Timber Harvest and Wood Products Manufacture in Alaska, 1995

Prepared For

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Pacific Northwest Experiment Station
Forestry Sciences Laboratory
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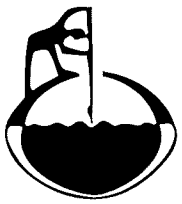

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INTRODUCTION

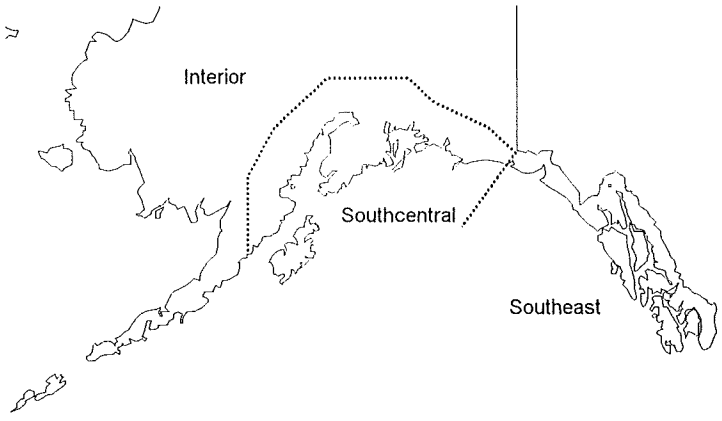
This report provides information about the timber and wood products industry gathered from a variety of sources. It includes data for the entire state and for three regions within the state, and brings together previously available data on timber harvests and wood products exports, as well as new data derived from information ISER collected in surveys of loggers and wood processors. We hope the data will be useful for both public and private planning efforts, as well as informed policy debate over timber management and development of the forest products industry.

ALASKA'S FORESTS

Alaska's richest timber resource is its coastal forest, a narrow band of temperate rain forest extending from the southern border of the state north and west to Kodiak Island. Sitka spruce is a major component of this forest, with western hemlock in the southeastern area, replaced by mountain hemlock west of Prince William Sound. In the interior, white spruce, paper birch, quaking aspen and alder predominate on well drained sites, while black spruce and larch grow in wetter areas. There are long 'stringers' of potential commercial forest along the major rivers, but the bulk of the interior forest is too poorly stocked for commercial harvest[1].

This report divides Alaska into three regions: southeast, southcentral coast, and interior. The southeastern region includes Alaska's panhandle, up to Yakutat Bay. All of the Tongass National Forest is in this region. The southcentral coast region continues along the Gulf of Alaska west from Yakutat Bay, across Prince William Sound, taking in the entire Kenai Peninsula, the coastal forest along the west side of Cook Inlet, and the Kodiak archipelago. The Chugach National Forest lies completely within this region, and we have tried to include all the coastal forest areas and none of the interior type forest areas. There is, however, a small area of interior forest type, (the northwest portion of the Kenai Peninsula) in this region. The interior region includes the remainder of Alaska. Timber harvests from this area are primarily from the commercially viable forests along the Yukon, Koyukuk, Tanana, Kuskokwim, Susitna and Copper Rivers.

Figure 1. Alaska Regions



[1] Alaska's Forest Resources, Alaska Geographic Vol. 12 No. 2

TIMBER IN ALASKA'S ECONOMY

Alaska's forest products industry contributes to the state economy in several ways. The largest contribution is employment. Jobs in timber harvesting and processing provide income to Alaska residents. Where Alaska residents are corporation owners (such as small proprietorships and Native corporations), profits may go to Alaska owners. And businesses operating in the state pay taxes here. Employment in Alaska's forest products industry has been declining since 1990 (see Figure 2). The industry has been centered in southeast Alaska, originally in the Tongass National Forest, and in recent years on Native-owned lands in southeast as well. Long-term contracts with the U. S. Forest Service (USFS) kept two pulp mills and several saw mills supplied since the 1950s. However, the economics of pulp and raw lumber production have not proved attractive in recent years. In the 1970s, the Tongass timber harvest accounted for 80–90 percent of Alaska's total harvest; this declined in the 1980s to about 40 percent, and by 1995 to just over 30 percent of the estimated state total[2]. The Sitka pulp mill closed in 1994 and the Ketchikan pulp mill in March 1997. Installed mill capacity has declined to only about one-quarter the level of less than 10 years ago (Table 1). Tongass timber harvests will likely continue to decline, and a greater share of the total harvest will come from private ownership. Since private owners find it more profitable to export logs without local processing, numbers of jobs will continue to decline also.

Table 1. Southeast Mill Capacity MMBF per year

	1990	1995	KPC closure
KPC			
Ketchikan Pulp Mill	190	190	0
Ketchikan Saw Mill	40	50	50
Annette I. Saw Mill	70	60	60
APC			
Sitka Pulp Mill	170	0	0
Wrangell Saw Mill	110	0	0
Other			
Chilkoot Lumber	50	0	0
Klawok Timber	65	0	0
Seley Corp	40	35	35
Other	10	62	62
Total	745	397	207
Source: USFS			

Private timber harvests in Alaska are primarily Native-owned timber. These harvests rose sharply in the 1980s to become more than half of southeast's total harvest, and they comprise virtually the entire harvest in southcentral. Privately owned timber is not subject to primary processing requirements, and is usually exported as round logs. Figure 3 shows round log exports by region, which fairly accurately reflect trends in Native harvests. In southeast Alaska, Native harvests peaked in the late 1980s and then declined through 1995. Many village corporations in the region have largely exhausted their supplies of commercially viable timber[3]. In southcentral, Native harvests increased through the early 1990s. Production could continue near current levels for some time, although major increases in the future are unlikely.

In addition to these major parts of the industry, there is some logging in the Chugach National Forest, in the Haines and Tanana Valley State Forests, on University of Alaska land, on land owned by local governments, and on private land other than Native corporation land. Altogether, these sources make up only about two percent of the state's harvest.

[2] Percentages estimated from Warren, *Production, Prices, Employment and Trade in Northwest Forest Industries*, various quarters

