5.06
2732	Corrugated Box Mfs.	5 062	16.24	134 866	6.88
2733	Paper and Plastic Bag Mfs.	2 586	8.29	85 675	4.37
274	Miscellaneous Paper Converters	6 833	21.92	230 729	11.76

¹ Wood Industries include SIC 251 (2511, 2513), 252, 254 (2541, 2542, 2543, 2544), 256, 258, 259 (2591, 2592, 2593, 2599).

² Miscellaneous Wood Industries include SIC 2591, 2592, 2593, 2599.

³ Paper and Allied Industries include SIC 271, 272, 273 (2731, 2732, 2733), 274.

X Confidential

- Nil or zero

SOURCE: Statistics Canada, Catalogue Number 25-202; 35-203, -205, -208, -209, -210; 36-205, -206, -207, -213, -214.

Table 14. EMPLOYMENT ON A TOTAL ACTIVITY BASIS OF LOGGING AND WOOD, PAPER AND ALLIED INDUSTRIES IN MANITOBA AND CANADA, 1972.

SIC No.	Industries	Manitoba %		Canada %	
031	Logging	520	100	47 553	100
Major Group 8	Wood Industries ¹	1 634	100	102 699	100
2511	Shingle Mills	-	-	1 798	1.75
2513	Sawmills & Planing Mills	400	24.48	57 111	55.61
252	Veneer & Plywood Mills	-	-	13 664	13.30
2541	Sash, Door & Other Millwork Plants	761	46.57	11 150	10.86
2542	Hardwood Flooring Plants	-	-	1 258	1.22
2543	Mfs. of Pre-Fab. Bldgs.	-	-	4 049	3.94
2544	Mfs. of Wooden Kitchen Cabs.	X	X	3 090	3.01
256	Wooden Box Factories	X	X	3 218	3.13
258	Coffin and Casket Industry	X	X	1 202	1.17
259	Miscellaneous Wood Inds. ²	124	7.59	6 159	6.00
Major Group 10	Paper and Allied Inds. ³	2 192	100	120 758	100
271	Pulp and Paper Mills	X	X	78 969	65.39
272	Asphalt Roofing Mfs.	X	X	1 277	1.06
2731	Folding Carton & Set-up Box Mfs.	207	9.44	8 012	6.63
2732	Corrugated Box Mfs.	355	16.19	10 129	8.39
2733	Paper and Plastic Bag Mfs.	227	10.35	6 194	5.13
274	Miscellaneous Paper Converters	373	17.02	16 177	13.40

¹ Wood Industries include SIC 251 (2511, 2513), 252, 254 (2541, 2542, 2543, 2544), 256, 258, 259 (2591, 2592, 2593, 2599).

² Miscellaneous Wood Industries include SIC 2591, 2592, 2593, 2599.

³ Paper and Allied Industries include SIC 271, 272, 273 (2731, 2732, 2733), 274.

X Confidential

- Nil or zero

SOURCE: Statistics Canada, Catalogue Number 25-202; 35-203, -205, -208, -209, -210; 36-205, -206, -207, -213, -214.

Table 15. SALARIES AND WAGES ON A TOTAL ACTIVITY BASIS OF LOGGING AND WOOD, PAPER AND ALLIED INDUSTRIES IN MANITOBA AND CANADA, 1972.

SIC No.	Industry	Manitoba		Canada	
		\$'000	%	\$'000	%
031	Logging	5 090	100	457 586	100
Major Group 8	Wood Industries ¹	10 457	100	770 902	100
2511	Shingle Mills	-	-	16 407	2.13
2513	Sawmills & Planing Mills	2 560	24.48	447 712	58.07
252	Veneer & Plywood Mills	-	-	108 209	14.04
2541	Sash, Door & Other Millwork Plants	5 034	48.14	73 804	9.57
2542	Hardwood Flooring Plants	-	-	7 261	.94
2543	Mfs. of Pre-Fab. Bldgs.	-	-	28 651	3.72
2544	Mfs. of Wooden Kitchen Cabs.	X	X	21 634	2.81
256	Wooden Box Factories	X	X	19 198	2.49
258	Coffin and Casket Industry	X	X	7 370	.96
259	Miscellaneous Wood Inds. ²	649	6.2	40 656	5.27
Major Group 10	Paper and Allied Inds. ³	17 314	100	1 135 298	100
271	Pulp and Paper Mills	X	X	808 869	71.18
272	Asphalt Roofing Mfs.	X	X	11 776	1.04
2731	Folding Carton & Set-up Box Mfs.	1 474	8.5	60 375	5.34
2732	Corrugated Box Mfs.	2 642	15.26	83 702	7.37
2733	Paper and Plastic Bag Mfs.	1 581	9.13	46 627	4.11
274	Miscellaneous Paper Converters	2 738	15.81	123 950	10.92

¹ Wood Industries include SIC 251 (2511, 2513), 252, 254 (2541, 2542, 2543, 2544), 256, 258, 259 (2591, 2592, 2593, 2599).

² Miscellaneous Wood Industries include SIC 2591, 2592, 2593, 2599.

³ Paper and Allied Industries include SIC 271, 272, 273 (2731, 2732, 2733), 274.

X Confidential

- Nil or zero

SOURCE: Statistics Canada, Catalogue Number 25-202; 35-203, -205, -208, -209, -210; 36-205, -206, -207, -213, -214.

operation. Nowhere is this more apparent than in the sawmill and planing mill industry. Engineered capacity of Manitoba sawmills ranged from 2000 fbm to 175 000 fbm per 8-h shift with a majority of these mills having a shift capacity of less than 10 000 fbm (Fig. 2).

A distribution of forest industry firms among industry groups is provided in Table 16 below.

Table 16. PRIMARY WOOD-USING INDUSTRIES IN MANITOBA, 1972.

Industry	SIC Code	Number of Firms
Sawmills and Planing Mills	2513	
a) Large		4
b) Small		119
Wood Preservation Industry	2591	3
Pulp and Paper Mills and	271 }	4
Asphalt Roofing Manufacturers	272 }	
Total		130

SOURCE: Appendix H

Differences in capacity, products, technology, ownership structure, and economic importance of the business to its owner are a few of the features segregating various components of Manitoba's forest industry. Except for small sawmills, most firms are operated on a full-time basis by the entrepreneur or his professional managers. In addition, these businesses are usually incorporated companies or partnerships having limited liability. Thus, some of the best examples of contrast between the old and the new are provided in the sawmill and planing mill industry.

FIG.2. DISTRIBUTION OF SAWMILLS IN MANITOBA BY RATED
CAPACITY PER 8 HOUR SHIFT IN 1972

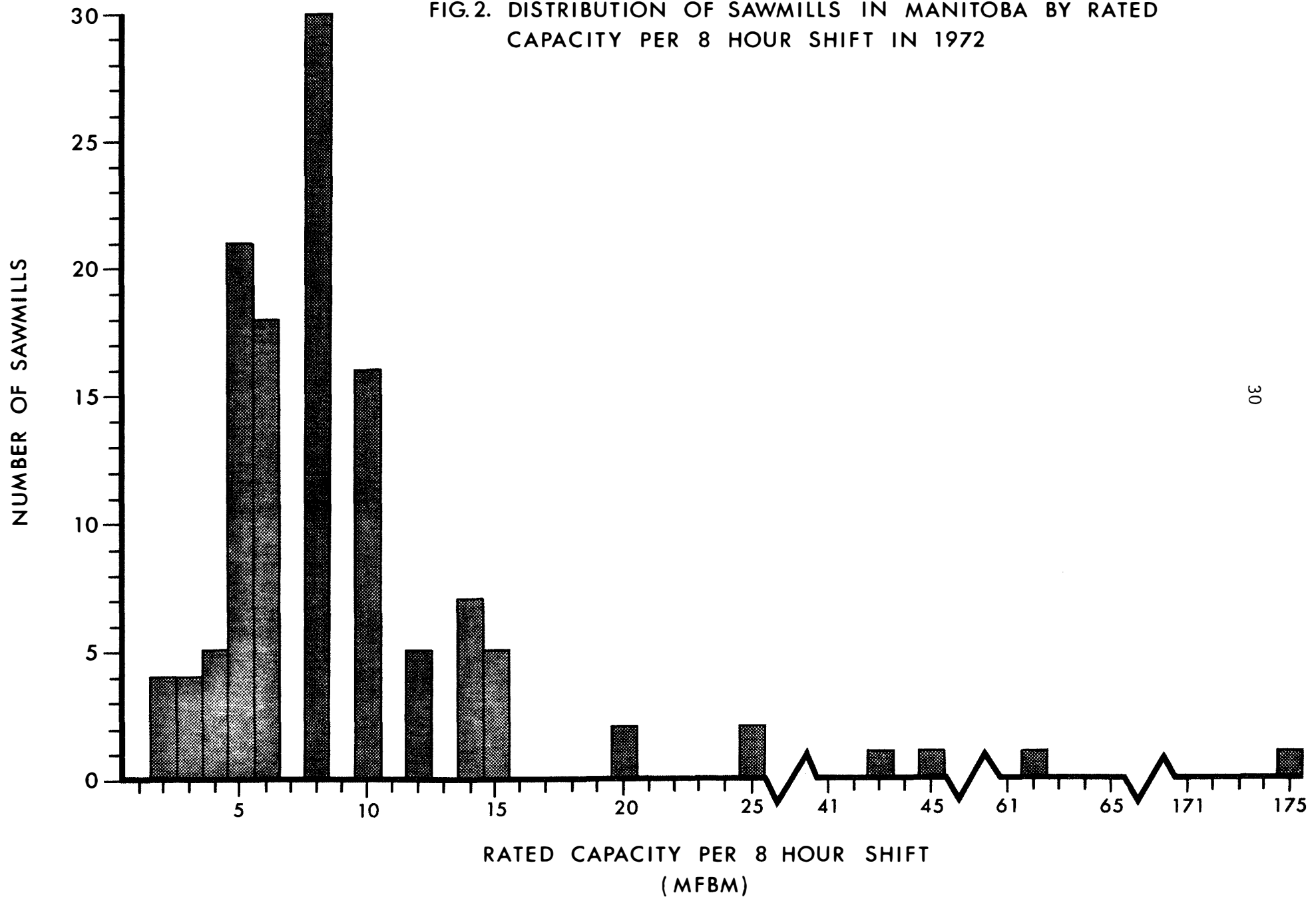


Table 17 illustrates the concentration of production in the sawmilling industry. For example, the four largest sawmills (3% of the total) together produced 74% of Manitoba's lumber in 1972. Alternatively, 42% of the smallest sawmills manufactured just 5% of Manitoba's lumber. Although the small sawmills are relatively insignificant as individual operations, they accounted for about 26% of total output in 1972, and represented 119 of the 123 mills in the province. Also they are relatively important as suppliers for local and regional markets in the province. Chapter 4 expands on markets and modes of transportation used by the two sawmill production classes as defined earlier.

Table 17. CONCENTRATION OF LUMBER PRODUCTION IN MANITOBA, 1972.

Percentage of Mills (largest to smallest)	Cumulative Percentage of Total Production
3	74
7	79
16	82
20	88
58	95
89	99.7
100	100.0

SOURCE: Appendix B. N.F.R.C. Wood Industry Survey, 1972.

Technically, the majority of the small mills are very similar to those in use 50 years ago. Seventy-one percent of those operating in

1972 were portable and the remainder stationary (Table 18). In most cases the portable mills were nothing more than a single-blade circular saw with a movable log carriage.

Table 18. MANITOBA SMALL SAWMILLS BY TYPE, 1972.

Type	Number	% of Total
Portable	84	71
Stationary	<u>35</u>	<u>29</u>
	119	100

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

The age of each sawmill could not be established directly, partly because some had been completely rebuilt while others had been resold several times. The purchase date of the mill by the present owner was used as a proxy age, although this in itself is not conclusive. More than half the mills surveyed had belonged to the current owner for more than a decade (Table 19). Most of the mills had been purchased as second-hand units. An indication of a sawmill's size, or productive capacity, was the number of people required to operate it; in most cases three men were employed. Next in importance were mills requiring four workers per shift (Table 20). Over 90% of the mills required five people or fewer to operate.

The question of who owns and operates these small sawmills is answered in Table 21. In each case the owner(s) were the managers and generally the operators, usually working as the sawyer. The majority of the mills were owned and operated by private individuals, usually

Table 19. PERIOD OF PURCHASE OF SMALL SAWMILLS BY
CURRENT OWNER, 1972.

Period	Number	% of Total
1932 and earlier	0	0
1933 - 1942	7	6
1943 - 1952	25	21
1953 - 1962	29	24
1963 - 1972	<u>58</u>	<u>49</u>
	119	100

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

Table 20. REQUIRED NUMBER OF WORKERS PER SMALL SAWMILL
IN MANITOBA, 1972.

Number of Workers per Mill	Number of Sawmills	% of Total
1	5	4
2	7	6
3	50	42
4	34	29
5	12	10
6	5	4
7	2	2
8	2	2
9	<u>2</u>	<u>2</u>
	119	100 ¹

¹ Totals may not add due to rounding.

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

farmers and, in some cases, local construction men. Almost all of the mills were operated on a part-time basis and, in some instances, only every other year.

Table 21. OWNERSHIP PATTERN OF MANITOBA'S SAWMILL INDUSTRY, 1972.

Ownership	% of Total
Single proprietorship	88
Partnership	4
Incorporated (Co.)	4
Government	<u>4</u>
	100

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

Sawmilling was relatively insignificant as an earner of net income for about 40% of the operators (Table 22). Nearly 80% of the sawmill operators received less than half their net income from sawmill operations. However, the convenience, independence, and contribution to cash income were significant enough to keep them in the industry.

Table 22. SAWMILLING AS A SOURCE OF NET INCOME
FOR SMALL SAWMILL OWNERS, 1972.

% of Total Net Income	Number of Operators	% of Total
0- 9	48	40
10-19	21	18
20-29	9	8
30-39	11	9
40-49	5	4
50-59	7	6
60-69	2	2
70-79	0	0
80-89	5	4
90-99	0	0
100	<u>11</u>	<u>9</u>
	119	100

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

CHAPTER III

THE FOREST RESOURCE, ITS UTILIZATION, AND POTENTIAL

Crown land dominates the ownership pattern of forest lands in Manitoba and plays a significant role in the supply of wood fiber to the forest industry. Therefore, this chapter confines itself primarily to a description of the forest resource and associated logging activity on these lands. This description is based on data for each of the nine "forest inventory regions" recognized in the Forest Zone (Map 2). In addition, area and volume data are included for crown forest lands located within the Agricultural Zone.

FOREST LAND OWNERSHIP

The total area of Manitoba is 650 087 km² (251 000 sq miles), of which land accounts for 84% and water for 16% (Table 23). Land is classified as forested, agricultural, and other. The forested area is divided into 163 840 km² (63 259 sq miles) of productive and 181 802 km² (70 194 sq miles) of non-productive forest land. Most of the forest lands are situated north of the 51st parallel, except for a belt lying in the extreme southeastern corner. Almost 93% or 320 234 km² (123 643 sq miles) of the province's total forest land is classified as crown land (Table 24). These public lands contain 139 147 km² (53 725 sq miles) of productive and 181 087 km² (69 918 sq miles) of non-productive forest land.

The remaining 65 806 km² (25 408 sq miles) of forest land is owned by other groups, namely the federal government, Indian Reserves, local government districts, private citizens, corporations, etc. Next

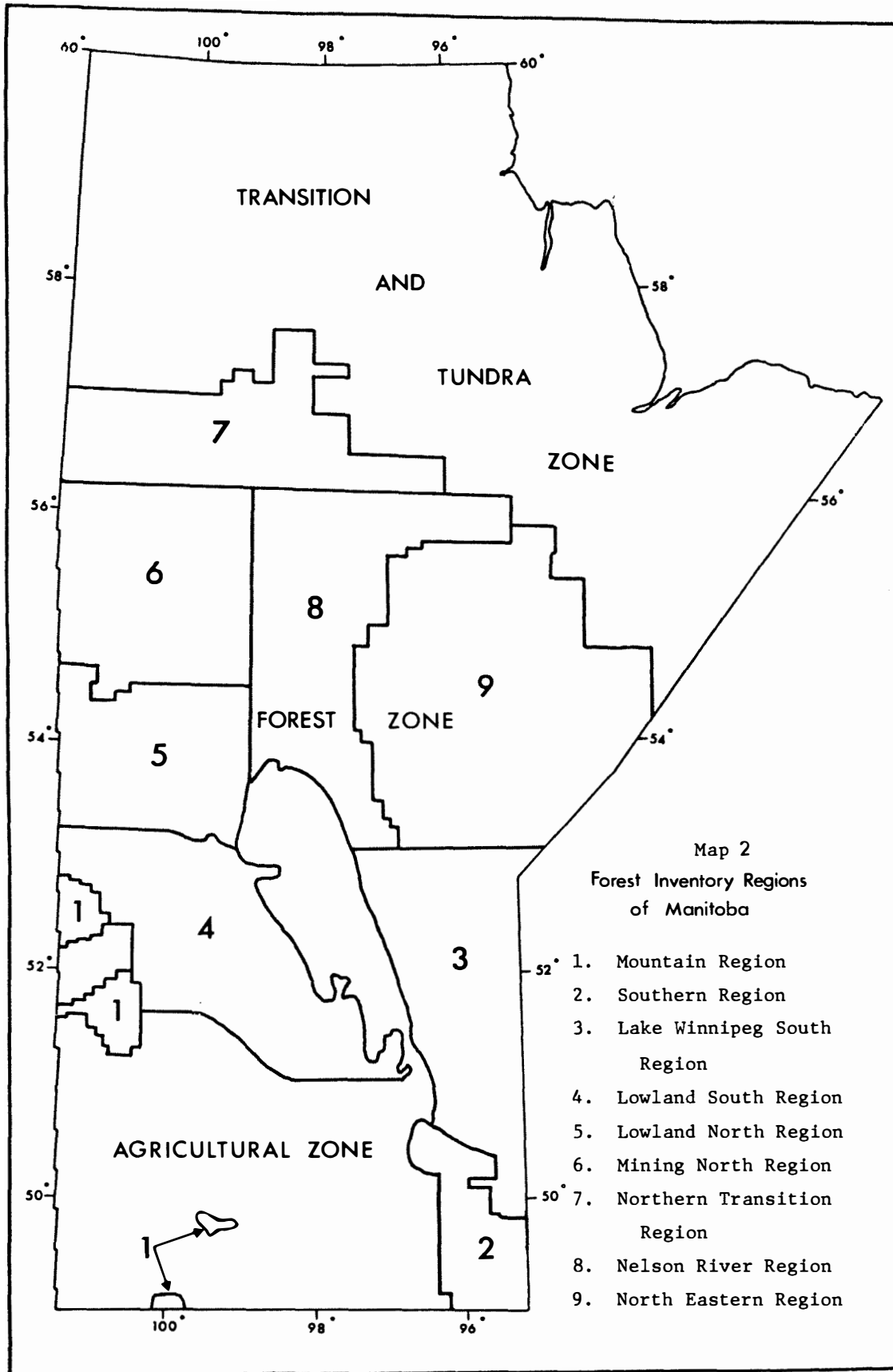


Table 23. TOTAL AREA CLASSIFICATION OF MANITOBA, 1972

Land Classification	Area ---- km ² (sq miles) ----	Total ----	Percentage of Total area
FORESTED LAND			
Productive	163 840 (63 259)		
Non-productive ¹	<u>181 802 (70 194)</u>		
		345 642 (133 453)	53.2
AGRICULTURE			
Improved	51 815 (20 006)		
Unimproved	<u>25 107 (9 694)</u>		
		76 922 (29 700)	11.8
OTHER (urban, etc.)		<u>123 975 (47 867)</u>	<u>19.1</u>
TOTAL LAND		546 539 (211 020)	84.1
WATER		<u>103 548 (39 980)²</u>	<u>15.9</u>
TOTAL AREA		<u>650 087 (251 000)</u>	<u>100.0</u>

¹ Areas incapable of producing crops of merchantable timber because of adverse climatic, soil or moisture conditions, and reserve forest land for which no inventories are available.

