Idaho's Forest Products Industry

A descriptive analysis 1990

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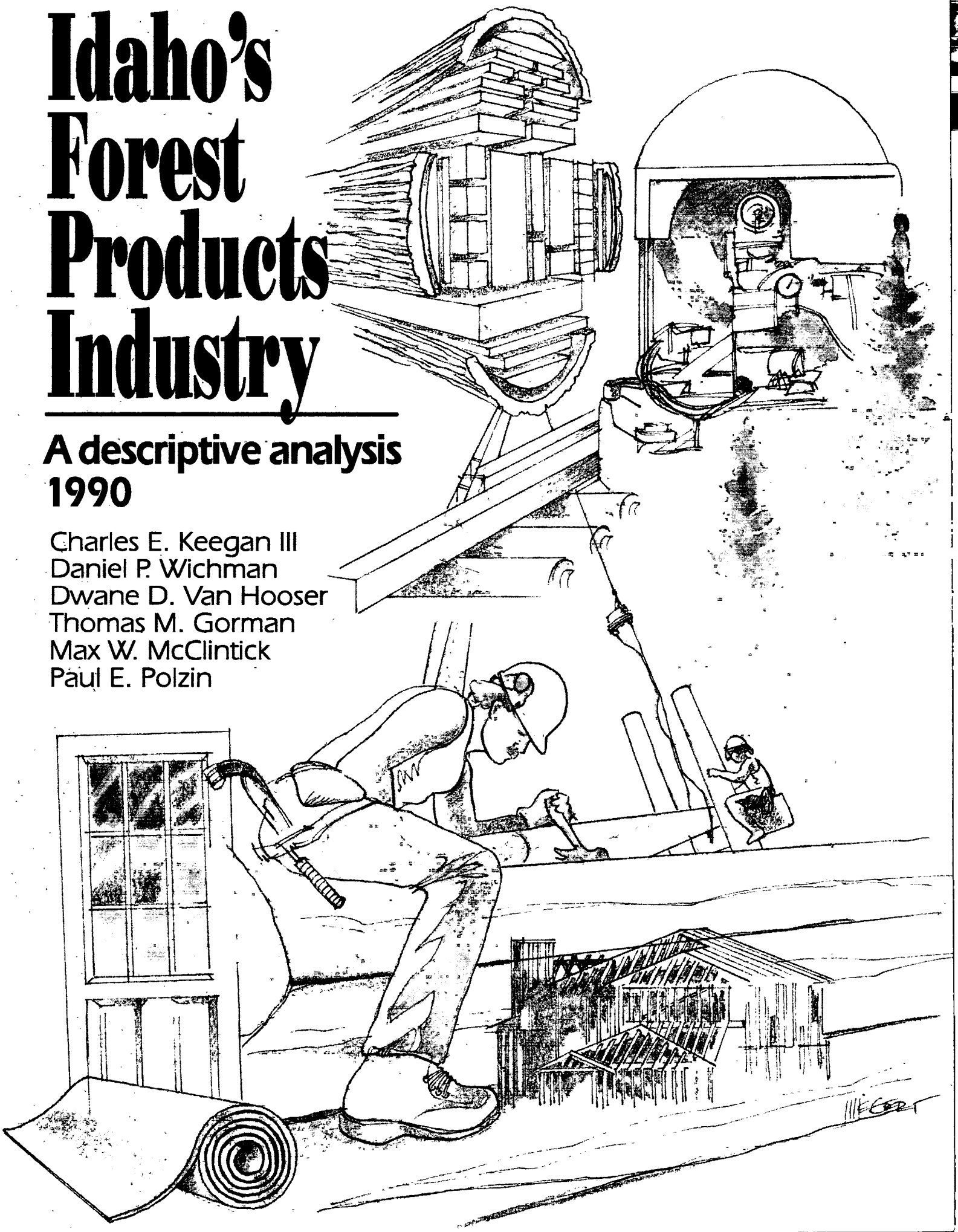

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INTRODUCTION

This monograph presents the results of a census of Idaho's wood-using industry. The emphasis is on primary forest products manufacturers. These are manufacturers processing timber into manufactured wood products, and also firms using, as a raw material, wood fiber residue from manufacturers that process timber. In order to provide a more complete picture of Idaho's wood-using industry Section 2 contains an analysis of the secondary wood products industry in the state--defined as manufacturers that use primary wood products from this region as a raw material.

"The first three quarters of 1979 were marked by exceptionally strong markets for wood and paper products while the last quarter of 1979 saw the start of the 1980-1982 "double dip" recession."

Much of the information on the primary industry has been developed through a data system known as the Forest Industries Data Collection System (FIDACS), which focuses on the source and volume of timber used and the products produced from that timber. The Bureau of Business and Economic Research (BBER) at The University of Montana in cooperation with the US Forest Service, Intermountain Research Station, Inventory Monitoring and Evaluation Program in Ogden, Utah, developed the system to collect, compile, and make available state and county level information on the operation of the forest products industry. The FIDACS system is based on a census of primary forest products manufacturers located in a state. The manufacturers provide the following detailed information through a written questionnaire for each plant for a given calendar year:

- production employment
- plant production capacity
- volume of raw material received, by county and ownership
- species of timber received
- volume, type, sales value, and location of markets for finished products
- utilization and marketing of manufacturing residue

- plant production equipment
- beginning and ending inventory levels for raw materials and finished products

Idaho manufacturers were identified through a Directory of Idaho Primary Wood Processors published by the University of Idaho's Forest, Wildlife and Range Experiment Station, through national forest bidder lists, and through information provided by industry personnel.

Censuses have been conducted by the BBER in Idaho for 1979, 1985, and 1990, in Montana for 1976, 1981, and 1988, and in Wyoming for 1976. The Inventory Monitoring and Evaluation Program has collected more limited data in other Rocky Mountain States, and for previous years (including 1969) in Idaho.

"The first half of the 1980s saw the worst markets the forest products industry has experienced since the great depression."

This report has two main topics: the 1990 Idaho census results; and industry changes--especially since 1979. Firms cooperating in the census processed virtually all of Idaho's timber harvest. By using published sources and data from various land management agencies, estimates were made for the very few non-respondent firms to attempt to include all of Idaho's primary forest products industry activity for 1990. Firms in other states, identified through various directories and the records of land management agencies, were contacted to determine the volume and type of timber they received from Idaho in 1990.

Information collected through FIDACS is stored at The University of Montana's Bureau of Business and Economic Research. Additional information is available by request. Individual firm-level data are confidential and will not be released.

Information on Idaho's secondary industry is based on a survey of major secondary manufacturers done in 1992 by the Idaho Forest, Wildlife and Range Experiment Station at the University of Idaho. Because of the number of companies and individuals involved in the secondary wood products industry, and the industry's constant change, some companies may have been inadvertently omitted.

The Period 1979 - 1990

The three census years 1979, 1985, and 1990 offer substantially different market conditions. However, all three years were affected to a degree by weak markets. The first three quarters of 1979 were marked by exceptionally strong markets for wood and paper products while the last

quarter of 1979 saw the start of the 1980-1982 "double dip" recession. Real prices were substantially higher in 1979 than in 1985 and 1990. To illustrate, *Random Length's* composite lumber and plywood prices for 1990 were respectively 51 percent and 56 percent of 1979 prices and 97 percent and 90 percent of 1985 prices (*Random Lengths*, 1985 and 1991).

"National consumption of wood and paper products continued to increase in the late 1980s, and the U.S. dollar fell sharply, leading to improved markets in the last half of the 1980s.

The first half of the 1980s saw the worst markets the forest products industry has experienced since the great depression. Official recessions occurred in at least part of 1980, 1981, and 1982, with very low levels of construction activity in 1982. The years 1983-1985 saw near-record levels of forest products consumption in the United States accompanied by low prices, especially for lumber. In 1985, the relative value of the U.S. dollar was very high, exports of wood products to other countries declined, and imports increased. This put very large wood and paper product volumes on U.S. markets, leading to low prices in spite of high domestic consumption.

National consumption of wood and paper products continued to increase in the late 1980s, and the U.S. dollar fell sharply, leading to improved markets in the last half of the 1980s. Markets in 1990 were weaker with a recession beginning in the third quarter of 1990.

HIGHLIGHTS OF THE REPORT

The Forest Products Industry in Idaho, 1990

.... A total of 172 primary forest products plants operated in thirty of Idaho's forty-four counties in 1990, up one facility from 1985, but down seventy from 1979. In 1990, there were eighty sawmills, five plywood plants, an oriented strand board plant, a particleboard plant, a pulp and paper mill, twenty-six cedar products plants, twenty-two house log plants, twenty-one post and pole plants, six utility-pole plants, and nine other facilities including wood fuel pellet plants, chipping plants, and wood-fueled power generating plants.

.... Thirty-nine major secondary forest products plants operated in 16 Idaho counties.

.... Total sales in Idaho's primary forest products industry were about $1.2 billion in 1990, up from 1985 by $184 million, but down from 1979 by $230 million in constant 1990 dollars. When sales from the major secondary industry are considered, the total for 1990 would approach $1.5 billion.

.... Over 95 percent of primary industry sales were from three sectors: sawmills (45 percent), plywood plants (9 percent), and the residue utilizing sector (42 percent) which includes the pulp and paper mill and particleboard plant, wood fuel pellet producers, chipping plants, and power generating plants.

.... The proportion of sales contributed by the two largest sectors has changed dramatically since 1979; the sawmill sector's share dropped from 62 percent in 1979 to 45 percent in 1990. The residue utilizing sector's share increased from 25 percent in 1979 to 42 percent of the primary industry's sales in 1990 .

.... Sales of lumber and other sawn products were $546 million in 1990.

.... Sales in the mill residue sector were $506 million in 1990.

.... Sales of structural panel products--including plywood, veneer, and oriented strand board--were $106 million in 1990.

.... Sales of other primary products--utility poles, house logs and log homes, cedar products, posts, and small poles -- were $51 million in 1990.

.... Sales of major secondary wood products such as trusses and millwork and cutstock were about $297 million in 1990.

.... Lumber production was just over 2 billion board feet in 1990--Idaho's second highest lumber output on record. This represents about 5.7 percent of the U.S. output of softwood lumber.

.... Lumber sales in constant dollars was lower in 1990 than in the late 1970s due to lower real prices for lumber and to generally lower lumber grades produced.

.... Lumber production is concentrated in Idaho's ten northern counties, which account for about 83 percent of the state's lumber production.

.... Lumber production is concentrated in larger mills and average output per sawmill is 25.7 MMBF, compared to 18.5 MMBF in 1985 and 14.6 MMBF in 1979.

.... Capacity to process sawtimber in Idaho has decreased since the late 1970s, from 2,063 MMBF Scribner in 1979 to 1,717 MMBF Scribner in 1990.

.... Idaho mills used 90 percent of their capacity to process sawtimber in 1990–compared to 74 percent in 1985 and 81 percent in 1979.

.... The North Central states continue to be the major market for Idaho's primary wood products (exclusive of residue sector sales) receiving about 24 percent of 1990 sales. The Far West states and Northeast states were also a major market areas receiving 19 percent and 16 percent of sales, respectively.

.... Ninety-eight percent of the mill residue from Idaho's sawmills and plywood plants was utilized in 1990, up from 94 percent in 1985, 89 percent in 1979, and 63 percent in 1969.

.... Mill residue sales generated about $57 million dollars in addition to the $652 million of lumber and structural panels sold by the sawmill and plywood sectors.

Timber Harvest and Utilization, 1990

.... Idaho's timber harvest in 1990 was 1,692 MMBF Scribner. Clearwater County had the highest harvest level with 267 MMBF, followed by Bonner County (197 MMBF), Shoshone County (183 MMBF), Idaho County (174 MMBF), Kootenai County (152 MMBF), Benewah County (152 MMBF). These six counties accounted for 66 percent of Idaho's timber harvest in 1990.

.... Sawmills received 83 percent of Idaho's timber harvest in 1990. Plywood plants utilized 10 percent of the harvest, and the pulp and paper industry received 3 percent. The remaining 4 percent went to utility pole plants, house log plants, post and pole plants, cedar products plants, chip plants, and the oriented strand board plant.

.... Public and tribal timberlands supplied 57 percent of the 1990 harvest. Private timberlands provided the remaining 43 percent of the harvest.

.... In 1990, true firs accounted for 23 percent of the Idaho's total timber harvest. Douglas-fir comprised 22 percent of the harvest, with the remainder composed primarily of ponderosa pine (18 percent), western redcedar (11 percent), and lodgepole pine (10 percent).

.... Idaho was a net exporter of timber in 1990. About 137 MMBF of Idaho timber left the state for processing and Idaho mills received 130 MMBF of timber harvested in adjacent states.

.... About 79 percent of the timber delivered to Idaho mills was received by processors in the ten North Idaho counties.

.... Since 1979, there has been a shift in timber processing in North Idaho from the five southernmost counties to the five northernmost counties. The five northernmost counties processed 12 percent more timber in 1990 than they did in 1979, and the five southernmost counties processed 29 percent less timber in 1990 than they did in 1979.

.... Kootenai County was the major timber processing center, receiving about 301 MMBF of timber.

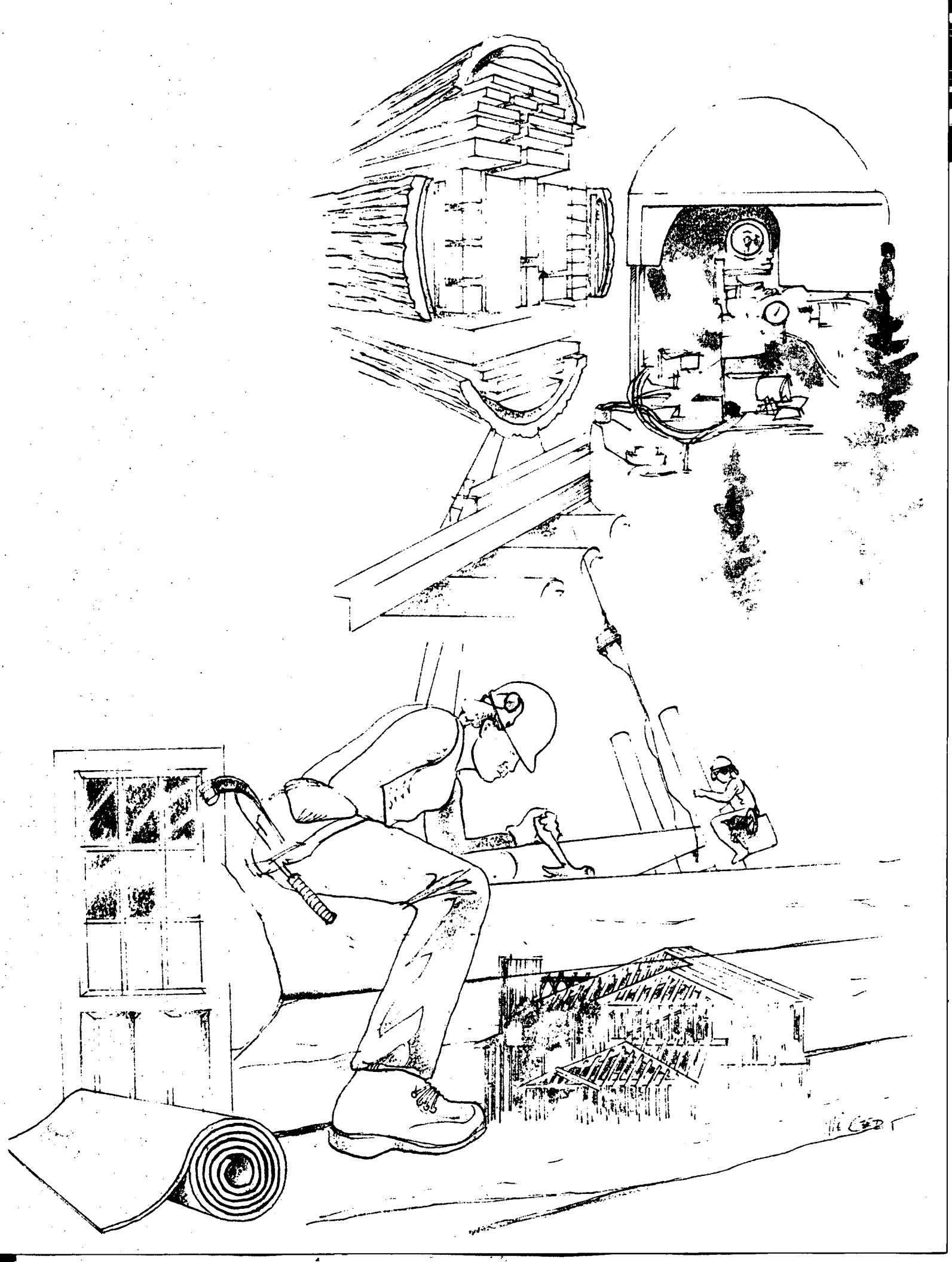
Importance of the Industry to the Idaho Economy

.... The forest products industry (wood and paper products) remains Idaho's number one nonfarm basic industry, accounting for almost one-fifth of the state's basic labor income in 1990.

.... The industry employed some 20,560 workers in 1990, earning an average of about $38,000 annually during the 1987-91 period, second only to workers in the mining and railroad industries.

.... Employment in Idaho's forest products industry grew from about 15,300 workers in 1970 to a peak of over 22,000 workers during the extremely good markets of the late 1970s. Employment and constant dollar labor income peaked in 1979 at 22,700 workers and $874 million 1990 dollars. The number of workers declined significantly during the recession years of the early 1980s, reaching a trough in 1982 of 16,000 workers. With improving markets in the late 1980s, employment increased through the decade exceeding 20,000 workers in 1989 and 1990.

.... About 60 percent of the forest products industry labor income was earned in North Idaho where the industry accounts for about 44 percent of the basic industry labor income.



Section 1

Structure of the Industry

The Stucture of Idaho's Primary Forest Products Industry

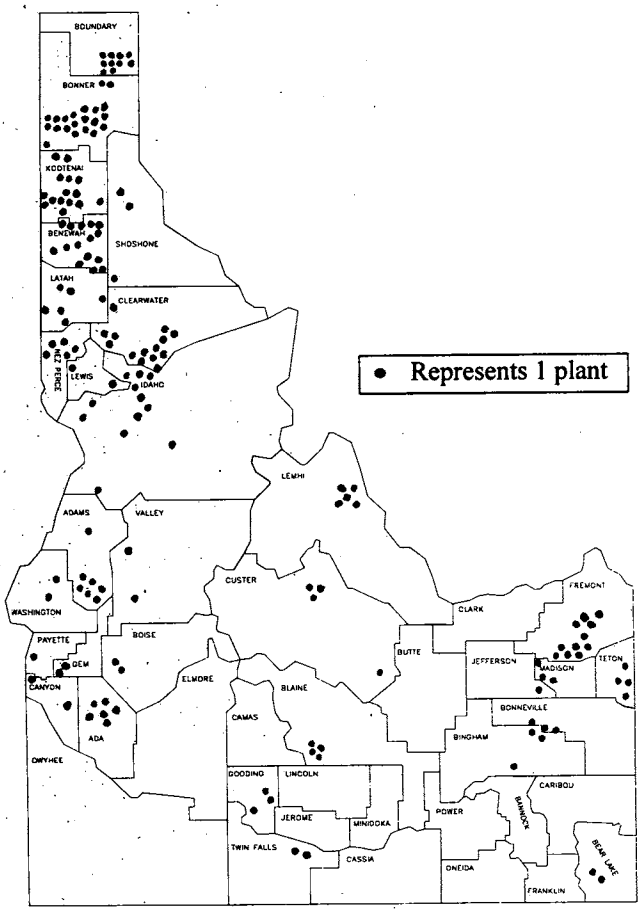
Structure and Location

The primary forest products industry in Idaho includes plants producing lumber and other sawn products, structural panel products—consisting of plywood, veneer, and oriented strand board (OSB)—pulp, paperboard, and tissue products, particleboard, utility poles, posts and small poles, cedar products, log homes, and wood fuel pellets. Also, a number of facilities use wood to generate electricity.