[3] Knapp, Gunnar; Native Timber Harvests in Southeast Alaska; p37

Figure 2. Wood Products Employment, 1960 - 1995

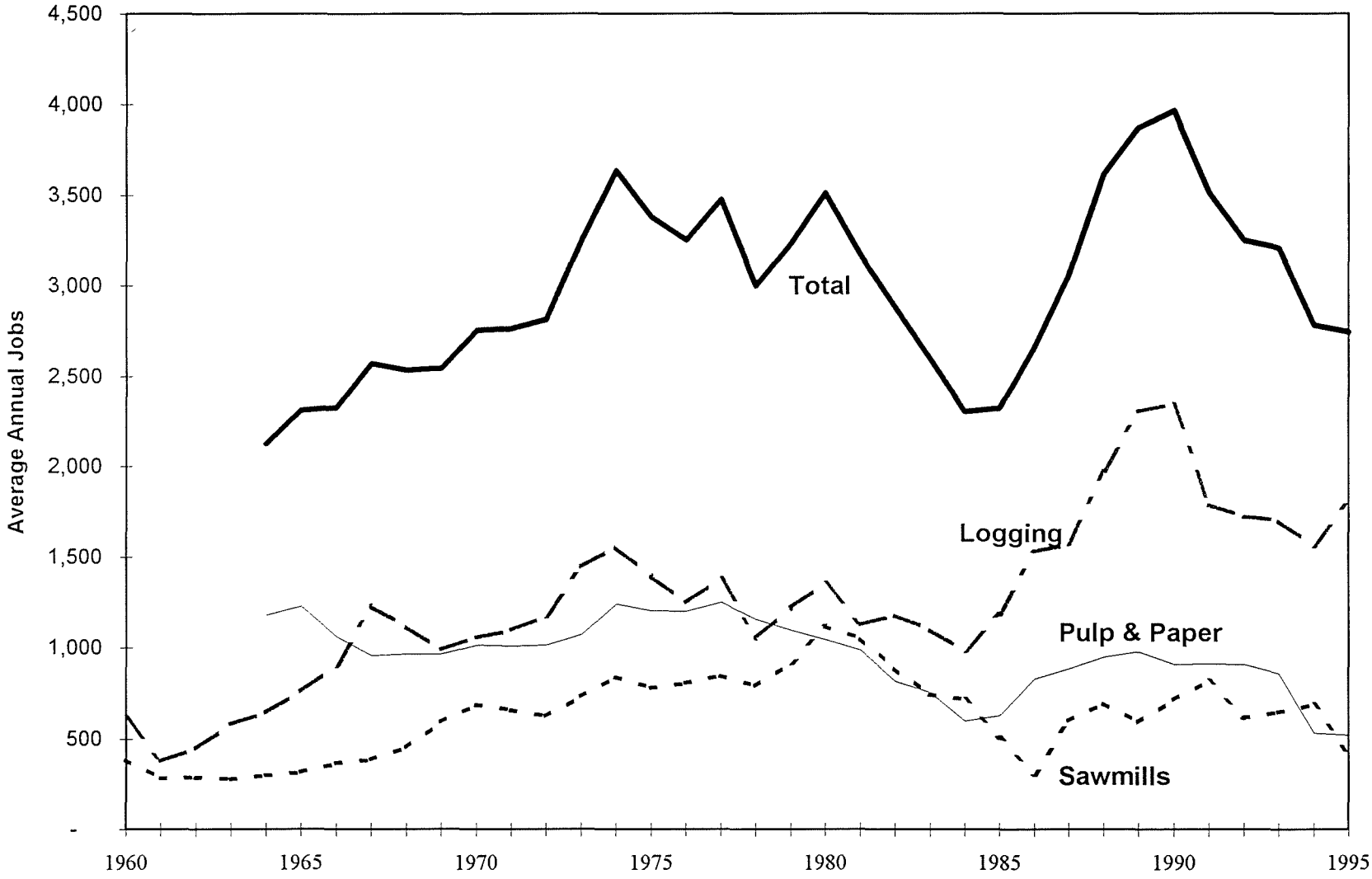


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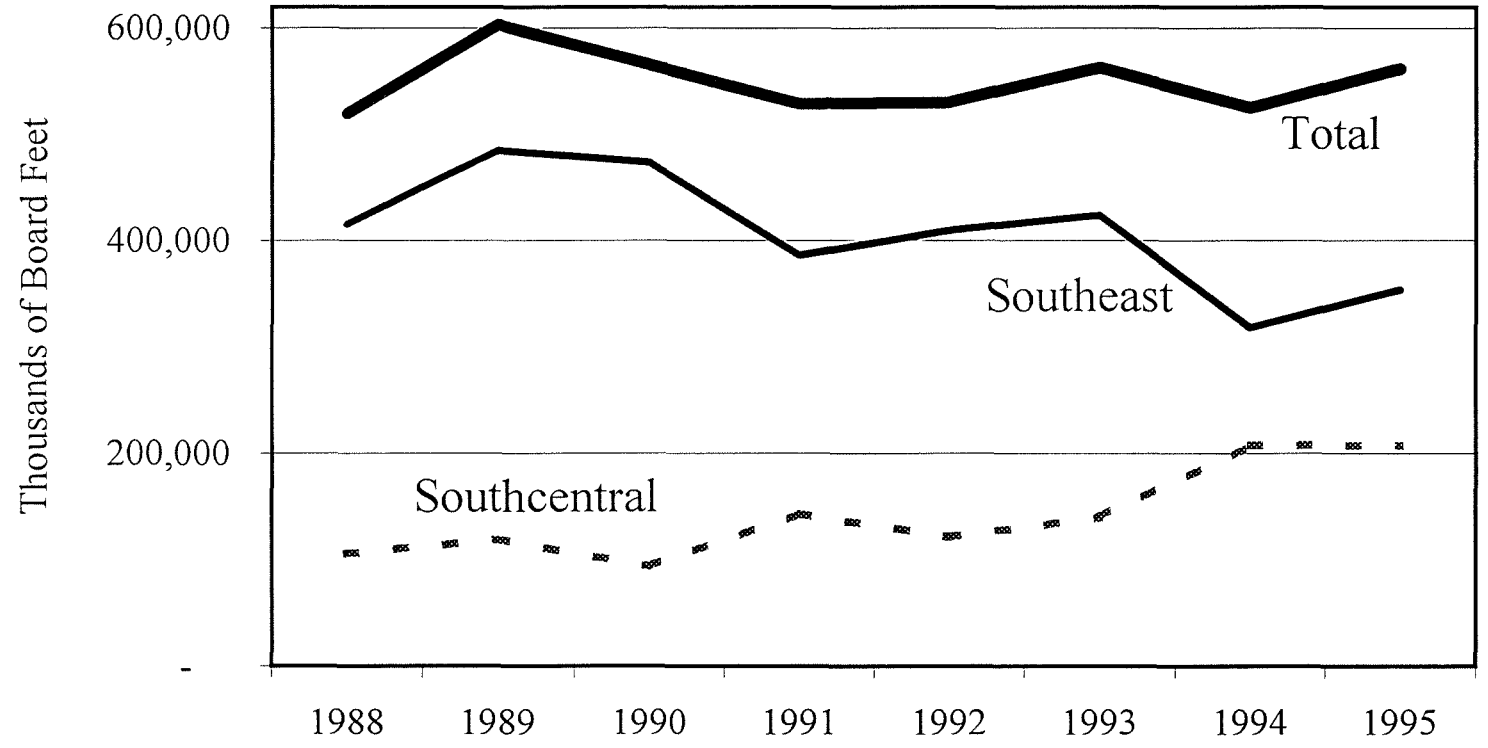
Figure 3. Softwood Log Exports by Region



Alaska's forest products industry today was shaped by the two long-term contracts for wood to be harvested from the Tongass and supplied to southeast Alaska's pulp mills. As the supply of old growth forest elsewhere declined, sawtimber from the Tongass increased in value, and the pulp companies could increase profits by selling their better quality logs as cants and lumber and pulping only lower quality wood. Most sawlogs go through only minimal processing, and are exported as cants (logs flattened on two sides). Low-cost timber provided under the 50-year contracts made the sawmills profitable, but those long-term contracts depended on pulp mill operations. When Alaska Pulp Corporation shut down the Sitka mill, the USFS cancelled the remainder of the corporation's long-term contract, ending its supply of low-cost sawtimber as well as pulp logs. Sawmill employment dropped by half from 1991 to 1995. The closure of the Ketchikan Pulp Company's (KPC) mill has not led to an immediate contract cancellation. The forest service has agreed to make enough timber available under a renegotiated version of the contract to keep KPC's sawmills in Ketchikan and Metlakatla open for at least two years.