² Water bodies greater than 2.02 ha (5 acres) in size.

SOURCE: F.L.C. Reed and Associates. 1973b. Canada's Reserve Timber Supply. Can. Dept. Ind. Trade and Com. Ottawa.

Manitoba Department of Mines, Resources, and Environmental Management. Mines and Services Division. Personal communication.

Statistics Canada. Agriculture: Census-Farms by Size, Area and Use of Farm Land. Cat. No. 96-721 (AA-4), August, 1972.

Table 24. TENURE AND CLASS OF FOREST LAND IN MANITOBA, 1972

	Production Forest Land ¹ ----- km ² (sq miles) -----	Non-Productive Forest Land ² -----	Total	%
CROWN-PROVINCIAL	139 147 (53 725)	181 087 (69 918)	320 234 (123 643)	92.6
CROWN-FEDERAL				
National Parks	2 764 (1 067)	62 (24)	2 826 (1 091)	.8
Other federal lands				
PRIVATE	20 849 (8 050)	316 (122)	21 165 (8 172)	6.1
OTHER				
Indian Reserves	922 (383)	316 (122)	1 308 (505)	.4
Local Government Districts	88 (34)	21 (8)	109 (42)	.1
TOTAL	163 840 (63 259)	181 802 (70 194)	345 642 (133 453)	100.0

¹ Forest land presently with or capable of producing merchantable wood volume.

² Forest land not capable of producing merchantable wood volume; e.g., treed muskeg, treed rock, protection forest, etc.

SOURCE: Manitoba Department of Mines, Resources and Environmental Management. Mines and Services Division.

to the provincial government, the private sector is the second largest owner of forest land, with about 6% of the total. Ownership distribution of productive forest land is slightly different. The provincial government owns 85%, followed by the private sector with 13% and other groups with 2%.

VOLUME AND SPECIES COMPOSITION

Two broad cover types are used to describe Manitoba's forest resource--softwood and hardwood. Table 25 shows productive crown land and net merchantable volume¹ by cover type for each of the nine forest inventory regions and the Agricultural Zone. Of the total growing stock of 455 million m³ (161 million cunits), conifers constitute approximately 77% and hardwoods 23%.

In the northern forest inventory regions of Lowland North, Mining North, Northern Transition, Nelson River, and North Eastern conifers dominate and account for at least 80% of net volume. Farther south, conifer volume varies from 55 to 74% in all inventory regions except the Agricultural Zone.

¹ The Province of Manitoba applies various cull factors depending on location and species to reduce gross merchantable to net merchantable volume. Gross merchantable volume includes all living trees 9.144 cm (3.6 in.) diameter at breast height outside bark to 8.89 cm (3.5 in.) top diameter inside bark.

Table 25. AREA AND VOLUMES OF PRODUCTIVE CROWN FOREST LAND IN MANITOBA¹

Forest Inventory Region ²	Area in Hectares	Volume				Total
		Softwood (net merch. vol. in thousands of m ³)	%	Hardwood (net merch. vol. in thousands of m ³)	%	
Agricultural Zone	761 715	864	28.6	2 158	71.4	3 022
Mountain Region	527 066	24 049	54.5	20 047	45.5	44 096
Southern Region	573 880	8 452	67.0	4 163	33.0	12 615
Lake Winnipeg East Region	1 795 111	55 919	73.7	19 998	26.3	75 917
Lowland South Region	1 439 387	22 711	67.6	10 885	32.4	33 596
Lowland North Region	817 002	28 859	80.0	7 215	20.0	36 074
Mining North Region	1 899 170	71 264	81.0	16 704	19.0	87 968
Northern Transition Region	1 477 500	7 961	93.1	593	6.9	8 554
Nelson River Region	1 909 964	59 245	81.0	13 940	19.0	73 185
North Eastern Region	<u>2 432 816</u>	<u>69 829</u>	87.6	<u>9 875</u>	12.4	<u>79 704</u>
TOTAL	13 633 614	349 153	76.8	105 578	23.2	454 731

¹ See Table 25A for Canadian equivalent measures.

² See Map 2.

SOURCE: Manitoba Department of Mines, Resources and Environmental Management. Mines and Services Division.

Table 25A. AREA AND VOLUMES OF PRODUCTIVE CROWN FOREST LAND IN MANITOBA

Forest Inventory Region ¹	Area in Acres	Volume		Total	
		Softwood (net merchantable volume in cunits)	%	Hardwood (net merchantable volume in cunits)	%
Agricultural Zone	1 882 238	305 150	28.6	761 980	71.4
Mountain Region	1 302 409	8 492 670	54.5	7 079 510	45.5
Southern Region	1 418 086	2 984 860	67.0	1 470 310	33.0
Lake Winnipeg East Region	4 435 814	19 747 700	73.7	7 062 180	26.3
Lowland South Region	3 556 802	8 020 170	67.6	3 843 940	32.4
Lowland North Region	2 018 854	10 191 340	80.0	2 547 910	20.0
Mining North Region	4 692 948	25 166 570	81.0	5 899 030	19.0
Northern Transition Region	3 650 980	2 811 480	93.1	209 550	6.9
Nelson River Region	4 719 620	20 922 100	81.0	4 922 980	19.0
North Eastern Region	<u>6 011 614</u>	<u>24 659 820</u>	87.6	<u>3 487 410</u>	12.4
TOTAL	33 689 365	123 301 860	76.8	37 284 800	23.2

¹ See Map 2.

SOURCE: Manitoba Department of Mines, Resources and Environmental Management. Mines and Services Division.

Ten species or species groups occur in sufficient volume to be recorded in the Manitoba forest inventory (Table 26). Three species, black spruce, jack pine, and trembling aspen, make up 85% of the total net merchantable wood volume. Black spruce is the principal species, accounting for 210 million m^3 (74 million cunits), or 46% of the volume. Jack pine, with 95 million m^3 (33 million cunits), forms 21% of the volume, and trembling aspen, with 80 million m^3 (28 million cunits), forms 18%. White spruce is the only other species of any commercial importance, representing nearly 31 million m^3 (11 million cunits), or 7%.

The average volume per hectare of all species combined is approximately 34 m^3/ha (4.8 cunits/acre). The average volume in the Agricultural Zone is 4 m^3/ha (.57 cunits/acre) and in the Forest Zone 35 m^3/ha (5 cunits/acre).

Average volumes per hectare (acre) vary considerably among the nine forest inventory regions (Appendix C). The lowest volume, 5.8 m^3/ha (.83 cunits/acre), is in the Northern Transition Region. It is situated in the most northerly part of the Forest Zone, having as its southern boundary the 22nd Base Line. Its northern boundary lies adjacent to the Transition and Tundra Zone. This region is characterized by a preponderance of black spruce which represents 77%, or 6.6 million m^3 (2.3 million cunits), of the region's total volume. Seventy-three percent of the black spruce volume is classified as immature.

The Mountain Region has the highest volume per hectare at 84 m^3 (12 cunits/acre). Located in western Manitoba, the Mountain Region is

Table 26. NET MERCHANTABLE VOLUME OF PRIMARY GROWING STOCK ON PRODUCTIVE CROWN FOREST LAND
IN MANITOBA BY SPECIES¹

	Agricultural Zone	Forest Inventory Regions	Total	%	% All Species
Area (hectares)	761 715	12 871 899	13 633 614		
Species	-----net merchantable volume in thousands of m ³ -----				
Jack Pine	43	95 122	95 165	27.2	20.9
Black Spruce	82	210 234	210 316	60.2	46.3
White Spruce	717	29 863	30 580	8.8	6.7
Balsam Fir	17	8 727	8 744	2.5	1.9
Tamarack Larch	4	3 688	3 692	1.1	0.8
Eastern Cedar	<u>-</u>	<u>653</u>	<u>653</u>	<u>0.2</u>	0.1
TOTAL SOFTWOOD	863	348 287	349 150	100.0	
 Trembling Aspen	1 469	78 127	79 596	75.3	17.5
Balsam Poplar	199	11 576	11 775	11.2	2.6
White Birch	155	12 915	13 070	12.4	2.9
Other Hardwood	<u>335</u>	<u>803</u>	<u>1 138</u>	<u>1.1</u>	0.3
TOTAL HARDWOOD	2 158	103 421	105 579	100.0	
 TOTAL ALL SPECIES	3 021	451 708	454 729		100.0
 m ³ /ha	3.988	35.126	33.377		

¹ See Table 26A for Canadian equivalent measures

SOURCE: Manitoba Department of Mines, Resources and Environmental Management. Mines and Services Division

Table 26A. NET MERCHANTABLE VOLUME OF PRIMARY GROWING STOCK ON PRODUCTIVE CROWN FOREST LAND IN MANITOBA BY SPECIES

	Agricultural Zone	Forest Inventory Regions	Total	%	% All Species
Area (Acres)	1 882 238	31 807 127	33 689 365		
Species	----net merchantable volume in cunits----				
Jack Pine	15 260	33 592 160	33 607 420	27.2	20.9
Black Spruce	28 990	74 243 640	74 272 630	60.2	46.3
White Spruce	253 270	10 545 930	10 799 200	8.8	6.7
Balsam Fir	6 100	3 081 730	3 087 830	2.5	1.9
Tamarack Larch	1 530	1 302 520	1 304 050	1.1	0.8
Eastern Cedar	<u>-</u>	<u>230 730</u>	<u>230 730</u>	<u>0.2</u>	0.1
TOTAL SOFTWOOD	305 150	122 996 710	123 301 860	100.0	
Trembling Aspen	518 910	27 590 420	28 109 330	75.3	17.5
Balsam Poplar	70 100	4 087 850	4 157 950	11.2	2.6
White Birch	54 860	4 560 890	4 615 750	12.4	2.9
Other Hardwood	<u>118 110</u>	<u>283 660</u>	<u>401 770</u>	<u>1.1</u>	0.3
TOTAL HARDWOOD	761 980	36 522 820	37 284 800	100.0	
TOTAL ALL SPECIES	1 067 130	159 519 530	160 586 660		100.0
cunits/acre	.57	5.02	4.77		

SOURCE: Manitoba Department of Mines, Resources and Environmental Management. Mines and Services Division

distinguished by its fairly even distribution of volume between conifers and hardwoods. Approximately 60% of the growing stock is classified as mature and overmature. Using volume as the criterion to rank importance, trembling aspen, black spruce, and jack pine are the principal species, in that order.

ANNUAL CUT

Total volume harvested from Manitoba forest lands in fiscal 1972 was 1.8 million m^3 (648 000 cunits). Of this, 1.5 million m^3 (545 980 cunits), or 84% was harvested from provincial crown lands. The volume of wood harvested from both provincial crown and other lands during the 10-year period 1961-72 is shown in Table 27 and Figure 3.

In the period 1961-68 timber production from lands other than provincial crown land represented a significant proportion of Manitoba's annual cut. Since 1967, however, the share of wood harvested from these lands relative to total cut dropped sharply from 33% in that year to 16% in 1971 and 1972.

Pulpwood and sawtimber are the two most important products harvested from provincial crown land. During the past decade they have together accounted for no less than 85% of total production. Pulpwood production increased by 77% from 508 060 m^3 (179 420 cunits) in 1968 to 901 239 m^3 (318 270 cunits) in 1972. Similarly, the volume of sawtimber harvested in the same 4-year period increased significantly from 222 825 m^3 (78 690 cunits) to 568 460 m^3 (200 750 cunits), an increase of some 155%. The sharp increase in the harvest of these two products

Table 27. ANNUAL CUT IN MANITOBA, 1961-1972¹

Fiscal Year	Total Cut	Provincial Crown Land					Other Land	
		Sawtimber	Pulpwood	Other	Total	% of Total Cut	Production	% of Total Cut
		-----m ³ -----					-----m ³ -----	
1961	1 064 769	200 087	305 680	84 129	589 896	55	474 873	45
1962	1 505 321	242 958	475 071	108 340	826 369	55	678 952	45
1963	1 176 733	218 209	469 861	79 740	767 810	65	408 923	35
1964	1 115 739	210 196	533 064	85 403	828 663	74	287 076	26
1965	1 203 209	193 432	535 867	64 987	794 286	66	408 923	34
1966	1 229 147	228 035	633 928	68 612	930 575	76	298 572	24
1967	1 017 196	201 247	404 845	72 972	679 065	67	338 131	33
1968	1 109 537	222 825	508 060	97 976	828 861	75	280 676	25
1969	1 497 987	325 360	836 960	76 087	1 238 407	83	278 298	17
1970	1 259 588	293 702	644 094	89 198	1 026 994	82	232 594	18
1971	1 555 640	394 226	855 790	55 756	1 305 773	84	249 916	16
1972	1 834 929	568 460	901 239	76 342	1 546 041	84	288 888	16

¹ See Table 27A for Canadian equivalent measures.

SOURCE: Manitoba Department of Mines, Resources and Environment Management. Annual Reports. 1961-1972.

Statistics Canada. Canadian Forestry Statistics. Cat. No. 25-202, annual.

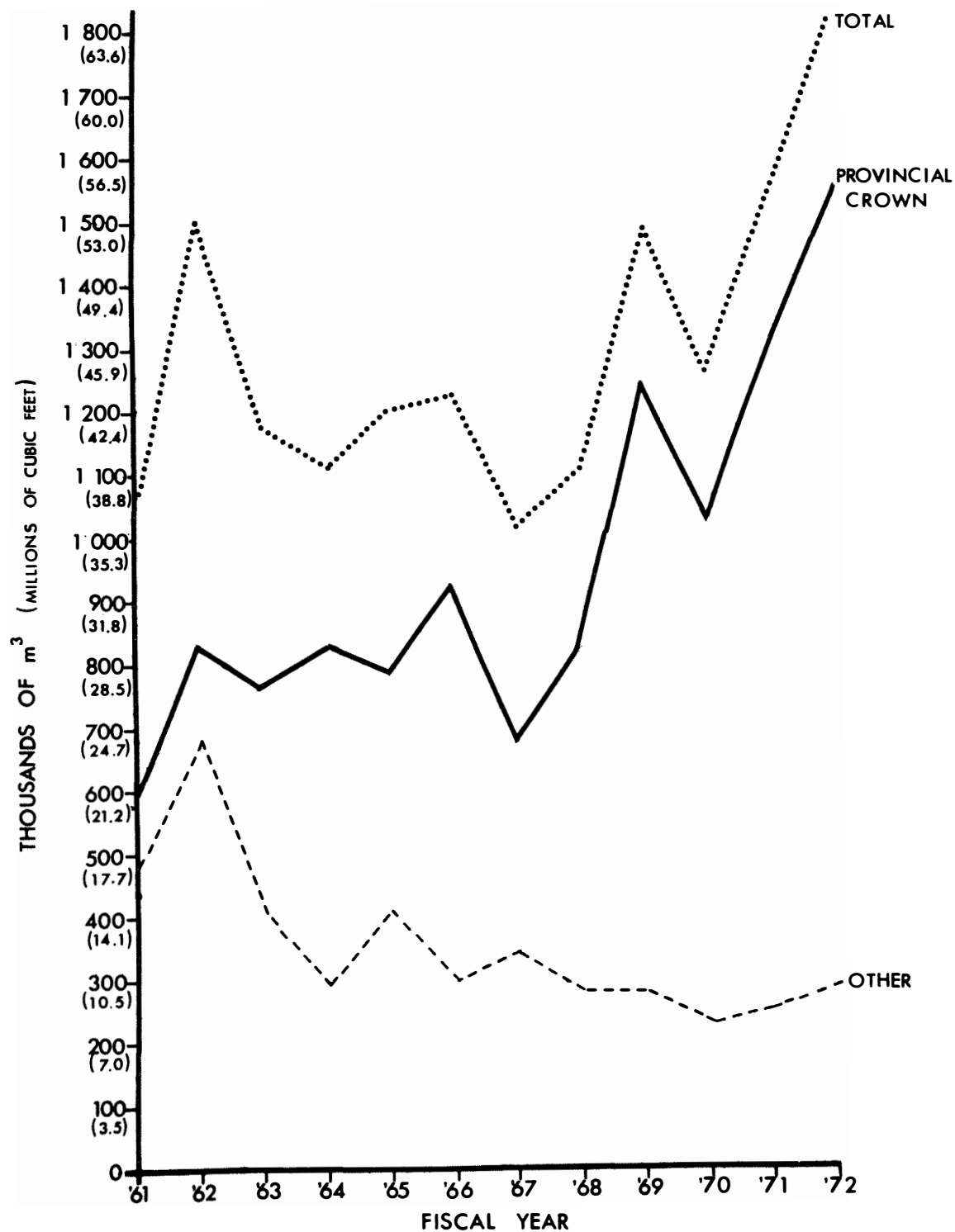
Table 27A. ANNUAL CUT IN MANITOBA, 1961-1972

Fiscal Year	Total Cut	Provincial Crown Land				Other Land	
		Sawtimber	Pulpwood	Other	Total	% of Total Cut	% of Total Cut
		-----cunits-----					-cunits-
1961	376 020	70 660	107 950	29 710	208 320	55	167 700 45
1962	531 600	85 800	167 770	38 260	291 830	55	239 770 45
1963	415 560	77 060	165 930	28 160	271 150	65	144 410 35
1964	394 020	74 230	188 250	30 160	292 640	74	101 380 26
1965	424 910	68 310	189 240	22 950	280 500	66	144 410 34
1966	434 070	80 530	223 870	24 230	328 630	76	105 440 24
1967	359 220	71 070	142 970	25 770	239 810	67	119 410 33
1968	391 830	78 690	179 420	34 600	292 710	75	99 120 25
1969	529 010	114 900	295 570	26 870	437 340	83	98 280 17
1970	444 820	103 720	227 460	31 500	362 680	82	82 140 18
1971	549 370	139 220	302 220	19 690	461 130	84	88 257 16
1972	648 000	200 750	318 270	26 960	545 980	84	102 020 16

SOURCE: Manitoba Department of Mines, Resources and Environmental Management. Annual Reports. 1961-1972.