The industry has statewide impacts. In 1990, timber processing facilities operated in thirty of Idaho's forty-four counties and timber was harvested in thirty-four counties. The industry is concentrated near the forest resource, with major concentrations in Idaho's ten northern counties and in nine counties south of the Salmon River (figure 1).

Figure 1

Location of Active Primary Wood Products Plants Idaho, 1990



The 1990 census identified 172 active forest products plants, an increase of one since the 1985 census, but a decrease of seventy since 1979 (table 1). Most of the loss since 1979 occurred in the sawmill and cedar products sectors of the industry. There were fifty-three fewer sawmills and eighteen fewer cedar products facilities in 1990 vs. 1979. However, the log home sector increased by seven facilities.

Sales Value of Primary Wood and Paper Products

The estimated total 1990 sales value of primary wood and paper products manufactured in Idaho was about $1,209 million, up from 1985 by $184 million, but down by $230 million from 1979 (all figures in 1990 dollars; see table 2).

More than 95 percent of sales in 1990, 1985, and 1979 were in three sectors of the industry: 1) sawmills, 2) structural panel producers (plywood, veneer, and OSB plants), and 3) the residue utilizing sector. The residue utilizing sector includes plants using residue from sawmills and plywood plants as their primary raw material; they include producers of pulp and paper, particleboard, manufactured wood fuel such as pellets, and plants generating electricity. This sector also includes the value of mill residue sold to out-of-state users.

Among major sectors, sawmill and structural panel producers showed substantial declines in inflation-adjusted sales value from 1979 to 1990—$1,047 million in 1979 vs. $652 million in 1990. At the same time, the residue processing sector showed a substantial increase—$362 million in 1979 vs. $506 million in 1990. Sales declines for sawmills and structural panel producers was primarily due to very high wood product prices through most of 1979. Also influencing 1990 average lumber and plywood prices is an apparent statewide production increase in the proportion of lower grade wood products. The increase in sales from residue related processors was due to expansion of several components of this sector.

Due to these changes, the proportion of sales provided by lumber and other sawn products decreased from 62 percent in 1979 to 45 percent in 1990; the proportion provided by the residue sector increased from 25 percent in 1979 to 42 percent in 1990.

Among other sectors of the industry, all showed lower inflation- adjusted sales value in 1990 vs. 1979.

Comparing 1985 to 1990, all sectors showed increased sales due to a combination of higher prices and/or higher production. Further detail on the individual sectors is provided below.

Table 1

Number of Active Primary Wood Products Plants, by County and Product Produced Idaho, 1990

	Lumber	Plywood, Veneer, and OSB	Particle-board	Pulp and Paper	Posts and Poles	House Logs	Cedar Products	Utility Poles	Other Facilities*	Total
Ada	2	--	--	--	1	2	--	1	--	6
Adams	4	--	--	--	1	1	--	--	1	7
Bear Lake	1	--	--	--	--	--	--	--	1	2
Benewah	5	1	--	--	--	--	7	1	1	15
Bingham	--	--	--	--	1	2	--	--	--	3
Blaine	1	--	--	--	1	2	--	--	--	4
Boise	2	--	--	--	--	--	--	--	--	2
Bonner	11	1	--	--	3	2	2	1	1	21
Bonneville	--	--	--	--	1	1	--	1	--	3
Boundary	6	--	--	--	1	--	3	--	--	10
Canyon	1	--	--	--	1	--	--	--	--	2
Clearwater	5	1	--	--	--	1	7	--	--	14
Custer	3	--	--	--	--	1	--	--	--	4
Fremont	7	--	--	--	1	3	--	--	--	11
Gem	--	1	--	--	--	--	--	--	1	2
Gooding	1	--	--	--	1	--	--	1	--	3
Idaho	6	--	--	--	2	--	2	1	1	12
Jefferson	--	--	--	--	--	1	--	--	--	1
Kootenai	9	2	1	--	1	1	--	--	1	15
Latah	4	--	--	--	--	--	2	--	--	6
Lemhi	2	--	--	--	2	1	--	--	--	5
Lewis	1	--	--	--	--	--	1	--	--	2
Madison	2	--	--	--	1	--	--	--	--	3
Nez Perce	1	--	--	1	1	--	--	--	2	5
Payette	--	--	--	--	--	1	--	--	--	1
Shoshone	1	--	--	--	--	--	2	--	--	3
Teton	1	--	--	--	1	2	--	--	--	4
Twin Falls	1	--	--	--	1	--	--	--	--	2
Valley	1	--	--	--	--	1	--	--	--	2
Washington	2	--	--	--	--	--	--	--	--	2
Total	80	6	1	1	21	22	26	6	9	172
1985 Total	90	7	1	1	22	20	25	4	1	171
1979 Total	133	8	1	1	26	15	44	9	5	242

*Other Facilities includes chipping plants, wood pellet plants, and energy generating facilities.

The Sawmill Sector

In 1990, the census identified eighty active sawmills in Idaho versus ninety in 1985 and 133 in 1979 (table 1). These facilities ranged from one-person operations producing only a few thousand board feet of lumber annually to large automated mills capable of producing over 100 MMBF annually.

In 1990, Idaho sawmills produced 2,055 MMBF of lumber, the second highest annual lumber production in Idaho's history. The mills reported higher production only in 1989 at 2,133 MMBF (figure 2). The 1990 production represents 5.7 percent of total U.S. production of softwood lumber and about 4.6 percent of consumption.

The 1990 production is up from 1,665 MMBF in 1985 and 1,932 MMBF in 1979. The increase in lumber production in 1990 versus 1979 was due to increased recovery per million board feet Scribner of timber processed (see the section on lumber overrun for more detail).

The ten North Idaho counties—Benewah, Bonner, Boundary, Clearwater, Idaho, Kootenai, Latah, Lewis, Nez Perce, and Shoshone—accounted for 1,699 MMBF or about 83 percent of the state's lumber production in 1990. Kootenai County mills led the state in lumber production at 394 MMBF. Bonner

Table 2

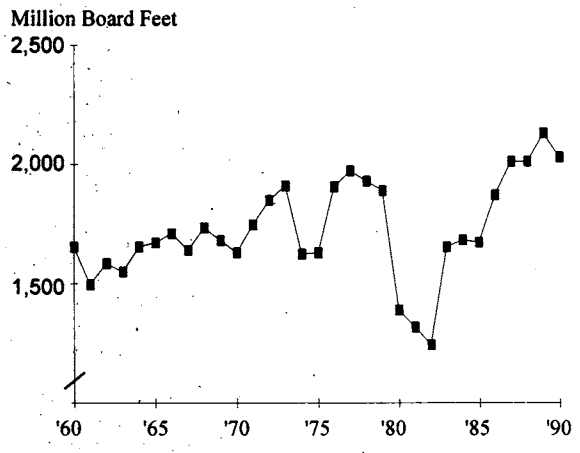
Sales Value of Manufactured Primary Forest Products Idaho, 1979, 1985, and 1990

	Millions of 1990 Dollars			Percentage of Total		
	1979	1985	1990	1979	1985	1990
Lumber and other sawn products	$895.5	$503.0	$546.0	62%	49%	45%
Plywood, veneer and oriented strand board	151.8	95.1	105.7	11%	9%	9%
Residue related products	362.1	398.5	506.2	25%	39%	42%
House logs	13.9	3.9	10.2	1%	0%	1%
Posts and poles and utility poles	29.3	14.8	26.6	2%	1%	2%
Cedar products	23.3	9.5	14.2	2%	1%	1%
Total	$1,438.7	1,024.9	1,208.8	100%	100%	100%

Notes: All sales are reported F.O.B. manufacturers plant. The lumber and related products category includes lumber and structural timbers and remanfactured products such as siding, moulding, and cut stock. Residue-related products include pulp and paper, particleboard, fiberboard, wood pellets, residues sold outside the state, and electricity. Residue-related products sales for 1990 were calculated by the Bureau using survey data and other published information.

Figure 2

Idaho Lumber Production, 1960-90



Source: Western Wood Products Association, Portland, Oregon.

County was second at 388 MMBF, followed by Benewah County (230 MMBF) and Idaho County (198 MMBF). These four counties accounted for about 59 percent of Idaho's lumber output; they have been the major lumber producing counties for the past two decades.

Mills in South Idaho produced about 356 MMBF of lumber in 1990. Eight counties (Ada, Adams, Bear Lake, Boise, Fremont, Lemhi, Madison, and Valley) produced over 353 MMBF or 99 percent of the South Idaho lumber output.

Lumber Overrun

In 1990, Idaho sawmills produced approximately 1.56 board feet (BF) of lumber for every board foot Scribner of timber processed. This lumber overrun compares to 1.36 BF in 1985, and 1.34 BF in 1979. The increase in overrun has been due to a number of factors. Certainly, there have been improvements in technology and efficiency in Idaho's mills, resulting in increased lumber recovery.

An additional factor which may have contributed to a higher overrun is decreasing log size. As log diameter decreases, the Scribner Decimal C log rule, which is used in Idaho, generally underestimates by an increasing amount the lumber that can be recovered. From the census data, it was impossible to differentiate precisely between increases in overrun caused by productivity improvements and increases caused by quirks

in the Scribner scaling system. However, an examination of overrun by mill type indicates both technology and log size have been factors.

Sawmills were classified into three categories—stud mills, board mills, and random length dimension mills. Stud mills process small diameter logs, primarily producing lumber two inches by four inches or two inches by six inches, in lengths up to ten feet long. Board mills were defined as mills producing 50 percent or more of their output in board, shop, and better lumber. Random length dimension mills were defined as those sawmills which produce random lengths and widths of lumber with more than 50 percent of their output in dimension grades of lumber.

Each mill category showed a substantial increase in overrun from 1979-1990 (table 3). In 1990, the overrun figures were 1.28 for board mills, 1.50 for random length dimension mills, and 1.87 for stud mills. In 1979, the overrun figures were 1.14 for board mills, 1.39 for random length dimension mills, and 1.48 for stud mills. The average diameter processed by each mill type probably declined from 1979-1990; but based on discussion with mill operators, most of the overrun increase from 1979 to 1990 was due to improvements in sawing technology and production efficiency.

The volume processed by mills of various types also shifted; in 1990 29 percent was processed by stud mills, 21 percent by board mills, and 50 percent by random length dimension mills; in 1979, 21 percent of volume was processed by stud mills, 29 percent by board mills, and 50 percent by random length dimension mills. The increased overrun due to a shift from board mills to studmills can be attributed primarily to a decrease in size and perhaps species of available timber.

Table 3

Lumber and Plywood Recovery Idaho, 1979, 1985, and 1990

	1979	1985	1990
Board Mills	1.14	1.22	1.28
Random Length Dimension Mills	1.39	1.42	1.50
Stud Mills	1.48	1.55	1.87
Plywood Plants	2.52	2.57	2.83

Note: This table displays lumber output in board feet (lumber tally) and plywood output in square feet 3/8-inch basis per board foot Scribner of timber input

Table 4

Number of Sawmills by Size of Production, Idaho, Selected Years 1956-1990

	Annual Production				
Year	Under 10 MMBF	10 MMBF to 50 MMBF	Over 50 MMBF	Unknown	Total Mills
1956	274	37	___[a]	0	311
1962	151	42	___[a]	0	193
1966	123	45	___[a]	0	168
1973	67	39	6	10	122
1979	88	31	14	0	133
1985	52	24	14	0	90
1990	40	22	18	0	80

[a]Mills with lumber production in excess of 50 MMBF have been included in the 10 to 50 MMBF category for these years.

Sources: T. Setzer and A.K. Wilson, *Timber Products in the Rocky Mountain States, 1966,* Resource Bulletin INT-9, U.S. Forest Service, Intermountain Forest and Range Experiment Station, 1970; E. Godfrey, E.G. Schuster, and F. Bell, *Idaho's Forest Products Industry, 1973,* General Technical Report INT-80, U.S. Forest Service, Int. For. and Range Exp. Station, 1980; BBER, The University of Montana, Idaho FIDACS 1979, 1985, and 1990.

Number and Size of Mills

The number of sawmills and proportion of mills of various sizes have changed dramatically over the past thirty-five years. In 1956, there were about 311 sawmills, with only thirty-seven mills producing more than 10 MMBF annually (table 4). By 1979, there were only 133 active sawmills, but lumber production had increased from 1,608 MMBF in 1956 to 1,932 MMBF in 1979 (table 5). In 1985, the number of active sawmills had fallen to ninety, and in 1990, eighty sawmills produced 2,055 MMBF of lumber.

The loss of sawmills occurred primarily among the smaller facilities, those producing less than 10 MMBF of lumber annually. In 1956, 274 mills produced under 10 MMBF each (table 4). By 1990, the number of mills producing less than 10 MMBF was forty—less than half the 1979 number, and twelve fewer than in 1985. At the same time, the number of mills producing more than 10 MMBF annually has increased. In 1956, there were thirty-seven sawmills producing more than 10 MMBF annually; in 1990, forty mills each produced more than 10 MMBF annually. Further, since 1973, the number of mills producing more than 50 MMBF per year has tripled, from six to eighteen in 1990 (table 4).

In line with this trend, lumber output has become more concentrated in larger mills. In 1956, 73 percent of lumber production was from mills producing more than 10 MMBF annually (table 5). In 1979, mills producing more than 10 MMBF annually accounted for 93 percent of the state's lumber output; in 1985 the share rose to 97 percent. In 1990, the forty mills in this category produced 98 percent of Idaho's 2,055 MMBF of lumber.

In 1990, eighteen sawmills producing more than 50 MMBF each, accounted for about 70 percent of the state's lumber

Table 5

Lumber Output by Size of Mill, Idaho Selected Years 1956 - 1990

Year	—— Percentage of Total Lumber Output—— Mills with Annual Production below 10 MMBF	Mills with Annual Production 10 MMBF and Above	Total Lumber Output (MMBF)
1956	27	73	1,608
1962	22	78	1,585
1966	12	88	1,711
1979	7	93	1,932
1985	3	97	1,665
1990	2	98	2,055

Source: T. Setzer and A.K. Wilson, *Timber Products in the Rocky Mountain States, 1966*, Res. Bul. INT-9, U.S. For. Ser., Int. For. and Range Exp. Stat., 1970; BBER, The University of Montana, Idaho FIDACS 1979, 1985, and 1990.

output (table 6). In 1979 and 1985, the fourteen mills in this size class produced 49 and 58 percent, respectively, of Idaho's lumber production (see tables A1 and A2 in Appendix A).

Sales Value

Despite near record lumber production, the 1990 lumber sales value of $546 million is the lowest since 1985 when sales of lumber were $503 million. The 1990 figure is just over half the peak lumber sales value of $1,020 in 1978, using constant 1990 dollars (Western Wood Products Association, 1985 and 1990).

Factors contributing to the lower sales value for 1990 include lower real prices for nearly all grades of lumber produced in Idaho, and the movement toward lower grades of lumber such as studs.

Residue-Utilizing Sector

The residue utilizing sector of Idaho's primary forest products industry has experienced substantial growth since the 1979 census. The 1990 census identified one pulp and paper mill and an associated tissue plant, one particleboard plant, three active wood fuel pellet producers, two chipping facilities, and four facilities generating electricity for sale. Also included in this sector are sales of Idaho mill residues to out-of-state users. Sales of residue to Idaho mills are not included in the sales value of this sector. The total sales from this sector were $506 million in 1990, $108 million more than in 1985 and $144 million more than in 1979, in constant 1990 dollars (table 2). As indicated earlier, this sector accounted for approximately 42 percent of Idaho's primary forest products sales in 1990, up from 39 percent in 1985, and 25 percent in 1979.

Increased sales since 1979 have come about primarily through expansion of the pulp and paper component, but also through development of several facilities generating electricity from wood residue, and from expansion of the pelletized fuel industry.

Idaho has only one paper mill—producing Kraft pulp, paperboard, and tissue—and one particleboard plant. The Potlatch Corporation has released some production and sales information in various publications and given permission to release other production information on its facilities.

Production of paperboard and tissue in Idaho was 411,000 tons in 1990, up from 406,000 tons in 1985 and 347,000 tons in 1979 (1990 Lockwood-Post's Directory of the Pulp, Paper, and Allied Trades, and Potlatch 1990 Annual Report). In 1990, an

Table 6

Lumber Production by Size of Mill, Idaho, 1990

Size Class	—— Production —— Number of Mills	Volume (MMBF)	Percentage of Total	Average per Mill (MMBF)
A -- over 50 MMBF	18	1,446	*70.4%*	80.3
B -- over 25 MMBF to 50 MMBF	9	343	*16.7%*	38.1
C -- over 10 MMBF to 25 MMBF	13	216	*10.5%*	16.6
D -- over 1 MMBF to 10 MMBF	8	43	*2.1%*	5.4
E -- under 1 MMBF	32	6	*0.3%*	0.2
Total	80	2,055	*100%*	25.7

additional 61,000 tons of pulp were shipped to other paper producers vs. 1985 and 1979 when 14,000 tons and 70,000 tons, respectively, were shipped. The particleboard plant produced 60 million square feet (MMSF) in 1990, versus 66 MMSF in both 1985 and 1979.

The residue utilizing sector is also a significant revenue source for lumber and plywood producers. In 1990, chips, sawdust, planer shavings, and bark from Idaho sawmills and plywood plants brought $57 million in revenue. Although others both in and out of state bought Idaho's mill residue, the Idaho pulp and paper mill was the largest single user.

Structural Panels: Plywood, Veneer, and Oriented Strand Board

In 1990, Idaho had five plants that produced plywood and/or veneer and one that produced oriented strand board (OSB). These six plants shipped 610 MMSF, 3/8-inch basis, of plywood, veneer, and OSB for total sales of $105.7 million. Structural panel production was 622 MMSF, and accounted for 2 percent of the structural panel production in the United States (American Plywood Association, 1991). The 622 MMSF represents the second highest annual structural panel output from Idaho mills—exceeded only by 639 MMSF produced in 1988 (figure 3).

During the late 1950s, only one structural panel plant producing plywood and veneer operated in Idaho; total production was reported at less than 20 MMSF annually. The industry expanded dramatically in the 1960s, with the construction of four new plants; production reached 603 MMSF in 1967. This remained the highest output until 1988.

From 1967 through the 1970s, one plywood plant closed and one new plant was built. Throughout the 1970s, industry output changed little from year to year. Steady as well from 1979 to 1990, the major change in Idaho's structural panel industry composition was the closure of a plywood plant and the addition of an OSB plant.