Tongass timber will still be available through independent sales. In the last decade, these sales have accounted for from one sixth to one third of Tongass timber harvested. Without KPC to purchase lower quality logs for its pulp mill, it remains to be seen how attractive independent sales will be.

Logging and sawmill operations will continue to make up the greater part of wood processing employment. However, ISER surveys of loggers and wood products manufacturers in the spring of 1996 revealed small amounts of diverse forest products employment throughout the state: logs are sold as firewood and house logs and are made into furniture, bowls, souvenirs and musical instruments. About 8 percent of jobs reported in our wood processors' survey were for these companies. These jobs represented about 3 – 5 percent of all forest products jobs.

ALASKA TIMBER HARVESTS

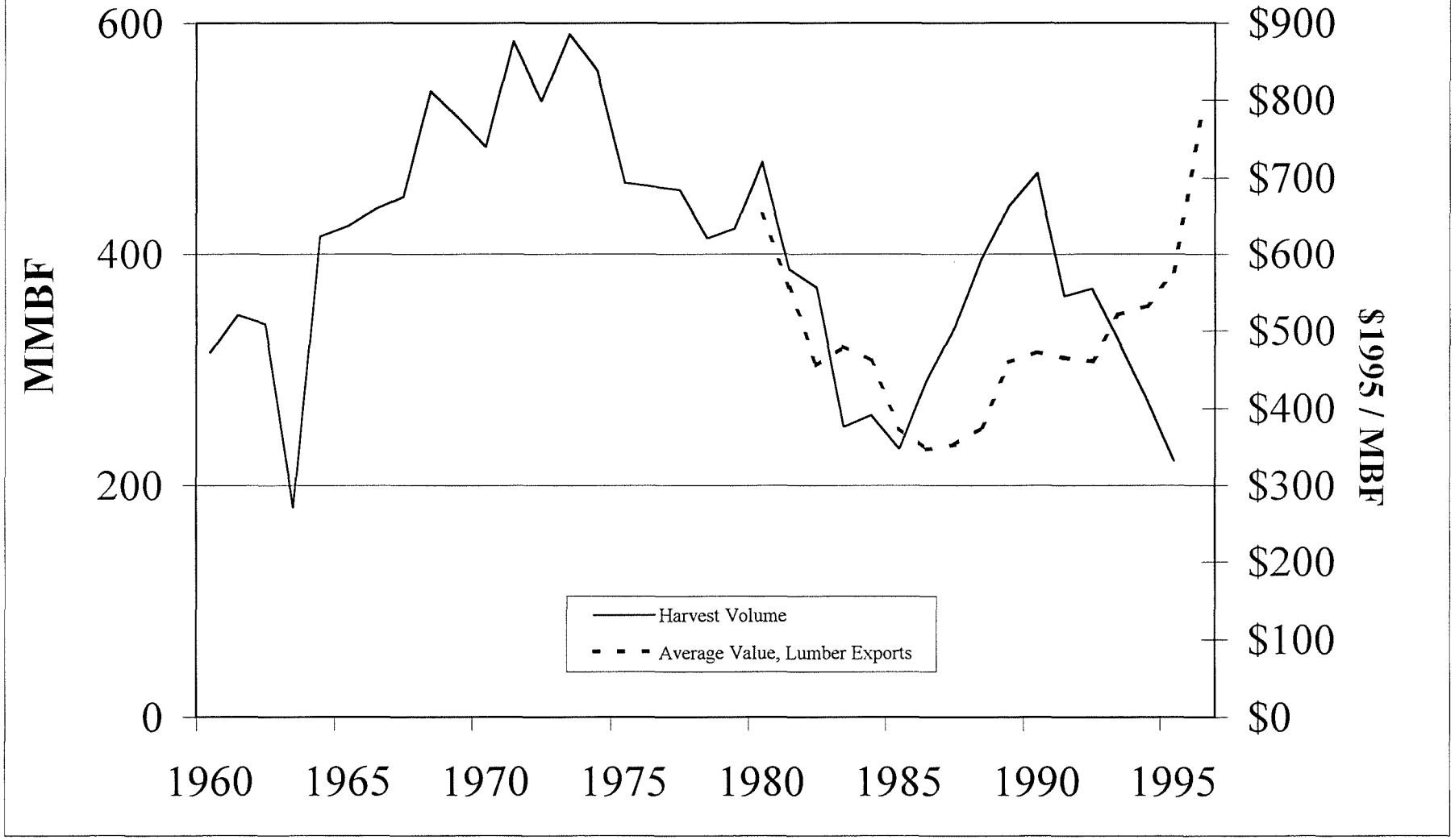
Tongass National Forest

Tongass harvests (Figure 4) have varied widely in the past 35 years depending on markets for cants and pulp as well as other factors. The closure this year of KPC's pulp mill means there is no longer a large local market for lower grade logs and mill residue. And, much of the harvest is too low grade for sawmills, and operators using Tongass timber will likely be looking to export chips. It is not only markets for wood products that will determine future Tongass harvests, but also the soon to be released revision of the Tongass Land Use Management Plan.

Other Public Lands

The harvest from the Chugach National Forest is only a tiny fraction -about two percent in 1994 and less in 1995- of that from the Tongass. Total volume has varied over the last 10 years from 0.4 to 6.5 million board feet (MMBF). In 1995, the Chugach National Forest harvest was 1.9 MMBF. Several proposals to increase logging to harvest timber killed by spruce bark beetles have not resulted in much harvest increase. Much of the beetle kill is on the Kenai Peninsula, where recreation and tourism interests often oppose logging, and future harvest levels in this area are uncertain.

Figure 4. Tongass Harvest Volume, 1960 - 1995



The amount of timber harvested from lands owned by the State of Alaska has varied in the last decade from under 10 MMBF to over 25 MMBF. Much of this harvest is exported with no Alaska processing. The state owns a substantial amount of the commercial forest land in the Tanana Valley and Haines State Forests. Unlike federal lands, where timber from the southeast dominates, interior harvests have made up a substantial percentage of state owned timber. Since 1985, interior harvests have ranged from 16 to 70 percent of total state harvest. Some observers believe that greater market acceptance of hardwood lumber could open the door for greater harvests of interior forests[4], where hardwoods are mixed with currently marketable white spruce.

Private Lands

Harvests on private land have exceeded those on federal land every year since 1983. As discussed above, Native harvests comprise virtually the entire private timber harvest. There are no good data on private timber harvests. The USFS estimates private as well as public harvests for southeast and southcentral Alaska by looking at exports and mill activity, estimating the amount of private harvests which is not exported, and estimating the harvest which would have been necessary to produce those figures. For 1991-1994, the Alaska Department of Natural Resources (DNR) was able to estimate private harvests, based on information about acres harvested that operators provided under requirements of the Forest Practices Act. In 1996, ISER conducted a telephone survey of logging companies in which we asked how much wood was harvested, who owned the timber, and whether the logs were exported or sold domestically. From this information we were able to develop an estimate of the 1995 harvest on private land.

The USFS reports 484.5 MMBF of private harvest in 1995, and ISER estimates 607 MMBF. The difference stems from :

- different assumptions about the amount of private harvest exported as round logs (the major factor),
- different estimates of Tongass logs exported, and
- slightly different estimation periods (ISER's is calendar year, USFS is federal fiscal year).