Statistics Canada. Canadian Forestry Statistics Cat. No. 25-202, annual.

FIG. 3. ANNUAL CUT IN MANITOBA, 1961-1972.



can be primarily attributed to the development of the forestry complex at The Pas. It came on stream in mid-1971, followed shortly by the dimension lumber mill.

"Other Production" includes railway ties, fence posts, poles, fuelwood, etc. In aggregate, the volume harvested annually is not significant in relation to overall crown land production. Rather than showing a positive increase as demonstrated by both sawtimber and pulpwood, total production for these products has tended to fluctuate, with an average of 80 thousand m³ (28 thousand cunits) annually.

ALLOWABLE ANNUAL CUT²

The organization and control of the growing stock for a sustained yield of forest products from a specific forest area has traditionally been called forest regulation. It performs the vital task of balancing the yield or production from the forest with the growth or productive capacity (Meyer et al., 1961). Because the forested area, growing stock, and utilization standards are constantly changing, estimates of allowable annual cuts are only valid for a short time. The allowable cut is calculated in the Province of Manitoba using the von Mantel formula³ with area-volume checks and some modifications.

The provincial crown land allowable annual cut for both softwoods and hardwoods is shown in Table 28. Most forest land within

² An expression of the volume of wood that may be removed from a properly managed area each year in perpetuity.

³ The formula is useful as a quick and easy method of estimating the allowable annual cut from limited information. This information consists of 1) volume of growing stock and 2) rotation age of species. It is expressed as:

$$\text{A.A.C.} = \frac{\text{total volume of growing stock}}{\text{one half of the rotation age}}$$

Table 28. ALLOWABLE ANNUAL CUT, ACTUAL CUT (1972), AND ESTIMATED TIMBER SURPLUS ON CROWN LAND IN MANITOBA¹

Species Grouping	Estimated Allowable Annual Cut ---net merch. volume in m ³ --- (cunits)	Actual Cut Fiscal 1972 ----m ³ ---- (cunits)	% of AAC	Estimate Surplus ---net merch. vol. in m ³ --- (cunits)
Softwoods	4 559 005 (1 610 000)	1 373 875 (485 180)	30	3 185 130 (1 124 820)
Hardwoods	1 472 474 (520 000)	172 166 (60 800)	12	1 300 308 (459 200)
TOTAL	6 031 479 (2 130 000)	1 546 041 (545 980)	26	4 485 438 (1 584 020)

SOURCE: F.L.C. Reed and Associates. 1973b. Canada's Reserve Timber Supply. Can. Dep. Ind. Trade Com. Ottawa.

Manitoba Department of Mines, Resources and Environmental Management. Annual Report, Year Ending March 31, 1973.

¹ Forest Zone only.

provincial parks is included in the allowable cut calculations as it is generally open to limited logging. The estimated allowable cut is 4.6 million m³ (1.6 million cunits) and 1.5 million m³ (520 000 cunits) for softwoods and hardwoods, respectively. Combined, Manitoba's total allowable annual cut is 6.0 million m³ (2.1 million cunits), or somewhat less than 1.5% of the growing stock.

In 1972 Manitoba's softwood harvest on provincial crown lands was 30% of the permissible cut. Black spruce and jack pine were the two most important commercial species harvested. The harvest of hardwoods was relatively small and represented only 12% of the estimated allowable cut. Poplar constituted the greater share of the hardwood volume cut. Overall, the total volume of softwood and hardwood harvested represented 26% of the estimated provincial allowable cut. Based on the 1972 cut, the surplus timber theoretically available for harvesting annually is estimated at 4.5 million m³ (1.6 million cunits).

Although the aggregate drain of timber described above may appear acceptable provincially, it does at the same time mask any over-cutting that may take place at the regional level. Insufficient information at this time prevents a tabulation of allowable and actual cut data by forest inventory region. This data would allow micro-analysis of regional cutting patterns and levels as well as the opportunity to assess the magnitude and makeup of additional volumes of wood fiber potentially available for industrial utilization.

CHAPTER IV

PRODUCTION AND MARKETS OF MANITOBA'S FOREST INDUSTRIES IN 1972

Manitoba's forest industries¹ had gross sales in excess of \$55 million and net sales of almost \$46 million in 1972. The pulp and paper industry led with 74% of gross sales, followed by the sawmill and planing mill industry with 22%, and the wood preservation industry with 4%. Major products sold included 221 thousand t (244 thousand tons) of pulp and paper, 13 million m² - 1 mm basis (11 million sq ft (1/2 in. basis)) of fiberboard, 30 thousand t (33 000 tons) of roofing products, more than 1 million pieces of treated roundwood products, and 181 thousand m³ (77 MMfbm) of lumber. Minor products included pulpwood, wood chips, mine props, and posts.

PULP AND PAPER INDUSTRY

With 74% of gross sales and 71% of net sales (\$32.6 million) the four firms comprising this industry group dominated the Manitoba forest industry in 1972. Along with pulp, paper, and newsprint they produced significant quantities of roofing materials and fiberboard (Table 29).

Table 29. MANITOBA PULP AND PAPER PRODUCTION, 1972.

Product	Unit	Quantity
Newsprint	tonnes (tons)	131 836 t (145 325)
Paper	tonnes (tons)	16 048 t (17 690)
Kraft paper and pulp	tonnes (tons)	73 561 t (81 088)
Roofing products	tonnes (tons)	29 937 t (33 000)
Fiberboard	m ² (1 mm basis)	13 131 950 m ²
	sq ft (1/2" basis)	11 130 000
Total Sales Value (f.o.b. mill)	\$32 550 553	

SOURCE: Appendix E, Table 1 and 1A

¹ See "Classification of Primary Wood-Using Industries" Chapter 1 for definitions.

The United States was the major consumer, importing 50% of the fiberboard and 63% of the newsprint, paper, pulp, and roofing products (Table 30). Manitoba was next, accounting for the remaining 50% of the fiberboard and 26% of other products. Eastern Canada took 7% of the newsprint, paper, pulp, and roofing products, while the residual was sold in other parts of Western Canada. The majority of these products were transported by rail to their respective markets although truck transport was used to move some roofing products, fiberboard, and newsprint.

Table 30. MARKETS FOR MANITOBA PULP AND PAPER PRODUCTS, 1972.

Marketing Area	Products	
	Newsprint, Paper, Pulp and Roofing Products %	Fiberboard %
Manitoba	26	50
Rest of Western Canada	4	-
Eastern Canada	7	-
TOTAL CANADA	<u>37</u>	<u>50</u>
United States	63	50

SOURCE: Appendix E, Table 1 and 1A

SAWMILL AND PLANING MILL INDUSTRY

The Manitoba sawmill and planing mill industry, with 123 of the 130 primary wood-using establishments, produced 181 thousand m³ (77 Mmfbm) of lumber, timber, and ties. Of secondary importance to the province's forest industry, it accounted for 22% (\$12 682 438) of gross and 25% (\$11 160 633) of net sales. Included in the above sales data were quantities of wood chips, pulpwood, mine props, and posts.

Output from the four largest sawmills dominated the Manitoba lumber industry, accounting for 74% (133 thousand m³ or 57 MMfbm) of all sawn products. The remaining 26% was produced by the 119 small sawmills (Table 31). Dimension lumber² was the major component of sawn products, accounting for 81% or 148 thousand m³ (63 MMfbm) with timber and ties making up another 10%, and board lumber the remaining 9%. While the large sawmill group dominated in the manufacture of dimension lumber, the small mill group had the major share of timber and tie production, with 79% of the total. Production of board lumber was somewhat more equally distributed among the two size classes with the large mill group making about 66% of the total.

Table 31. MANITOBA LUMBER PRODUCTION BY SIZE CLASS AND PRODUCT, 1972.

	Small Sawmills		Large Sawmills		Total	
	m ³	Mfbm	m ³	Mfbm	m ³	Mfbm
Board Planed	4 767	2 021	5 029	2 132	9 796	4 153
Board Rough	622	264	5 451	2 310	6 073	2 574
Total	5 389	2 285	10 480	4 442	15 869	6 727
Dimension Planed	19 923	8 443	109 042	46 210	128 965	54 653
Dimension Rough	8 605	3 647	10 123	4 290	18 728	7 937
Total	28 528	12 090	119 165	50 500	147 693	62 590
Timber and Ties	13 889	5 886	3 719	1 576	17 608	7 462
TOTAL	47 806	20 261	133 364	56 518	181 170	76 779

SOURCE: Appendix E, Tables 2 and 3.

Approximately three-quarters (77%) of the industry's sawn products were sold dressed or finished. Again, the influence of the large

² Dimension lumber refers to all sawn material in the 5.08 cm (2 in.) thick class of any width and length. Board lumber refers to all sawn material in the 2.54 cm (1 in.) thick class of any width and length.

sawmills is apparent as this group produced and sold about 82% of the total planed lumber. Planed dimension lumber accounted for about 93% of all planed products.

Drying of lumber was about equally divided between air and kiln drying in 1972. Air drying included green or fresh-cut lumber and was usually designated as partly air dried. Kiln drying was only done by the large sawmill group and primarily for export to the United States.

A more detailed listing of specific products sawn and sold is provided in Table 32. Combining both rough and planed quantities, studs and other 2 x 4 dimension material had the largest volume, 38% of total (68 187 m³ or 28 896 Mfbm), followed by 2 x 6's with 29%, and 2 x 8's to 12's with 13%. Board lumber was about evenly distributed among 1 x 4's, 1 x 6's and 1 x 8's to 12's with 3, 3, and 2% respectively. Most timbers were in the 4 x 4 to 4 x 8 size class.

Jack pine accounted for nearly half (49%) of this lumber production, with spruce providing 33% (Table 33). Poplar at 16% was the major hardwood species utilized, and all other species combined comprised 2%.

Forty-six percent of Manitoba lumber was exported to the United States and the remaining 54% was consumed provincially (Table 34). Almost all of the rough lumber was sold in Manitoba, with only 4% being exported to the U.S.A. On the other hand, the U.S. market took 59% (81 935 m³ or 34 723 Mfbm) of the planed lumber.

The Manitoba market absorbed over 80% of the board lumber, all of the timber and tie production, and 95% of the rough dimension stock for a 54% share of total mill output. Almost all of the lumber moving to U.S. markets was supplied by the four largest sawmills.

Table 32. LUMBER PRODUCTS FROM MANITOBA SAWMILLS, 1972.

Board Lumber 2.54 cm (1")			Sold as Rough		Sold as Planed		Total	
			m ³	Mfbm	m ³	Mfbm	m ³	Mfbm
LUMBER PRODUCTS								
Boards	2.54 x 10.16	1 x 4	1 605	680	4 208	1 784	5 813	2 464
	2.54 x 15.24	1 x 6	2 493	1 057	3 490	1 480	5 985	2 537
	2.54 x 20.32	1 x 8	1 975	837	2 096	889	4 071	1 726
	To 30.48	To 12						
Dimension	5.08 x 7.62	2 x 3	-163 ¹	-69	4 927	2 088	4 764	2 019
	5.08 x 10.16	2 x 4	1 972	836	66 215	28 060	68 187	28 896
	5.08 x 15.24	2 x 6	11 874	5 032	39 897	16 908	51 771	21 940
	5.08 x 20.32	2 x 8	5 045	2 138	17 926	7 597	22 971	9 735
	To 30.48	To 12						
Timbers	7.62 x 10.16	3 x 4	340	144	17	7	357	151
	To 20.32	To 8						
	10.16 x 10.16	4 x 4	13 241	5 611	-	-	13 241	5 611
	To 20.32	To 8						
	12.70 x 12.70	5 x 5 and	146	62	18	8	164	70
	15.24 x 15.24	6 x 6 to 8						
	To 20.32							
Ties			3 846	1 630	-	-	3 846	1 630
TOTAL			42 374	17 958	138 794	58 821	181 170	76 779

¹ See footnote 2, Table 3, Appendix E.

SOURCE: Appendix E, Tables 2 and 3

Table 33. MANITOBA LUMBER PRODUCTION BY SPECIES, 1972.

	SPECIES							
	Spruce		Pine		Poplar		Other	
	m ³	Mfbm	m ³	Mfbm	m ³	Mfbm	m ³	Mfbm
Board Planed	3 923	1 663	3 242	1 374	2 620	1 111	11	5
Board Rough	712	302	208	88	5 137	2 177	16	7
Total	4 635	1 965	3 450	1 462	7 757	3 288	27	12
Dimension Planed	48 566	20 581	75 799	32 122	4 598	1 949	2	1
Dimension Rough	6 670	2 827	-6 173 ¹	-2 616 ¹	15 371	6 514	2 860	1 212
Total	55 236	23 408	69 626	29 506	19 969	8 463	2 862	1 213
Timbers and Ties	441	187	15 343	6 502	1 463	620	361	153
TOTAL	60 312	25 560	88 419	37 470	29 189	12 371	3 250	1 378
%	33		49		16		2	

¹ See footnote 2, Table 3, Appendix E.

SOURCE: Appendix E, Tables 2 and 3.

Table 34. MANITOBA LUMBER MARKETS, 1972.

Markets	Rough Lumber		Planed Lumber		Total		%
	m ³	Mfbm	m ³	Mfbm	m ³	Mfbm	
Manitoba							
(by truck)	40 635	17 221	42 342	17 945	82 977	35 166	46
(by rail)	179	76	14 519	6 153	14 698	6 229	8
United States							
(by truck)	1 560	661	2 481	1 052	4 041	1 713	2
(by rail)	-	-	79 454	33 671	79 454	33 671	44
TOTAL	42 374	17 958	138 796	58 821	181 170	76 779	100
%	23		77		100		

SOURCE: Appendix E, Tables 2 and 3.

Both truck and rail were used extensively for the transport of lumber. Truck was the main mode used to service Manitoba markets while rail transportation was the most popular means of moving products to distant markets (Table 34).

Production of miscellaneous products (wood chips, pulpwood, mine props and posts) earned the sawmill industry \$1.3 million in addition to its lumber sales. Most of this material was consumed in Manitoba except for pulpwood, of which 30% was exported to Ontario. It should be noted, however, that in this study no attempt was made to survey all independent loggers, brokers, or dealers who may have been cutting, buying or exporting pulpwood. This production, recorded here by sawmills, was of secondary importance.

WOOD PRESERVATION INDUSTRY

Pressure-treating of wood to protect it from insect attack and decay organisms was a relatively small part of Manitoba's primary wood-

using industry. Contributing 4% to both gross and net sales of the forest industry, it generated net sales of \$1 886 894 in 1972. The major products were treated fence posts (1 045 425 pieces) and poles (106 964 pieces). The main treating process used oil-borne pentachlorophenol solutions under heat and pressure. Only firms treating wood under pressure were included in the study. No doubt there were other firms treating wood by dipping, soaking, or spraying with preserving solutions but these were not surveyed.

These firms sold to markets in Manitoba, western and eastern Canada, and the United States (Table 35). Manitoba took the majority of treated products, consuming at least 85% in each category.

Table 35. MARKETS FOR MANITOBA'S PRESSURE-TREATED WOOD PRODUCTS, 1972.

Market	Fence Posts -----	Products		
		Poles percentages	Lumber -----	Other -----
Manitoba	85	90	85	100
Rest of western Canada	5	10	9	-
Eastern Canada	5	-	-	-
TOTAL CANADA	95	100	94	100
United States	5	-	6	-

SOURCE: Appendix E, Tables 1 and 1A.

CHAPTER V

EMPLOYMENT IN THE MANITOBA FOREST INDUSTRY

In 1972 average employment (in terms of full employment equivalent) in Manitoba's forest industry was estimated at 1236 persons in manufacturing and 583 in logging and transportation (Table 36). The actual number of people working in any one month, however, varied throughout the year. For example, the number of persons employed in manufacturing was at its minimum in January (1071 persons) and its maximum in July (1305 persons). In the timber harvesting and transportation area employment was lowest (333 persons) in May and highest (723 persons) in February (Appendix D, Tables 1 to 4). The pulp and paper industry (logging and manufacturing combined) provided jobs for 67% of the total labor force of 1819 persons, making it the single most important industry in terms of employment.

Figure 4 shows the seasonality of employment in the Manitoba forest industry for logging and manufacturing. A combination of factors characteristic of the logging industry prevents year-round employment opportunities for many workers engaged in woodland operations. As shown, most of the timber harvesting and hauling occurred during the winter season, primarily between October and March. Employment levels fell sharply during spring breakup and were low during the period April to June. Compared to the logging industry, employment in primary manufacturing was relatively stable despite the fact that monthly employment levels did fluctuate. Since Figure 4 describes aggregate employment, the larger

Table 36. EMPLOYMENT IN THE MANITOBA FOREST INDUSTRY BY INDUSTRY GROUP, 1972

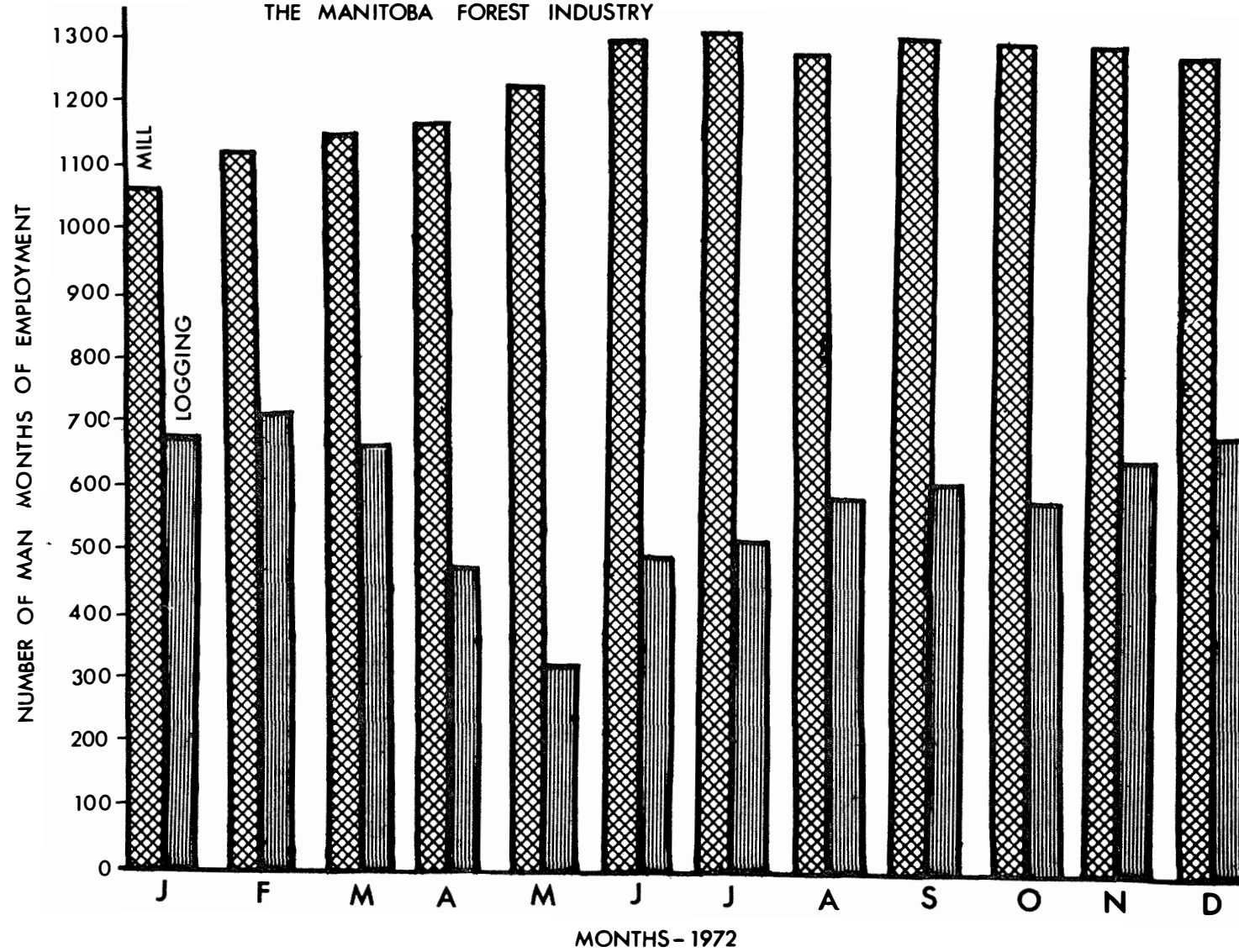
Industry Group		Total Employed ¹	%	Employment Low	Range ² High
Pulp and Paper:	Logging	342	67	220	395
	Mill	874		815	919
		(1 216)			
Wood Preservation:	Logging	13	2	9	17
	Plant	31		18	39
		(44)			
Small Sawmills:	Logging	60	8	25	124
	Mill	87		44	109
		(147)			
Large Sawmills:	Logging	168	23	72	214
	Mill	<u>244</u>		182	300
		(412)			
Total:		583	100		
		(1 819)			
	Mill/Plant	1 236			

¹ Full employment equivalent - defined as a person working 8 h/day, 5 days/wk, 52 wk/yr (2080 h/yr; 173.3 h/mon).