Other Primary Manufacturers

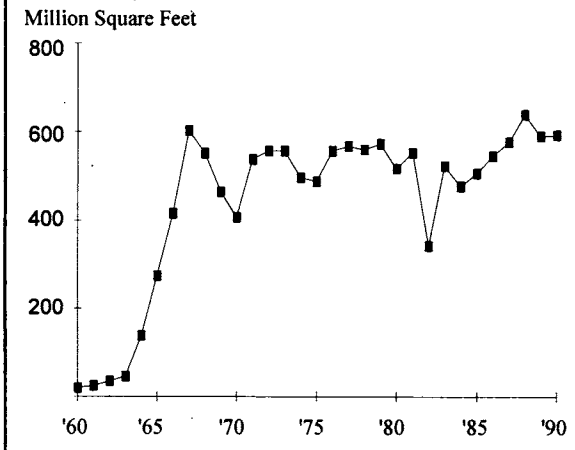
The 1990 census identified seventy-five other primary manufacturers processing timber into utility poles as well as posts and other roundwood products, cedar products, or log homes. In 1985 and 1979, there were seventy-one and ninety-four facilities respectively (table 1). Individual sectors are discussed below.

Roundwood Products

In 1990, twenty-seven plants in Idaho manufactured various types of roundwood products, such as utility poles, posts, corral poles, and tree stakes. In 1990, these producers had sales of $26.6 million, and an output of about 4.3 million pieces (table 2). This represents a sizable increase from 1985, when sales were $14.8 million (1990 dollars) and production was 1.8 million pieces; but it is down from 1979, when sales were $29.3 million (1990 dollars) on a lower production of 1.9 million pieces.

Figure 3

Idaho Plywood Production, 1960-90



Source: American Plywood Association, Tacoma, WA.

These manufacturers had lower sales in 1990 vs. 1979—in spite of increased numbers of pieces produced—because: 1) sales value in constant dollars declined for virtually all roundwood products of a given size, and 2) industry output consisted of proportionately more smaller and generally lower priced roundwood products. In particular, from 1979 to 1990, production increased for lower value small roundwood products such as posts and tree props, while production decreased for the highest value-per-piece roundwood products—utility poles. Idaho's plants produced 51,000 utility poles in 1990 compared to 94,000 in 1979.

Cedar Products Industry

Idaho's cedar products industry has declined substantially since the 1979 census. Twenty-six cedar products manufacturers were active in 1990, compared to twenty-five in 1985 and forty-four in 1979. Cedar products manufacturers processed an estimated 24 MMBF Scribner of logs into cedar shakes, shingles, split rail fencing and fence lath in 1990, with a sales value of $14.2 million. In 1985, cedar products manufacturers processed about 35 MMBF for sales of $9.5 million (1990 dollars), and in 1979, this sector processed about 31 MMBF Scribner, for sales of $23 million (1990 dollars).

Log Home Industry

In 1990, Idaho's twenty-two log home manufacturers produced about 5.8 million lineal feet of house logs. Virtually all house logs were further processed into home shells or complete homes, with total sales of $10.2 million F.O B. the log home plant. This output compares to 1985 sales of $3.9 million (1990 dollars) and production of about 2 million lineal feet, and 1979 sales of $13.9 million (1990 dollars) on about 4 million lineal feet.

Section 2

Secondary Forest Products Industry

Idaho's Secondary Forest Products Industry

While most of Idaho's primary wood products manufacturers output is shipped out of the region for further processing or construction purposes, the state's secondary forest products industry is substantial. Idaho's major secondary wood products manufacturers reported sales of $297 million in 1990.

For the purposes of this report, the secondary products included were manufactured primarily from the region's raw material supply. Therefore, cabinet and furniture manufacturing was not included, because those industries typically use raw materials, such as hardwood plywood, from outside the region. The numbers presented in this report represent production and sales of secondary wood products manufactured from the region's raw material supply.

"The size of Idaho's secondary wood products industry is significant, yet room for growth remains."

The categories used for this study include four major secondary product groups, or sectors: 1) trusses and structural building components, such as glue-laminated beams and finger-jointed construction materials; 2) doors, windows, architectural millwork, and cutstock (cutstock is included in this sector because many door, window, and millwork manufacturers also produce cutstock); 3) pallets and survey stakes, which also includes box shook and tent poles; 4) other, which includes picture framing, arrow shafts, signs, light fixtures, musical instruments and clocks.

Tables 7 & 8

Profile of Idaho's Major Secondary Wood Products Manufacturers by Sector, 1990

	Number of Firms	Employment	Sales ($1,000)	Percent of Total
Trusses, structural building components	16	567	79,450	26.8
Doors, windows, mouldings, cutstock	11	1,242	206,900	69.8
Pallets, survey stakes	6	147	7,404	2.5
Other	6	52	2,840	1.0
Total	39	2,008	296,594	100.0

Profile of Idaho's Major Secondary Wood Products Manufacturers by Employment Class, 1990

Employment Class (no. of Workers)	No. of Firms	Total Employment	Sales ($1,000)	Percent of Total Sales
1-4	4	11	440	0.1
5-9	5	33	1,550	0.5
10-24	10	164	9,882	3.3
25-49	10	317	25,222	8.5
50+	10	1,483	259,500	87.5
Total	39	2,008	296,594	100.0

Structure and Location

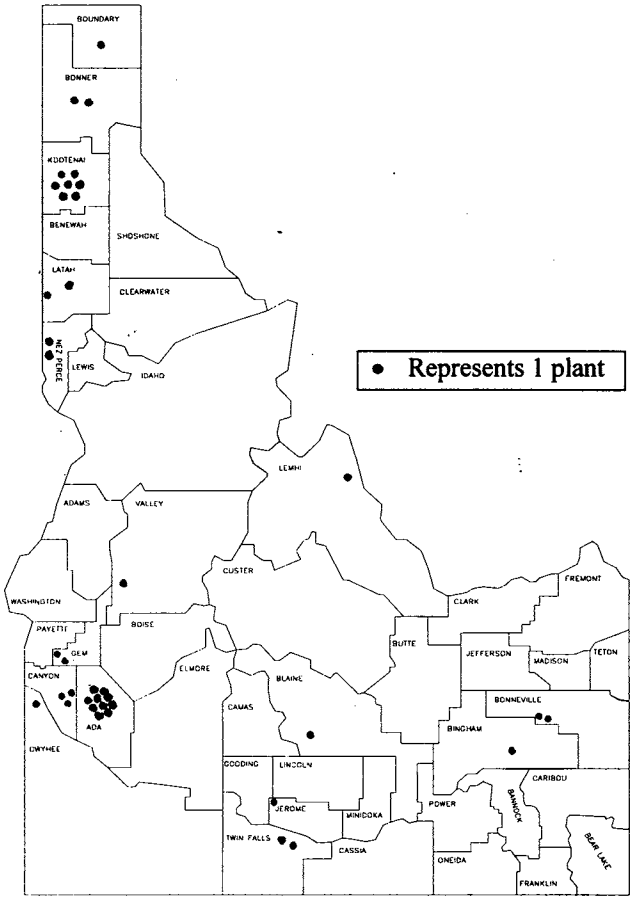
Table 7 profiles Idaho's major secondary wood products manufacturers by product sector. Of the thirty-nine secondary wood product companies identified in this study, trusses and structural product manufacturers had the largest number of firms, with sixteen plants employing 567 people in 1990. There were eleven firms that manufactured doors, windows, architectural millwork and cutstock, yet the employment in this sector was the highest, with a total of 1,242 workers. These two product sectors represented 96 percent of the total 1990 sales value of $297 million.

Table 8 profiles the major secondary wood product manufacturers by employment class. There were ten firms employing more than fifty people, for a total employment of 1,483, and total sales of $260 million in 1990. Ten firms employed between twenty-five and forty-nine people, for a total of 317 workers, and sales of $25 million. These two categories represented 96 percent of the total sales in the secondary manufacturing industry. Nineteen firms employed less than twenty-five people. These companies tended to manufacture specialty products, primarily in the "Other" product sector in table 7.

Table 9 shows the location, by county, of major secondary manufacturing plants in Idaho. The largest number of firms (ten) were located in Ada County, Idaho's most populated. Kootenai County had seven manufacturing firms, and the remaining twenty-two firms were located in fourteen other Idaho counties.

Figure 4

Location of Major Secondary Wood Products Plants Idaho, 1990



Market Areas

Table 10 shows where Idaho's major secondary wood products were sold. The sales distributions can be attributed to a variety of product specific characteristics. For example, most of the nearly $12 million in 1990 sales for structural building components sold in Idaho was attributed to floor and roof trusses, since these are typically not shipped over long distances. On the other hand, over 90 percent of the doors, window, architectural millwork and cutstock was sold into markets outside of Idaho and the Rocky Mountain states; the large population centers along the west and east coasts, as well as those in the north-central states, were the primary markets.

Total sales for the primary forest products industry were $1.2 billion in 1990, and sales in the secondary forest product industry were $297 million. Because some primary industry output is used as a raw material by Idaho's secondary forest products industry, there is some double counting of sales value when the two are combined. About $100 million in primary industry sales was sold to users in Idaho. About $17 million of that was in products not commonly used by the secondary manufacturers described in this section, and certainly a substantial portion of the remainder was used for other purposes. Therefore, only a small portion of the $297 million in sales in the secondary industry was also reported as primary industry sales, and the value added by the primary and major secondary industries would approach $1.5 billion for 1990.

The size of Idaho's secondary wood products industry is significant, yet room for growth remains. Current studies at the University of Idaho indicate that substantial opportunities exist for many timber dependent communities to expand into secondary wood product manufacturing.

Table 9

Number of Active Major Secondary Wood Products Manufacturers by County and Sector, Idaho, 1990

	Trusses & Structural	Doors, Windows	Pallets & Stakes	Other	Total
Ada	4	5	--	1	10
Bingham	1	--	--	--	1
Blaine	1	--	--	--	1
Bonner	--	--	1	1	2
Bonneville	--	--	2	--	2
Boundary	--	--	1	--	1
Canyon	1	2	--	--	3
Gem	1	--	1	--	2
Jerome	--	1	--	--	1
Kootenai	4	1	1	1	7
Latah	--	1	--	1	2
Lemhi	1	--	--	--	1
Nez Perce	2	--	--	--	2
Owyhee	1	--	--	--	1
Twin Falls	--	1	--	1	2
Valley	--	--	--	1	1
Total	16	11	6	6	39

Table 10A

Destination of Idaho's Major Secondary Wood Products Shipments, 1990

	Percent of Sales			
Sector	Idaho	Rocky Mountain	Far West U.S.	Other Markets
Trusses, structural building components	14.6	2.5	25.3	57.7
Doors, Windows, Mouldings, Cutstock	1.3	6.5	30.9	61.2
Pallets, Survey Stakes	7.0	39.2	9.5	44.3
Other	23.3	10.6	10.6	55.5
Total	5.2	6.3	28.7	59.8

Table 10

Destination of Idaho's Major Secondary Wood Products Shipments by Value of Shipment, 1990

	Thousands of Dollars				
Sector	Idaho	Rocky Mountain	Far West U.S.	Other Markets	Total
Trusses, structural building components	11,563	1,992	20,077	45,818	79,450
Doors, Windows, Mouldings, Cutstock	2,725	13,530	63,950	126,695	206,900
Pallets, Survey Stakes	521	2,900	705	3,278	7,404
Other	663	300	300	1,577	2,840
Total	15,472	18,722	85,032	177,368	296,594

Section 3

Harvest & Utilization

Idaho's Timber Harvest and Utilization

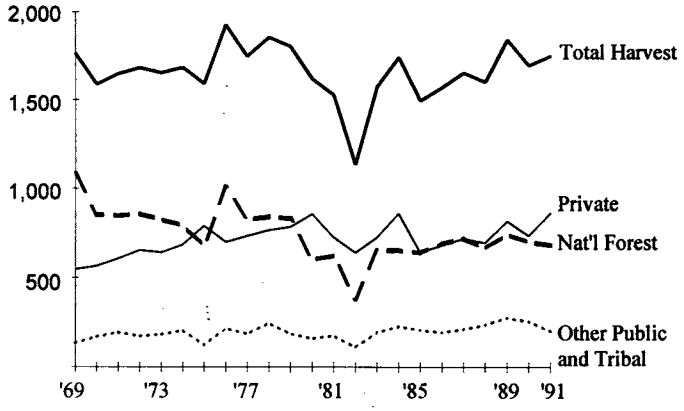
This section examines Idaho's timber harvest and the volume contributed by various ownerships. It focuses on the ownership and geographic sources of timber, types of timber products harvested, end uses of timber, species composition, and movement of timber products.

Annual timber harvest in Idaho is available back to 1969 and is shown in figure 5. The 1990 harvest was 1,692 MMBF Scribner, slightly above the average harvest of 1,656 MMBF Scribner for the period 1969-1990. Harvest levels were considerably higher during the first half of that period. For 1969-1979, the average annual harvest was 1,723 MMBF; for 1980-1990, the average annual harvest was 1,589 MMBF.

Poor markets during the first part of the 1980s were, in large part, responsible for the lower harvest during the 1980-1990 period. The three lowest harvest levels for the period were in poor market years of 1981, 1982, and 1985. In the severe recession year of 1982, harvest fell to 1,136 MMBF—521 MMBF below the average for the twenty-two year period.

Figure 5

Timber Harvest, Idaho, 1969-91



Source: U.S. Forest Service, Region 1, Missoula, MT.

Sources of Idaho's Timber Harvest: Public and Private Timberlands

The relative percentage of Idaho's timber harvest supplied by private timberlands and public and tribal timberlands changed substantially from 1969 to 1991 (figure 5). In 1991, 51 percent of Idaho's timber harvest came from public and tribal timberlands and 49 percent from private timberlands. In 1969, public and tribal timberlands supplied 69 percent of the harvest.

Total public and tribal land harvest declines are due to declining harvests from Idaho's national forest lands. National forests accounted for 82 percent of total public and tribal land harvest from 1969 to 1979, but only 76 percent from 1980 to 1990. From 1969 to 1979, the average annual harvest from national forest lands was 858 MMBF; between 1980 and 1990, the average annual harvest had declined to 645 MMBF. Average annual harvests from other public and tribal lands actually increased somewhat over the period from 184 MMBF (1969 to 1979) to 206 MMBF (1980 to 1990).

Geographic Source of the Harvest

Table 11 shows commercial timber harvest, by county, for the three census years (1979, 1985, and 1990). Clearwater County continued to lead the state in timber harvest with 267 MMBF in 1990, about 16 percent of Idaho's harvest. Other leading timber-producing counties in 1990 were Bonner, 197 MMBF; Shoshone, 183 MMBF; Idaho, 174 MMBF; Kootenai 152 MMBF; and Benewah, 152 MMBF. Together, these six counties supplied 66 percent of Idaho's timber harvest.

Harvest declined by 78 MMBF (6 percent) in North Idaho and 80 MMBF (18 percent) in South Idaho from 1979 to 1990. North Idaho's most dramatic county level changes occurred in Clearwater and Kootenai counties. Clearwater County's harvest dropped from 544 MMBF (29 percent of state harvest) in 1979 to 267 MMBF (16 percent) in 1990, while Kootenai County harvest more than doubled, from 65 MMBF in 1979 to 152 MMBF in 1990. Benewah County and Bonner County harvests increased more than 50 MMBF over that period.

Some dramatic changes also occurred in South Idaho county harvest levels. In Elmore, Fremont, Lemhi, and Valley counties, 1990 harvests were less than half 1979 levels (table 11). Elmore County's harvest declined 80 percent, from 25 MMBF in 1979 to 5 MMBF in 1990. South Idaho's largest volume decline occurred in Fremont County, from a 76 MMBF harvest in 1979 to 20 MMBF in 1990.

Adams and Boise counties had South Idaho's largest harvest increases for the period; Adams County harvest increased by 35 MMBF, while Boise County's jumped 43 MMBF.

Types of Timber Products Harvested

In this report, timber harvest classification is based on the primary products manufactured directly from the timber. Thus, in this section, harvest is divided into four general categories: sawlogs, veneer logs, pulpwood, and other timber products. Sawlogs are timber products sawn to produce lumber, structural timbers, railroad ties, and the like. Veneer

Table 11

Timber Products Harvested from Idaho Timberland by County, Idaho, 1979, 1985, and 1990

North Idaho

County	Million Board Feet, Scribner			Percentage of Total Harvest		
	1979	1985	1990	1979	1985	1990
Clearwater	544	338	267	29%	21%	16%
Shoshone	206	217	183	11%	14%	11%
Idaho	190	156	174	10%	10%	10%
Bonner	142	175	197	8%	11%	12%
Benewah	100	94	152	5%	6%	9%
Boundary	94	80	86	5%	5%	5%
Kootenai	65	80	152	4%	5%	9%
Latah	57	89	84	3%	6%	5%
Nez Perce	8	12	17	a	1%	1%
Lewis	4	13	20	a	1%	1%
North Idaho Total	1,410	1,254	1,332	76%	79%	79%

South Idaho

County	1979	1985	1990	1979	1985	1990
Valley	107	88	52	6%	6%	3%
Boise	84	67	127	5%	4%	8%
Fremont	76	43	20	4%	3%	1%
Adams	52	66	87	3%	4%	5%
Lemhi	34	11	16	2%	1%	1%
Elmore	25	14	5	1%	1%	a
Clark	10	10	16	1%	1%	1%
Caribou	4	10	3	a	1%	a
Washington	4	9	4	a	1%	a
Other counties	44	22	30	2%	1%	2%
South Idaho Total	440	340	360	24%	21%	21%
Idaho Total	1,850	1,594	1,692	100%	100%	100%

Note: The percentage detail may not add to 100 due to rounding.

[a]Less than 0.5 percent

logs are used to produce veneer for plywood. Pulpwood is timber used in round form to produce wood chips for manufacturing pulp and paper. Other timber products in this report refer to fiberwood (used to produce oriented strand board), utility poles, house logs, cedar products logs, posts and small poles, and other small roundwood products.

At 93 percent of the 1990 harvest, sawlogs and veneer logs remained Idaho's primary timber products. These two product types accounted for 88 percent of the 1985 harvest, 90 percent in 1979, and 94 percent in 1969. At 1,400 MMBF, sawlogs alone constituted 83 percent of the 1990 harvest (figure 6). That's a higher proportion than 1985 (77 percent, 1,227 MMBF), or 1979 (77 percent, 1,425 MMBF).

Veneer logs are the second largest component of Idaho's timber harvest, representing about 10 percent (168 MMBF) of total 1990 harvest. The veneer log harvest was 181 MMBF in 1985 and 235 MMBF in 1979, accounting for 11 and 13 percent respectively of the harvest.

Timber is classified by end use, so the proportion of harvest in each category may indicate changes in industry structure and in market conditions as much as changes in the resource itself. This is especially true in distinguishing between sawlogs and veneer logs.

Timber processed by the plywood industry and categorized as veneer logs is also suitable for lumber production. As a result of plywood industry development in the 1960s and 1970s, large volumes of true fir and Douglas-fir timber were processed by the plywood sector and classified as veneer logs. Much of this same timber would otherwise have been processed by sawmills and classified as sawlogs.

Idaho's 1990 pulpwood harvest was 45 MMBF, about 3 percent of total harvest. Previous censuses identified larger volumes in 1985 and in 1979, 93 MMBF and 134 MMBF respectively.

Harvest of roundwood pulpwood in Idaho is subject to large year-to-year fluctuations—often due to purchases made not only by the Idaho pulp and paper mill and mills in adjacent states, but also by overseas purchasers of chips—particularly when chippable mill residue material is in short supply. Therefore, no long term significance should necessarily be attributed to annual changes in Idaho's pulpwood harvest.