Figure 5 shows Alaska's timber harvests with the total using each of the two series compared. The DNR/ ISER estimates are higher for three of the five years of comparison, and about the same in 1991 and 1994. We believe the USFS estimates may be somewhat low; in 1995 those estimates would require all privately harvested timber as well as almost 60 MMBF of Tongass harvest to be exported. Only one of the five of our survey respondents who had harvested Native-owned timber reported exporting all of his harvest; the others sold an average of 5 to 10 percent of their harvest locally.

Wood Processing

We discussed above how most of Alaska's wood processing activity has been 1) pulp mills, and 2) sawmills processing Tongass timber. In general, it's more profitable to export Alaska timber without processing, as shown by the average unit values Alaska exporters received for their various wood products. Until 1995, exported logs brought, on the average, higher prices per thousand board feet than exported lumber. This disparity also reflects producers' choices about which wood to export. Top quality logs (exported in the

[4] Alaska DCED, Division of Trade and Development, *Alaska Economy Performance Report, 1996.*

round) naturally are more valuable than lower quality logs, even after those logs are milled into lumber.

However, much of Alaska's timber is low quality, suitable primarily for pulp mills. Alaska harvesters aren't necessarily restricted to Alaska pulp mills. In 1994, 73,000 tons of chips were exported from Homer. The amount doubled to 146,000 tons in 1995, with the increase fueled by steadily rising chip prices through late 1995. Although 1996 prices are lower, they are still well above many previous years.

Wood Products Survey

In addition to the logging survey, ISER also conducted a wood products manufacturers survey. We contacted all major wood processors and many smaller firms. Our respondents reported exports of cants and lumber, chips, and pulp slightly in excess of the export data reported by the US Department of Commerce. The employment data we collected also totals about the same as Alaska Department of Labor data[5] Therefore, there's no reasonable way to weight this survey, although we do know that we didn't interview all small wood processors. We believe the processors we did speak to represent the range of processing activities throughout the state, and that the total volume of the small processors, while greater than indicated by our survey, is still only a very small part of Alaska's wood processing industry.

Our respondents reported a wide variety of products. Besides the major products of cants, flitches, lumber and pulp, they also reported:

Frame cabins	Flooring	Door Stock
Log cabins	Cabinets	Molding
House Logs	Firewood	Shop Board
Siding	Furniture	Musical Instruments
Paneling	Shingles	Wood for temples and shrines

Most of these products stayed in Alaska for local consumption. A very small amount-less than 2 percent- was shipped to the Lower 48, and none was reported as exported.

It's difficult to compare the volume of wood used for these products with the total volume harvested and used in Alaska. Many of the small operators don't record their production in terms which can be converted to board feet. Cabin builders typically reported how many cabins they completed; house logs were often reported in linear feet, with no diameters specified, and those making flooring, furniture and molding were often unable to report any volume estimates.

Employment data collected in our survey indicates that production of house logs and other wood products[6] account for about 8 percent of total wood processing employment. Figure 6 shows how employment is distributed across different products.

[5] Our survey found 1,029 jobs in all wood processing (including pulp), compared to 935 for Alaska Department of Labor. Our survey includes some proprietor jobs not counted by DoL.

[6] "Other Wood Products" includes all the categories on the list above except house logs, log cabins and firewood

Figure 5. Comparison of Total Alaska Timber Harvest with Different Estimates of Private Harvest, 1986 - 1995

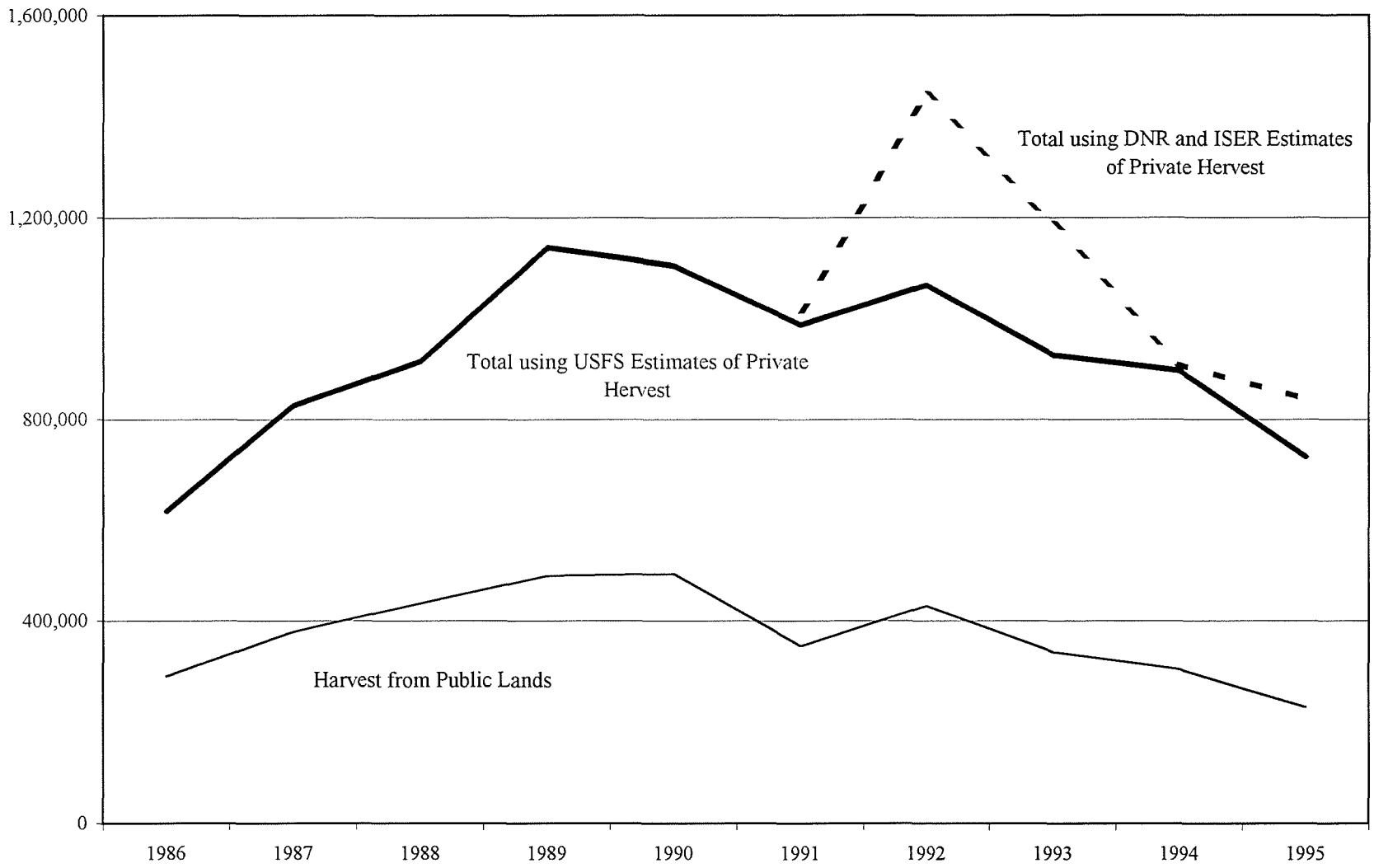
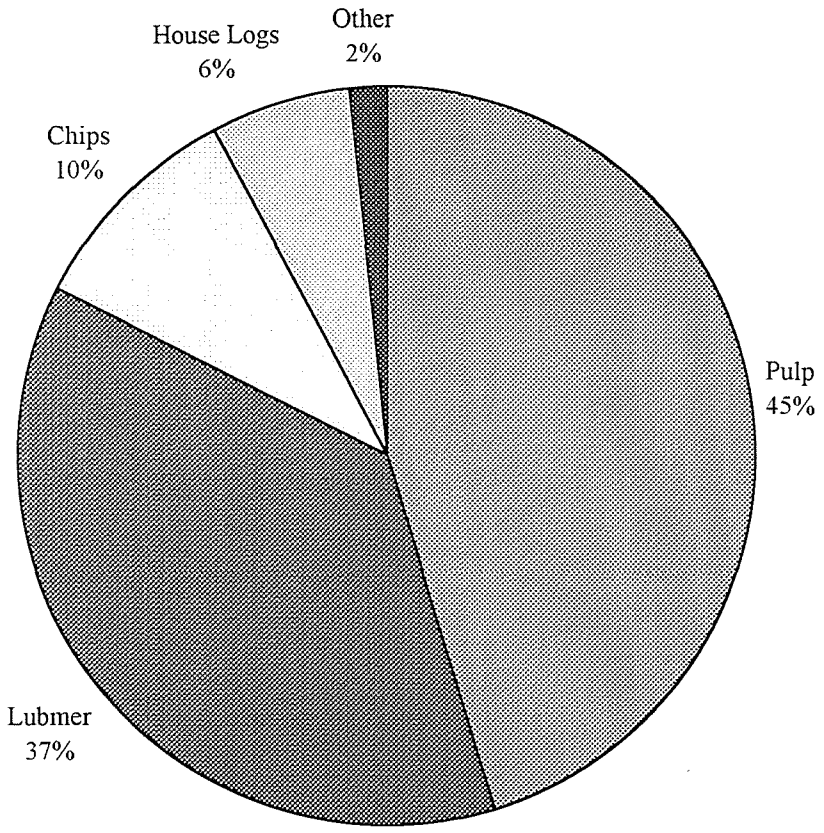