² Minimum and maximum employment in 1972.

SOURCE: Appendix D, Tables 1 to 4.

FIG. 4. NUMBER OF PERSONS EMPLOYED IN LOGGING AND MANUFACTURING IN THE MANITOBA FOREST INDUSTRY



wood-using industries which operated year-round tend to mask the seasonality which existed in many of the smaller operations. The size of the labor force and an industry's ability to support year-round employment vary from one industry group to the next and even within a particular industry. To illustrate these differences Figure 4 has been disaggregated and the employment data for the pulp and paper, wood preserving, and sawmill industries reproduced in Figures 5 to 8.

EMPLOYMENT BY INDUSTRY GROUP

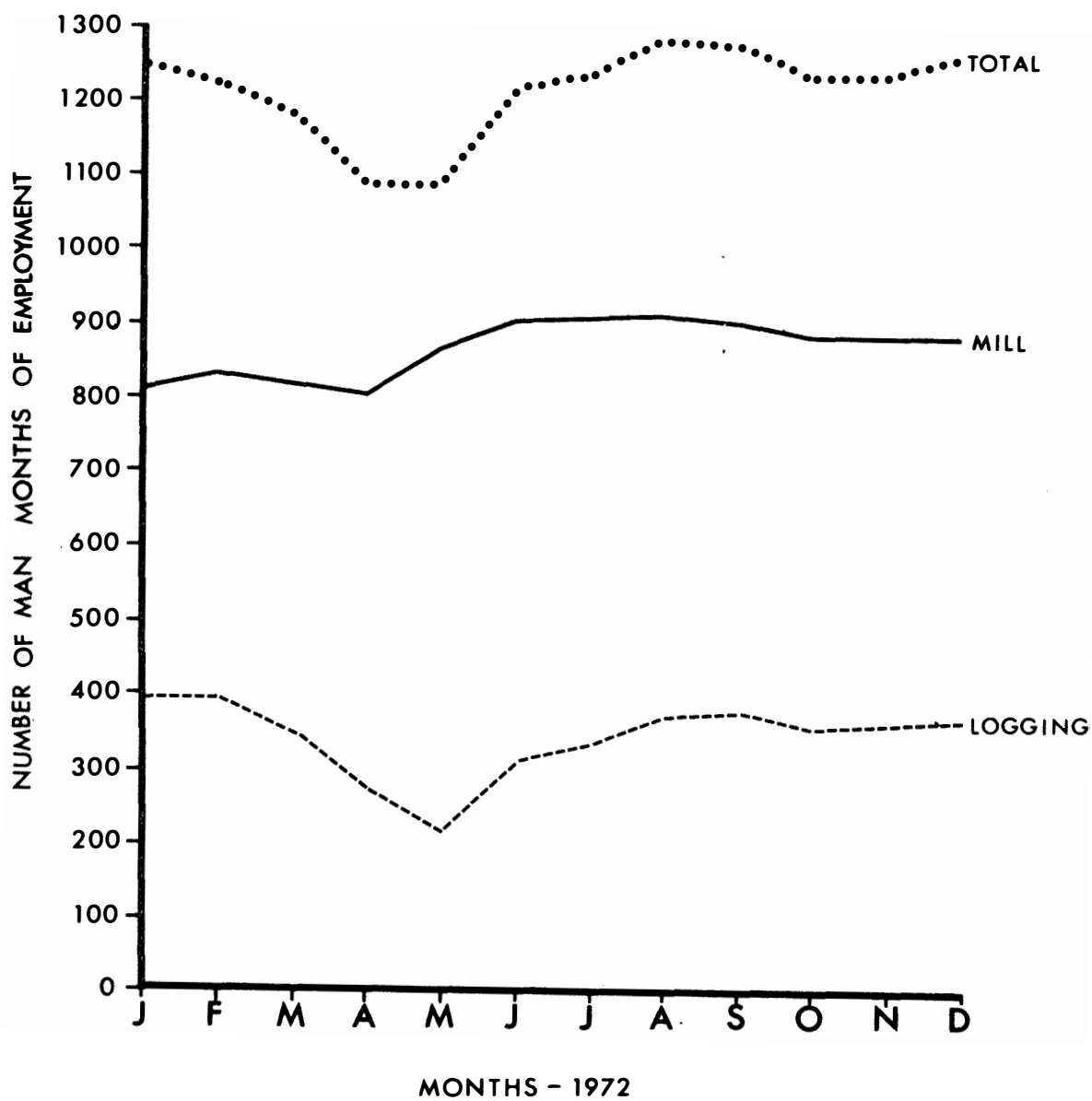
Pulp and Paper Industry

Relative to the other industry groups, employment in the four establishments comprising the pulp and paper industry was by far the most stable. Opportunity for year-round employment, indoor working conditions, better than average fringe benefits, reasonable working hours and wage levels, and relatively safe working conditions are some of the reasons for this stability. Average employment in the mills during 1972 was 874 persons; minimum employment occurred in April (815 persons) and maximum employment in August (919 persons).

Of the four establishments, only two conducted logging operations in 1972. The other two firms purchased roundwood or wood fiber in some other form. Consequently the data presented in Table 36 and the employment levels illustrated in Figure 5 represent the number of jobs in woodland operations provided by the two major pulp and paper mills - Abitibi Paper Company Limited and Manitoba Forestry Resources Ltd., Pulp and Paper Division.¹ These two firms provided employment for 342 workers, or 59% of the

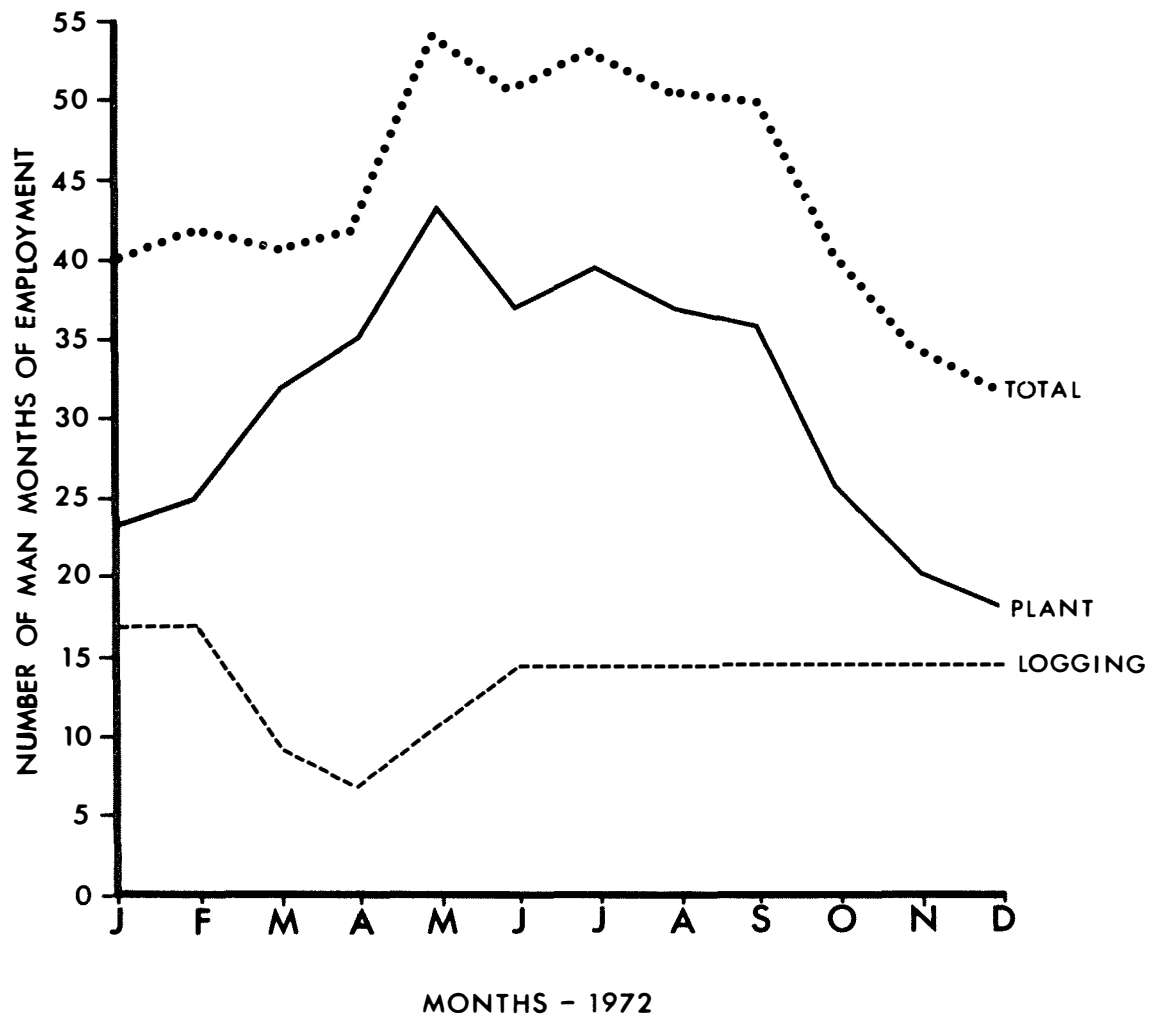
¹ Formerly Churchill Forest Industries (Manitoba) Ltd.

FIG. 5 SEASONALITY OF EMPLOYMENT IN THE MANITOBA
PULP & PAPER INDUSTRY



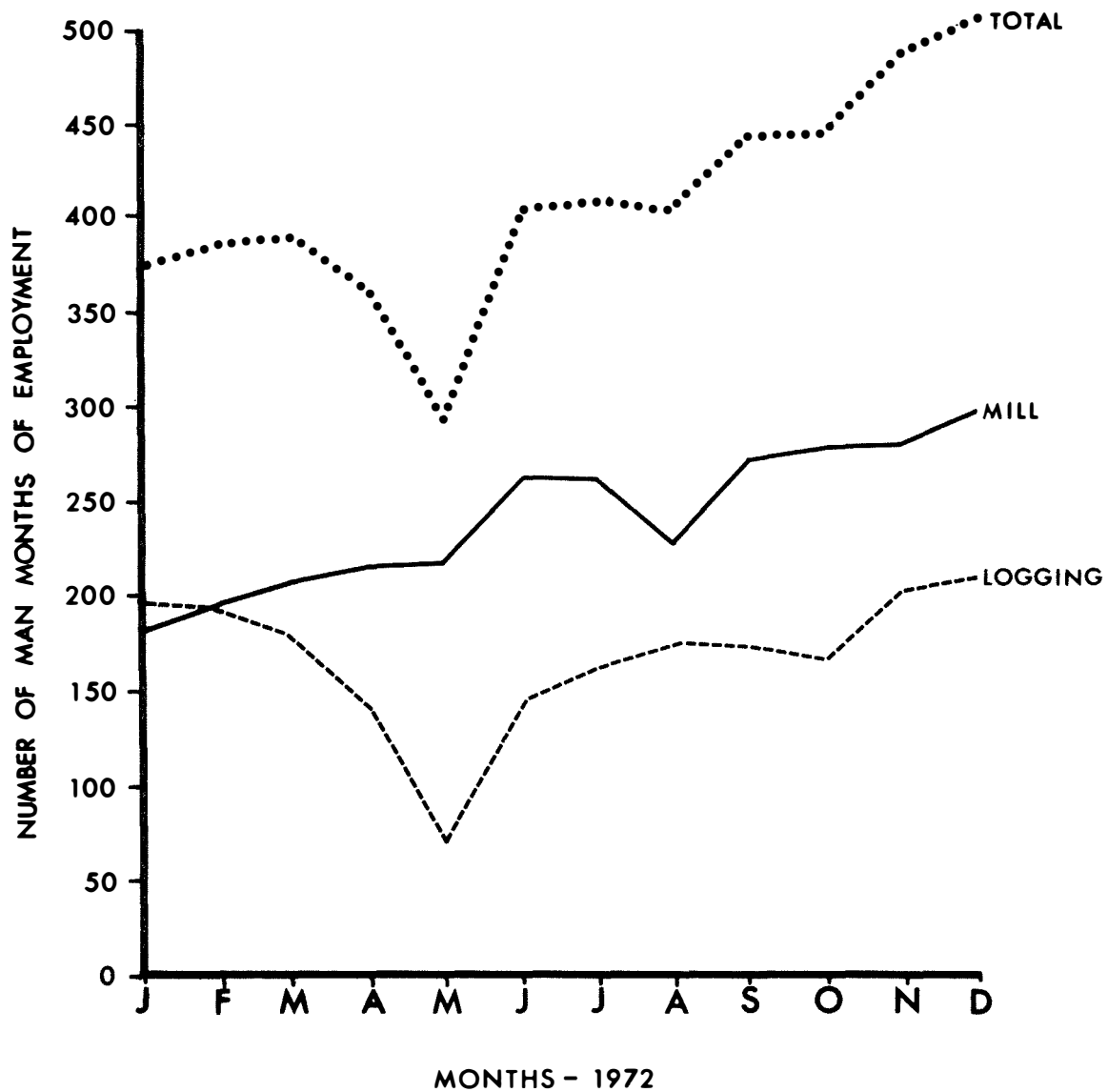
Source: Appendix D, Table 1.

FIG. 6. SEASONALITY OF EMPLOYMENT IN THE MANITOBA
WOOD PRESERVING INDUSTRY



Source: Appendix D, Table 2.

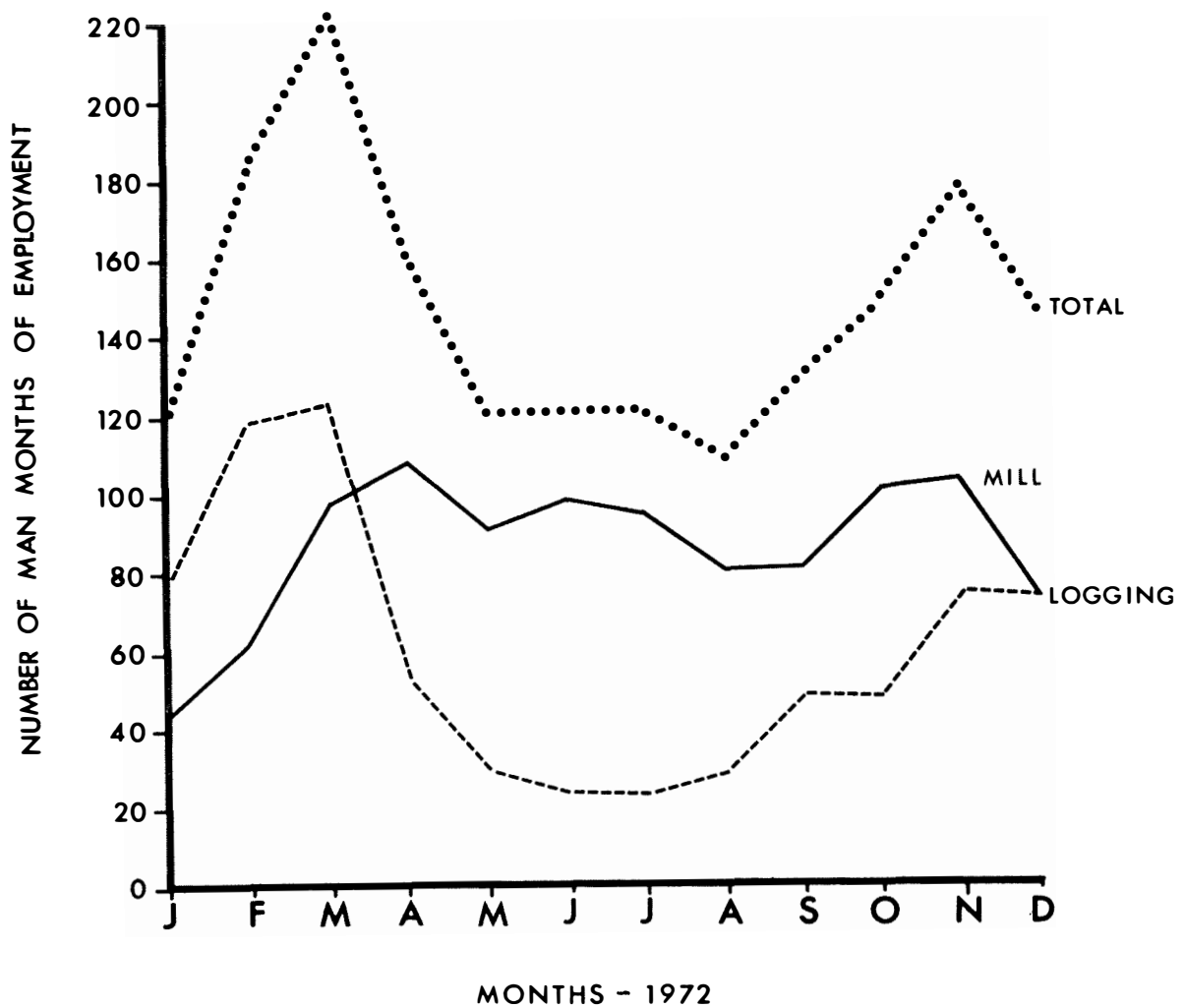
FIG. 7. SEASONALITY OF EMPLOYMENT IN MANITOBA
SAWMILLS PRODUCING $\geq 11\,799\text{ m}^3/\text{YEAR}^1$



¹ Equivalent to $\geq 5\text{ MM FBM}/\text{YEAR}$

Source: Appendix D, Table 3.