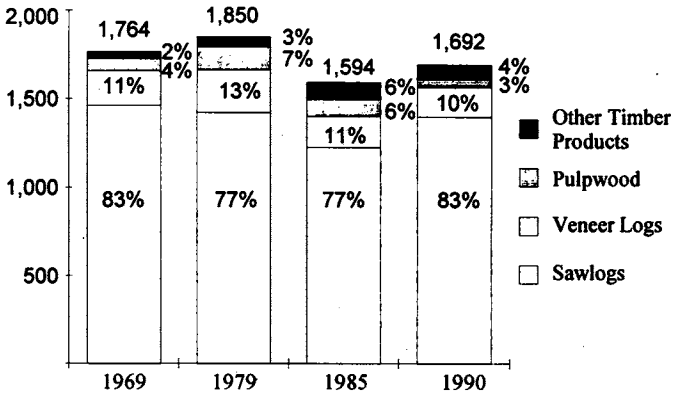
Harvest of all other timber products increased

substantially over the period: from 35 MMBF in 1969 to 57 MMBF in 1979, 93 MMBF in 1985, and 80 MMBF in 1990. The increase from 1979 to 1985 was primarily due to the development of the OSB plant, which uses some of the same kinds of timber used for roundwood pulpwood—small diameter and cull green softwood species. The OSB plant is also Idaho's only large user of hardwood timber in the form of cottonwood. Because there is only one OSB plant, only trends for the individual components of other timber products are discussed in this report.

Post and small pole harvest more than doubled from 1979 to 1990; utility pole harvest decreased by more than 50 percent. Cedar products log and house log harvests decreased more than 25 percent from 1979. The log home industry in Idaho actually processed more timber in 1990 than in 1979, but it imported logs from outside the state to do so.

Figure 6

Harvest from Idaho Timberlands by Type of Product 1969, 1979, 1985, and 1990



Source: T.S. Setzer, *Estimates of Timber Outputs and Plant Residues, Idaho, 1969,* Res. Note INT-132, U.S. Forest Service, Int. For. and Range Exp. Stat.; Bureau of Business and Economic Research, The University of Montana.

Land Ownership and Type of Product Harvested

The amount of timber harvested from public and private lands varies by product type. In 1990, public and tribal lands supplied 58 percent of the sawlog harvest (813 MMBF)—about

Table 12

Timber Products Harvested by Ownership Source, Idaho, 1990

Source	Sawlogs	Veneer Logs	Pulpwood	Other Timber Products	All Products
	Thousand Board Feet, Scribner				
Private timberlands	587,054	80,122	28,746	36,482	732,404
Industrial	271,262	73,397	7,400	12,119	364,178
Nonindustrial	315,792	6,725	21,346	24,363	368,226
Public and tribal timberlands	812,802	87,727	16,520	43,085	960,134
National forest	594,468	60,584	13,069	32,594	700,715
Other	219,334	27,143	3,451	10,491	259,419
All sources	1,399,856	167,849	45,266	79,567	1,692,538
	Percentage of Total				
Private timberlands	*42%*	*48%*	*64%*	*46%*	*43%*
Industrial	*19%*	*44%*	*16%*	*15%*	*22%*
Nonindustrial	*23%*	*4%*	*47%*	*31%*	*22%*
Public and tribal timberlands	*58%*	*52%*	*36%*	*54%*	*57%*
National forest	*42%*	*36%*	*29%*	*41%*	*41%*
Other	*16%*	*16%*	*8%*	*13%*	*15%*
All sources	*100%*	*100%*	*100%*	*100%*	*100%*

Notes: "Other Timber Products" refers to fiberwood, utility poles, house logs, posts and small poles, and cedar products. The percentage detail may not add to 100 due to rounding.

Table 13

Timber Products Harvested from Idaho Timberlands by Species, 1969, 1979, 1985, and 1990

Species	Percent of Harvest			
	1969	1979	1985	1990
True firs	24	22	27	23
Douglas-fir	18	20	21	22
Ponderosa pine	14	13	12	18
Western redcedar	7	11	10	11
Western white pine	19	8	6	5
Lodgepole pine	4	8	10	10
Western larch	6	6	6	6
Other species	8	12	9	6
Total	100	100	100	100

Note: The percentage detail may not add to 100 due to rounding.

Source: T.S. Setzer, *Estimates of Timber Outputs and Plant Residues, Idaho, 1969*, Res. Note INT-132, U.S. Forest Service, Int. For. and Range Exp. Stat.; Bureau of Business and Economic Research, The University of Montana.

the same proportion as in 1985 (57 percent) and 1979 (59 percent) (See table 12 and tables A3 and A4 in Appendix A). National forests supplied 42 percent (594 MMBF) of the total sawlog harvest in 1990 versus 44 percent in 1985, and 50 percent in 1979. Other public lands and tribal lands supplied 16 percent of the 1990 sawlogs, up from 9 percent in 1979 and 13 percent in 1985.

Public and tribal lands yielded the largest volume of veneer logs in 1990—88 MMBF, or 52 percent of the 168 MMBF harvested. This represents a considerable change from earlier census years, when private timberlands supplied the majority of Idaho's veneer log harvest. In 1979 and 1985, private lands supplied 53 percent and 62 percent respectively of the veneer log harvest.

In 1990, private timberlands continued to supply most of the pulpwood harvest—64 percent compared to 70 percent in 1985 and 57 percent in 1979. Non-industrial private lands supplied 47 percent of 1990's pulpwood harvest; industrial private lands supplied 16 percent. This is quite a change from 1979 and 1985 when non-industrial private lands supplied 13 percent and 7 percent respectively. For all other timber products, 54 percent came from public and tribal lands in 1990 versus 40 percent in 1985 and 64 percent in 1979.

Species Composition of the Harvest

The largest species component of Idaho's 1990 timber harvest was true firs at 23 percent of the total (table 13). The majority of this timber was grand fir; however, the true firs component also included subalpine fir and white fir. The total true fir harvest (389 MMBF) only slightly exceeded the Douglas-fir harvest (377 MMBF), so Douglas-fir was likely the major single species harvested in Idaho in 1990. For previous census years, grand fir was probably the major species harvested.

Notable changes since the 1985 census: the true fir harvest declined in proportionate terms from 27 to 23 percent; ponderosa pine harvest increased from 12 to 18 percent of the total.

The major change in species composition over the last twenty years has been the declining white pine harvest. The white pine harvest was about 343 MMBF in 1969 and accounted for 19 percent of Idaho's timber harvest; but in 1990, the white pine harvest dropped to 80 MMBF—5 percent of the total harvest. Over the same period, lodgepole pine harvest has more than doubled, providing 4 percent of the 1969 harvest and 10 percent in 1990.

Species Composition by Type of Product

In 1990, all of Idaho's commercial softwood tree species were used to produce lumber. Douglas-fir and the true firs each accounted for 22 percent of the sawlog harvest (table 14). Ponderosa pine comprised 20 percent and western redcedar 11 percent. The remaining sawlog harvest was lodgepole pine (8 percent), western larch (6 percent), western white pine (5 percent), Engelmann spruce (3 percent), and hemlock (3 percent).

True firs made up 43 percent of Idaho's 1990 veneer log harvest. Douglas-fir accounted for 34 percent. The rest of the veneer log harvest was ponderosa pine (11 percent), western larch (6 percent), western white pine (2 percent), Engelmann spruce (2 percent), and western redcedar (1 percent). The major change in veneer log species composition has been the increase in ponderosa pine, from 3 percent in 1979 and 1 percent in 1985 to 11 percent in 1990 (see tables A5 and A6 in Appendix A).

Lodgepole pine accounted for 25 percent of the pulpwood harvest in 1990, followed by true firs at 21 percent. In 1985, true firs accounted for 62 percent of the total and lodgepole pine only 1 percent. Mills classified 85 percent of the 1979 pulpwood harvest as species unknown.

Lodgepole pine comprised 44 percent of the 80 MMBF harvested for all other timber products in 1990, while western redcedar was the second largest segment at 36 percent. In 1979, the relative importance of these two species was reversed, with western redcedar providing 68 percent of the total and lodgepole pine providing 24 percent. This change is due primarily to the OSB plant development where lodgepole pine is part of the raw material mix, and to the declining size of the cedar products industry.

Movement of Timber Products

Production has been concentrating in larger facilities, which has led in turn to manufacturing centers that draw timber from large geographic areas. Thus, large volumes of timber now cross county and state lines. Tables 15, 16, and 17 depict the movement of timber among Idaho's counties and the surrounding states in 1990.

Across State Lines

Idaho's primary wood products manufacturers received 1,685 MMBF of timber for processing in 1990. Total 1990 harvest in Idaho was 1,692 MMBF, making the state a net exporter of 7 MMBF for the year. In 1985, Idaho had net exports of 16 MMBF; in 1979, net exports were 30 MMBF. In 1990, 137 MMBF of timber harvested in Idaho was shipped to users outside the state, while Idaho mills received 130 MMBF of timber from out-of-state sources (table 15).

North Idaho counties supplied most (118 MMBF) of Idaho's 1990 timber exports. South Idaho counties supplied the remaining 19 MMBF. About 61 MMBF (45 percent) of the 137 MMBF exported went to Montana mills; 35 MMBF (25 percent) went to Washington mills; and 18 MMBF (13 percent) was shipped to Oregon mills. The remainder (23 MMBF, or 17 percent) went to the west coast and was either shipped out of country or processed by mills in Oregon and Washington.

Seventy-eight percent (101 MMBF) of Idaho's 1990 timber imports came from Washington. Montana timberlands provided 26 MMBF (20 percent) of Idaho's timber imports, and Wyoming and Oregon provided he remaining 3 MMBF (2 percent).

The major component of timber flowing into and out of Idaho was sawlogs. In 1990, Idaho sawmills imported 127 MMBF of sawlogs, while 102 MMBF of sawlogs were exported (table 15). Idaho's veneer log imports were about 1 MMBF in

Table 14

Timber Products Harvested by Species and Product, Idaho, 1990

	Thousand Board Feet, Scribner				
	Sawlogs	Veneer Logs	Pulpwood	Other Timber Products	All Products
Douglas-fir	312,266	57,537	6,283	674	376,760
Engelmann spruce	46,529	3,413	683	276	50,901
Lodgepole pine	113,892	290	11,220	35,399	160,801
Ponderosa pine	274,338	18,421	5,464	4,612	302,835
True firs	303,934	72,302	9,494	3,457	389,187
Western larch	85,005	9,908	629	224	95,766
Western hemlock	44,007	214	5,719	3,294	53,234
Western redcedar	147,908	1,688	1,731	28,271	179,598
Western white pine	70,986	4,076	4,043	1,165	80,270
Other	991	0	0	2,195	3,186
All species	1,399,856	167,849	45,266	79,567	1,692,538
	Percentage of Total				
Douglas-fir	*22%*	*34%*	*14%*	*1%*	*22%*
Engelmann spruce	*3%*	*2%*	*2%*	*0%*	*3%*
Lodgepole pine	*8%*	*0%*	*25%*	*44%*	*10%*
Ponderosa pine	*20%*	*11%*	*12%*	*6%*	*18%*
True firs	*22%*	*43%*	*21%*	*4%*	*23%*
Western larch	*6%*	*6%*	*1%*	*0%*	*6%*
Western hemlock	*3%*	*0%*	*13%*	*4%*	*3%*
Western redcedar	*11%*	*1%*	*4%*	*36%*	*11%*
Western white pine	*5%*	*2%*	*9%*	*1%*	*5%*
Other	*0%*	*0%*	*0%*	*3%*	*0%*
All species	*100%*	*100%*	*100%*	*100%*	*100%*

Notes: "Other Timber Products" refers to fiberwood, utility poles, house logs, posts and small poles, and cedar products. The percentage detail may not add to 100 due to rounding.

Table 15

Exports and Imports of Timber Products Idaho, 1990

North Idaho

(Thousand Board Feet, Scribner)

Timber Products	Exports	Imports	Net Exports (Net Imports)
Sawlogs	84,173	125,251	(41,078)
Veneer logs	3,494	1,220	2,274
Pulpwood	28,841	0	28,841
Other	1,231	104	1,127

South Idaho

Timber Products	Exports	Imports	Net Exports (Net Imports)
Sawlogs	17,990	2,000	15,990
Veneer logs	900	0	900
Pulpwood	0	0	0
Other	550	1,515	(965)
State Total	137,179	130,090	7,089

Note: "Other" refers to fiberwood, utility poles, house logs, posts and small poles, and cedar products.

1990 and exports were 4 MMBF. Idaho exported about 29 MMBF of pulpwood in 1990; no firms reported importing pulpwood into Idaho. Imports of other timber products were under 2 MMBF in 1990, and exports were about the same.

Across County Lines

The timber flow among Idaho counties was also examined. In 1990, 42 percent of Idaho timber was processed in the same county where it was harvested.

North Idaho. In 1990, North Idaho mills received 1,340 MMBF of timber for processing (table 16). About 42 percent (559 MMBF) of the total was processed in the same county where the timber was harvested.

North Idaho's major importers were Kootenai, Latah, Lewis, and Nez Perce counties. Kootenai County mills received 301 MMBF—more timber than any other county in 1990—and only 89 MMBF (30 percent) of that timber was harvested within the county. Mills in Latah, Lewis, and Nez Perce counties were also major importers of timber. Taken together, the three counties received only 65 MMBF (28 percent) of their total timber delivery of 235 MMBF from within county boundaries.

Conversely, Idaho County mills received 81 percent (111 of 137 MMBF) of their timber from within the county. Clearwater County mills received 74 percent (68 of 92 MMBF) of their timber from within the county.

Several North Idaho counties were major exporters of timber to other counties or states. Seventy-five percent of the 267 MMBF harvested in Clearwater County and 58 percent of the 335 MMBF harvested in Benewah and Shoshone counties left the counties for processing.

South Idaho. Mills in South Idaho received 345 MMBF of timber for processing, of which 155 MMBF (45 percent) was processed in the county of harvest (table 17). Because of the limited number of South Idaho companies, this report combines volumes for several counties and treats them as single regions.

Mills in Ada, Adams, Boise, Canyon, Elmore, Gem, and Valley counties received about 268 MMBF of timber for processing in 1990—77 percent of all timber receipts in South Idaho. Ninety-four percent of that timber was harvested within those same counties; only 9 percent of the harvest left the region for processing. Mills in Fremont and Madison counties received 52 MMBF, of which 35 MMBF was imported from other counties or states.

End Uses of Idaho's Timber

The following section traces Idaho's timber harvest as it flows through various manufacturing sectors. As indicated in Section 1, Idaho has a significant industry based on mill residue from lumber and plywood production. Since mill residue products and timber products are displayed, volumes will be presented in cubic feet rather than board feet Scribner. The following conversion factors were used to convert Scribner

Table 16

Movement of Timber Products by Counties of Origin and Receipt, North Idaho, 1990 (Thousand Board Feet, Scribner)

County of Origin	County of Destination: Bonner Boundary	Kootenai	Benewah Shoshone	Latah Lewis Nez Perce	Clearwater	Idaho	South Idaho Counties	Other States	Total
Boundary	70,356	8,508	3,000	0	0	0	0	3,928	85,792
Bonner	150,928	27,521	5,456	1,916	0	0	0	11,130	196,951
Kootenai	24,354	88,937	27,514	1,515	0	0	0	9,368	151,688
Shoshone	11,018	66,031	83,029	4,742	0	0	0	18,071	182,891
Benewah	589	67,221	59,156	9,032	0	0	0	16,466	152,464
Latah, Lewis, and Nez Perce	103	4,956	12,501	65,227	6,449	201	0	31,498	120,935
Clearwater	682	8,385	28,402	141,269	67,687	19,105	0	1,499	267,029
Idaho	0	0	399	7,760	17,845	110,946	11,887	25,779	174,616
South Idaho Counties	386	0	0	3,381	0	6,999	-----	-----	10,766
Other States	96,903	29,037	0	635	0	0	-----	-----	126,575
Total	355,319	300,596	219,457	235,477	91,981	137,251	11,887	117,739	1,469,707

volume to cubic foot volume: 4.97 board feet per cubic foot for sawlogs; 6.37 board feet per cubic foot for veneer logs; 4.5 board feet per cubic foot for pulpwood, utililty poles, house logs, and cedar products logs; and 1.0 board foot per cubic foot for posts and poles.

The following figures refer to Idaho's timber harvest and include timber products shipped to out-of-state mills. The figures do not include timber harvested in other states and processed in Idaho.

In 1990, Idaho's timber harvest was approximately 340 million cubic feet (MMCF), exclusive of bark (figure 7). Of this volume, 282 MMCF went to sawmills, 27 MMCF to plywood plants, 10 MMCF to pulp and board mills, and 21 MMCF to other primary manufacturers.

Sawmills received an additional 1 MMCF of peeler cores from plywood plants in 1992. Of the 283 MMCF received by sawmills for manufacturing, only 121 MMCF (43 percent) actually become finished lumber or other sawn products. The remaining 162 MMCF of wood fiber became mill residue. About 130 MMCF of sawmill residues were used as raw material by pulp mills and board plants; 25 MMCF were used as hogfuel; 4 MMCF were used for miscellaneous purposes such as livestock bedding; and 3 MMCF remained unused.

Plywood and veneer plants received 27 MMCF of timber in 1990, of which 15 MMCF (56 percent) became plywood. Of the remaining 12 MMCF, 10 MMCF were used by the pulp and board sector, 1 MMCF was used as hogfuel and 1 MMCF of peeler cores was shipped to sawmills for processing into lumber.

"...Idaho has a significant industry based on mill residue from lumber and plywood production."

Pulp and paper mills and particleboard plants, both in and out of Idaho, received approximately 150 MMCF of wood fiber from Idaho timberlands to be used as raw material for manufacturing products. Only 10 MMCF of that 150 MMCF was furnished from timber delivered to pulp and paper mills in round form. Sawmills supplied 130 MMCF of mill residue, and plywood plants furnished the remaining 10 MMCF.

Other primary manufacturers received about 21 MMCF of

timber products. The percentage of timber volume that becomes a finished product in the OSB, log home, post and pole, utililty pole, and cedar products sectors varies, but several firms indicated that roughly 60 percent of the timber volume becomes a finished product. Mills in this sector seldom supplied residue for use in other sectors. Most of the residue from these sectors was used as livestock bedding, firewood, and garden mulch, or it reamined unused.