Figure 6. 1995 Wood Processing Employment by Type of Product



Source: ISER 1996 Wood Processors Survey

Published Sources

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APPENDIX A. DETAILED TABLES

Table A-1. Timber Harvest on Public Lands, 1985 - 1995

Thousands of Board Feet

Alaska Total		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Federal	Forest Svc	272,142	352,231	408,947	461,860	474,000	326,499	395,321	327,050	282,300	223,000
	BLM	252	185	112	295	407	675	850	1,061		
	BIA	0	0	0	3,600	300	7,253	6,163	1,180		
Total Federal		272,394	352,416	409,059	465,755	474,707	334,427	402,334	329,291	282,300	223,000
State		18,995	25,884	25,177	22,711	18,603	16,241	26,802	9,383	*23,225*	*8,778*
Total Public		291,389	378,300	434,236	488,466	493,310	350,668	429,136	338,674	305,525	231,778
Southeast											
Federal	Forest Svc	271,579	339,200	407,062	392,344	473,000	325,464	392,348	317,452	275,800	221,100
	BLM										
	BIA	0	0	0	4	0	8	5	0	0	0
Total Federal		271,579	339,200	407,062	392,348	473,000	325,472	392,353	317,452	275,800	221,100
State		12,400	19,800	16,900	8,311	7,558	2,728	14,247	3,450	*6,572*	*5,800*
Total Public		283,979	359,000	423,962	400,658	480,558	328,200	406,600	320,902	282,372	226,900
Southcentral											
Federal	Forest Svc	563	13,031	1,185	69,516	1,000	1,035	2,973	9,598	6,500	1,900
	BLM										
	BIA										
Total Federal		563	13,031	1,185	69,516	1,000	1,035	2,973	9,598	6,500	1,900
State		1,800	1,900	2,100	1,859	507	2,513	1,420	970	*309*	*2,600*
Total Public		2,363	14,931	3,285	71,375	1,507	3,548	4,393	10,568	6,809	4,500
Interior											
Federal	Forest Svc	0	0	0	0	0	0	0	0	0	0
	BLM										
	BIA										
Total Federal											
State		4,795	4,184	6,177	12,541	10,565	11,000	11,135	4,963	*16,359*	*378*
Total Public		4,795	4,184	6,177	12,541	10,565	11,000	11,135	4,963	16,359	378

Sources: Federal Lands: Warren, "Production, Prices, Employment and Trade in Northwest Forest Industries, Fourth Quarter 1995". State Lands: Alaska Department of Natural Resources, Division of Forestry.

Table A-2. Timber Harvest on Private Lands, 1985 - 1995

Thousands of Board Feet

Year	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Alaska Total										
Alaska DNR /ISER 1995						666,000	1,014,900	847,700	602,900	607,159
USFS	327,000	448,200	480,700	651,900	611,200	613,000	603,200	563,200	532,400	488,960
Southeast										
Alaska DNR /ISER 1995						440,300	545,600	318,700	336,700	386,059
USFS	327000	404,000	395,100	531,900	506,100	454,600	445,700	410,400	288,000	254,400
Southcentral										
Alaska DNR /ISER 1995						201,800	435,300	503,400	207,800	216,640
USFS		44,200	85,600	120,000	105,100	134,500	123,500	127,200	186,000	230,100
Interior										
Alaska DNR /ISER 1995						23,900	34,000	25,600	58,400	4,460
USFS										

Sources: "Alaska DNR" estimates from Alaska Department of Natural Resources, Division of Forestry. ISER estimate from ISER loggers survey, 1996. "USFS" estimates from Timber Supply and Demand 1994, ANILCA section 706(a) report to Congress, USDA Forest Service, Alaska Region. Report No. 15, January 1996

Table A-3. Estimates of Total Alaska Timber Harvest, 1986 - 1995

Thousands of Board Feet

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Total Alaska										
Public	291,389	378,300	434,236	488,466	493,310	350,668	429,136	338,674	305,525	231,778
Private (Ak DNR)						666,000	1,014,900	847,700	602,900	607,159
Private (USFS)	327,000	448,200	480,700	651,900	611,200	613,000	603,200	563,200	532,400	488,960
Total (Ak DNR)						1,016,668	1,444,036	1,186,374	908,425	838,937
Total (USFS)	618,389	826,500	914,936	1,140,366	1,104,510	987,568	1,066,336	927,474	896,325	725,198
Southeast										
Public		359,000	423,962	400,658	480,558	328,200	406,600	320,902	282,372	226,900
Private (Ak DNR)						440,300	545,600	318,700	336,700	386,059
Private (USFS)		404,000	395,100	531,900	506,100	454,600	445,700	410,400	288,000	254,400
Total (Ak DNR)						768,500	952,200	639,602	619,072	612,959
Total (USFS)		763,000	819,062	932,558	986,658	782,800	852,300	731,302	570,372	481,300
Southcentral										
Public		14,931	3,285	71,375	1,507	3,548	4,393	10,568	6,809	4,500
Private (Ak DNR)						201,800	435,300	503,400	207,800	216,640
Private (USFS)		44,200	85,600	120,000	105,100	134,500	123,500	127,200	186,000	230,100
Total (Ak DNR)						205,348	439,693	513,968	214,609	221,140
Total (USFS)		59,131	88,885	191,375	106,607	138,048	127,893	137,768	192,809	234,600
Interior										
Public						11,000	11,135	4,963	16,359	378
Private (Ak DNR)						23,900	34,000	25,600	58,400	4,460
Total (Ak DNR)						34,900	45,135	30,563	74,759	4,838

Source: Tables 1 and 2 above.