FIG. 8. SEASONALITY OF EMPLOYMENT IN MANITOBA
SAWMILLS PRODUCING $< 11\,799\text{ m}^3/\text{YEAR}^1$



¹ Equivalent to $< 5\text{ MM FBM}/\text{YEAR}$

Source: Appendix D, Table 4.

1972 logging labor force. The industry's association with the pulp and paper mills provided high employment during the cutting season, i.e., the first two months of the year and August through December. The period from March through May, however, followed the traditional pattern of early spring layoffs resulting in a sharp decline of 44% in employment from 395 in February to 220 in May.

Wood Preservation Industry

Figure 6 depicts the highly seasonal employment picture in the wood preservation industry. Employment in plant operations increased sharply early in the year, held throughout the summer, and fell sharply between September and December. Average monthly employment was 31 persons, with a low of 18 persons employed in December and a maximum of 39 persons in July. The 1972 employment pattern does not differ significantly from previous years. Difficulty in treating frozen wood, high costs incurred in heating treating oil, and size of operation all tend to preclude winter operations. In 1972 only one firm in the province had enclosed facilities capable of treating all year.

The logging firms supplying raw material to the wood preservation industry provided an average of 13 jobs in 1972. Employment declined during spring breakup from 17 persons in February to 7 in April. As logging conditions improved, employment picked up from 7 in April to 14 persons in June, continuing at that level for the remainder of the year.

Sawmill Industry

Figure 7 illustrates monthly employment for the large sawmills. Average employment in sawing and planing during the year was 244 persons. There was some fluctuation in employment levels throughout the year, particularly between May and September. Over the year, however, there was a net gain in the labor force of 118 persons, primarily due to the start-up of the new dimension mill at the forestry complex at The Pas. The four establishments comprising the large sawmill group employed 20% of the manufacturing labor force.

Logging provided an additional 168 jobs in 1972. The seasonal nature of the activity was very pronounced. The number of people working dropped sharply during spring breakup from 194 in January to 72 in May. As harvesting conditions improved throughout the summer and into the fall and winter, employment picked up from the May level of 72 to 214 persons in December.

Figure 8 depicts the highly seasonal nature of logging and sawing operations of the small sawmills. Average employment was 60 persons in logging and 87 in manufacturing.

Many of the logging and sawmilling operations are one- and two-man affairs, sawmilling being secondary to the entrepreneur's basic occupation. In many cases, mills are operated for the sole purpose of the owner using the product himself or selling in local markets. Of the 119 mills in this group, approximately 15 had planing equipment for finishing rough lumber.

NATIVE EMPLOYMENT

The forest industry in Manitoba provides some opportunities for employment of native people. Employment is usually found in occupations where little in the way of experience or skill is required and the job, in many cases, is seasonal. In 1972, 406 jobs, or 22% of the total forest industry labor force (logging and manufacturing), were occupied by Indian or Métis people (Table 37).

The sawmilling industry supported more than half (52%) of the total native working force. Of the 211 native people employed, 177, or 84%, worked at the large sawmills.

The pulp and paper industry was the second largest employer of native people, with the two larger mills at Pine Falls and The Pas being the major employers. Of the 187 natives employed by this industry, 95 found employment in logging while the remainder worked at various jobs in the mills.

ORGANIZED LABOR IN MANITOBA'S FOREST INDUSTRY

Table 38 provides a breakdown of the Manitoba forest industry (manufacturing only) by industry group showing the total number of production and related workers as well as the number of workers with membership in a trade union or association. Eight active unions represented 85% of the production workers.

The pulp and paper industry was almost completely unionized, having 669 of its 676 production workers associated with one of six unions. In the wood preservation industry, 62% of the workers had union membership. All of these workers were employed by one firm. Fifty-one percent

Table 37. NATIVE EMPLOYMENT IN THE MANITOBA FOREST INDUSTRY, 1972

Industry Group	Total Employment	Native Employment ¹	% Native Employment of Industry Total
Pulp and Paper: Logging	342	95	28
Mill	874	92	11
Wood Preservation: Logging	13	3	23
Plant	31	5	16
Sawmill Industry			
Small Sawmills: Logging	60	34	23
Mill	87		
Large Sawmills: Logging	168	177	43
Mill	<u>244</u>		
TOTAL	1 819	406	22

¹ Defined as the Indian and Métis people of Manitoba

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

Table 38. ORGANIZED LABOR IN MANITOBA'S FOREST INDUSTRY, 1972

Industry Group ¹	Total No. Production and Related Workers	Union Membership	Union
Pulp and Paper	676	669	1) International Brotherhood of Pulp, Sulphite and Paper Mill Workers 2) United Paper Makers and Paper Workers 3) International Brotherhood of Electrical Workers 4) The Office and Professional Employ- ees' International Union 5) International Association of Machinists and Aerospace Workers 6) Retail, Wholesale and Department Store Union.
Wood Preservation	26	16	United Brotherhood of Carpenters and Joiners
Sawmill Industry			
Small Sawmills	56	-	-
Large Sawmills	<u>207</u>	<u>134</u>	International Woodworkers of America
TOTAL	965	819	

¹ Manufacturing only.

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

of the workers in the sawmill industry were union members, all of whom worked in the large sawmills.

FOREST INDUSTRY EMPLOYMENT MULTIPLIERS

Studies have shown that each primary or basic job generally supports an additional non-basic (indirect) job in some community. This expansion principle is called the employment multiplier. A recent report (Reed and Associates, 1973a) describing the British Columbia forest industry pointed out that basic activities may be defined as those which produce goods and services for markets outside the local community. An example of a basic activity would be a pulp and paper mill producing for export markets. Non-basic activities are those which produce goods and services for the local market.

There was no attempt during the course of this study to gather data for purposes of determining employment multipliers for the Manitoba forest industry. However, employment multipliers calculated for the basic activity in several other forest-based communities in Canada, including estimated provincial multipliers, were available (Table 39) and used to estimate industry multipliers for Manitoba. Such multipliers afford the opportunity of analyzing the impact of, for example, a changed level of employment in the forest industry on the total employment in an area.

Employment multipliers for each industry group were estimated with reference to those presented in Table 39. Considerations in the estimation of an appropriate multiplier were given subjectively to a

Table 39. FOREST INDUSTRY EMPLOYMENT MULTIPLIERS

Province	Location	Estimated Multiplier	Basic Activity
Ontario ¹	Dryden	2.01	pulp mill
	Hearst/Kapuskasing	2.13	pulp mill/sawmilling
		2.73*	
British Columbia ²	Prince George	2.43	pulp and paper
	Okanagan Region	2.49	mixed forest industry
		2.80*	
Nova Scotia ³		3.20*	sawmill industry
		1.40*	misc. wood products
		3.50*	pulp & paper industry

* Provincial Multipliers

- SOURCE: ¹ Hedlin, Menzies and Associates, Ltd. 1969. The Ontario Forest Industry. Its Direct and Indirect Contribution to the Economy. Ont. Dep. Lands For.
- ² Reed, F.L.C. and Associates. 1973a. The British Columbia Forest Industry. Its Direct and Indirect Impact on the Economy. B.C. Dep. Lands, For. Water Resour.
- ³ Runyon, K.L. et al. 1972. Analysis of the Economic Impact of Sawmills and Pulp and Paper Mills in Nova Scotia. Environ. Can., For. Serv., Maritimes For. Res. Cent. Inf. Rep. M-X-33.

number of criteria such as structure and size of industry, extent of transportation services required, relative size of the service sector, source of major non-wood materials and supplies, income expenditure pattern of industry employees, and so forth.

The multipliers estimated for the separate industry groups are shown in Table 40 along with the indirect employment supported. The subjective approach used to determine these multipliers was a relatively expedient but unsophisticated method of multiplier calculation and the results should be viewed as reasonable approximations and not absolutes. More precise multipliers for each industry group could be developed by conducting employment surveys in major forest-based communities within the province.

Table 40. DIRECT AND INDIRECT EMPLOYMENT SUPPORTED BY THE MANITOBA FOREST INDUSTRY

Industry Group	Direct Forest Industry Employment	Industry Multiplier	Indirect Employment	Total Employment
Pulp and Paper	1 216	2.05	1 277	2 493
Wood Preservation	44	1.60	26	70
Sawmill Industry	<u>559</u>	2.00	<u>559</u>	<u>1 118</u>
TOTAL	1 819		1 862	3 681
Provincial Forest Industry Multiplier				2.02

Indirect employment supported by the forest industry in 1972 was 1862 jobs. Sixty-nine percent of these jobs resulted from the operation of the pulp and paper industry. Total employment, basic and non-basic, was 3681 jobs. The provincial forest industry multiplier

estimated on the basis of the data in Table 40 was 2.02. By definition this means each job in the Manitoba forest industry was related with 1.02 jobs elsewhere, or each new job created at the primary level created 1.02 additional jobs elsewhere in the province.

CHAPTER VI

PRODUCTION COSTS AND VALUE ADDED IN MANITOBA'S PRIMARY WOOD-USING INDUSTRY

This chapter describes production costs incurred and value added of output from Manitoba's primary wood-using industry for 1972. Components of production costs included wood inputs, salaries and wages, fuel and electricity, materials and supplies, miscellaneous items, and a residual. Miscellaneous items included company-paid employee benefits, property taxes, insurances, leasing and rentals, and other expenses (telephone, association dues, insurances, office supplies, etc.). The residual category included depreciation, profits, and other unallocated expenses (Appendix F, Table 1).

PRODUCTION COSTS AND INDUSTRY SALES

In 1972 Manitoba's primary wood-using industry had net sales of nearly \$46 million (Table 41). At the same time production costs exceeded \$42 million. Cost of wood inputs was the largest single item at 31% of net sales, followed by salaries and wages at 27%, and materials and supplies at 19%. Since profits and depreciation represented less than 6% of net sales it appears that revenues earned by this industry remained largely within the provincial economy even if invested capital originated outside the province.

The pulp and paper component of Manitoba's forest industry dominated both sales and production costs. As a result forest industry averages were heavily weighted by the pulp and paper

Table 41. DISTRIBUTION OF MAJOR PRODUCTION COSTS IN THE MANITOBA FOREST INDUSTRY¹, 1972

	Pulp and Paper Industry	Wood Preservation Industry	Sawmill and Planing Mill Industry		Total ²	% of Net Sales
			Small Sawmills	Large Sawmills		
Number of Firms	4	3	119	4	130	
	----- thousands of dollars -----					
Wood Inputs	8 254	997	1 475	3 547	14 274	31.3
Salaries and Wages	9 352	185	785	1 983	12 306	27.0
Fuel and Electricity	2 463	24	58	121	2 665	5.8
Materials and Supplies	7 333	245	253	779	8 609	18.9
Miscellaneous ³	3 928	170	214	697	5 009	11.0
Residual ⁴	1 221	266	88	1 161	2 736	6.0
Net Sales	32 551	1 887	2 873	8 288	45 598	100.0

¹ Manufacturing only.

² Totals may not add due to rounding.

³ Includes company-paid employee benefits, property taxes, insurances, leasing and rentals, and other expenses.

⁴ Includes depreciation, profits and other unallocated expenses.

SOURCE: Appendix F, Table 1.

expenditure pattern with salaries and wages accounting for 29% of net sales, wood inputs 25%, and materials and supplies 23%.

The residual figure (including profits and depreciation) was below average at less than 4% of net sales (Table 42). Compared with other primary wood-using industry components, pulp and paper had the lowest proportion of its costs in wood inputs and the highest proportion in salaries and wages, fuel and electricity, materials, supplies and miscellaneous costs.

The sawmill and planing mill industry was next in importance financially. This sector had a remarkably similar cost structure in both the large and small sawmill classes except for wood inputs and residual categories. Proportionally, large sawmills spent about 20% less of their revenues on wood inputs than did the small mills. This can be partly explained by the small mills producing proportionately more rough lumber at lower prices than the large mills which concentrated on the higher valued finished lumber market. This different emphasis in products and marketing is further illustrated by the 14% of sales that the large mills had in the residual category compared with only 3% for the small mills.

Products shipped from the wood preservation industry were valued at \$1.9 million, or 4% of forest industry sales. Roundwood inputs in the form of fence posts, poles, pilings, and rough lumber products were the major production costs at \$997 000 or 53% of sales. Materials and supplies were second at \$245 000, followed closely by

Table 42. DISTRIBUTION OF MAJOR PRODUCTION COSTS AS A PERCENTAGE OF NET SALES IN THE MANITOBA FOREST INDUSTRY, 1972.

	Pulp and Paper Industry	Wood Preservation Industry	Sawmill and Planing Mill Industry	
			Small Sawmills	Large Sawmills
Number of Firms	4	3	119	4
Wood Inputs	25.4	52.8	51.3	42.8
Salaries and Wages	28.7	9.8	27.3	23.9
Fuel and Electricity	7.6	1.3	2.0	1.5
Materials and Supplies	22.5	13.0	8.8	9.4
Miscellaneous	12.1	9.0	7.5	8.4
Residual	<u>3.7</u>	<u>14.1</u>	<u>3.1</u>	<u>14.0</u>
TOTAL	100.0	100.0	100.0	100.0

SOURCE: Table 41.

salaries and wages at \$185 000. These three categories combined represented 76% of sales. Compared with the other two industry groups, the wood preservation industry had the lowest wage expenditure per dollar of sales (Table 42), reflecting its low wage rates.

VALUE ADDED OF OUTPUT

Value added can be roughly defined as the net selling value of shipments, less the cost of manufacturing materials and supplies, less the cost of fuel and electricity consumed, plus or minus inventory adjustment. Thus it measures the value which has been "added" to brought-in materials by the process of production. Its major components include labor costs (salaries and wages), the cost of capital (interest, rent, depreciation), and the return to the enterprise (profits). It is considered one of the more accurate economic parameters available for comparing the economic importance of industries.

Value added by the province's primary wood-using industry to the gross provincial product in 1972 was \$26.5 million (Table 43). Of this, the pulp and paper industry provided \$14.5 million or about 55%, followed by the logging industry at \$6.5 million and the sawmill and planing mill industry at \$4.9 million. The value added by the wood preservation industry was relatively small at \$621 000, or 2% of the total.

From a much broader perspective, value added by Manitoba's manufacturing industries was \$600 million in 1972 (Table 6). Of this, Wood Industries had \$15.9 million, or 2.7% of the total, and

Table 43. VALUE ADDED AND SALES OF THE MANITOBA FOREST INDUSTRY, 1972.

Industry Group	No. of Firms	Value Added Manufacturing Activity ----- thousands of dollars -----	Net Sales -----	% Value Added of Net Sales	Gross Sales ¹ - \$000's --
Pulp and Paper Industry	4	14 501	32 551	44.5	40 941
Wood Preservation Industry	3	621	1 887	32.9	2 063
Sawmill and Planing Mill Industry	123	4 927	11 160	44.1	12 683
Logging Industry	<u>43</u>	<u>6 478</u>	<u>13 775</u>	47.0	-
TOTAL	173	26 527	59 373	44.7	

¹ Includes sales taxes, excise duties and taxes, outward transportation charges, sales discounts, sales allowances, etc.

SOURCE: Appendix F, Table 1.
Statistics Canada. Logging, 1972. Cat. No. 25-201. Annual.

Paper and Allied Industries had \$30.8 million, or 5.1%. Paper and Allied Industries ranked seventh behind such groups as Food and Beverage, Clothing, Printing and Publishing, Primary Metals, etc., while Wood Industries, of lesser importance, ranked tenth.

Value added accounted for by the primary wood-using industries as a share of total value added by the Wood Industries and Paper and Allied Industries was in each case less than half. In the former, value added was \$5.5 million, or 35% of the total, while in the latter it accounted for \$14.5 million, or 47%.

CHAPTER VII

THE ECONOMIC IMPORTANCE OF MANITOBA'S FOREST INDUSTRY

The contribution of Manitoba's primary wood-using industry to the provincial economy was quite small. Based on value added this industry made up less than 0.6% of the total economy. In 1972 it represented 3% of the value of shipments, 2% of employment, 4% of salaries and wages, and 3% of value added of the respective totals for the manufacturing sector.

About 90% of the firms in the primary wood-using industry are classified as sawmills, the majority of which are small and function seasonally to provide a product for local consumption. However, although a particular resource-based industry may not dominate in its contribution to the economic life of the province, its contribution to an area or region can be substantial. This is evident at The Pas with Manitoba Forestry Resources Ltd., and at Pine Falls with Abitibi Paper Company. Both companies contribute significantly to the economic and social well-being of the communities in which they are established.

Manitoba's forest resource is presently underutilized. Assuming timber harvesting to be compatible with other forest uses and provincial management policy, the opportunity for expansion and new development is a real one. New development, particularly integrated operations, would not only provide more of the better-paying jobs and achieve better utilization of roundwood inputs, but would allow the entrepreneur and province to reap the benefits of producing the highest value product possible from the resource.

CONTRIBUTION OF THE MANITOBA FOREST INDUSTRY TO THE PROVINCIAL ECONOMY

The contribution of the forest industry to the provincial economy has been measured in terms of employment, salaries and wages, products, markets, costs, and value added. In 1972, 1819 full-time equivalent jobs were provided in Manitoba by the primary wood-using industry. Added to this was secondary employment of another 1862 jobs. These jobs were especially important in those communities which depend on forest industry for employment. As well as providing employment in relatively remote areas where other job opportunities are often non-existent, forest industries also provided employment to significant numbers of native people in their own environment. In 1972 the primary wood-using industry provided 406 full-time job equivalents or 22% of its employment to native people. In this regard sawmilling was the most important activity, providing 52% of the native employment.

Export of forest products earns vital foreign exchange for the people of Canada. The primary wood-using industries of Manitoba are no exception. It is estimated that they generated \$29 million in foreign exchange earnings in 1972. Pulp and paper exports were the most important, with 75% of the newsprint, 100% of the kraft pulp, and 83% of the kraft paper production being exported to the United States. In addition 46% of the lumber production was also shipped to the U.S.

Total payroll of the primary wood-using industries in 1972 was \$12.3 million. For every dollar of net sales \$.27 was returned to employees in payment for work performed. The pulp and paper industry had the largest payroll at \$9.4 million, followed by the sawmill industry at \$2.8 million. This primary wood-using industry payroll of \$12.3

million represented 44% of the total for Manitoba's Wood Industries and Paper and Allied Industries groups.

Value added by Manitoba's primary wood-using industry in 1972 was \$26.5 million, with pulp and paper contributing 55%, logging 24%, sawmilling 19%, and wood preservation 2%. Viewed in a broader context this was about 4.2% of Manitoba's total manufacturing industries' value added that year.