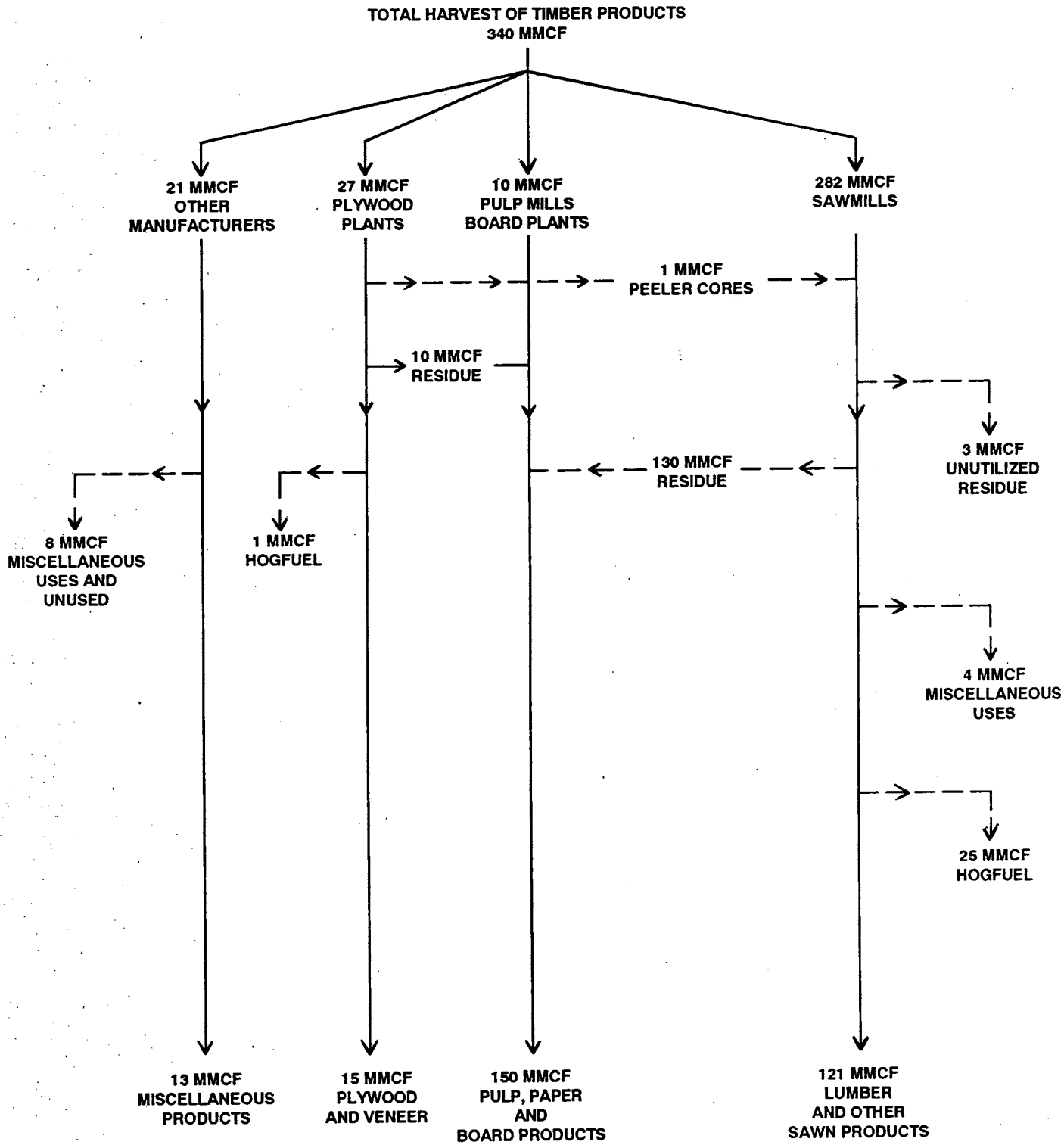
Table 17

Movement of Timber Products by Counties of Origin and Receipt, South Idaho, 1990 (Thousand Board Feet Scribner)

	County of Destination									
County of Origin	Ada, Boise, Adams, Canyon, Elmore, Gem, Valley	Blaine, Camas, Gooding, Twin Falls	Bannock, Bear Lake Caribou, Franklin	Bingham, Bonneville, Jefferson, Teton	Fremont Madison	Custer Lemhi	Other South Idaho Counties	North Idaho	Other States	Total
Adams	76,169	0	0	0	0	0	616	8,984	1,000	86,769
Valley	44,945	0	0	0	0	0	0	1,396	5,850	52,191
Gem	6,022	0	0	0	0	0	0	0	0	6,022
Boise	119,761	250	0	0	0	0	600	0	6,354	126,965
Ada, Canyon, and Elmore	5,709	14	0	0	0	0	0	0	0	5,723
Blaine, Camas, Cassia, and Twin Falls	142	522	0	0	0	200	0	0	0	864
Bingham, Jefferson, and Teton	0	24	0	220	4,945	0	0	0	0	5,189
Fremont and Madison	0	0	0	4,675	16,640	0	0	0	0	21,315
Custer and Lemhi	0	265	0	0	0	9,898	0	0	6,236	16,399
Clark	0	0	0	894	15,597	0	0	0	0	16,491
Other South Idaho Counties	2,767	259	5,000	524	12,792	0	516	386	0	22,244
North Idaho	11,866	21	0	0	0	0	0	-----	-----	11,887
Other States	159	126	0	900	2,030	0	300	-----	-----	3,515
Total	267,540	1,481	5,000	7,213	52,004	10,098	2,032	10,766	19,440	375,574

Figure 7

Utilization of Idaho's Timber Harvest, 1990



Section 4

Public & Private Timberlands

Public and Private Timberlands as Sources of Raw Material for the Various Sectors of Idaho's Forest Products Industry

This section presents a detailed analysis of land ownerships supplying timber to Idaho's forest products manufacturers. Section 3 dealt primarily with the movement and use of Idaho's timber harvest, while this section focuses on timber received for processing. The two are different because about 137 MMBF Scribner of timber (8 percent of Idaho's total harvest) was processed by mills outside the state, and, conversely, about 130 MMBF (8 percent of all 1990 timber received by Idaho mills) came from other states. Comparisons of timber received from various ownerships are shown for 1979, 1985, and 1990 (table 18).

Of the total timber received by Idaho mills in 1990, public and tribal timberlands contributed 58 percent, a small increase over 1979 and 1985 when these sources contributed 54 and 53 percent respectively. National forest lands supplied about 43 percent of the receipts in 1990, up slightly from 41 percent in 1985 but down slightly from 45 percent in 1979. Other public and tribal lands contributed 15 percent of all timber in 1990, up from 10 percent in 1979 and 12 percent in 1985.

Industrial private timberlands supplied 22 percent of all timber received by Idaho's industry in 1990; the portion is down from other census years, 27 percent in 1985, and 25 percent in 1979. Non-industrial private timberlands maintained a virtually identical contribution—20 percent of timber receipts in 1990, 20 percent in 1985, and 21 percent in 1979.

Ownership Sources by Industry Sector

To a degree, different industry sectors rely on different land ownerships for their timber. For instance, in 1990, Idaho sawmills received 1,425 MMBF of sawlogs, more than 84 percent of that year's total timber delivery (table 19). Of sawmill timber deliveries, 59 percent (837 MMBF) came from public and tribal lands, 44 percent from national forests and 15 percent from other public and tribal lands. Of the remaining 588 MMBF of sawlog receipts, 20 percent came from private industrial timberlands and 21 percent from nonindustrial sources. The ownership supplying timber to Idaho's sawmill industry was similarly portioned in other census years: in 1979, sawmills received 56 percent of their supply from public and tribal timberlands, and 58 percent in 1985.

Idaho plywood and veneer plants received 87 MMBF (53 percent) of their veneer logs from public and tribal lands; 36 percent came from national forests and 16 percent from other public and tribal lands. Public and tribal lands supplied a larger portion in previous census years, 40 percent in 1985, and 47 percent in 1979.

Other primary manufacturers received 58 percent of their total 1990 mill receipts from public and tribal timberlands vs. 51 percent in 1979 and 35 percent in 1985. The volume and ownership source of other timber products received by Idaho mills has been extremely variable due to the historic large fluctuations in roundwood pulpwood processed.

Table 18

Source of Timber Products Received by Mills Idaho, 1979, 1985, and 1990

	Thousand Board Feet Scribner			Percentage of Total		
Source	1979	1985	1990	1979	1985	1990
Private timberland	828,774	740,372	705,826	46%	47%	42%
Industrial	449,292	429,902	371,508	25%	27%	22%
Nonindustrial	379,482	310,470	334,318	21%	20%	20%
Public & tribal timberland	991,150	837,824	979,623	54%	53%	58%
National forest	812,663	649,740	728,953	45%	41%	43%
Other	178,487	188,084	250,670	10%	12%	15%
All Sources	1,819,924	1,578,196	1,685,449	100%	100%	100%

Note: "Other" refers to Tribal timberland, State of Idaho timberland, and Bureau of Land Management timberland. The percentage detail may not add to 100 due to rounding.

Sources of Timber by County

The following section describes ownership sources providing timber to mills in various Idaho counties in 1990. Because only a few mills operate in some counties, timber receipts could not be reported for every county. Counties with similar timber receipt patterns, drawing from generally the same timber supply area, have been combined to avoid disclosing information on individual firm operations. The ownership source of Idaho mills' 1990 timber receipts varied considerably from county to county (tables 20 and 21 and figure 8 on page 30).

North Idaho

Mills in North Idaho were about equally dependent on public and private timber in 1990. These mills received a total of 1,340 MMBF of timber; 51 percent came from public and tribal lands, and 49 percent from private lands (table 20). In 1985 and 1979, North Idaho mills received 47 and 48 percent, respectively, from private lands.

Idaho County mills depended on public and tribal lands, for 71 percent of their 1990 timber receipts. Mills in Bonner, Boundary, and Shoshone counties relied on public and tribal lands for nearly 59 percent of their timber. Mills in Benewah County were most dependent on private lands—with nearly two-thirds of their 1990 timber receipts coming from private lands. Latah and Nez Perce county mills received 58 percent of their timber from private lands; mills in Kootenai County received 52 percent from private lands.

South Idaho

South Idaho mills relied on public land for 85 percent of their 1990 timber receipts, or 293 of 345 MMBF (table 21). National forests supplied 72 percent of the timber, and other public lands supplied 13 percent.

Fremont, Madison, and Lemhi county mills received 86 percent of their timber from public lands—75 percent from national forests. Ada, Adams, Boise, Canyon, Gem, and Valley county mills—which together processed 77 percent of South Idaho's processed timber—received 84 percent of their timber from public land. As a whole, other South Idaho counties received 97 percent of the 16 MMBF from public land.

Source of Sawtimber by Size of Mill

What is the relationship between mill size and sawtimber source. To examine that question, mills were combined and divided into size classes based on reported annual capacity to process sawtimber. Specifically, sawtimber is logs of "sufficient size and quality to be suitable for conversion into lumber." (Random Lengths, 1978; Section 5 discusses the derivation of estimated capacity in more detail.) The size classes are:

Size Class	Annual Capacity to Process Sawtimber (MMBF, Scribner)
A	Over 50 MMBF
B	Over 25 to 50 MMBF
C	Over 10 to 25 MMBF
D	Over 1 to 10 MMBF
E	1 MMBF and below

In 1990, for the state's largest mills, industrial private forest land and national forest land were the major sources of timber

Table 19

Volume of Timber Delivered to Various Sectors of the Industry, Idaho, 1990

	Thousand Board Feet, Scribner				Percentage of Total			
Origin	Sawlogs	Veneer Logs	Other Timber Products	All Products	Saw-Logs	Veneer Logs	Other Timber Products	All Products
Private timberland	587,809	78,136	39,881	705,826	41%	47%	42%	42%
Industrial	286,023	73,397	12,088	371,508	20%	45%	13%	22%
Nonindustrial	301,786	4,739	27,793	334,318	21%	3%	29%	20%
Public & tribal timberland	837,135	86,539	55,949	979,623	59%	53%	58%	58%
National forest	625,129	59,769	44,055	728,953	44%	36%	46%	43%
Other	212,006	26,770	11,894	250,670	15%	16%	12%	15%
All Sources	1,424,944	164,675	95,830	1,685,449	100%	100%	100%	100%

Note: "Other Timber Products" refers to fiberwood, utility poles, house logs, posts and small poles, and cedar products. "Other" timberlands refer to Tribal, State of Idaho, and BLM timberlands. The percentage detail may not add to 100 due to rounding.

Table 20

Source of Timber Products Received by North Idaho Mills by County of Plant Location, 1990

County or County Group	Percentage of Total Volume Received				Total Volume Received (MBF)
	National Forest	Other Public	Private	Total	
Bonner, Boundary, and Shoshone	45	15	41	100	365,410
Kootenai	37	12	52	100	300,596
Benewah	18	16	66	100	209,366
Latah & Nez Perce	19	23	58	100	210,702
Clearwater & Lewis	33	25	43	100	116,756
Idaho	65	6	29	100	137,251
North Idaho	36	15	49	100	1,340,081

Note: The above volumes include sawlogs, veneer logs, fiberwood, pulpwood, utility poles, house logs, posts and small poles, and cedar products logs. The percentage detail may not add to 100 due to rounding.

Table 21

Source of Timber Products Received by South Idaho Mills by County of Plant Location, 1990

County or County Group	Percentage of Total Volume Received				Total Volume Received (MBF)
	National Forest	Other Public	Private	Total	
Ada, Adams, Boise, Canyon, Gem, and Valley	71	13	16	100	267,540
Fremont, Madison, and Lemhi	75	11	14	100	61,502
Other counties	90	7	3	100	16,326
South Idaho	72	13	15	100	345,368

Note: The above volumes include sawlogs, veneer logs, fiberwood, pulpwood, utility poles, house logs, posts and small poles, and cedar products logs. The percentage detail may not add to 100 due to rounding.

(table 22). Mills with an annual timber processing capacity over 50 MMBF Scribner (size class A) received 621 MMBF, or 38 percent of total 1990 sawtimber received by Idaho mills. Class A mills received 43 percent of their sawtimber from national forest lands and 32 percent from industrial private lands.

Mills with an annual processing capacity of between 25 and 50 MMBF Scribner (size class B) received 805 MMBF, or 49 percent of Idaho's total 1990 sawtimber receipts. Class B mills relied less on national forest land than any other mill class, receiving 40 percent of their timber from national forests.

Size class C mills (10 to 25 MMBF) received 128 MMBF, or 8 percent of total 1990 sawtimber receipts. They relied more on national forest land for timber (56 percent) than all but the

Table 22

Source of Sawtimber Received by Idaho Mills, by Size of Mill, 1990

	Thousand Board Feet, Scribner				
Size Class	Industrial	Non-Industrial	National Forests	Other	All Sources
A -- over 50 MMBF	200, 692	57,579	266,108	96,353	620,732
B -- over 25 MMBF to 50 MMBF	163,942	203,546	318,844	118,824	805,156
C -- over 10 MMBF to 25 MMBF	90	39,449	71,670	16,643	127,852
D -- over 1 MMBF to 10 MMBF	2,359	25,696	31,580	7,603	67,238
E -- under 1 MMBF	50	3,061	14,119	2,663	19,893
All Mills	367,133	329,331	702,321	242,086	1,640,871
	Percentage of Total				
A -- over 50 MMBF	32%	9%	43%	16%	100%
B -- over 25 MMBF to 50 MMBF	20%	25%	40%	15%	100%
C -- over 10 MMBF to 25 MMBF	0%	31%	56%	13%	100%
D -- over 1 MMBF to 10 MMBF	4%	38%	47%	11%	100%
E -- under 1 MMBF	0%	15%	71%	13%	100%
All Mills	22%	20%	43%	15%	100%

Note: Sawtimber refers to sawlogs, veneer logs, fiberwood, utility poles, and house logs. MMBF denotes million board feet Scribner. The percentage detail may not add to 100 due to rounding.

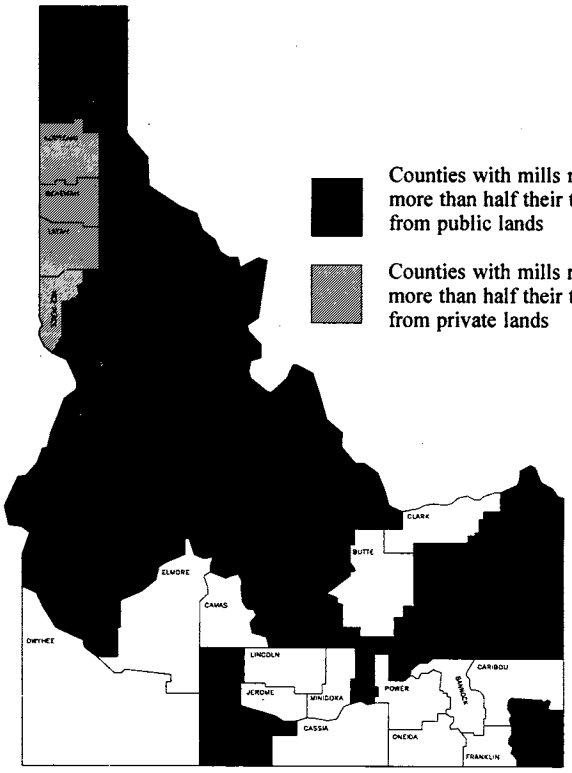
state's smallest mills. Mills with processing capacity less than 25 MMBF reported receiving very little of their 1990 timber from industrial private land; size class C and E mills reported less than 0.5 percent, and size class D reported only 4 percent.

At 38 percent of total sawtimber receipts, mills in size class D (1 to 10 MMBF) were more dependent on non-industrial private lands than any other size category.

National forest land contributed 71 percent of the 20 MMBF of timber received by mills in size class E (1 MMBF and below).

Figure 8

Mill Receipts of Timber by Source of Ownership, 1990



Source: Bureau of Business and Economic Research, The University of Montana; Idaho Forest Industries Data Collection System (Missoula, MT 1987.

Section 5

Plant Capacity Utilization

Plant Capacity Utilization by Primary Wood Products Manufacturers in Idaho

This section analyzes production capacity and utilization in Idaho's plants processing sawtimber. Facilities processing sawtimber include: sawmills, structural panel plants, utility pole plants, and house log plants. The OSB plant as well as plywood and veneer plants are included in figures for the structural panel industry, even though much of what the OSB plant processes probably isn't sawtimber quality. However, some OSB timber receipts are sawtimber quality, and OSB output is generally reported with plywood and veneer, so both segments are treated as one category.

This section also discusses, in less detail, capacity utilization for non-sawtimber sectors.

A Definition of Production Capacity

Respondent mills were asked to specify their production capacity, in terms of estimated capacity per eight-hour shift and annual capacity, assuming sufficient supplies of raw materials and firm market demand for their products. The larger sawmills—those with lumber production over 10 MMBF in 1979, 1985, or 1990—estimated annual capacity equal to at least two eight-hour shifts daily for a 220- to 260-operating-day year. Two large sawmills reported capacity of three shifts per day in 1990.

Smaller sawmills with an annual output under 10 MMBF, reported annual capacity equal to one eight-hour shift per day for not more than a 260-operating-day year.

Idaho's three largest plywood plants and the OSB plant reported capacity of three shifts per day for a 230- to 260-operating-day year. The veneer plants had capacity of less than three shifts per day. All manufacturers of house logs, utility poles, posts and small poles, and cedar products reported annual capacity based on one eight-hour shift for not more than a 240-operating-day year.

Capacity in Units of Raw Material for the Sawtimber Processing Sector

Sawmills reported their capacity in thousand board feet, lumber tally; and plywood capacity was reported in thousand square feet on a 3/8-inch basis. Utility pole capacity was reported in numbers

Table 23

Sawtimber Utilized and Estimated Capacity of Sawmills, Plywood Plants, Oriented Strand Board Plant, Utility Pole Plants, and House Log Plants. Idaho, 1979, 1985, and 1990.