Table A-4. Volume of Wood Exports by Destination, 1985 -1995

Thousand Board Feet of logs and lumber; Short Tons of pulp and chips

Total Exports from Alaska											
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
logs	Hemlock	196,653	234,230	260,031	278,963	251,500	226,013	212,684	217,853	200,129	250,659
(MBF)	Redcedar	18,466	36,027	58,312	74,065	62,609	55,312	47,444	60,542	39,563	40,685
	Spruce	118,355	164,387	175,901	251,118	213,334	218,580	225,266	228,789	240,323	228,615
	Other	12,309	18,483	25,294	38,915	41,154	28,972	46,599	55,859	45,124	41,591
	Hardwoods	31	82	469	65	7	0	77	31	0	21
	Total Logs	345,814	453,209	520,007	643,126	568,604	528,877	532,077	563,074	525,139	561,571
lum-	Hemlock	72,894	80,253	98,781	106,055	119,231	95,478	81,363	95,005	68,839	28,367
ber/cants											
	Redcedar	918	10	113	2,532	5,002	3,069	575	59	0	1407
(MBF)	Spruce	43,162	49,085	64,845	72,870	87,776	69,782	52,036	55,856	42,679	20,352
	Other	3,007	3,796	3,714	2,303	1	1,979	2,582	94	318	253
	Total Lumber	119,981	133,144	167,453	183,760	212,010	170,308	136,556	151,894	111,836	50,379
Dissolving Pulp (st)		228,200	279,800	306,000	302,700	318,500	293,400	307,200	214,500	178,100	139,500
Paper Pulp (st)		8	27	31	22	44	17	21	5.2	0	0
Chips	(st)	0	252	11,505	85,866	28,283	101,397	15,509	56,289	73,503	146,277

Total Exports to Japan											
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
logs	Hemlock	153,998	142,786	137,983	201,145	171,198	137,515	116,016	119,343	116,970	116,903
	Redcedar	8,726	11,677	18,871	21,396	28,479	19,836	21,936	25,690	23,994	18,880
	Spruce	103,828	130,116	142,422	228,074	199,692	182,066	174,459	189,109	213,207	189,840
	Other	12,289	16,621	22,379	38,573	39,922	25,570	41,987	45,092	41,652	31,305
	Hardwoods	0	29	31	65	7	0	0	31	0	0
	Total Logs	278,841	301,229	321,686	489,253	439,298	364,987	354,398	379,265	395,823	356,928
lumber	Hemlock	72,894	79,318	96,686	106,055	114,227	90,749	78,222	92,075	66,958	28,019
/cants	Redcedar	0	0	113	2,532	1,140	2,863	575	0	0	1,407
	Spruce	43,141	47,919	61,404	71,854	85,322	66,072	46,372	50,915	39,952	19,672
	Other	2,907	3,441	1,601	2,215	0	1,965	2,373	567	257	253
	Total Lumber	118,942	130,678	159,804	182,656	200,689	161,649	127,540	143,557	107,166	49,351
Dissolving Pulp		99	105	120	111	93	100	91	96	25	28
Paper Pulp		8	9	16	10	19	8	11	5	0	0

Total Exports to Other Countries											
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
logs	Hemlock	42,655	91,444	122,048	77,818	80,302	88,498	96,668	98,510	83,159	133,756
(MBF)	Redcedar	9,740	24,350	39,441	52,669	34,130	35,476	25,508	34,852	15,569	21,805
	Spruce	14,527	34,271	33,479	23,044	13,642	36,514	50,807	39,680	27,116	38,775
	Other	20	1,862	2,915	342	1,232	3,402	4,612	10,767	3,472	10,286
	Hardwoods	31	53	438	0	0	0	77	0	0	21
	Total Logs	66,973	151,980	198,321	153,873	129,306	163,890	177,679	183,809	129,316	204,643
lum-	Hemlock	0	935	2,095	0	5,004	4,729	3,141	2,930	1,881	348
ber/cants											
	Redcedar	918	10	0	0	3,862	206	0	59	0	0
(MBF)	Spruce	21	1,166	3,441	1,016	2,454	3,710	5,664	4,941	2,727	680
	Other	100	355	2,113	88	1	14	209	-473	61	0
	Total Lumber	1,039	2,466	7,649	1,104	11,321	8,659	9,016	8,337	4,670	1,028
Dissolving Pulp (st)		228,101	279,695	305,880	302,589	318,408	293,300	307,109	214,404	178,075	139,472
Paper Pulp (st)		1	18	15	12	25	9	11	0	0	0

Source: Warren, Debra D. Production, Prices, Employment and Trade in Northwest Forest Industries. First Quarter 1991 through Fourth Quarter 1993. Portland, Ore: US Department of Agriculture, USFS, Pacific Northwest Research Station.

Table A-5. Average Value of Wood Exports by Destination, 1986 - 1995

Dollars per MBF for logs and lumber; Dollars per short ton for pulp and chips

Average Value, All Alaska Exports											
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
logs	Hemlock	$302.54	$371.37	$411.46	$431.46	$457.05	$421.14	$464.73	$643.41	$579.34	$539.02
	Red cedar	$356.44	$375.44	$443.01	$404.27	$439.35	$397.51	$517.51	$687.89	$647.25	$652.43
	Spruce	$541.12	$587.59	$641.21	$620.86	$781.02	$717.43	$726.64	$937.01	$811.57	$779.98
	Other	$605.94	$905.95	$784.10	$590.76	$673.66	$708.38	$924.12	$1,036.40	$1,131.32	$1,211.13
	Hardwoods	$419.35	$552.67	$543.71	$261.54	$1,285.71	$0.00	$2,662.34	$485.36		$1,040.61
	Avg (Logs)	$397.88	$471.95	$510.96	$511.90	$592.32	$555.08	$617.60	$806.47	$739.01	$695.12
lumber	Hemlock	$233.89	$241.19	$296.81	$333.46	$364.44	$364.64	$393.55	$454.08	$468.11	$608.59
/cants	Red cedar	$343.14	$300.00	$300.89	$209.72	$211.72	$369.83	$396.52	$355.93		$817.34
	Spruce	$338.75	$374.07	$456.24	$456.91	$453.14	$480.80	$629.62	$589.18	$713.84	$1,010.91
	Other	$306.62	$309.01	$329.29	$280.63	$0.00	$363.32	$280.40	$505.13	$254.72	$221.34
	Avg (Lumber)	$274.28	$292.11	$359.27	$380.04	$397.56	$412.31	$481.40	$507.35	$561.28	$775.01
Dissolving Pulp		$392.53	$469.22	$605.36	$732.16	$624.88	$557.12	$539.74	$528.08	$560.60	$878.25
Paper Pulp		$359.42	$461.69	$516.46	$631.30	$458.11	$410.41	$422.99	$390.08		
Chips			$45.52	$48.67	$42.16	$75.38	$78.01	$21.73	$110.13	$108.43	$137.38