Since policy-makers and resource managers are concerned about efficient resource use the relationships in Table 44 are of considerable interest. The wood preservation industry returns the largest amount per cubic metre of wood input in gross and net sales, value added, and employment. In second place is the pulp and paper industry. The wood preservation industry uses the least wood per employee but also pays low wages. Certainly other factors such as markets and wood input characteristics would have to be considered, but given the dangerous aspects of sawmilling as reflected by the high workmen's compensation premiums, one could argue the case for processing wood through wood preservation and pulp and paper industries.

MANITOBA'S TIMBER RESOURCE--PRESENT AND FUTURE

Increasing world population and industrialization will result in increasing demand for timber and related products. Since Canada is the leading timber-exporting nation in the world (U.S. Department of Agriculture, 1973) increases in international demand, especially in the U.S., will have a direct effect on the Canadian forest industry. Industrial expansion can be expected to concentrate in those regions having the largest supplies of economically available timber. In 1972 Canada's timber harvest was 124 million m³ (4380 million ft³) or 55% of its economic allowable annual cut (Tables 45 and 46). Based on EAAC and the 1972

Table 44. INTER-INDUSTRY COMPARISONS OF SELECTED ECONOMIC MEASURES, 1972.

Measures	Sawmill Industry	Industry Pulp and Paper Industry	Wood Preservation Industry
<u>Per m³ (cunit) of Wood Input</u>			
Gross Sales	\$30 (\$ 84)	\$50 (\$141)	\$99 (\$281)
Net Sales	\$26 (\$ 74)	\$40 (\$112)	\$91 (\$257)
Value Added	\$12 (\$ 33)	\$18 (\$ 50)	\$30 (\$ 85)
Salaries and Wages	\$ 6 (\$ 18)	\$11 (\$ 32)	\$ 9 (\$ 25)
Employment ¹ (man-hours)	1.52 (4.31)	2.21 (6.25)	3.09 (8.75)
<u>Per Employee^{1, 2}</u>			
Gross Sales	\$38 316	\$46 844	\$66 560
Net Sales	\$33 718	\$37 243	\$60 867
Value Added	\$14 887	\$16 592	\$20 029
Salaries and Wages	\$ 8 705	\$10 700	\$ 5 973
Wood Input--m ³ (cunits)	1 399 (494)	942 (333)	671 (235)

¹ Mill employment only.

² Man-year basis.

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

Table 45. CANADA'S TIMBER HARVEST, 1972¹, AS A PERCENT OF GROSS PHYSICAL AND ECONOMIC ALLOWABLE CUT BY REGION

thousands of m³
(millions of cubic feet)

Region	Gross Physical A.A.C.			Economic A.A.C. ²		
	Softwood	Hardwood	Total	Softwood	Hardwood	Total
British Columbia	94 040	850	94 890	83 110	425	83 535
	(3 321)	(30)	(3 351)	(2 935)	(15)	(2 950)
% ³	59.7	36.1	59.5	67.6	72.1	67.6
Prairie Provinces	29 449	17 273	46 722	20 615	12 091	32 706
	(1 040)	(610)	(1 650)	(728)	(427)	(1 155)
% ³	28.9	5.0	20.1	41.3	7.1	28.6
Ontario	37 746	36 614	74 360	20 331	23 107	43 438
	(1 333)	(1 293)	(2 626)	(718)	(816)	(1 534)
% ³	36.5	9.8	23.3	67.8	15.5	40.0
Quebec	52 018	11 667	63 685	38 228	6 853	45 081
	(1 837)	(412)	(2 249)	(1 350)	(242)	(1 592)
% ³	43.3	45.7	43.7	58.9	77.7	61.7
Atlantic Provinces	18 378	6 145	24 523	16 141	5 380	21 521
	(649)	(217)	(866)	(570)	(190)	(760)
% ³	62.5	25.0	53.1	71.2	28.6	60.5
TOTAL	231 631	72 549	304 180	178 425	47 856	226 281
	(8 180)	(2 562)	(10 742)	(6 301)	(1 690)	(7 991)
% ³	48.5	16.0	40.8	63.0	24.2	54.8

¹ Excluding Yukon and Northwest Territories

² The allowable annual cut on areas now physically accessible or becoming so which could be utilized under present (1972) cost/price levels for lumber and plywood and somewhat improved prices for pulp and newsprint.

³ 1972 actual production as a percentage of gross physical and economic allowable annual cut.

SOURCE: Council of Forest Industries of British Columbia. 1972. Canada's Forest Resource and Forest Products Potential. Vancouver, B.C., 1972.

Statistics Canada, 1974. Logging, 1972. Cat. No. 25-201. Annual.

Table 46. SURPLUS TIMBER AVAILABLE FOR INDUSTRIAL EXPANSION BY REGION.

Region	Canadian Timber Harvest, 1972			Estimated Surplus Timber, 1972			Relative Share of Surplus Timber by Region		
	Softwood	Hardwood	Total ¹	Softwood	Hardwood	Total ¹	Softwood	Hardwood	Total
	----- thousands of m ³ ----- ----- (millions of ft ³) -----	----- thousands of m ³ ----- ----- (millions of ft ³) -----	----- thousands of m ³ ----- ----- (millions of ft ³) -----	----- thousands of m ³ ----- ----- (millions of ft ³) -----	----- thousands of m ³ ----- ----- (millions of ft ³) -----	----- thousands of m ³ ----- ----- (millions of ft ³) -----	----- % -----	----- % -----	----- % -----
British Columbia	56 152 (1 983)	312 (11)	56 464 (1 994)	26 958 (952)	113 (4)	27 071 (956)	40.8	0.3	26.5
Prairie Provinces	8 495 (300)	850 (30)	9 345 (330)	12 120 (428)	11 242 (397)	23 361 (825)	18.4	31.0	22.8
Ontario	13 790 (487)	3 568 (126)	17 358 (613)	6 541 (231)	19 539 (690)	26 080 (921)	9.9	53.9	25.5
Quebec	22 512 (795)	5 324 (188)	27 836 (983)	15 716 (555)	1 529 (54)	17 245 (609)	23.8	4.2	16.9
Atlantic Provinces	11 497 (406)	1 529 (54)	13 026 (460)	4 644 (164)	3 851 (136)	8 495 (300)	7.0	10.6	8.3
Canada	112 418 (3 970)	11 610 (410)	124 028 (4 380)	66 006 (2 331)	36 246 (1 280)	102 252 (3 611)	99.9	100.0	100.0

¹ Totals may not add due to rounding.

SOURCE: Council of Forest Industries of British Columbia, 1972, Canada's Forest Resource and Forest Products Potential, Vancouver, B.C., 1972.

Statistics Canada, 1974. Logging, 1972. Catalogue No. 25-201, Annual.

harvest (Table 46), Canada's surplus of economically available timber was 102 million m³ (3611 million ft³). British Columbia, Ontario, and the Prairie Provinces share about equally in 75% of this surplus. However, they have very different mixes of softwoods and hardwoods. For example, British Columbia has almost all of its surplus timber in softwood species, Ontario is dominated by hardwoods, and the Prairie Provinces have nearly equal quantities of each type. Thus it appears that the Prairie region has the potential timber supplies to support an expanded forest industry of national as well as regional importance.

Manitoba's 1972 timber harvest of 1.8 million m³ (63 million ft³) was about 20% of the Prairie total. Provincial crown lands accounted for 87% of this volume and other lands for 13%. Production from provincial crown lands represented 30% of its softwood and 12% of its hardwood allowable annual cut. Based on the province's allowable cut estimates for crown land, the forest industry could harvest an additional 4.5 million m³ (158 million ft³) annually, or enough additional wood fiber to support a forest industry three times its present size. However, distribution of timber types, remoteness of stands, quality of timber, low yield capability of some forest land, and allocation of timber production areas to other uses seem to preclude development to this level. It does not, however, prevent expansion of the forest industry to some level below the estimated allowable harvest, nor does it prevent expansion to a level above it should Manitoba's forests be managed at higher levels of productivity than at present.

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APPENDIXES

- A. Selected Metric Units
- B. Lumber Production by Mill Size Class
- C. Forest Inventory Data
- D. Employment Statistics
- E. Quantities, Markets, and Sales of Manitoba Forest Products
- F. Financial Data
- G. Wood and Semi-Processed Wood Fiber Utilized by Manitoba's Forest Industry
- H. Standard Industrial Classification for Forest Industries

APPENDIX A

SELECTED METRIC (SI) UNITS AND CONVERSION FACTORS

Canadian Unit	Metric (SI)
1 in.	2.54 cm
1 mile	1.609 34 km
1 acre	0.404 686 ha
1 sq mile	2.589 99 km ²
1 cord (85 ft ³ solid wood)	2.406 928 m ³
1 ft ³	0.028 316 8 m ³
1 cunit (100 ft ³ of solid wood)	2.831 68 m ³
1 ton (2000 lb)	0.907 185 t
1 cord per acre	8.956 47 m ³ (stacked)/ha
1 ft ³ per acre	0.069 972 5 m ³ /ha
1000 bd ft	2.359 737 m ³
1 bone dry unit wood chips (2400 lb)	1.088 622 t
1 ft ² of sheet product (1/2-in. basis)	1.179 868 6 m ² (1 mm basis)

SOURCE: Environment Canada, 1974. Selected Metric (SI) Units and Conversion Factors for Canadian Forestry. Canadian Forestry Service, November, 1974.

APPENDIX B

LUMBER PRODUCTION BY SIZE CLASS FOR MANITOBA SAWMILLS, 1972

Size Class ¹		Number of Sawmills	Class Production		Class Percent of Total Production %
m ³	MFBM		m ³	MFBM	
0 - 4 719	0 - 2 000	4	278	118	0.154
4 722 - 7 079	2 001 - 3 000	4	85	36	0.047
7 082 - 9 439	3 001 - 4 000	5	139	59	0.007
9 441 - 11 799	4 001 - 5 000	21	4 207	1 783	2.322
11 801 - 14 158	5 001 - 6 000	18	3 988	1 690	2.201
14 161 - 18 878	6 001 - 8 000	30	9 064	3 841	5.003
18 880 - 23 597	8 001 - 10 000	16	4 283	1 815	2.364
23 600 - 28 317	10 001 - 12 000	5	10 513	4 455	5.802
28 319 - 33 036	12 001 - 14 000	7	3 285	1 392	1.813
33 039 - 35 396	14 001 - 15 000	5	3 011	1 276	1.662
35 398 - 58 993	15 001 - 25 000	4	8 960	3 797	4.945
58 996 - 412 954	25 001 - 175 000	4	133 368	56 518	73.610
TOTAL		123	181 181 ²	76 780 ²	100.00

1

Size classes represent the potential production in cubic metres (board feet) of a sawmill operating for one 8-h shift.

2

Represents the total production of board and dimension lumber, timbers and railway ties. Does not include output of miscellaneous products.

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

APPENDIX C
Table 1
PROVINCIAL CROWN LAND FOREST REGION NET MERCHANTABLE VOLUME IN CUBIC METRES.
PRODUCTIVE AREA IN HECTARES
(May 1, 1973)

FOREST REGION	Cutting Class	Area in ha	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Subtotal ^a Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Subtotal Hardwood	Total ^a	m ³ /ha
Agriculture Zone 0 ¹ (FMC 01-09)	0	492 575	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 - 2	1 97 165	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	53 482	32 394	61 561	537 878	12 969	3 256	-	648 038	1 102 033	148 889	116 523	230 830	1 618 276	2 266 335	-
	4 - 5	17 984	10 817	20 529	175 302	4 304	1 076	-	216 029	367 354	49 611	38 822	83 639	539 406	755 435	-
	TOTAL	761 716	43 211	82 090	717 180	17 273	4 332	-	864 087	1 469 387	198 500	155 345	334 449	2 157 682	3 021 771	3.97
Mountain Region-1 ¹ (FMC 11-14) (excludes FMC 15- Federal Crown)	0	26 598	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 - 2	21 209	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	219 484	3 997 935	4 121 991	3 738 412	138 328	111 228	-	12 107 895	3 906 699	1 176 365	827 162	55 812	5 966 038	18 073 934	-
	4 - 5	259 776	4 557 929	5 628 104	1 638 665	244 062	71 868	-	11 940 628	9 239 092	3 612 827	1 143 602	85 347	16 080 868	26 021 497	-
	TOTAL	527 067	8 555 864	9 550 095	5 337 077	382 390	183 096	-	24 048 523	13 145 791	4 789 192	1 970 764	141 159	20 046 906	44 095 431	83.66
Southern Region-2 ²	0	72 631	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 - 2	211 648	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	185 158	1 567 731	2 351 993	221 182	193 573	651 358	389 922	5 375 461	2 076 726	458 619	214 358	25 315	2 775 018	8 150 679	-
	4 - 5	104 442	862 105	1 377 074	93 276	86 933	198 914	257 201	3 076 507	1 034 837	235 907	102 478	15 206	1 388 429	4 464 936	-
	TOTAL	573 879	2 429 836	3 729 067	314 458	280 506	1 051 176	647 123	8 452 168	3 111 563	694 526	316 836	40 521	4 163 447	12 615 615	21.98
Lake Winnipeg East Region-3 ³	0	156 983	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 - 2	631 740	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	605 877	15 049 360	14 171 142	1 157 817	783 639	454 363	255	31 616 557	9 604 463	275 211	1 070 177	52 697	11 002 549	42 619 106	-
	4 - 5	400 511	7 768 374	11 905 827	3 043 037	1 224 475	357 697	3 700	24 302 610	8 073 063	156 507	696 621	69 093	8 995 284	33 297 895	-
	TOTAL	1 795 111	22 817 734	26 076 969	4 209 854	2 008 114	812 040	3 455	55 919 167	17 677 526	431 718	1 766 798	121 790	19 997 833	75 917 001	42.29
Lowland South Region - 4 ⁴	0	417 078	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 - 2	464 938	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	353 965	2 309 291	5 844 899	1 603 637	705 485	762 713	1 897	11 227 922	3 986 807	873 120	530 883	63 571	5 454 382	16 682 305	-
	4 - 5	203 406	3 243 378	5 033 509	1 776 086	1 217 877	210 903	878	11 482 632	3 402 745	1 000 744	883 597	143 339	5 430 426	16 913 058	-
	TOTAL	1 439 387	5 552 469	10 878 408	3 379 723	1 923 362	973 616	2 775	22 710 554	7 389 552	1 873 864	1 414 480	206 910	10 884 808	33 595 763	23.34
Lowland North Region - 5 ⁵	0	128 882	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 - 2	115 624	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	355 431	6 564 004	5 969 974	1 732 053	97 155	231 801	-	14 594 988	2 038 502	412 972	310 862	64 137	2 816 473	17 411 462	-
	4 - 5	217 064	5 735 879	5 342 927	2 948 572	163 246	73 001	-	14 383 625	2 718 101	979 959	471 616	228 715	4 398 392	18 662 017	-
	TOTAL	817 001	12 299 883	11 312 901	4 680 625	260 401	304 802	-	28 858 613	4 746 603	1 392 931	782 478	292 852	7 214 865	36 073 479	44.15
Mining North Region - 6 ⁶	0	201 009	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1 - 2	630 944	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3	809 909	12 658 374	31 606 844	4 446 493	217 615	147 955	-	49 097 282	9 413 269	824 755	1 513 901	-	11 751 925	60 849 207	-
	4 - 5	257 308	6 951 972	12 797 834	2 261 238	134 334	21 011	-	22 164 391	4 048 254	297 185	606 801	-	4 952 240	27 118 611	-
	TOTAL	1 899 170	19 650 346	44 404 678	6 727 731	351 949	168 966	-	71 863 673	13 461 523	1 121 940	2 120 702	-	16 704 165	87 967 838	46.32

Table 1 (cont'd)

FOREST REGION	Cutting Class	Area in ha	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Subtotal Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Subtotal Hardwood	Total	m ³ /ha
Northern Transition Region- '7'	0	9 467	-	-	-	-	-	-	-	-	-	-	-	-	-	5.80
	1 - 2	1 327 340	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	93 485	875 272	4 802 133	368	163 396	792	-	5 844 163	298 430	1 614	150 702	-	450 746	6 294 910	
	4 - 5	47 208	289 822	1 771 697	-	55 161	368	-	2 117 049	95 711	-	46 921	-	142 632	2 259 680	
	TOTAL	1 477 500	1 165 094	6 573 830	368	220 757	1 160	-	7 961 212	394 141	1 614	197 623	-	593 378	8 554 590	
Nelson River Region- '8'	0	275 045	-	-	-	-	-	-	-	-	-	-	-	-	-	38.32
	1 - 2	669 200	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	704 857	8 363 338	25 534 901	1 880 235	211 328	172 902	-	36 162 706	6 199 000	690 562	954 219	-	7 843 782	44 006 488	
	4 - 5	260 862	5 356 576	13 994 870	3 301 626	408 356	20 558	-	23 081 986	4 897 249	579 135	620 138	-	6 096 522	29 178 508	
	TOTAL	1 909 964	13 719 914	39 529 771	5 181 861	619 684	193 460	-	59 244 692	11 096 249	1 269 697	1 574 357	-	13 940 304	73 184 996	
North Eastern Region- '9'	0	4 726	-	-	-	-	-	-	-	-	-	-	-	-	-	32.76
	1 - 2	1 566 485	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	646 232	6 728 213	43 633 923	-	2 009 530	-	-	52 371 667	5 328 202	-	2 078 226	-	7 406 429	59 788 096	
	4 - 5	215 373	2 242 690	14 544 584	-	669 777	-	-	17 457 052	1 776 086	-	692 714	-	2 468 800	19 925 852	
	TOTAL	2 432 816	8 970 903	58 178 507	-	2 679 307	-	-	69 828 719	7 104 288	-	2 770 940	-	9 875 229	79 703 948	
Manitoba	0	1 784 994	-	-	-	-	-	-	-	-	-	-	-	-	-	33.35
	1 - 2	5 836 294	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	4 028 381	58 145 915	138 099 362	15 338 078	4 535 218	2 536 251	392 074	219 046 900	43 944 134	4 862 108	7 767 015	512 364	57 085 621	276 132 521	
	4 - 5	1 983 945	37 019 544	72 216 958	15 241 800	4 208 528	1 156 401	261 279	130 104 510	35 652 493	6 911 876	5 303 311	625 320	48 493 001	178 597 512	
	TOTAL	13 633 614	95 165 459	210 316 320	30 579 878	8 743 746	3 692 652	653 353	349 151 410	79 596 627	11 773 984	13 070 326	1 137 684	105 578 622	454 730 033	

Cutting Class - This is a designation applied to forest stands based on size, vigor, state of development and maturity of a stand for harvesting purposes. Five cutting classes are recognized as follows:

Cutting Class 0 - Forest land not restocked following fire, cutting, windfall, or other major disturbances (hence potentially productive land). Some reproduction or scattered residual trees (with net merchantable volume less than 17.493057 m³/ha may be present).

Cutting Class 1 - Stands which have been restocked either naturally or artificially. There may be scattered residual trees present as in Cutting Class 0. To be in Cutting Class 1, the average heights of the stand must be less than 3.6576 m.