1979

Plant Type	Capacity to Process Sawtimber (MMBF, Scribner)	Volume Processed (MMBF, Scribner)	Percentage of Total Capacity Utilized
Sawmills	1,809	1,437	79%
Plywood Plants	221	210	95%
Utility Pole and House Log Plants	33	20	61%
Total	2,063	1,667	81%

1985

Plant Type	Capacity to Process Sawtimber (MMBF, Scribner)	Volume Processed (MMBF, Scribner)	Percentage of Total Capacity Utilized
Sawmills	1,666	1,229	74%
Plywood Plants	265	208	78%
Utility Pole and House Log Plants	34	15	44%
Total	1,965	1,452	74%

1990

Plant Type	Capacity to Process Sawtimber (MMBF, Scribner)	Volume Processed (MMBF, Scribner)	Percentage of Total Capacity Utilized
Sawmills	1,459	1,316	90%
Plywood Plants	227	214	94%
Utility Pole and House Log Plants	31	14	47%
Total	1,717	1,545	90%

Note: The "Plywood Plants" category includes the oriented strand board plant.

Table 24

Sawtimber Utilized and Estimated Capacity of Idaho Sawmills, Plywood Plants, Oriented Strand Board Plant, Utility Pole Plants, and House Log Plants by Size of Plant, Idaho, 1990

Size Class	Number of Mills in Size Class	Capacity to Process Sawtimber (MMBF)	Volume Processed (MMBF)	Percentage of Total Capacity Utilized	Unutilized Capacity (MMBF)
A -- over 50 MMBF	10	647	601	93	46
B -- over 25 MMBF to 50 MMBF	21	814	745	91	70
C -- over 10 MMBF to 25 MMBF	11	151	125	83	26
D -- over 1 MMBF to 10 MMBF	17	77	54	70	23
E -- under 1 MMBF	55	27	20	74	7
Total	114	1,717	1,545	90	172

Note: Sawtimber refers to sawlogs, veneer logs, fiberwood, house logs, and utility poles. MMBF denotes million board feet, Scribner.

of pieces of a given size, and house log capacity in lineal feet. This report combines capacity figures for the state's sawtimber users and then estimates the industry's total capacity to process sawtimber. This estimate is expressed in units of raw material input (million board feet, Scribner of timber) and called "processing capacity".

Sawmill capacity figures were adjusted to million board feet, Scribner of timber by dividing production capacity in lumber tally by each mill's lumber recovery per board foot Scribner of timber processed. Plywood, OSB, and veneer capacity figures were adjusted to million board feet Scribner by dividing production capacity in square feet of 3/8-inch structural panel by each mill's square foot per board foot Scribner recovery figure. Utility pole and house log capacities were adjusted to million board feet Scribner by multiplying capacity in the given finished product units (lineal feet or pieces) by each mill's Scribner volume per lineal foot or per piece.

The Industry's Capacity to Process Sawtimber, 1979-90

Idaho's total estimated capacity to process sawtimber has declined since the 1979 census, but the proportion of capacity utilized has increased substantially (table 23). In 1979, capacity was 2,063 MMBF Scribner; it declined to 1,965 MMBF in 1985 and 1,717 MMBF in 1990. However, 90 percent of the sawtimber processing capacity was utilized in 1990 compared to only 74 percent in 1985 and 81 percent in 1979.

Capacity by Sector

The sawmill sector's total capacity to process sawtimber decreased from 1,809 MMBF in 1979 to 1,459 in 1990. However, utilization of that capacity increased from 79 percent in 1979 to 90 percent in 1990; sawmill processing capacity declined by 350 MMBF, but actual volume processed decreased by only 121 MMBF (table 23).

In 1990, Idaho's structural panel sector had the capacity to process 227 MMBF Scribner, up from 221 MMBF in 1979, but down from 265 MMBF in 1985. Traditionally, plywood plants have used a higher percentage of capacity than sawmills. Plants in this sector utilized 94 percent of their capacity in 1990, 95 percent in 1979, and 78 percent in 1985. The relatively low level of capacity utilization in 1985 was due to a temporary closure of one of the larger plywood plants for renovation during most of that year.

The annual timber processing capacity of Idaho's utility pole and house log sectors decreased from 33 MMBF in 1979 and 34 MMBF in 1985, to 31 MMBF in 1990. In 1990, 47 percent of this capacity was utilized, less than the 61 percent in 1979 but an increase from 44 percent in 1985.

Capacity by Size of Mill

Size classifications are based on a mill's annual capacity to process sawtimber. Table 24 illustrates size classes and the amount of used and unused capacity. Note that capacity utilization declined as facility size decreased. Idaho's ten largest

Table 25

Sawtimber Utilized and Estimated Capacity of Sawmills, Plywood Plants, Oriented Strand Board Plant, Utility Pole Plants, and House Log Plants by Geographic Area, Idaho, 1979, 1985, and 1990

Geographic Area (counties)	Capacity to Process Sawtimber (MMBF, Scribner)			Volume Processed (MMBF, Scribner)			Percentage of Total Capacity Utilized			Unutilized Capacity (MMBF)		
	1979	1985	1990	1979	1985	1990	1979	1985	1990	1979	1985	1990
Benewah, Bonner, Boundary, Kootenai, and Shoshone	833	842	885	713	741	802	86%	88%	91%	120	101	83
Clearwater, Idaho, Latah, Lewis, and Nez Perce	737	630	450	588	364	416	80%	58%	92%	149	266	35
Total North Idaho	1,570	1,472	1,335	1,301	1,105	1,218	83%	75%	91%	269	367	118
Ada, Adams, Boise, Canyon, Elmore, Gem, Payette, Valley, and Washington	325	359	297	253	264	257	78%	74%	87%	72	95	40
Blaine, Camas, Gooding, and Twin Falls	19	7	1	9	1	1	47%	14%	87%	10	6	0
Bonneville, Butte, Custer, Fremont, Jefferson, Lemhi, Madison, and Teton	141	112	76	100	76	64	71%	68%	84%	41	36	12
Bannock, Bear Lake, Bingham, Caribou, and Franklin	8	15	7	4	6	5	50%	40%	79%	4	9	1
Total South Idaho	493	493	381	366	347	327	74%	70%	86%	127	146	54
Total Idaho	2,063	1,965	1,717	1,667	1,452	1,545	81%	74%	90%	396	513	172

mills—each with annual processing capacity of more than 50 MMBF—accounted for 38 percent of the state's 1,717 MMBF capacity to process sawtimber. These mills utilized 93 percent of their capacity, processing 601 MMBF.

The twenty-one class B mills (capacity over 25 to 50 MMBF) reported 814 MMBF in available capacity and processed 745 MMBF in 1990, utilizing 91 percent of available capacity.

The eleven class C mills (10 to 25 MMBF) utilized 83 percent of an available 151 MMBF in processing capacity. Size class D mills utilized 70 percent of available capacity, processing 54 MMBF in the 17 mills. The fifty-five mills in size class E reported processing 20 MMBF of sawtimber, utilizing 74 percent of available capacity.

Sawtimber Processing Capacity by County or County Group

In 1990, Idaho's ten northern counties accounted for 78 percent of total processing capacity; 91 percent of that capacity was utilized (table 25). Capacity in North Idaho has declined by 235 MMBF since 1979, from 1,570 MMBF to 1,335 MMBF in 1990. However, though capacity declined 235 MMBF during the period, volume processed fell only 83 MMBF.

North Idaho's timber processing and capacity has shifted substantially over the years, from the southern five counties to the northern five counties. Mills in the northernmost counties (Benewah, Bonner, Boundary, Kootenai, and Shoshone) processed 802 MMBF in 1990 vs. 713 MMBF in 1979, a 12 percent increase.

Clearwater, Idaho, Latah, Lewis, and Nez Perce county mills processed 588 MMBF in 1979, but that figure dropped to 416 MMBF in 1990, a 29 percent decline.

South Idaho mills had the capacity to process 381 MMBF in 1990 and utilized 86 percent (327 MMBF) of that capacity. In 1979, the capacity was higher—493 MMBF and 366 MMBF was processed.

Ada, Adams, Boise, Canyon, Elmore, Gem, Payette, Valley, and Washington county mills used 87 percent of their capacity, processing 257 MMBF of sawtimber in 1990. Mills in these nine counties accounted for about 79 percent of sawtimber processed in South Idaho, up from 69 percent in 1979. Mills in

Bonneville, Butte, Custer, Fremont, Jefferson, Lemhi, Madison, and Teton counties processed 64 MMBF—20 percent of the sawtimber processed in South Idaho—and used 84 percent of their 76 MMBF capacity. Mills in other South Idaho counties processed the remaining 6 MMBF of sawtimber, utilizing about 80 percent of their capacity in 1990.

Post and Small Pole and Cedar Products Capacities

Processing capacity for the post and small pole and cedar products sectors was difficult to quantify. Many firms are small "family-type" operations, and their annual capacity is influenced as much by the operator as by the facility. Some operators harvest their own timber, further limiting manufacturing time. These plants are usually very labor-intensive, seasonal operations, and this further complicates production capacity estimates. For example, a cedar fencing plant's capacity might be increased simply by adding more workers who split rails. A capacity figure based on equipment potential could, therefore, be misleading. Nevertheless, estimates of annual capacity in MMBF Scribner were developed for these two sectors, based on estimates by operators. In virtually all cases, capacity estimates were for an eight-hour shift for not more than a 240-operating-day year.

Post and pole operators reported raw material processed and capacity in numbers of pieces of a given size. Piece dimensions were converted to cubic feet and then to thousand board feet Scribner using 1 cubic foot per board foot. Cedar products manufacturers reported capacity and volume processed in thousand board feet Scribner. These two sectors reported that approximately 88 percent of their capacity was utilized in 1990. Post and small pole and cedar products manufacturers reported approximately 32 MMBF of available capacity, and processed about 28 MMBF of timber in 1990.

Section 6

Markets for Wood Products

Markets for Primary Manufactured Wood Products

Respondent mills summarized their shipments of finished wood products in 1990, providing information on the volume, sales value, and geographic destination.

Mills usually distributed their products in two ways: 1) through their own distribution channels; or 2) through independent wholesalers and selling agents. Because of subsequent wholesaling transactions, the geographic destination reported below may not precisely reflect final delivery points of shipments.

This chapter deals with all sectors of Idaho's primary forest products industry except for the residue-related sector. Market destinations for the residue sector can not be released without revealing firm level information.

The North Central states continue to be Idaho's major market for primary wood products. These states received $170 million, or about 24 percent of Idaho's 1990 sales volume (table 26 and figure 9). The North Central states received similar sales volumes in 1985 and 1979, 21 and 25 percent, respectively.

Considerably more of Idaho's 1990 primary wood products output was sold to purchasers in the Far West states, $135 million in sales, or 19 percent of the total; the proportion has risen from 14 percent in 1985 and 9 percent in 1979. Product sales to the Northeast states also went up in 1990: 16 percent ($112 million) compared to 13 percent in 1985 and 10 percent in 1979. Sales to Rocky Mountain states went down to 13 percent ($91 million) in 1990, compared with 18 percent in 1985 and 20 percent in 1979.

Other market areas ranked as follows: Idaho 13 percent; the South 11 percent; and exports 2 percent. Sales to markets of unknown destination were $15 million (2 percent) in 1990.

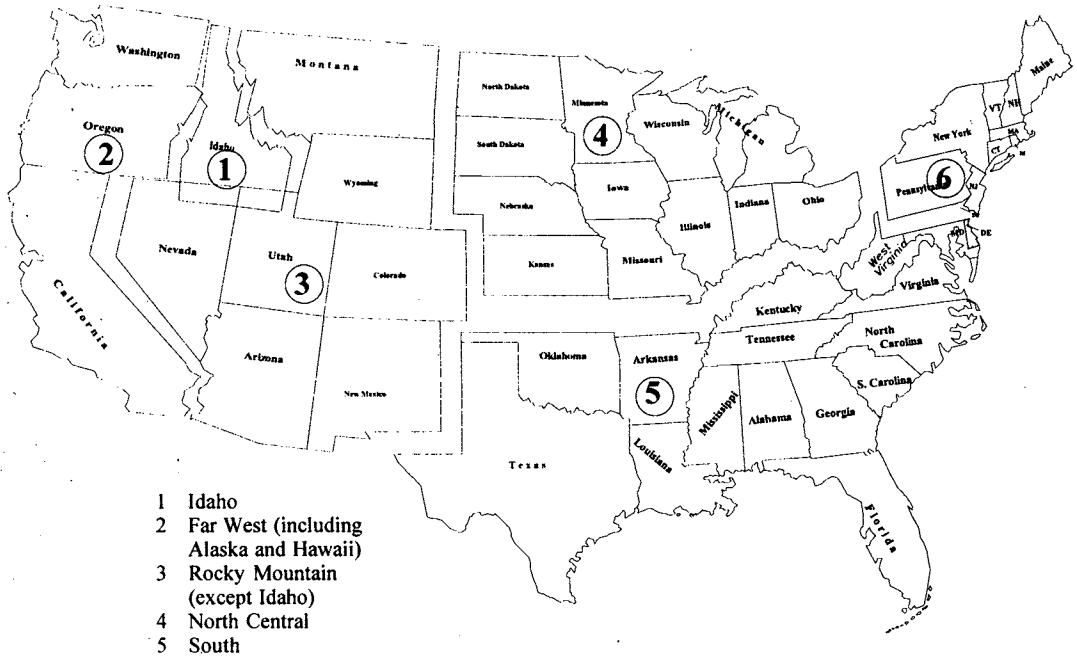
Market Areas by Finished Product Type

Lumber and other sawn product sales totaled just over $546 million in 1990. Of this, the North Central states, in 1990, bought 26 percent or $142 million of Idaho's lumber output, compared to 22 percent in 1985 and 26 percent in 1979 (see tables A7 and A8 in Appendix A). The Far West states ranked second purchasing about $94 million worth of Idaho lumber, or 17 percent of the 1990 total. This is up from 13 percent in 1985 and 7 percent in 1979.

The remaining lumber sales went to the Northeast states (15 percent); Idaho (13 percent); the Rocky Mountain states (13

Figure 9

Shipment Destination of Idaho Wood Products, 1990



1 Idaho
2 Far West (including Alaska and Hawaii)
3 Rocky Mountain (except Idaho)
4 North Central
5 South
6 Northeast

Table 26

Destination of Primary Wood and Paper Products Shipments by Value of Shipment, Idaho, 1990

Product	Idaho	Far West	Rocky Mountain	North Central	South	Northeast	Other Countries	Unknown	All Destinations
	Sales Value								
Lumber	72,738	93,551	72,587	142,261	64,259	82,027	3,257	15,360	546,040
Plywood and oriented strand board	9,683	25,906	12,955	20,816	7,223	24,300	4,782	0	105,665
Residue related products	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a
Cedar products	3,344	1,394	994	2,906	1,853	3,722	0	0	14,213
Utility poles & piling	1,043	9,474	1,834	2,916	250	1,801	1,590	0	18,908
House logs	2,972	2,635	1,629	690	430	100	1,722	0	10,178
Posts and poles	3,879	1,819	1,288	0	659	0	0	0	7,645
1990 Total[b]	93,659	134,779	91,287	169,589	74,674	111,950	11,351	15,360	702,649
1985 Total	54,107	72,709	92,422	107,789	63,173	67,999	1,236	54,208	513,643
1979 Total	68,263	57,665	130,099	162,146	66,903	65,815	6,408	82,228	639,527
	Percent of Sales								
Lumber	13	17	13	26	12	15	1	3	100
Plywood and oriented strand board	9	25	12	20	7	23	5	0	100
Residue related products	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a
Cedar products	24	10	7	20	13	26	0	0	100
Utility poles & piling	6	50	10	15	1	10	8	0	100
House logs	29	26	16	7	4	1	17	0	100
Posts and poles	51	24	17	0	9	0	0	0	100
1990 Total	13	19	13	24	11	16	2	2	100
1985 Total	11	14	18	21	12	13	0	11	100
1979 Total	11	9	20	25	10	10	1	13	100

a Withheld to prevent disclosure of data for individual firms
b Excludes pulp, paper, particleboard, wood fuel pellets, electricity, and residues sold to out-of-state purchasers.

Note: the percentage detail may not add to 100 due to rounding. See figure 9 on page 35 for an illustration of the states included in each region.

percent); the South (12 percent); export destinations (1 percent); and unknown destinations (3 percent).

Buyers in the Far West states purchased the majority of Idaho's structural panel output. In 1990, Far West buyers purchased 25 percent of the sales, up dramatically from 14 percent in 1985 and 12 percent in 1979.

The Northeast states comprised the second largest market for structural panels, generating 23 percent of total sales. This is down from 30 percent in 1985 but up from 10 percent in 1979.

The North Central states accounted for 20 percent of Idaho's 1990 structural panel sales. This is the same as 1985, but down substantially from the 32 percent reported in 1979 when this region was the major market for Idaho's structural panels.

Sales to the Rocky Mountain states have also dropped, from 27 percent of the total in 1979 and 16 percent in 1985, to 12 percent of 1990 structural panel sales.

Log home and house log manufacturers generated about $10.2 million in sales in 1990. These producers sold proportionately more of their output in other countries—17 percent—than any other sector in 1990. Other 1990 log home markets were: 29 percent of total product sales in Idaho; 26 percent in the Far West states; and 16 percent in the Rocky Mountain states.

In 1990, sales of cedar products (which include primarily cedar shakes, shingles, and split rail fencing), generated about $14.2 million. The major markets for cedar products were the Northeast (26 percent) and Idaho (24 percent). In 1985, the primary markets for these products were the North Central states (35 percent) and the South (24 percent). In 1979, the major markets for Idaho cedar products were the Rocky Mountain states (41 percent) and the Far West (24 percent).

Fifty percent of utility pole sales were in the Far West states. These states were also the major markets for utility poles in 1985 (42 percent). In 1979, the Rocky Mountain states were the major utility pole market, accounting for 37 percent of total sales.

The majority of Idaho's 1990 post, small pole, and tree stake sales were in Idaho ($3.9 million or 51 percent). Other major markets were the Far West states (24 percent), Rocky Mountain states (17 percent), and the South (9 percent).

Section 7

Wood Residue

Wood Residue from Primary Wood Products Manufacturers in Idaho

Wood fiber residue from primary wood products manufacturers (mill residue) is the major source of raw material for Idaho's pulp and paper and board industry, and an important source of fuel for all major sectors of the wood products industry. If not used, wood residue can create difficult and expensive disposal problems. Sawmills and plywood plants generate more than 95 percent of the mill residue produced by Idaho's forest products industry. This chapter details the volumes and uses of mill residue generated by these plants.

Basically three types of wood fiber residue are generated at sawmills and plywood plants:
1)coarse or chippable residue consisting of slabs, edging, and trim from lumber manufacturing; log ends from sawmills and plywood plants; pieces of veneer not suitable for manufacturing plywood; and peeler cores from plywood plants not sawn into lumber.
2)fine residue consisting of planer shavings and sawdust from sawmills and sander dust from plywood plants; and
3)bark from sawmills and plywood plants.

The 1990 census gathered information on mill residue generation and the uses of that residue. Actual volumes of marketed residue were reported in bone-dry units. A bone-dry unit is 2,400 pounds of wood, oven-dry weight.

Residue factors, applied to lumber and plywood production, were used to estimate the unsold quantities of residue. These factors are shown in tables 27 and 28, and represent statewide averages for sawmills and plywood plants.