Average Value, Exports to Japan											
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
logs	Hemlock	$334.42	$491.34	$563.71	$478.00	$481.74	$489.62	$559.74	$735.02	$641.77	$633.41
	Redcedar	$379.90	$390.68	$435.59	$465.88	$440.68	$447.87	$537.52	$664.34	$658.75	$679.45
	Spruce	$596.55	$678.69	$718.39	$637.74	$782.91	$750.06	$750.71	$980.78	$826.66	$815.27
	Other	$605.60	$974.44	$846.25	$586.11	$668.33	$702.06	$942.41	$1,136.89	$1,155.88	$1,209.47
	Hardwoods		$716.69	$903.23	$261.54	$1,265.71			$485.36		
	Avg (Logs)	$445.40	$595.04	$644.36	$560.43	$632.95	$632.15	$697.71	$900.53	$797.86	$798.61
lumber	Hemlock	$233.89	$240.94	$296.44	$333.46	$369.54	$370.90	$397.54	$458.94	$473.34	$607.44
/cants	Redcedar			$300.89	$209.72	$384.21	$384.91	$396.52			$817.34
	Spruce	$338.31	$369.14	$443.62	$453.20	$442.51	$480.02	$564.05	$558.36	$669.60	$989.27
	Other	$306.16	$302.24	$313.55	$279.91	$0.00	$362.34	$287.22	$587.30	$190.66	$221.34
	Avg (Lumber)	$273.53	$289.57	$353.17	$378.20	$400.65	$415.65	$456.05	$494.00	$545.84	$763.63
Dissolving Pulp		$416.24	$480.87	$590.48	$741.49	$671.57	$614.33	$589.78	$578.17	$557.17	$718.39
Paper Pulp		359	468	462	666	491	460	445	390		

Average Value, Exports to Other Countries											
		1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
logs	Hemlock	$187.44	$184.04	$239.33	$311.16	$404.41	$314.73	$350.70	$532.43	$491.53	$456.52
(MBF)	Redcedar	$335.42	$368.13	$446.56	$379.24	$438.24	$369.35	$500.30	$705.25	$629.53	$629.03
	Spruce	$144.95	$241.71	$312.88	$453.79	$753.35	$554.73	$643.99	$728.41	$692.92	$607.20
	Other		$294.58	$306.96	$1115.22	$846.37	$755.88	$757.61	$615.55	$836.68	$1,216.18
	Hardwoods	$419.35	$462.92	$518.26				$2,662.34			
	Avg (Logs)	$200.03	$227.98	$294.57	$357.59	$454.28	$383.44	$457.81	$612.37	$558.88	$514.62
lum-	Hemlock		$262.40	$313.89		$248.02	$244.51	$294.18	$301.35	$281.94	$701.18
ber/cants											
	Redcedar	$343.14	$300.00			$160.80	$160.25		$355.93		
(MBF)	Spruce	$1242.66	$576.68	$681.44	$719.29	$822.73	$494.69	$1,166.45	$906.77	$1,361.98	$1,636.94
	Other	$319.99	$374.63	$341.22	$298.75	$0.00	$500.87	$202.97	$603.63	$524.61	
	Avg (Lumber)	$360.14	$426.71	$486.71	$684.47	$342.78	$349.96	$840.00	$737.23	$916.59	$1,321.33
Dissolving Pulp (st)		$392.52	$469.22	$605.37	$732.16	$624.87	$557.10	$539.73	$528.06	$560.60	$878.28
Paper Pulp (st)		$359.42	$458.82	$571.22	$604.65	$434.16	$363.33	$401.38			

Source: Warren, Debra D. Production, Prices, Employment and Trade in Northwest Forest Industries. First Quarter 1991 through Fourth Quarter 1995. Portland, Ore: US Department of Agriculture, USFS, Pacific Northwest Research Station.

Table A-6. Employment in Timber Harvesting and Wood Products Industries

(Average Annual Employment)

Year	Logging	Lumber	Pulp & Paper	Total
1959	427	364		
1960	619	386		
1961	379	283		
1962	448	288		
1963	580	277		
1964	646	300	1,179	2,125
1965	762	318	1,230	2,310
1966	900	365	1,060	2,325
1967	1,229	387	958	2,573
1968	1,117	454	965	2,536
1969	990	593	965	2,548
1970	1,055	688	1,015	2,757
1971	1,095	659	1,010	2,764
1972	1,175	625	1,015	2,814
1973	1,444	733	1,072	3,249
1974	1,555	840	1,243	3,638
1975	1,397	779	1,203	3,378
1976	1,246	804	1,200	3,250
1977	1,382	845	1,250	3,477
1978	1,053	789	1,156	2,998
1979	1,221	917	1,096	3,234
1980	1,354	1,116	1,043	3,512
1981	1,129	1,051	985	3,164
1982	1,176	886	818	2,880
1983	1,099	743	755	2,597
1984	983	718	600	2,301
1985	1,186	506	628	2,319
1986	1,528	306	828	2,662
1987	1,571	599	885	3,055
1988	1,975	695	947	3,617
1989	2,301	593	978	3,872
1990	2,345	715	907	3,966
1991	1,789	817	910	3,515
1992	1,725	615	908	3,248
1993	1,702	645	859	3,206
1994	1560	689	533	2,782
1995	1809	416	519	2,744

Source: Alaska Department of Labor, Research and Analysis Division

APPENDIX B. LOGGERS SURVEY

Survey Instrument

Summary of Responses

Weighting Procedures

1996 ALASKA TIMBER HARVEST AND WOOD PRODUCTS SURVEY

Part A. Logging

Introduction:

Hello, this is _____ with the University of Alaska Anchorage. We are conducting a short survey asking about timber harvests and primary wood processing in Alaska. This is part of work we are doing to provide regular and timely information about the timber and wood products industries in Alaska for the Anchorage Forestry Sciences Laboratory. This survey takes 5 to 20 minutes. Your answers will not be published individually, but rather will be used in combination with other firms to estimate state and regional totals. (We are not asking about prices or costs or any items involving dollar amounts.)

I would like to know how much timber you harvested by species, in what region of the state you did the harvesting, who owns the lands harvested, and how many people you employ in your operation.

I would like this data for calendar year 1995.

Company Name _____

Address _____

_____

Contact Person _____

Phone _____ Fax _____

Call Record:	
Date	Action
1.	
2.	
3.	
4.	
5.	

Before we begin, I would like to know what log rule you will be using when you give me these quantities. (16 or 32 foot logs. And most will use Scribner scale.)

Region: _____

Owner	MMBF	Species	Disposition
1.	1.	1.	1.
2.	2.	2.	2.
3.	3.	3.	3.
4.	4.	4.	4.

Region: _____

Owner	MMBF	Species	Disposition
1._____	1._____	1._____	1._____
2._____	2._____	2._____	2._____
3._____	3._____	3._____	3._____
4._____	4._____	4._____	4._____

Now I would like to ask you a few questions about employment.