Cutting Class 2 - Advanced young growth of post size, with some merchantable volume. The average height of the stand must be over 3.6576 m in order to be in this cutting class.

Cutting Class 3 - Immature stands with merchantable volume growing at or near their maximum rate, which definitely should not be cut. The average height of the stand should be over 7.6200 m and the average diameter should be over 9.144 cm at D.B.H.

Cutting Class 4 - Mature stands which may be cut as they have reached rotation age (≤ 10 years or ≤ 20 years on Site 2 black spruce, tamarack larch and eastern cedar).

Cutting Class 5 - Overmature stands which should be given priority in cutting due to susceptibility to decay, natural damage and insect attack.

* Totals may not add due to rounding

SOURCE: Manitoba Department of Mines, Resources and Environmental Management

APPENDIX C

Table 1A

PROVINCIAL CROWN LAND

FOREST REGION NET MERCHANTABLE VOLUME IN CUNITS (100's OF CUBIC FEET)

PRODUCTIVE AREA IN ACRES

(MAY 1, 1973)

Forest Region	Cutting Class	Area in Acres	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Subtotal Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Subtotal Hardwood	Total	Cunits/Acre
Agriculture Zone-'0' (PMU 01-09)	0	1 217 178	-	-	-	-	-	-	-	-	-	-	-	-	-	.57
	1 - 2	487 204	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	133 392	11 440	21 740	189 950	4 580	1 150	-	228 360	389 180	52 580	41 150	88 580	571 490	800 350	
	4 - 5	44 464	3 820	7 250	63 320	1 520	380	-	76 290	129 730	17 520	13 710	29 530	190 490	266 780	
	Total	1 882 238	15 260	28 990	253 270	6 100	1 530	-	305 150	518 910	70 100	54 860	118 110	761 980	1 067 130	
Mountain Region-'1' (PMU 11-14) (Excludes PMU 15 - Federal Crown)	0	65 724	-	-	-	-	-	-	-	-	-	-	-	-	-	11.96
	1 - 2	52 408	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	542 357	1 411 860	1 455 670	1 320 210	48 850	39 280	-	4 275 870	1 379 640	415 430	292 110	19 710	2 106 890	6 382 760	
	4 - 5	641 920	1 609 620	1 916 920	578 690	86 190	25 380	-	4 216 800	3 262 760	1 275 860	403 860	30 140	4 972 620	9 189 420	
	Total	1 302 409	3 021 480	3 372 590	1 898 900	135 040	64 660	-	8 492 670	4 642 400	1 691 290	695 970	49 850	7 079 510	15 572 180	
Southern Region-'2'	0	179 475	-	-	-	-	-	-	-	-	-	-	-	-	-	3.14
	1 - 2	522 994	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	457 535	553 640	830 600	78 110	68 360	229 990	137 700	1 898 400	733 390	161 960	75 700	8 940	979 990	2 878 390	
	4 - 5	258 082	304 450	486 310	32 940	30 700	141 230	90 830	1 086 460	365 450	53 310	36 190	5 370	490 320	1 576 780	
	Total	1 418 086	858 090	1 316 910	111 050	99 060	371 220	228 530	2 984 860	1 098 840	245 270	111 890	14 310	1 470 310	4 455 170	
Lake Winnipeg East Region-'3'	0	387 914	-	-	-	-	-	-	-	-	-	-	-	-	-	6.04
	1 - 2	1 561 063	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	1 497 154	5 314 640	5 004 500	498 880	276 740	160 450	90	11 165 300	3 391 790	97 190	377 930	18 610	3 885 520	15 050 820	
	4 - 5	989 683	2 743 380	4 204 510	1 074 640	432 420	126 320	1 130	8 582 400	2 850 980	55 270	246 010	24 400	3 176 660	11 759 060	
	Total	4 435 814	8 058 020	9 209 010	1 483 520	709 160	286 770	1 220	19 747 700	6 242 770	152 460	623 940	43 010	7 062 180	26 809 880	
Lowland South Region-'4'	0	1 030 622	-	-	-	-	-	-	-	-	-	-	-	-	-	3.34
	1 - 2	1 148 887	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	874 667	815 520	2 064 110	566 320	249 140	269 350	670	3 965 110	1 407 930	308 340	187 480	22 450	1 926 200	5 891 310	
	4 - 5	502 626	1 145 390	1 777 570	627 220	430 090	74 430	310	4 055 060	1 201 670	353 410	312 040	50 620	1 917 740	5 972 800	
	Total	3 556 802	1 960 910	3 841 680	1 193 540	679 230	343 830	980	8 020 170	2 609 600	661 750	499 520	73 070	3 843 940	11 864 110	
Lowland North Region-'5'	0	318 475	-	-	-	-	-	-	-	-	-	-	-	-	-	6.31
	1 - 2	285 713	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	878 289	2 318 060	2 108 280	611 670	34 310	81 860	-	5 154 180	716 360	145 840	109 780	22 650	994 630	6 148 810	
	4 - 5	536 377	2 025 610	1 886 840	1 041 280	57 650	25 780	-	5 037 160	959 890	346 070	166 550	80 770	1 553 280	6 590 440	
	Total	2 018 854	4 343 670	3 995 120	1 652 950	91 960	107 640	-	10 191 340	1 676 250	491 910	276 330	103 420	2 547 910	12 739 250	
Mining North Region-'6'	0	496 704	-	-	-	-	-	-	-	-	-	-	-	-	-	6.62
	1 - 2	1 559 095	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	2 001 326	4 470 270	11 161 870	1 577 330	76 850	52 250	-	17 338 570	3 324 270	291 260	534 630	-	4 150 160	21 488 730	
	4 - 5	635 823	2 455 070	4 519 520	798 550	47 440	7 420	-	7 828 000	1 429 630	104 950	214 290	-	1 748 870	9 576 870	
	Total	4 692 948	6 925 340	15 681 390	2 375 880	124 290	59 670	-	25 166 570	4 753 900	396 210	748 920	-	5 899 030	31 065 600	

Table 1A (cont'd)

Forest Region	Cutting Class	Area in Acres	Jack Pine	Black Spruce	White Spruce	Balsam Fir	Tamarack Larch	Eastern Cedar	Subtotal Softwood	Trembling Aspen	Balsam Poplar	White Birch	Other Hardwood	Subtotal Hardwood	Total	Cunits/Acre
Northern Transition Region-'7'	0	23 394	-	-	-	-	-	-	-	-	-	-	-	-	-	.83
	1 - 2	3 279 926	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	231 007	309 100	1 695 860	130	58 480	280	-	2 063 850	105 390	570	53 220	-	159 180	2 223 030	
	4 - 5	116 653	102 350	625 670	-	19 480	130	-	747 630	33 800	-	16 570	-	50 370	798 000	
	Total	3 650 980	411 450	2 321 530	130	77 960	410	-	2 811 480	139 190	570	69 790	-	209 550	3 021 030	
Nelson River Region-'8'	0	679 650	-	-	-	-	-	-	-	-	-	-	-	-	-	5.48
	1 - 2	1 653 629	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	1 741 738	2 953 490	9 017 580	664 000	74 630	61 060	-	12 770 760	2 189 160	243 870	336 980	-	2 770 010	15 540 770	
	4 - 5	644 603	1 891 660	4 942 250	1 165 960	144 210	7 260	-	8 151 340	1 729 450	204 520	219 000	-	2 152 970	10 304 310	
	Total	4 719 620	4 845 150	13 959 830	1 829 960	218 840	68 320	-	20 922 100	3 918 610	448 390	555 980	-	4 922 980	25 845 080	
North Eastern Region-'9'	0	11 677	-	-	-	-	-	-	-	-	-	-	-	-	-	4.68
	1 - 2	3 870 866	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	1 596 873	2 376 050	15 409 200	-	709 660	-	-	18 494 910	1 881 640	-	733 920	-	2 615 560	21 110 470	
	4 - 5	532 198	792 000	5 136 380	-	236 530	-	-	6 164 910	627 220	-	244 630	-	871 850	7 036 760	
	Total	6 011 614	3 168 050	20 545 580	-	946 190	-	-	24 659 820	2 508 860	-	978 550	-	3 487 410	28 147 230	
Manitoba	0	4 410 813	-	-	-	-	-	-	-	-	-	-	-	-	-	4.77
	1 - 2	14 421 785	-	-	-	-	-	-	-	-	-	-	-	-	-	
	3	9 954 338	20 534 070	48 769 410	5 416 600	1 601 600	895 670	138 460	77 355 810	15 518 750	1 717 040	2 742 900	180 940	20 159 630	97 515 440	
	4 - 5	4 902 429	13 073 350	25 503 220	5 382 600	1 486 230	408 380	92 270	45 946 050	12 590 580	2 440 910	1 872 850	220 830	17 125 170	63 071 220	
	Total	33 689 365	33 607 420	74 272 630	10 799 200	3 087 830	1 304 050	230 730	123 301 860	28 109 330	4 157 950	4 615 750	401 770	37 284 800	160 586 660	

Cutting Class - This is a designation applied to forest stands based on size, vigor, state of development and maturity of a stand for harvesting purposes. Five cutting classes are recognized as follows:

Cutting Class 0 - Forest land not restocked following fire, cutting, windfall, or other major disturbances (hence, potentially productive land). Some reproduction or scattered residual trees (with net merchantable volume less than 2.5 cunits per acre may be present).

Cutting Class 1 - Stands which have been restocked either naturally or artificially. There may be scattered residual trees present as in Cutting Class 0. To be in Cutting Class 1, the average height of the stand must be less than 12 feet.

Cutting Class 2 - Advanced young growth of post size, with some merchantable volume. The average height of the stand must be over 12 feet in order to be in this cutting class.

Cutting Class 3 - Immature stands with merchantable volume growing at or near their maximum rate, which definitely should not be cut. The average height of the stand should be over 25 feet and the average diameter should be over 3.6 inches at D.b.h.

Cutting Class 4 - Mature stands which may be cut as they have reached rotation age (± 10 years or ± 20 years on Site 2 black spruce, tamarack larch and eastern cedar).

Cutting Class 5 - Overmature stands which should be given priority in cutting due to susceptibility to decay, natural damage and insect attack.

APPENDIX D

Table 1

ANNUAL AND MONTHLY EMPLOYMENT BY ACTIVITY AND JOB LEVEL IN MANITOBA'S PULP AND PAPER INDUSTRY, 1972.

Months	Logging ¹		Logging ²		Mill		Total
	Hourly	Salaried	Hourly	Salaried	Hourly	Salaried	
	----- Number Employed ³ -----				-----		
January	214	41	122	14	622	200	1 213
February	218	41	122	14	642	201	1 238
March	193	41	104	12	631	199	1 180
April	185	41	45	5	616	199	1 091
May	149	46	23	2	670	195	1 085
June	190	46	73	8	707	196	1 220
July	191	42	90	10	713	196	1 242
August	206	42	108	12	723	196	1 287
September	210	43	106	12	706	199	1 276
October	212	43	89	10	693	195	1 242
November	206	43	100	11	692	196	1 248
December	213	43	104	12	697	199	1 268
Total Man-Months	2 387	512	1 086	122	8 112	2 371	14 590
Total Man-Years	199	43	90	10	676	198	1 216
Total Man-Hours	413 667	88 730	188 203	21 143	1 405 810	410 894	2 528 447

¹ Employment provided by the pulp and paper industry's own logging divisions.

² Employment provided by independent contract loggers and other wood suppliers.

³ Full employment equivalent - defined as a person working 8 h/day, 5 days/wk, 52 wk/yr (2 080 h/yr; 173.3 h/mon).

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

APPENDIX D

Table 2

ANNUAL AND MONTHLY EMPLOYMENT BY ACTIVITY AND JOB LEVEL IN MANITOBA'S WOOD PRESERVATION INDUSTRY, 1972.

Months	Logging ¹		Logging ²		Plant		Total
	Hourly	Salaried	Hourly	Salaried	Hourly	Salaried	
	-----		Number Employed ³		-----		
January	-	-	14	3	18	5	40
February	-	-	14	3	20	5	42
March	-	-	7	2	27	5	41
April	-	-	5	2	30	5	42
May	-	-	9	2	37	6	54
June	-	-	11	3	32	5	51
July	-	-	11	3	33	6	53
August	-	-	11	3	32	5	51
September	-	-	11	3	30	6	50
October	-	-	11	3	21	5	40
November	-	-	11	3	14	6	34
December	-	-	11	3	13	5	32
Total Man-Months	-	-	126	33	307	64	530
Total Man-Years	-	-	10	3	26	5	44
Total Man-Hours	-	-	21 836	5 719	53 203	11 091	91 849

¹ Employment provided by the wood preservation industry's own logging divisions.

² Employment provided by independent contract loggers and other wood suppliers.

³ Full employment equivalent - defined as a person working 8 h/day, 5 days/wk, 52 wk/yr (2 080 h/yr; 173.3 h/mon).

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

APPENDIX D

Table 3

ANNUAL AND MONTHLY EMPLOYMENT BY ACTIVITY AND JOB LEVEL IN MANITOBA'S LARGE SAWMILL INDUSTRY, 1972.

Months	Logging ¹		Logging ²		Hourly Number Employed ⁵	Mill		Other ⁴	Total
	Hourly	Salaried	Hourly	Salaried ³		Salaried			
January	79	25	90	-	148	34	-	-	376
February	76	25	91	-	161	34	-	-	387
March	65	25	90	-	173	34	3	-	390
April	62	25	53	-	184	34	3	-	361
May	20	25	27	-	186	34	3	-	295
June	58	29	57	-	228	34	-	-	406
July	61	30	71	-	227	34	-	-	423
August	68	26	81	-	203	34	-	-	412
September	64	26	81	-	237	34	3	-	445
October	65	26	75	-	238	39	3	-	446
November	64	26	114	-	239	44	-	-	487
December	72	26	116	-	256	44	-	-	514
Total Man-Months	754	314	946	-	2 480	433	15	-	4 942
Total Man-Years	63	26	79	-	207	36	1	-	412
Total Man-Hours	130 668	54 416	163 942	-	429 784	75 039	2 600	-	856 449

¹ Employment provided by the industry's own logging divisions.

² Employment provided by independent contract loggers and other wood suppliers.

³ Data not available.

⁴ Unpaid labor for exchange of work in custom sawing.

⁵ Full employment equivalent - defined as a person working 8 h/day, 5 days/wk, 52 wk/yr (2 080 h/yr; 173.3 h/mon).

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

APPENDIX D

Table 4

ANNUAL AND MONTHLY EMPLOYMENT BY ACTIVITY AND JOB LEVEL IN MANITOBA'S SMALL SAWMILL INDUSTRY, 1972.

Months	Logging ¹		Logging ²		Hourly Employed ⁵	Mill		Other ⁴	Total
	Hourly	Salaried	Hourly	Salaried ³ Number		Salaried			
January	6	12	57	-	32	8		4	119
February	13	24	82	-	41	17		5	182
March	15	28	81	-	49	38		11	222
April	6	5	42	-	46	36		27	162
May	5	3	22	-	48	24		19	121
June	5	4	16	-	65	19		14	123
July	6	4	15	-	69	17		10	121
August	13	2	15	-	73	7		-	110
September	23	5	21	-	52	17		13	131
October	23	5	21	-	71	17		13	150
November	48	6	20	-	71	18		17	180
December	43	5	26	-	58	12		4	148
Total Man-Months	206	103	418	-	675	230		137	1 769
Total Man-Years	17	9	35	-	56	19		11	147
Total Man-Hours	35 700	17 850	72 439	-	116 978	39 859		23 742	306 568

¹ Employment provided by the 'small sawmill' industry's own logging divisions.

² Employment provided by independent contract loggers and other wood suppliers serving the industry.

³ Data not available.

⁴ Unpaid labor for exchange of work in custom sawing.

⁵ Full employment equivalent - defined as a person working 8 h/day, 5 days/wk, 52 wk/yr (2 080 h/yr; 173.3 h/mon).

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

APPENDIX E

Table 1

QUANTITY SOLD, MILL VALUE, AND MARKETS OF MANITOBA FOREST PRODUCTS, 1972¹

Industry Group	No. of Firms	Product	Product Unit	Quantity	Value (f.o.b. mill)	Manitoba	Markets			U.S.A.
							Rest of Western Canada	Eastern Canada		
Pulp and Paper Industry	4	newsprint	tonnes	131 836		25 107	9 416	348	96 965	
		paper	tonnes	16 048		12 839	-	3 209	-	
		kraft paper	tonnes	63 176		-	-	10 886	52 290	
		kraft pulp	tonnes	10 385		-	-	-	10 385	
		roofing products	tonnes	29 937		26 943	-	2 994	-	
		fibreboard	m ² (1mm basis)	13 131 950		6 565 975	-	-	6 565 975	
				TOTAL	\$32 550 553					
Wood Preservation Industry	3	fence posts	pieces	1 045 245		888 612	52 271	52 271	52 271	
		poles	pieces	106 964		96 268	10 696	-	-	
		lumber	m ³	3 941		3 351	335	-	255	
		other	pieces	1 238		1 238	-	-	-	
				TOTAL	\$ 1 886 894					
Sawmill Industry										
Large Sawmills	4	Dimension Planed	m ³	109 042		28 800	-	-	80 242	
		Dimension Rough	m ³	10 123		9 108	-	-	1 015	
		Board Planed	m ³	5 029		3 706	-	-	1 323	
		Board Rough	m ³	5 451		4 906	-	-	545	
		Timbers & Ties	m ³	3 719		3 719	-	-	-	
				TOTAL	\$ 7 152 678					
Small Sawmills	119	Dimension Planed	m ³	19 923		19 923	-	-	-	
		Dimension Rough	m ³	8 605		8 605	-	-	-	
		Board Planed	m ³	4 767		4 397	-	-	370	
		Board Rough	m ³	622		622	-	-	-	
		Timbers & Ties	m ³	13 889		13 889	-	-	-	
		TOTAL	\$ 2 717 803							
All Sawmills	123	Chips	tonnes	52 357		48 808	-	3 549	-	
		Pulpwood	m ³	56 898		39 989	-	16 909	-	
		Mine Props	pieces	41 088		41 088	-	-	-	
		Posts	pieces	31 316		31 316	-	-	-	
				TOTAL	\$ 1 290 152					