Tables 27 & 28

Sawmill Residue Factors, Idaho, 1979, 1985, and, 1990

Types of Residue	Bone Dry Units per MBF Lumber Tally 1979	1985	1990
Coarse[a]	.47	.53	.43
Sawdust	.25	.21	.18
Planer Shavings	.22	.20	.15
Bark	.30	.19	.18
Total	1.24	1.13	.94

Note: Bone dry units of residue generated from producing 1,000 board feet of lumber.

[a]Material suitable for chipping such as slabs, edgings, trimmings, broken pieces, and log ends.

Softwood Plywood Residue Factors, Idaho, 1979, 1985, and 1990

Types of Residue	Bone Dry Units per MSF 3/8-inch Basis 1979	1985	1990
Coarse[a]	.27	.28	.23
Sander Dust	.02	.02	.02
Bark	.13	.12	.12
Total	.42	.42	.37

Note: Bone dry units of residue generated from producing one thousand square feet of 3/8-inch plywood.

[a]Material suitable for chipping such as slabs, edging, and trim, and peeler cores and pieces of veneer not suitable for plywood manufacture.

The Supply of Mill Residue

Idaho sawmills and plywood plants generated an estimated 2,117 thousand bone-dry units (MBDUs) of manufacturing residue in 1990, compared to 1,980 MBDUs in 1985, 2,472 MBDUs in 1979 and 2,719 in 1969 (table 29). The increase in residue generated since 1985 is due to increases in production at sawmills and plywood plants. The decrease from 1979 and 1969 is due primarily to less mill residue being generated per unit volume of lumber and plywood produced. Production technology and techniques have improved with computer guided saws, thinner kerf saws, smaller target green lumber sizes, better planers, and better plywood lathes. For example, the estimated volume of planer shavings generated by Idaho sawmills declined from .22 bone dry units per thousand board feet of lumber produced in 1979 to .15 bone dry units per thousand board feet of lumber produced in 1990.

The percentage of utilized manufacturing residue has increased dramatically since 1969, largely because of pulp and paper industry expansion and the opening of the particleboard plants in the region, but also because of wood residue's increasing use as a fuel—by the industry itself, and to generate electricity or fuel for sale. In 1969, only 63 percent of all mill residue was used, increasing to 89 percent in 1979, 94 percent in 1985, and 98 percent in 1990 (table 29).

Coarse residue was the largest and most used component of total residue in 1990. Mills produced 1,006 MBDUs, with nearly 100 percent—1,001 MBDUs—utilized. Pulp and paper mills in Idaho and other states received 988 MBDUs, with 13 MBDUs going to other uses, primarily home fuel. Only 5 MBDUs of coarse residue were unused in 1990 (table 30).

Table 29

Estimated Volume of Wood Residue Generated by Idaho Sawmills and Plywood Plants, 1969, 1979, 1985, and 1990

	Estimated Volume Thousand Bone Dry Units			Percentage of Total		
Residue Type	Utilized	Unutilize	Total	Utilized	Unutilize	Total
Coarse						
1969	830	268	1,098	76%	24%	100%
1979	987	21	1,008	98%	2%	100%
1985	976	14	990	99%	1%	100%
1990	1,001	5	1,006	100%	0%	100%
Fine						
1969	621	353	974	64%	36%	100%
1979	739	78	817	90%	10%	100%
1985	596	39	635	94%	6%	100%
1990	675	22	697	97%	3%	100%
Bark						
1969	254	393	647	39%	61%	100%
1979	473	174	647	73%	27%	100%
1985	282	73	355	79%	21%	100%
1990	395	19	414	95%	5%	100%
Total						
1969	1,705	1,014	2,719	63%	37%	100%
1979	2,199	273	2,472	89%	11%	100%
1985	1,854	126	1,980	94%	6%	100%
1990	2,071	46	2,117	98%	2%	100%

The 675 MBDUs of fine residue utilized represent 97 percent of the 697 MBDUs generated in 1990. The majority of this fine residue - 396 MBDUs - went to pulp and paper mills or board plants for use as a raw material; 255 MBDUs were consumed as fuel (including pelletized fuel) and about 24 MBDUs went for other uses such as animal bedding and mulch (table 30). Planer shavings totaled 319 MBDUs, with 310 MBDUs used and 9 MBDUs unused. Sawdust and sander dust totaled 378 MBDUs, with 365 MBDUs used and 13 MBDUs unused.

Use of bark has increased most dramatically since 1969 when 39 percent was utilized. In 1990, 95 percent was utilized (table 29). Of the 395 MBDUs used in 1990, 344 MBDUs was consumed as fuel (table 30). Fifty-one MBDUs were used for miscellaneous products, including decorative bark, livestock bedding, and mulch; 19 MBDUs were unused.

The manufacture of utility poles, house logs, cedar products, and posts and small poles generates several types of residue, including bark, shavings and peelings, log ends, cull portions of cedar products logs, and slabs from house log manufacturers. Although little of this material was sold to other wood product manufacturers, much of it was used as livestock bedding, garden mulch, or fuel. Log ends from utility pole or house log manufacturers were occasionally sold as firewood. In 1990, about 46 MBDUs of these residues were produced, 32 MBDUs were used and 14 MBDUs unused.

Revenue from the Sale of Manufacturing Residue

Wood fiber residue sales generated about $57 million in revenue for Idaho sawmills and plywood plants in 1990, in addition to the $546 million in lumber sales and $106 million in plywood sales. Only $39 million of residue sales were reported in 1985, and 1979 sales amounted to $45 million, all in 1990 dollars.

In 1990, nearly 91 percent ($51 million) of total residue sales were chips sold to the pulp and paper industry. The reported average 1990 chip price was $52 per bone-dry unit (BDU) F.O.B. the producer's plant. Sawdust, planer shavings, and bark prices averaged from $3 to $10 per BDU F.O.B. producer's plant in 1990.

Table 30

Production and Disposition of Mill Residues by Sawmills and Plywood Plants Idaho, 1990

Residue Type	Total Utilized	Pulp Mills and Board Plants	Hogfuel	Other Uses	Unutilized	Total
	Thousand Bone Dry Units					
Coarse	1,001	988	0	13	5	1,006
Fine						
Planer shavings	310	221	88	1	9	319
Sawdust	365	175	167	23	13	378
Bark	395	-----	344	51	19	414
Total	2,071	1,384	599	88	46	2,117

Section 8

The Idaho Economy

The Forest Products Industry and the Idaho Economy

The primary forest products industry includes: logging; processing logs into lumber and other wood products; processing wood residue from timber processing plants into products such as paper or outputs such as electricity; and private sector timber management services. The secondary industry, as defined in this report, includes the further processing of outputs of the primary industry from Idaho and other states in the Northwest. This primary and secondary industry corresponds closely to three standard industrial classifications (SIC) as defined by the U.S. Office of Management and Budget, (SIC) 08—forestry services, (SIC) 24—lumber and wood products, and (SIC) 26—pulp, paper and allied products. These three standard industrial classifications will be used to estimate employment and income to workers (labor income) in Idaho's forest products industry.

The three standard industrial classifications do not correspond exactly to the forest products industry. Some workers included in these categories in Idaho are not related to Idaho's or the region's timber resource. These include a few hundred workers in industries such as mobile home manufacturing.

Also, a number of activities associated with the industry and involving several thousand workers are not included in these three standard industrial classifications. These other activities include the hauling of logs by independent truckers, truck, rail, or barge transport of finished products, and government employees engaged in forest management activities related to timber production. On balance, the three SIC categories (08, 24, and 26) provide a reasonably accurate, consistent, and conservative depiction of employment and income to workers in the forest products industry.

In 1990—the year of the forest industry census—there were 20,560 workers in Idaho's forest products industry and these workers earned about $755 million in labor income. About 17,000 of these workers were in the primary industry as described in Section 1 of this report, and about 3,500 workers were engaged in secondary manufacturing of wood and paper products.

Idaho's economy is heavily dependent on the natural resource industries and manufacturing, including agriculture, wood and paper products, travel and tourism, and food products. Taken together, these industries dominate the state's economic base and have been the major determinant of long-run economic trends.

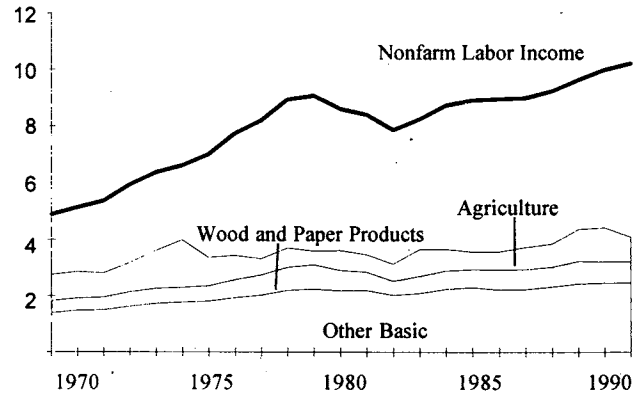
The economic base of a state or region consists of basic industries which are local industries whose products or services are generally sold in outside markets (or otherwise purchased with outside funds). Sales by basic industries inject new funds into a local economy to the degree that they pay local workers, make local investments, or make other local purchases. Therefore, conditions or trends in basic industries are critical factors in the overall performance of an area's economy.

Trends in the Idaho Economy

Overall trends in the Idaho economy are measured using changes in nonfarm labor income. As shown in figure 10, nonfarm labor income increased steadily throughout the 1970s, with only a minor pause corresponding to the 1974-75 recession. From a peak in 1979, Idaho's economy declined significantly to a trough in 1982—a period which coincided with the worst postwar recession in the U.S. economy. Nonfarm labor income turned upward in 1983 and continued to grow throughout the decade. Another national recession began in 1990, but there was no noticeable impact on overall economic activity in Idaho (as measured by nonfarm labor income) during the 1990-91 period.

Figure 10

Nonfarm Labor Income and Labor Income in Basic Industries, Idaho, 1969-1991



Sources: Bureau of Economic Analysis, U.S. Dept. of Commerce; Bureau of Business and Economic Research, The University of Montana.

Changes in the nonfarm basic industries generally coincide with changes in nonfarm labor income, and explain long-term trends in Idaho's economy. Farms and ranches continue to be an important component of Idaho's economic base, but significant year-to-year variations in agricultural labor income make the impact of this industry difficult to gauge in the short-term. Nonfarm basic labor income rose throughout the 1970s to a peak in 1979; it declined between 1979 and 1982, and then

grew until 1989. Labor income in the nonfarm basic industries was roughly stable during 1990 and 1991, the net effect of declines in wood and paper products and modest increases in the other basic industries.

Forest Products Industry and Idaho's Economic Base

Idaho has one of the largest forest products industries relative to the state economy in the country. Using percent of total labor income as a measure of relative dependency, Idaho ranks third among the fifty states. In the 1987-1991 period, about 6 percent of Idaho's labor income was earned in the forest products industry, behind only Oregon and Maine with 8 to 9 percent.

Alternatively, the importance of an industry to the economy is its contribution to the local economic base, and the forest products industry accounts for a substantial share of Idaho's economic base. Figure 11 shows the industry's contribution to the state's basic labor income and basic employment. Data are presented for the five-year period from 1987 to 1991 in order to portray the long-term importance of the basic industries. The economic base data presented here exclude the research and defense laboratories in southeastern Idaho.

Measured in terms of labor income, the wood and paper products industry is the second largest basic industry in Idaho, exceeded only by agriculture. It accounted for 18.2 percent of the state's basic labor income from 1987 to 1991, about five percentage points less than agriculture. The other manufacturing category, whose labor income slightly exceeds that of wood and paper products, is an aggregate of a number of different industries—ranging from high-tech manufacturing to primary metal refining.

Turning to employment, wood and paper products represents about 11.2 percent of the total for all basic industries. It ranks behind agriculture, nonresident travel, and the federal government.

The changing importance of wood and paper products to Idaho's economic base is pictured in figure 12, which portrays its share of basic labor income and employment for five year periods from the 1970s to the early 1990s. Measured using labor income, wood and paper products increased from 15.9 percent of the state's economic base in 1972-76 to 21.4 percent in 1977-81, it then declined to 17.6 percent in 1982-86, and increased to 18.2 percent during 1987-91. Using employment, wood and paper products' share of the economic base remained relatively stable; it was 11.6 percent in 1972-76, 12.5 percent in 1977-81, 10.7 percent in 1982-86, and 11.2 percent in 1987-91.

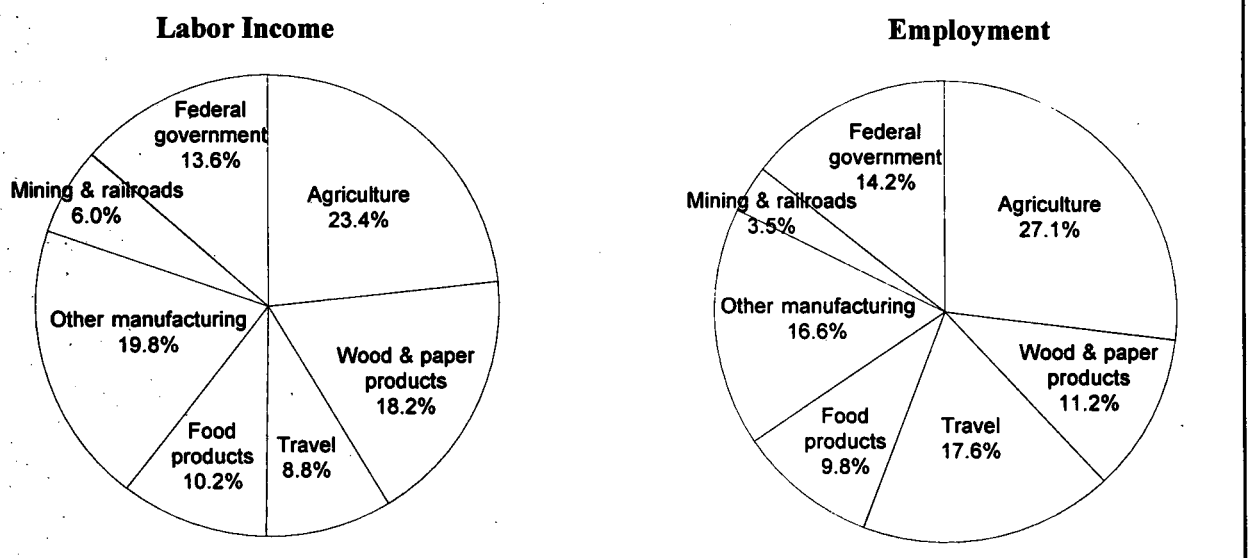
Trends in Forest Products Employment and Labor Income

Employment in the wood and paper products industry grew from about 15,300 workers in 1970 to a peak of over 22,000 workers during the extremely good markets of the late 1970s (figure 13). Employment and constant dollar labor income peaked in 1979 at 22,700 workers and $874 million 1990 dollars.

The number of workers declined significantly during the recession years of the early 1980s, reaching a trough in 1982 of 16,000 workers. With improving markets in the late 1980s, employment increased through the decade exceeding 20,000 workers in 1989 and 1990. The 20,560 workers reported in

Figure 11

Basic Industries, Idaho, 1987 - 1991



Sources: Bureau of Economic Analysis, U.S. Dept. of Commerce; Bureau of Business and Economic Research, The University of Montana.

1990 was exceeded only in 1977, 1978, and 1979.

The trend in employment from 1970 to 1991 certainly has been influenced by the volume of timber harvested and processed resulting in large part from changes in market conditions. Timber harvest in Idaho peaked in the late 1970s, and based on reported lumber and plywood production, the volume of timber processed in Idaho also peaked in the late 1970s. The four years from 1976-1979 had four of the five highest harvests recorded during the 1970-1990 period and four of the six highest levels of employment. The harvest levels in 1989 and 1990 ranked third and seventh over that period while employment levels in the industry ranked fifth and fourth respectively. The second lowest employment during the period —16,000 workers in 1982— corresponds to the lowest harvest for the period at 1,136 MMBF.

A number of other factors have impacted employment, including structural changes in the industry and mechanization and automation. A detailed analysis of the factors affecting employment per unit volume of timber is beyond the scope of this report. Factors which have made the industry more labor intensive include the expansion of the residue utilizing sector in the 1970s and 1980s, expansion of secondary manufacturing in the 1980s, and the development of the labor intensive log home industry.

Automation and mechanization, as well as the replacement of more labor intensive large log sawmills by less labor intensive small log mills, have made the industry less labor intensive. Changing timber flow patterns into or out of the state can also impact employment in Idaho's forest products industry.

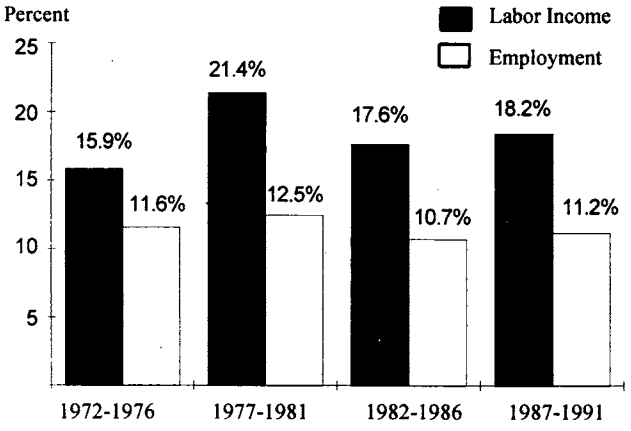
Wood and paper products labor income, like employment, shows a distinct cyclic profile. Labor income grew throughout the 1970s, but experienced a slight pause in 1974-1975 during the national recession. The peak in real labor income occurred in the late 1970s, with 1978 and 1979 levels of $826 and $874 million—the highest on record (figure 14).

Major declines then occurred in the 1980 to 1982 severe recession period. Labor income then rose through the remainder of the 1980s with 1989 real labor income of $797 million—the third highest on record for Idaho's industry. Even with a recession impacting 1990 and 1991, real labor income in Idaho's forest products industry for those two years was exceeded only by 1978, 1979, and 1989.

Labor income per worker in the forest products industry is relatively high compared to most other Idaho basic industries. It averaged about $38,000 (1990 dollars) during the 1987-91 period, second only to the $43,500 per worker figure for the mining and railroad category. In comparison, labor income per worker was about $12,700 in the nonresident travel industry. The high incomes in wood and paper products explain why this industry accounts for a larger share of Idaho's economic base measured using labor income than it does using employment.

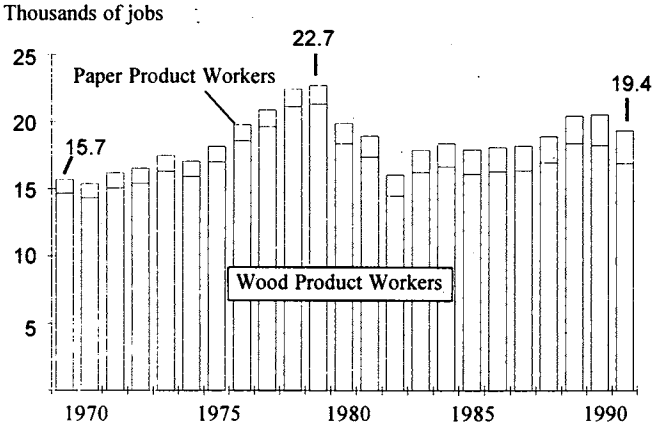
Figures 12 & 13

Forest Products as a Percent of Total Basic Industry



Employment in Wood and Paper Products, Idaho, 1969-91

Thousands of jobs



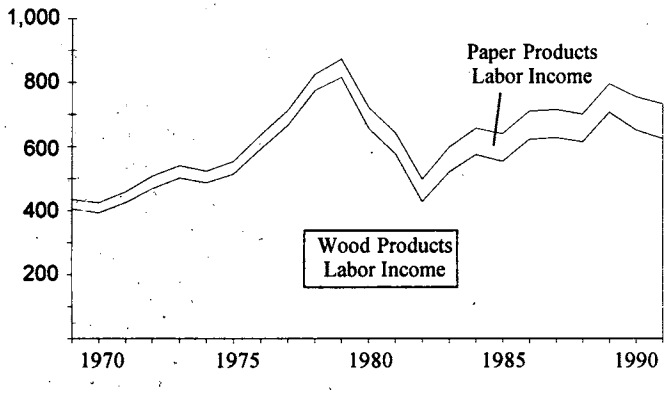
Sources: Bureau of Economic Analysis, U.S. Dept. of Commerce; Bureau of Business and Economic Research, The University of Montana.

