

THE ECONOMIC IMPACT OF PROCESSING INTERIOR DOUGLAS-FIR

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ABSTRACT

Interior Douglas-fir provides a wide variety of primary products which include: lumber, plywood, pulp and paper, particleboard and fiberboard, house logs, posts and poles, and fuelwood.

While its commercial value and economic importance is dwarfed by the enormous impact of the coastal form, interior Douglas-fir is extremely important to the Inland region of the United States, primarily in Idaho, Montana, Oregon, and Washington.

The value of primary products manufactured from interior Douglas-fir in this region exceeds \$1 billion annually. Harvesting and processing Douglas-fir directly employs some 11,000-12,000 workers, earning \$300 million annually in labor income. This direct employment is associated with an additional 20,000-30,000 workers in derivative sectors.

This paper discusses the economic impact of interior Douglas-fir in the United States based on the use of the species to produce primary wood and paper products. The following topics are examined:

- 1) How much interior Douglas-fir is processed;
- 2) How it is processed;
- 3) Where it is harvested and processed; and
- 4) Associated economic variables including the value of the products produced, employment, and labor income generated.

Keywords: economic impact, products produced, sales value, employment, interior Douglas-fir

INTERIOR DOUGLAS-FIR PRODUCTS

Interior Douglas-fir is processed into a number of primary forest products that include:

- Lumber
- Plywood
- Pulp and paper
- Particleboard and fiberboard
- House logs
- Posts and poles
- Fuelwood and
- Some by-products of pulp and paper manufacturing such as tall oil and turpentine.

The average annual volume of interior Douglas-fir harvested and processed into products over the last few years has averaged 1.4 billion board feet Scribner annually. Of that 1.4 billion

board feet, just under 1 billion board feet of logs (about 70% of the total) were delivered to sawmills and processed into lumber (Table 1). Twenty-five to thirty percent of the interior Douglas-fir harvested—about 400 million board feet annually—has been processed into plywood. The remaining 2-3%, approximately 30 MMBF Scribner per year, has been processed as logs by the pulp and paper industry, as well as into products such as house logs and posts and poles.

Table 1.—Annual utilization of interior Douglas-Fir in million board feet Scribner for 1984-1988.

TOTAL	1,400
Sawmills	970
Plywood plants	400
Other	30

Many people think of interior Douglas-fir primarily as a lumber and plywood species because of the way logs are initially processed. However, there are also very significant product uses that are not immediately apparent. These other significant products are derived from processing wood fiber residue from sawmills and plywood plants. When logs are broken down into lumber, for example, less than half the wood fiber in the log actually becomes lumber. Much of the remainder, often termed mill residue, is used as raw material for the pulp and paper industry and for reconstituted board plants such as particleboard and fiberboard plants. Relatively small volumes of mill residue are also used by facilities producing other products such as fuel pellets, electricity, and animal bedding.

The nearly 1.4 MMBF Scribner of logs that sawmills and plywood plants processed annually represents 250-300 million cu. ft. of wood fiber—excluding bark. Of that 250-300 million cu. ft., 125-150 million cu. ft. actually ended up as finished lumber and plywood. In excess of 100 million cu. ft.—in the form of chips, planer shavings, and sawdust—was used as raw material to produce pulp and paper, particleboard, and fiberboard.

Sales Value of Interior Douglas-Fir Products

The sales value of the primary products manufactured from interior Douglas-fir over the last five years has exceeded \$1.1 billion annually in 1988 dollars FOB the mill manufacturing the product (Table 2). Lumber and other sawn products accounted for about 40% of the total sales value, or an estimated \$450 million per year. Plywood accounted for about \$250 million in annual sales, or about 22% of the total. Residue-related products were of major significance to the industry, accounting for about \$400 million of the annual sales—about 40% of the total. Other products such as log homes and posts and poles accounted for about \$10 million, less than 1% of the total.

Table 2.—Sales value of primary products interior Douglas-Fir for 1984-1988.