¹ Metric units of production where applicable

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

APPENDIX E

Table 1A

QUANTITY SOLD, MILL VALUE, AND MARKETS OF MANITOBA FOREST PRODUCTS, 1972¹

Industry Group	No. of Firms	Product	Product Unit	Quantity	Value \$ (f.o.b. mill)	Markets			
						Manitoba	Rest of Western Canada	Eastern Canada	U.S.A.
Pulp and Paper Industry	4	newsprint	tons	145 325		27 676	10 379	384	106 886
		paper	tons	17 690		14 153	-	3 537	-
		kraft paper	tons	69 640		-	-	12 000	57 640
		kraft pulp	tons	11 448		-	-	-	11 448
		roofing products	tons	33 000		29 700	-	3 300	-
		fibreboard	MSq.ft. (4" basic)	11 130		5 565	-	-	5 565
				TOTAL	\$ 32 550 553				
Wood Preservation Industry	3	fence posts	pieces	1 045 425		888 612	52 271	52 271	52 271
		poles	pieces	106 964		96 268	10 696	-	-
		lumber	MFBM	1 670		1 420	142	-	108
		other	pieces	1 238		1 238	-	-	-
				TOTAL	\$ 1 886 894				
Sawmill Industry									
Large Sawmills	4	Dimension Planed	MFBM	46 210		12 205	-	-	34 005
		Dimension Rough	MFBM	4 290		3 861	-	-	429
		Board Planed	MFBM	2 132		1 572	-	-	560
		Board Rough	MFBM	2 310		2 079	-	-	231
		Timbers & Ties	MFBM	1 576		1 576	-	-	-
				TOTAL	\$ 7 152 678				
Small Sawmills	119	Dimension Planed	MFBM	8 443		8 443	-	-	-
		Dimension Rough	MFBM	3 647		3 647	-	-	-
		Board Planed	MFBM	2 021		1 867	-	-	154
		Board Rough	MFBM	264		264	-	-	-
		Timbers & Ties	MFBM	5 886		5 886	-	-	-
				TOTAL	\$ 2 717 803				
All Sawmills	123	Chips	BDU's	48 095		44 835	-	3 260	-
		Pulpwood	cords	23 639		16 614	-	7 025	-
		Mine Props	pieces	41 088		41 088	-	-	-
		Posts	pieces	31 316		31 316	-	-	-
				TOTAL	\$ 1 290 152				

¹ Canadian Units of Production

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

APPENDIX E

Table 2

MANITOBA LARGE SAWMILL PRODUCTION, MARKETS AND MODE OF TRANSPORTATION, 1972

<u>Board Lumber 2.54 cm (1")</u>			<u>Total Production</u>		Rough Lumber Marketings				Planed Lumber Marketings							
Species	Size Groups ¹		m ³	MFBM	<u>Manitoba</u>		<u>U.S.A.</u>		<u>Manitoba</u>				<u>U.S.A.</u>			
	cm	inches			Truck		Truck		Truck		Rail		Truck		Rail	
					m ³	MFBM	m ³	MFBM	m ³	MFBM	m ³	MFBM	m ³	MFBM	m ³	MFBM
Spruce:	2.54 x 10.16	1x4	1 394	591	-	-	-	-	1 036	439	40	17	-	-	318	135
	2.54 x 15.24	1x6	616	261	-	-	-	-	611	259	5	2	-	-	-	-
	2.54 x 20.32	1x8	531	225	-	-	-	-	531	225	-	-	-	-	-	-
	2.54 x 25.40	1x10	33	14	-	-	-	-	33	14	-	-	-	-	-	-
Pine:	2.54 x 10.16	1x4	642	272	-	-	-	-	106	45	59	25	-	-	477	202
	2.54 x 15.24	1x6	335	142	-	-	-	-	293	124	42	18	-	-	-	-
	2.54 x 20.32	1x8	80	34	-	-	-	-	80	34	-	-	-	-	-	-
	2.54 x 25.40	1x10	80	34	-	-	-	-	80	34	-	-	-	-	-	-
Poplar:	2.54 x 10.16	1x4	1 748	741	982	416	108	46	394	167	-	-	264	112	-	-
	2.54 x 15.24	1x6	3 055	1 295	2 454	1 040	271	115	198	84	-	-	132	56	-	-
	2.54 x 20.32	1x8	1 147	486	734	311	83	35	198	84	-	-	132	56	-	-
	2.54 x 25.40	1x10	819	347	736	312	83	35	-	-	-	-	-	-	-	-
TOTAL			10 480	4 442	4 906	2 079	545	231	3 560	1 509	146	62	528	224	795	337

APPENDIX E

Table 2 (cont'd)

MANITOBA LARGE SAWMILL PRODUCTION, MARKETS AND MODE OF TRANSPORTATION, 1972

Dimension Lumber 5.08 cm (2")				Total Production		Rough Lumber Marketings				Planed Lumber Marketings							
Species	Size Groups ¹					Manitoba		U.S.A.		Manitoba				U.S.A.			
				m ³	MFBM	Truck		Truck		Truck		Rail		Truck		Rail	
	cm	inches				m ³	MFBM	m ³	MFBM	m ³	MFBM	m ³	MFBM	m ³	MFBM	m ³	MFBM
Spruce:	5.08 x 7.62	2x3		1 784	756	-	-	-	-	-	-	196	83	-	-	1 588	673
	5.08 x 10.16	2x4		20 412	8 650	-	-	-	-	3 393	1 438	2 081	882	-	-	14 938	6 330
	5.08 x 15.24	2x6		14 821	6 281	-	-	-	-	1 848	783	1 531	649	-	-	11 442	4 849
	5.08 x 20.32	2x8		5 840	2 475	-	-	-	-	1 798	762	545	231	-	-	3 497	1 482
	to 25.40	to 10															
Pine:	5.08 x 7.62	2x3		2 678	1 135	-	-	-	-	-	-	295	125	-	-	2 383	1 010
	5.08 x 10.16	2x4		29 506	12 504	-	-	-	-	2 218	940	4 882	2 069	-	-	22 406	9 495
	5.08 x 15.24	2x6		21 776	9 228	-	-	-	-	1 435	608	3 179	1 347	-	-	17 162	7 273
	5.08 x 20.32	2x8		8 271	3 505	-	-	-	-	1 364	578	1 664	705	-	-	5 243	2 222
	to 25.40	to 10															
Poplar:	5.08 x 7.62	2x3		-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5.08 x 10.16	2x4		6 027	2 554	3 643	1 544	406	172	1 187	503	-	-	791	335	-	-
	5.08 x 15.24	2x6		5 037	2 135	3 643	1 544	406	172	592	251	-	-	396	168	-	-
	5.08 x 20.32	2x8		3 013	1 277	1 822	772	203	86	592	251	-	-	396	168	-	-
	to 25.40	to 10															
TOTAL				119 165	50 500	9 108	3 860	1 015	430	14 427	6 114	14 373	6 091	1 583	671	78 659	33 334

APPENDIX E

Table 2 (cont'd)

MANITOBA LARGE SAWMILL PRODUCTION, MARKETS AND MODE OF TRANSPORTATION, 1972

Miscellaneous Products		Total Production		Rough Lumber Marketings			
				Manitoba			
		m ³	MFBM	Truck		Rail	
				m ³	MFBM	m ³	MFBM
Ties:		3 719	1 576	3 540	1 500	179	76

Miscellaneous Product Marketings					
Products	Units	Total Production	Manitoba		Ontario
			Truck	Rail	Rail
Pulpwood:	m ³	4 814 (2 000 cords)	-	-	4 814 (2 000 cords)
Mine Props:	# of pieces	39 000	19 500	19 500	-
Chips:	t	52 357 (48 095 B.D.U.'s)	-	-	-

¹ In line with Canadian Forestry Service policy on conversion to metric units under the international system (SI) all data are presented in metric units followed by the Canadian equivalent in brackets. For example a "2x4 stud" is 5.08 x 10.16 cm. Nominal lumber sizes are used throughout instead of actual lumber dimensions. Although there is no direct equivalent to FBM in the international metric system we have used a 1 m³=423.775 9 FBM on the assumption that 1 board foot is equal to 1/12 of a cubic foot.

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

APPENDIX E

Table 3

MANITOBA SMALL SAWMILL PRODUCTION, MARKETS AND MODE OF TRANSPORTATION, 1972.

Species	Board Lumber 2.54 cm (1")		Total Production		Rough Lumber Marketings		Planed Lumber Marketings		Marketings	
	Size Groups ¹		m ³	MFBM	Manitoba		Manitoba		U.S.A.	
	cm	inches			Truck		Truck		Truck	
			m ³	MFBM	m ³	MFBM	m ³	MFBM	m ³	MFBM
Spruce:	2.54 x 10.16	1x4	790	335	335	142	455	193	-	-
	2.54 x 15.24	1x6	729	309	205	87	524	222	-	-
	2.54 x 20.32	1x8	542	230	172	73	370	157	-	-
	to 30.48	to 12								
Pine:	2.54 x 10.16	1x4	876	371	215	91	661	280	-	-
	2.54 x 15.24	1x6	821	348	-210 ²	-89 ²	1 031	437	-	-
	2.54 x 20.32	1x8	616	261	203	86	431	175	-	-
Poplar:	2.54 x 10.16	1x4	351	149	-40 ²	-17 ²	278	118	113	48
	2.54 x 15.24	1x6	418	177	-236 ²	-100 ²	470	199	184	78
	2.54 x 20.32	1x8	219	93	-38 ²	-16 ²	184	78	73	31
	to 30.48	to 12								
Other:	2.54 x 10.16	1x4	12	5	5	2	7	3	-	-
	2.54 x 15.24	1x6	11	5	9	4	2	1	-	-
	2.54 x 20.32	1x8	4	2	2	1	2	1	-	-
TOTAL			5 389	2 285	622	264	4 397	1 864	370	157

APPENDIX E

Table 3 (cont'd)

MANITOBA SMALL SAWMILL PRODUCTION, MARKETS AND MODE OF TRANSPORTATION, 1972.

<u>Dimension Lumber 5.08 cm (2")</u>			<u>Total Production</u>		<u>Rough Lumber Marketings Manitoba</u>		<u>Planed Lumber Marketings Manitoba</u>	
Species	<u>Size Groups¹</u>		m ³	MFBM	<u>Truck</u>		<u>Truck</u>	
	cm	inches			m ³	MFBM	m ³	MFBM
Spruce:	5.08 x 7.62	2x3	59	25	-406 ²	-172 ²	465	197
	5.08 x 10.16	2x4	5 623	2 383	2 010	852	3 613	1 531
	5.08 x 15.24	2x6	4 526	1 918	3 655	1 549	871	369
	5.08 x 20.32	2x8	2 171	920	1 411	598	760	322
	to 30.48	to 12						
Pine:	5.08 x 7.62	2x3	236	100	236	100	-	-
	5.08 x 10.16	2x4	3 424	1 451	-7 103 ²	-3 010 ²	10 527	4 461
	5.08 x 15.24	2x6	1 517	643	505	214	1 012	429
	5.08 x 20.32	2x8	2 218	940	189	80	2 029	860
	to 30.48	to 12						
Poplar:	5.08 x 7.62	2x3	7	3	7	3	-	-
	5.08 x 10.16	2x4	1 789	758	1 612	683	177	75
	5.08 x 15.24	2x6	2 706	1 147	2 277	965	429	182
	5.08 x 20.32	2x8	1 390	589	1 352	573	38	16
	to 30.48	to 12						
Other:	5.08 x 10.16	2x4	1 406	596	1 404	595	2	1
	5.08 x 15.24	2x6	1 388	588	1 388	588	-	-
	5.08 x 20.32	2x8	68	29	68	29	-	-
	to 25.40	to 10						
TOTAL			28 528	12 090	8 605	3 647	19 923	8 443

APPENDIX E

Table 3 (cont'd)

MANITOBA SMALL SAWMILL PRODUCTION, MARKETS AND MODE OF TRANSPORTATION, 1972

Species	<u>Timber 7.62 cm + (3")</u>		<u>Total Production</u>		<u>Rough Lumber Marketings</u>		<u>Planed Lumber Marketings</u>	
	Size Groups ¹				<u>Manitoba</u>		<u>Manitoba</u>	
	cm	inches	m ³	MFBM	Truck		Truck	
					m ³	MFBM	m ³	MFBM
Spruce:	10.16 x 10.16	4x4	354	150	354	150	-	-
	to 20.32	to 8						
	12.70 x 12.70	5x5	14	6	5	2	9	4
	15.24 x 15.24	6x6	73	31	64	27	9	4
	to 20.32	to 8						
Pine:	10.16 x 10.16	4x4	11 490	4 869	11 490	4 869	-	-
	to 20.32	to 8						
	15.24 x 15.24	6x6	7	3	7	3	-	-
Poplar:	10.16 x 10.16	4x4	1 395	591	1 395	591	-	-
	to 20.32	to 8						
	15.24 x 15.24	6x6	68	29	68	29	-	-
Other:	7.62 x 10.16	3x4	357	151	340	144	17	7
	to 20.32	to 8						
	10.16 x 10.16	4x4	2	1	2	1	-	-
	to 20.32	to 8						
	12.70 x 12.70	5x5 &	2	1	2	1	-	-
	& 15.24 x 15.24	6x6						
Ties:			127	54	127	54	-	-
	TOTAL		13 889	5 886	13 854	5 871	35	15

APPENDIX E

Table 3 (cont'd)

MANITOBA SMALL SAWMILL PRODUCTION, MARKETS AND MODE OF TRANSPORTATION, 1972.

Miscellaneous Products	Units	Total Production	Miscellaneous Product Marketings <u>Manitoba</u> Truck
Pulpwood:	m ³	52 084 (21 639 cords)	52 084 (21 639 cords)
Posts:	# of pieces	31 316	31 316
Mine Props:	# of pieces	2 088	2 088

¹ In line with Canadian Forestry Service policy on conversion to metric units under the international system (SI) all data are presented in metric units followed by the Canadian equivalent in brackets. For example "2x4 stud" is 5.08 cm x 10.16 cm. Nominal lumber sizes are used throughout instead of actual lumber dimensions. Although there is no direct equivalent to FBM in the international metric system we have used 1 m³ = 423.775 9 FBM on the assumption that 1 board foot is equal to 1/12 of a cubic foot.

² In some cases the quantity sold as dressed material exceeded that originally produced as rough lumber. This can occur when planing mills purchase and resaw larger material into smaller products before planing. For example, a total of 821 m³ (348 MFBM) of pine 2.54 x 15.24 (1x6) was produced as rough lumber, but 1 031 m³ (437 MFBM) was sold as planed material. This indicates a deficit of 210 m³ (89 MFBM) of pine 2.54 x 15.24 (1x6). Resawing of dimension stock and timber could account for the extra 210 m³ (89 MFBM) required for planed pine 2.54 x 15.24 (1x6).

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

APPENDIX F

Table 1

PRODUCTION COSTS, SALES, AND VALUE ADDED FOR MANITOBA FOREST INDUSTRIES, 1972.

	Pulp and Paper Industry	Wood Preservation Industry	Sawmill and Planing Mill Industry		Total
			Small Sawmills	Large Sawmills	
Number of Firms	4	3	119	4	130
	-----		\$ -----	-----	
Gross Sales	40 941 256	2 063 348	2 998 548	9 683 890	55 687 042
Net Sales (f.o.b. Mill)	32 550 553	1 886 894	2 873 130	8 287 503	45 598 080
Fuel & Electricity	2 463 260	23 773	57 849	120 613	2 665 495
Materials & Supplies (includes maint. & repairs)	7 332 650	244 870	252 781	779 166	8 609 467
Wood Inputs (roundwood & semi processed)	8 253 507	997 351	1 475 312	3 547 356	14 273 526
Value Added by Manufacturing Activity	14 501 136	620 900	1 087 188	3 840 368	20 049 592
Depreciation	185 274	21 612	87 893	120 969	415 748
Mill Wages Paid	7 919 342	145 817	311 279	1 506 435	9 882 873
Mill Salaries Paid	1 432 752	39 352	474 073	476 325	2 422 502
Company Paid Employee Benefits	1 060 039	25 597	16 812	271 427	1 373 875
Local Municipal Taxes	156 474	9 158	1 843	100 444	267 919
Insurances	147 791	5 474	9 155	74 366	236 786
Leasing & Rentals	-	27 339	3 393	11 000	41 732
Other Expenses	2 563 788	102 866	182 740	239 428	3 088 822
Unallocated Residuals and Profits	1 035 676	243 685	- ¹	1 039 974	2 319 335

¹ The majority of small Manitoba sawmills are operated by the owner who seldom pays himself a salary. For purposes of this study all profits and unallocated residuals are included as salaries.

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

APPENDIX G

Table 1

WOOD AND SEMI-PROCESSED WOOD FIBER UTILIZED BY MANITOBA'S FOREST INDUSTRY BY PRODUCT TYPE AND QUANTITY, 1972.

Industry Group	No. Firms	Product Type	Product Unit (Canadian)	Quantity	Volume ¹	
					Cunits ²	m ³
Pulp and Paper	4	pulpwood	cords	232 903	197 968	560 582
		woodpulp	tons	9 741	16 808	47 595
		wood chips	cords	75 361	64 057	181 389
		waste papers	tons	15 453	11 860	33 584
					290 693	823 150
Wood Preservation	3	fence posts	pieces	644 412	3 241	9 177
		poles	pieces	9 043	1 542	4 366
		rough lumber	FBM	1 434 666	2 869	8 124
		and railway ties			7 652	21 667
Sawmill Industry						
Small Sawmills	119	roundwood	FBM	20 261 930	40 524	114 751
Large Sawmills	4	roundwood	FBM	56 518 080	113 036	320 082
		rough lumber	FBM	397 239	794	2 248
					113 830	322 330

¹ Roundwood equivalents.

² 1 cunit = 100 cubic feet

SOURCE: N.F.R.C. Wood Industry Survey, 1972.

APPENDIX H

Table 1

STANDARD INDUSTRIAL CLASSIFICATION LISTINGS FOR FOREST INDUSTRIES

	Industry Number (SIC No.)	
<u>DIVISION 2 - FORESTRY</u>		
<u>Major Group 1 - Logging</u>		
*Logging	031	
<u>Major Group 2 - Forestry Services</u>		
Forestry Services	039	
<u>DIVISION 5 - MANUFACTURING INDUSTRIES</u>		
<u>Major Group 8 - WOOD INDUSTRIES</u>		
Sawmills, Planing Mills and Shingle Mills	251	
a) Shingle Mills		2511
*b) Sawmills and Planing Mills (except Shingle Mills)		2513
Veneer and Plywood Mills	252	
Sash, Door and Other Millwork Plants	254	
a) Sash, Door and Other Millwork Plants n.e.s.		2541
b) Hardwood Flooring Plants		2542
c) Manufacturers of Pre-fabricated Buildings (Wood Frame Construction)		2543
Wooden Box Factories	256	
Coffin and Casket Industry	258	
Miscellaneous Wood Industries	259	
*a) Wood Preservation Industry		2591
b) Wood Handles and Turning Industry		2592
c) Manufacturers of Particle Board		2593
d) Miscellaneous Wood Industries, n.e.s.		2599
<u>Major Group - 10 - PAPER AND ALLIED INDUSTRIES</u>		
*Pulp and Paper Mills	271	
*Asphalt Roofing Manufacturers	272	
Paper Box and Bag Manufacturers	273	
a) Folding Carton and Set-up Box Manufacturers		2731
b) Corrugated Box Manufacturers		2732
c) Paper and Plastic Bag Manufacturers		2733
Miscellaneous Paper Converters	274	

* Industries included in the N.F.R.C. Manitoba Wood Industry Survey, 1972.

SOURCE: Statistics Canada. 1970. Standard Industrial Classification Manual - Revised 1970. Information Canada. Ottawa. Cat. No. 12 - 501. Occasional.