Regional Dependency on the Forest Products Industry

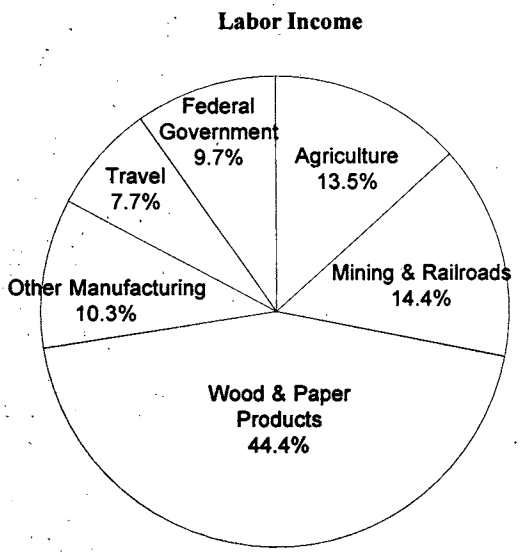
As indicated earlier, Idaho's forest products industry is concentrated in the ten northern counties and in the region immediately south of the Salmon River in Central and West Central Idaho. Unfortunately, data for counties—necessary to provide regional analysis—are not comparable to the statewide data used in the preceding analysis; statewide data were last revised in 1992, and county level data were last revised in 1991. Based on 1990 county data, about 60 percent of forest industry

Figures 14 & 15

Labor Income, Wood and Paper Products, Idaho, 1969-91



Basic Industries, North Idaho, 1990



Sources: Bureau of Economic Analysis, U.S. Dept. of Commerce; Bureau of Business and Economic Research, The University of Montana.

labor income was earned in North Idaho. About 22 percent was earned in Ada and Canyon counties which is the Boise metropolitan area, and about 10 percent was earned in the six counties from Ada County north to the Salmon River.

North Idaho

In 1990, the forest products industry provided approximately 19 percent of all labor income in Idaho's ten northern counties and 44 percent of labor income in basic industries (figure 15). If labor income from federal timber management activities, and components of the industry such as independent truckers hauling logs, and the transport of finished products, are included, the combined total would approach 50 percent of basic industry labor income.

The area appears slightly less dependent on the industry in 1990 than in 1979 when forest products provided 22 percent of total labor income and 48 percent of basic industry labor income in North Idaho. In 1985, forest products provided 47 percent of basic industry labor income in North Idaho (table 31). This regional analysis does not include trade center communities; that is the portion of urban economies that serves the surrounding rural areas.

South Idaho

The forest products industry is much less significant in South Idaho. The area economy is dominated by agriculture, food processing, other manufacturing, and the commercial, financial and service center functions of the Boise area in Ada County. The forest products industry, however, is the major industry in the six-county region immediately south of the Salmon River (Adams, Boise, Gem, Payette, Valley, and Washington counties) where, in 1990, it provided directly about 15 percent of total labor income and in excess of one-third of the labor income in basic industries in the six counties (table 32).

There is a large forest products industry in Ada and Canyon counties ($121 and $31 million in labor income, respectively, in 1990). This represents approximately 4 percent of total labor income in the two counties. The industry would probably account for 10-15 percent of the economic base in the two counties. Also, Boise is the trade center for the forest industry dependent counties to the north. Much of the industry in these two counties is engaged in secondary manufacturing.

Two other counties in South Idaho, Fremont and Lemhi counties have the forest products industry as a substantial part of their local economy. The industry provided about 10 percent of total labor income in Fremont and Lemhi counties and 15 to 20 percent of labor income in basic industries.

Outlook

The impact of the 1990-1991 recession on Idaho's industry was very mild in comparison to the impact of the severe recession of the early 1980s when forest industry employment dropped by more than 25 percent. In 1990, forest industry

employment showed an actual increase over 1989, and 1991 employment was down only about 5 percent. Growth in other components of Idaho's economy more than made up for the small declines in forest industry employment.

Markets have improved in 1992 and are expected to continue to improve in the next several years. The national recovery from this recession is expected to differ substantially from the previous recession because it will not involve dramatic increases in the volume of wood products consumed. Projections are that with a recovery in the national economy annual lumber consumption in 1993-1995 will probably not surpass the 1987 peak.

However, many analysts are predicting substantially higher real prices for products than existed prior to the recession due to timber supply curtailments, especially in the Pacific Northwest but also in other parts of North America (Adams, 1992). This contrasts dramatically with the recovery from the recession of the early 1980s in which real prices did not recover to prerecession levels.

Idaho's industry is certainly not immune from timber supply impacts. Projections made in 1987 indicated a decline in the volume of timber available from industrial private lands in Idaho (LeVere et al. 1987). A subsequent analysis indicated modest declines from national forest lands (Le Vere et al. 1992) and recent developments indicate potential substantial declines in the national forest timber program. To illustrate, the sale program from North Idaho's national forests dropped from 394 MMBF Scribner in fiscal year 1991 to 190 MMBF Scribner in fiscal year 1992.

National forest officials point to an array of issues impacting their timber sale program, including appeals and litigation, cumulative effects from previous harvest, and threatened and endangered species constraints, as well as greatly increased cost of timber sale preparation largely due to the previous factors coupled with budget reductions. Given the lumber prices and bid prices for timber were substantially higher in 1992 than during the late 1980s—when the national forests sold in excess of 400 MMBF Scribner—poor markets and lack of demand do not appear to be factors limiting timber sales in 1992 (Keegan, 1992).

Timber availability would appear to be the critical issue facing Idaho's industry. In 1990, the national forests (39 percent) and industrial lands (21 percent) provided 60 percent of the timber harvested in the state. Given the possibility of much lower harvests from these ownerships, Idaho's industry could decline in size even with substantially higher prices for products.

Tables 31 & 32

Changes in Labor Income
North Idaho, 1979, 1985, and 1990
(Millions of Constant 1990 Dollars)

	1979	1985	1990
All Industries (a)	2,139	1,865	2,164
Basic Industries	1,020	774	910
Farm	82	80	123
Nonfarm	938	694	787
Mining & Railroad	143	111	131
Manufacturing	620	443	498
Forest Industries	489	366	404
All Other Basic Manufacturing (b)	131	77	94
Nonresident Travel	69	55	70
Federal Government	106	85	88
Derivative Industries	1,119	1,090	1,254

Source: Derived by the Bureau of Business and Economic Research using U.S. Department of Commerce, Bureau of Economic Analysis Informatiion.

Notes: Not comparable to statewide figures in table
(a) Before deduction of social security contributions and residence adjustments.
(b) Includes manufacture of food, chemicals, primary metals, machinery and transportation equipment.

Labor Income
Six Counties, Central Idaho, 1990
(Millions of Constant 1990 Dollars)

	1990
All Industries (a)	451
Basic Industries	200
Farm	71
Nonfarm	128
Mining & Railroad	9
Manufacturing	89
Forest Industries	68
All Other Basic Manufacturing (b)	22
Nonresident Travel	7
Federal Government	23
Derivative Industries	251

Source: Derived by the Bureau of Business and Economic Research using U.S. Department of Commerce, Bureau of Economic Analysis Informatiion.

Notes: Not comparable to statewide figures.
(a) Before deduction of social security contributions and residence adjustments.
(b) Includes manufacture of food, chemicals, primary metals, machinery and transportation equipment.

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Appendix

Table A1

Lumber Production by Size of Mill, Idaho, 1979

Size Class[a]	Production: Number of Mills in Size Class	Production: Volume Processed (MMBF)	Production: Percentage of Total Capacity Utilized	Production: Average Per Mill (MMBF)
A -- over 50 MMBF	14	956	49	68.3
B -- over 25 MMBF to 50 MMBF	19	654	34	34.4
C -- over 10 MMBF to 25 MMBF	12	186	10	15.5
D -- over 1 MMBF to 10 MMBF	28	118	6	4.2
E -- under 1 MMBF	60	18	1	0.3
Total	133	1,932	100	14.6

Source: The University of Montana, Bureau of Business and Economic Research, Idaho Forest Industries Data Collection System (Missoula, Montana, 1982).

Note: MMBF denotes millions of board feet, lumber tally.

[a]Based upon reported 1979 lumber production.

Table A2

Lumber Production by Size of Mill, Idaho, 1985

Size Class[a]	Production: Number of Mills in Size Class	Production: Volume Processed (MMBF)	Production: Percentage of Total Capacity Utilized	Production: Average Per Mill (MMBF)
A -- over 50 MMBF	14	963	58	68.8
B -- over 25 MMBF to 50 MMBF	11	431	26	39.2
C -- over 10 MMBF to 25 MMBF	13	213	13	16.4
D -- over 1 MMBF to 10 MMBF	16	52	3	3.3
E -- under 1 MMBF	36	6	--[b]	0.2
Total	90	1,665	100	18.5

Source: Bureau of Business and Economic Research, The University of Montana, Idaho Forest Industries Data Collection System (Missoula, Montana, 1987).

Note: MMBF denotes millions of board feet, lumber tally.
[a]Based upon reported 1985 lumber production.
[b]Less than .5 percent.

Table A3

Timber Products Harvested by Ownership Source, Idaho, 1979

Origin	Thousand Board Feet, Scribner: Sawlogs	Veneer Logs	Pulpwood	Other Roundwood Products	All Products	Percentage of Total: Saw-Logs	Veneer Logs	Pulp-wood	Other Roundwood Products	All Products
Private Timberland	586,195	124,577	77,125	20,852	808,749	41	53	57	37	44
Industrial	273,826	111,241	59,416	11,238	455,721	19	47	44	20	25
Nonindustrial	312,369	13,336	17,709	9,614	353,028	22	6	13	17	19
Public and Tribal Timberland	838,755	110,399	56,847	35,718	1,041,719	59	47	42	64	56
National forest	709,657	81,733	48,686	26,379	866,455	50	35	36	47	47
Other	129,098	28,666	8,161	9,339	175,264	9	12	6	17	9
All Sources	1,424,950	234,976	133,972	56,570	1,850,468	100	100	100	100	100

Source: Bureau of Business and Economic Research, The University of Montana, Idaho Forest Industries Data Collection System (Missoula, Montana, 1982).

Note: Other roundwood products refers to utility poles, house logs, posts and poles, and cedar products logs. The percentage detail may not add to 100 due to rounding.

Table A4

Timber Products Harvested by Ownership Source, Idaho, 1985

Origin	Thousand Board Feet, Scribner: Sawlogs	Veneer Logs	Pulpwood	Other Roundwood Products	All Products	Percentage of Total: Saw-Logs	Veneer Logs	Pulp-wood	Other Roundwood Products	All Products
Private Timberland	534,897	112,489	64,988	55,835	768,209	44	62	70	60	48
Industrial	282,209	107,213	58,892	19,160	467,474	23	59	63	21	29
Nonindustrial	252,688	5,276	6,096	36,675	300,735	21	3	7	40	19
Public and Tribal Timberland	691,652	68,997	28,174	36,864	825,687	56	38	30	40	52
National forest	539,435	50,937	11,633	28,998	631,003	44	28	12	31	40
Other	152,217	18,060	16,541	7,866	194,684	12	10	18	8	12
All Sources	1,226,549	181,486	93,162	92,699	1,593,896	100	100	100	100	100

Source: Bureau of Business and Economic Research, The University of Montana, Idaho Forest Industries Data Collection System (Missoula, Montana, 1987).

Note: The term "other timber products" refers to wafer logs, utility poles, house logs, posts and poles, and cedar products logs. The percentage detail may not add to 100 due to rounding.

Table A5

Timber Products Harvested by Species and Product, Idaho, 1979

	Thousand Board Feet, Scribner					Percentage of Total				
Species	Sawlogs	Veneer Logs	Pulpwood	Other Roundwood Products	All Products	Saw-Logs	Veneer Logs	Pulp-wood	Other Roundwood Products	All Products
Douglas-fir	273,657	91,817	2,494	600	368,568	19	39	2	1	20
Engelmann Spruce	43,723	6,165	868	18	50,774	3	3	1	----b	3
Lodgepole pine	131,953	2,251	779	13,708	148,691	9	1	1	24	8
Ponderosa pine	223,184	5,985	8,982	434	238,585	16	3	7	1	13
True firs	302,487	103,577	4,195	557	410,816	21	44	3	1	22
Western larch	85,176	19,043	2,050	506	106,775	6	8	2	1	6
Western hemlock	19,697	3,213	-----	-----	22,910	1	1	-----	-----	1
Western red cedar	157,721	811	-----	38,580	197,112	11	---b	-----	68	11
Western white pine	140,066	2,114	146	2,161	144,487	10	1	---b	4	8
Other	1,669	-----	-----	-----	1,669	-----b	-----	-----	-----	----b
Unknown	45,617	-----	114,458	6	160,081	3	-----	85	----b	9
All species	1,424,950	234,976	133,972	56,570	1,850,468	100	100	100	100	100

Source: Bureau of Business and Economic Research, The University of Montana, Idaho Forest Industries Data Collection System (Missoula, Montana, 1982).

Note: Other roundwood proucts refers to utility poles, house logs, posts and poles, and cedar products logs. The percentage detail may not add to 100 due to rounding.
b Less than 0.5 percent.

Table A6

Timber Products Harvested by Species and Product, Idaho, 1985

	Thousand Board Feet, Scribner					Percentage of Total				
Species	Sawlogs	Veneer Logs	Pulpwood	Other Roundwood Products	All Products	Saw-Logs	Veneer Logs	Pulp-wood	Other Roundwood Products	All Products
Douglas-fir	247,596	66,996	14,621	100	329,313	20	37	16	----b	21
Engelmann Spruce	86,733	813	1,115	-----	88,661	7	---b	1	-----	5
Lodgepole pine	123,399	-----	656	37,837	161,892	10	-----	1	41	10
Ponderosa pine	188,320	1,293	526	-----	190,139	15	1	1	-----	12
True firs	273,897	92,503	58,024	-----	424,424	22	51	62	-----	27
Western larch	74,700	14,086	4,744	-----	93,530	6	8	5	-----	6
Western hemlock	39,632	-----	4,732	-----	44,364	3	-----	5	-----	3
Western red cedar	116,118	1,440	-----	38,485	156,043	9	1	-----	42	10
Western white pine	75,921	4,355	8,744	1,301	90,321	6	2	9	1	6
Other	233	-----	-----	14,976	15,209	----b	-----	-----	16	1
All species	1,226,549	181,486	93,162	92,699	1,593,896	100	100	100	100	100

Source: Bureau of Business and Economic Research, The University of Montana, Idaho Forest Industries Data Collection System (Missoula, Montana, 1987).

Note: The term "other timber products" refers to wafer logs, utility poles, house logs, posts and poles, and cedar products logs. The percentage detail may not add to 100 due to rounding.
b Less than 0.5 percent.

Table A7

Destination of Primary Wood Products Shipments by Value of Shipment, Idaho, 1979

Product	Idaho	Far West	Rocky Mountain	North Central	South	Northeast	Other Countries	Unknown	All Destinations
	Thousands of Dollars								
Lumber	53,558	35,537	86,621	126,810	54,588	55,321	4,298	79,857	496,590
Plywood	7,221	10,405	23,781	27,549	8,801	8,669	0	562	86,988
Pulp, paper, and particleboard	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a
Cedar products	1,390	3,181	5,450	2,741	527	0	0	150	13,439
Utility poles	976	4,042	5,216	2,406	21	91	1,176	0	13,928
House logs	867	1,449	3,916	936	6	0	816	0	7,990
Structural timbers and railroad ties	3,041	1,098	1,416	30	647	0	28	1,169	7,429
Post and poles	851	777	770	0	0	0	0	490	2,888
All other manufactured wood products	359	1,176	2,929	1,674	2,313	1,734	90	0	10,275
	Percentage of Total								
Lumber	11	7	17	26	11	11	1	16	100
Plywood	8	12	27	32	10	10	0	1	100
Pulp, paper, particleboard, and fiberboard	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a
Cedar products	10	24	41	20	4	0	0	1	100
Utility poles	7	29	37	17	-----b	1	8	0	100
House logs	11	18	49	12	-----b	0	10	0	100
Structural timbers and railroad ties	41	15	19	-----b	9	0	-----b	16	100
Post and poles	29	27	27	0	0	0	0	17	100
All other manufactured wood products	3	11	29	16	23	17	1	0	100

Source: FIDACS - Forest Industries Data Collection System [1992]. Bureau of Business and Economic Research, The University of Montana, 1992.

a Withheld to prevent disclosure of data for individual firms
b Less than 0.5 percent.
Note: the percentage detail may not add to 100 due to rounding.

Table A8

Destination of Primary Wood Products Shipments by Value of Shipment, Idaho, 1985

Thousands of Dollars

Product	Idaho	Far West	Rocky Mountain	North Central	South	Northeast	Other Countries	Unknown	All Destinations
Lumber	39,317	54,849	74,200	88,416	52,863	44,739	1,187	53,333	408,904
Structural timbers and railroad ties	2,118	130	740	0	600	0	0	0	3,588
Plywood and waferboard	8,455	10,979	12,540	15,231	7,588	23,166	49	0	78,008
Pulp, paper, and particleboard	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a
Cedar products	877	1,012	948	2,734	1,875	23	0	375	7,844
Utility poles	482	3,290	2,511	1,308	247	71	0	0	7,909
House logs	468	1,113	972	100	0	0	0	500	3,153
Posts and poles	2,390	1,336	511	0	0	0	0	0	4,237
Total[b]	54,107	72,709	92,422	107,789	63,173	67,999	1,236	54,208	513,643

Percentage of Total

Lumber	10	13	18	22	13	11	-----c	13	100
Structural timbers and railroad ties	59	4	21	0	17	0	0	0	100
Plywood and waferboard	11	14	16	20	10	30	-----c	0	100
Pulp, paper, and particleboard	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a	-----a
Cedar products	11	13	12	35	24	-----c	0	5	100
Utility poles	6	42	32	17	3	1	0	0	100
House logs	15	35	31	3	0	0	0	16	100
Posts and poles	56	32	12	0	0	0	0	0	100

Source: Bureau of Business and Economic Research, The University of Montana, Idaho Forest Industries Data Collection System (Missoula, Montana, 1987).

a Withheld to prevent disclosure of data for individual firms
b Excludes pulp, paper, and particleboard.
c Less than 0.5 percent.

Note: The percentage detail may not add to 100 due to rounding.