1. Number of full-time, year-round employees: 1._____

2. Number of full-time, seasonal employees: 2._____ Months worked _____

3. Number of part-time, year-round employees: 3._____ Hours/week _____

4. Number of part-time, seasonal employees: 4._____ Months worked _____

Thank you for giving us this information. Would you like a copy of the completed report? Yes No

(If yes): To whom should we send a copy of the final report:

_____

_____

_____

_____

Below are the results of the telephone survey ISER conducted of loggers in the state of Alaska in May and June of 1996. These data are not weighted. We developed a list of 26 firms; 6 are out of business; 6 we could not contact; 4 declined the survey and we have 10 completed surveys. Our survey respondents harvested 627 MMBF of wood, broken down by species and region as follows:

Reported Harvest by Species and Region (MBF)			
Species	Total Harvest Reported	Southeast	Remainder Alaska
Spruce	204,432	118,817	85,615
Hemlock	371,860	360,460	11,400
Cedar	64,193	64,193	0
Other Softwoods	150	150	0
Hardwoods	145	0	145
TOTAL	640,780	543,620	97,160

This harvest may also be broken down by timber ownership:

Reported Harvest by Timber Ownership and Region (MBF)			
Ownership	Total Harvest Reported	Southeast	Remainder Alaska
Federal	362,480	362,480	0
State & Local	2,965	1,500	1,465
Native	270,544	178,044	92,500
Other Private	4,815	1,620	3,195
TOTAL	640,804	543,644	97,160

Some logs are exported directly; some stay in Alaska or the Lower 48 for at least minimal processing:

Disposition of Harvest by Owner			
Owner	% processed in Alaska	% shipped to Lower 48	% exported
All Owners	56%	5%	39%
Federal Government	93%	3%	4%
State & Local Gov't	52%	24%	24%
Alaska Native	6%	7%	87%
Other Private Owners	48%	47%	5%

Reported Employment:

Reported Jobs: 1995 Logging Activities			
	Statewide	Southeast	Remainder Alaska
Total Reported Jobs	1311	1201	110
Full Time Year Round	437	379	58
Full Time Seasonal	626	577	49
Average Duration of Seasonal Work	9.4 months	9.7 months	4.7 months
Part Time Seasonal	248	245	3
Average Duration		9.4 months	NA

Weighting

There was no stratification in the selection of logging firms – we tried to contact everyone we could identify. However, we believe that we got better response rates from firms cutting on public land, since they report those logging activities as public information anyway. So, for harvests on public lands, we constructed a weight based on the total federal lands harvest reported by the USFS divided by our survey total of harvest from federal lands.

199,726 / 166,676 = 1.20

For private harvests, our survey may shed light on how much timber is sent to the lower 48 states or kept in Alaska; we don't want to use current assumptions about those proportions in developing the weight. So, we construct this weight using information about log exports. We divide USDoC export data by our survey reports of exported logs.

561,500 / 242,326 = 2.317

This approach assumes that the percentage exported was NOT correlated with response rate.

APPENDIX C. WOOD PRODUCT MANUFACTURERS' SURVEY

Survey Instrument

Summary of Responses

1996 ALASKA TIMBER HARVEST AND WOOD PRODUCTS SURVEY

Part B. Primary Wood Processing

Introduction:

Hello, this is _____ with the University of Alaska Anchorage. We are conducting a short survey asking about timber harvests and primary wood processing in Alaska. This is part of work we are doing to provide regular and timely information about the timber and wood products industries in Alaska for the Anchorage Forestry Sciences Laboratory. This survey takes 5 to 20 minutes. Your answers will not be published individually, but rather will be used in combination with other firms to estimate state and regional totals. (We are not asking about prices or costs or any items involving dollar amounts.)

I would like to know what wood products you make. how much timber and what species you use, where the the timber was harvested, and who the landowner is. Also I would like to know how many people you employed in your operation.

I would like this data for calendar year 1995.

Company Name _____

Address _____

_____

Contact Person _____

Phone _____ Fax _____

Call Record:	
Date	Action
1.	
2.	
3.	
4.	
5.	

Before we begin, I would like to know
(a) if you buy logs or lumber for your operation. (If lumber proceed with questions except exclude where logs come from, ownership, quantity).
(b) what log rule you will be using when you give me these quantities. (16 or 32 foot logs. And most will use Scribner scale.)

What products do you make? (How are the logs processed?) (List details on next page.)

Product	Quantity	How Processed	Percent Sold:		
			Alaska	U.S.	Exported
1.	1.	1.	1.	1.	1.
2.	2.	2.	2.	2.	2.
3.	3.	3.	3.	3.	3.

What is the source of your wood?

Region	Owner	Species	Quantity
1.	1.	1.	1.
2.	2.	2.	2.
3.	3.	3.	3.
4.	4.	4.	4.

Now I would like to ask you a few questions about employment.

1. Number of full-time, year-round employees: 1._____

2. Number of full-time, seasonal employees: 2._____ Months worked _____

3. Number of part-time, year-round employees: 3._____ Hours/week _____

4. Number of part-time, seasonal employees: 4._____ Months worked _____

Thank you for giving us this information. Would you like a copy of the completed report? Yes No

(If yes): To whom should we send a copy of the final report:

_____

_____

_____

_____

We would like to make our list of wood processors as complete as possible. Do you know of other wood processors in your area we should call?

_____

_____

_____

_____

Thank you.

Below are the results of the telephone survey ISER conducted of primary wood processors in the state of Alaska in May and June of 1996. These data are not weighted. We developed a list of 37 firms; 3 were out of business; we couldn't contact 4, and we have 34 completed surveys. Most firms made more than one product, so the count below of how many firms make each product totals more than 34. Southeast Alaska has fewer, larger firms than the rest of the state; most do minimal processing such as cants and flitches, or produce lumber. For the rest of Alaska, lumber and house logs are the most common product. "Other" wood products reported included siding, paneling, flooring, cabinet stock, cabinets, pole furniture, and cedar shingles.

Number of Firms That Report Producing Each Product

PRODUCT	Southeast	Remainder Alaska	Total
raw logs	1	2	3
cants, flitches	6		6
rough lumber	7	12	19
pulp	1	2	3
chips	2	2	4
other	1	4	5
house logs		13	13
firewood		2	2

Quantity Produced, by Product and Region

PRODUCT	Southeast	Remainder Alaska	Total
cants, flitches (MBF)	74,425	0	74,425
lumber (MBF)	24,653	2,491	27,144
pulp (ST)	156,000	60,000	216,000
chips (ST)	58,090	157,160	215,250
other	1,000	40,068	41,068
house logs	0	11,167	11,167
firewood	0	1,250	1,250

The table below shows the disposition of wood products made in Alaska. As we expected, the forest products industry in southeast Alaska is dominated by exports; in the remainder of the state, a much higher percentage of production is for local use. This is partly true because southeast makes more export-specific products (such as cants), an the rest of the state produces more locally used products (such as firewood). But even for products such as lumber, southeast mills produce for export, and mills elsewhere in the state for local use. Chips are an exception. Although chips in southeast are ultimately destined for export, they are first processed into pulp. Because southcentral has no major pulp mills, and because there's been strong worldwide demand for chips in recent years, the majority of chips produced in southcentral are exported.

Disposition of Wood Products Manufactured in Alaska									
	Southeast			Remainder Alaska			Total Alaska		
PRODUCT	Sold in Alaska	Sold to Lower 48	Exported	Sold in Alaska	Sold to Lower 48	Exported	Sold in Alaska	Sold to Lower 48	Exported
cants, flitches	0%	27%	73%				0%	27%	73%
rough lumber	5%	68%	26%	100%	0%	0%	17%	60%	23%
pulp	0%	9%	91%	0%	0%	100%	0%	7%	94%
chips	100%	0%	0%	1%	0%	99%	28%	0%	72%
other	0%	100%	0%	100%	0%	0%	98%	2%	0%
house logs				100%	0%	0%	100%	0%	0%
firewood				100%	0%	0%	100%	0%	0%

Our respondents reported using a little over 300 MMBF of wood to manufacture their products.

Sources of Wood Processed by Alaska Manufacturers (MBF)				
Owner	Southeast Alaska	Remainder Alaska	Total Alaska	Canada
Federal Gov't	177,511	89	177,600	
State Gov't		9,792	9,792	
Native	2,508	23,400	25,908	
Other Private	50	17,351	17,401	
Local Gov't		40,315	40,315	
Total	180,069	90,927	270,996	40,000