	Millions of 1988 Dollars
Lumber	\$ 450
Plywood	250
Residue Sector (Major products: pulp, paper, particleboard, fiberboard)	400
Other	10
TOTAL	\$1,110

Employment

Employment directly related to harvesting and processing interior Douglas-fir is shown in Table 3. Approximately 4,200 people are employed annually in logging interior Douglas-fir—harvesting and hauling the timber to mills. Another 6,600 workers are employed at facilities that process Douglas-fir logs into primary products. These include:

- 3,200 workers at sawmills
- 2,000 workers at plywood plants
- 1,200 workers processing mill residu—mostly at pulp and paper mills, particleboard, and fiberboard plants
- 200 workers at other primary manufacturing facilities—private sector land management jobs add an additional 800 workers.

Table 3.—Average annual employment for 1984-1988.

Logging	4,200
Sawmills	3,200
Plywood Plants	2,000
Residue-Related Products	1,200
Other Manufacturing	200
Land Management and Miscellaneous	800
TOTAL	11,600

As illustrated, an estimated 11,600 private sector jobs are directly associated with processing interior Douglas-fir into primary forest products and these workers earn an estimated \$300 million annually in labor income.

The impact on employment goes beyond the 11,000-12,000 workers directly employed in harvesting and processing interior Douglas-fir. Additional employment is generated in other sectors of the economy through the forest products industry's spending in the local economies and through the employee's spending and respending of the payrolls.

Based on the size of industry involved in the primary processing of interior Douglas-fir, it gives rise to an additional 20,000-30,000 jobs in derivative sectors such as retail trade, medical services, and other areas. The total impact measured by employment would be some 30,000-40,000 workers and some \$700-\$900 million in labor income annually. There are also substantial numbers of jobs which are not included in these estimates, in the various land management agencies related to managing interior Douglas-fir as a commercial timber species.

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Impact on the Economy

Douglas-fir has had a substantial impact on regional and local economies in the last several years. To understand the impact, we need to look at where the timber is harvested and processed. Table 4 indicates by state where the 1.4 billion board feet Scribner was processed from 1984-1988 of course, this relates very closely to where it was harvested.

Over that five year period, 75-80% of the interior Douglas-fir harvested has been processed in northeast Washington, northern Idaho, and western Montana; 15% has been processed in eastern Oregon; and about 5% in all of the other Rocky Mountain states combined.

The volume of interior Douglas-fir processed state by state is shown in Table 4.

Table 4.—Average annual volume of interior Douglas-Fir processed by state for 1984-1988.

	Million Board Feet, Scribner
Idaho	370
Montana	360
Eastern Washington	355
Eastern Oregon	245
All Other States	70
TOTAL	1,400

Regional and Local Economic Impact

The forest products industry plays an important part in the Inland Northwest region's economy. Douglas-fir has its largest regional impact in the shaded area shown in Figure 1. On a county level, the largest impact of interior Douglas-fir is in individual counties directly north of Spokane, Washington, for example, in Stevens County, Washington, where the forest products industry is the major component of the economy and Douglas-fir accounts for more than half the timber processed.



Figure 1.—Douglas-fir growth in the Inland Northwest.

The largest scale regional impact of the species is in northern Idaho and western Montana—the large contiguous area encompassing Montana's nine western most counties, the ten counties

in Idaho north of the Salmon River, and the five counties immediately south of the Salmon River. With the possible exception of the major timber-producing areas of Oregon, there is no comparably large region in the United States that is more dependent on the primary forest products industry than is that area in northern and central Idaho and western Montana. There are regions in which the total size of the forest products industry is larger, but the total economies in those areas are much larger and more diversified and, therefore, are not as dependent on the primary forest industry. In the shaded region of Idaho and Montana portrayed in Figure 1, interior Douglas-fir provides about 30% of the timber processed.

In conclusion, interior Douglas-fir is a species that has an important role in a broad array of forest types for a wide array of non-timber product uses, and also plays a critical role in local and regional economies as a raw material for wood and paper products.

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