The forest products sector in Alaska includes harvesting and processing of timber by the logging, lumber, and pulp industries. Most harvesting is in southern coastal regions of Alaska, primarily in the Tongass National Forest and on private Native corporation lands. Some harvesting also occurs on state government lands. Logging activities on federal lands provide raw material for the state's lumber and pulp mills. Two pulp mills in Ketchikan and Sitka produce high-grade dissolving pulp primarily for export markets. Logging activities on Native corporation lands produce most of the softwood logs exported from Alaska to foreign countries. (There is little commercial hardwood logging in Alaska.)

Like the petroleum sector, the wood products sector is vertically integrated, which means that the same companies typically harvest and process forest products. Most of the timber harvested in Alaska is sold to sawmills, which produce cants and finished lumber for outside processors and sell wood chips and logs to pulp mills inside Alaska. In recent years, pulpwood has also been sold to Canadian mills. Most products—softwood logs, processed lumber, and pulpwood—are exported to Pacific Rim markets. Despite record export values in 1988, Alaska still accounts for only 5 percent of the total value of log and lumber exports to Pacific Rim nations. In 1988, the forest products sector contributed 1.6 percent of total state employment, 2.3 percent of wages and salaries, and 0.3 percent of the gross state product. Of the basic sectors, only mineral mining and agriculture contributed less. However, the average annual wage in the forest products industry is 37 percent higher than the state average.

Even though the sector has expanded since 1968, and 1988 production was at the highest level since statehood, the sector has a relatively small impact on the total state economy. It ranks behind the federal government, petroleum, fishing, and tourism. Because of its regional concentration, however, it is a leading industry in Southeast Alaska.

### Production

Alaska timber harvests were at a record level in 1988: a total of 964 million board feet (MMbf) was harvested on private, state, and federal lands. That represented a 26 percent increase over 1978, the lowest harvest year since the early 1960s. As shown in Figure 1, harvests of Alaskan timber have ranged from 400 to 600 million board feet (MMbf) per year since 1960.

Harvests from national forest land peaked in the early 1970s; since 1980, harvests from Native corporation land have dramatically increased while national forest harvests have significantly declined. The 1988 harvest of 530 MMbf on private lands, which are primarily Native corporation lands, was nearly 40 percent higher than 1987 harvest levels. National forest harvests were an average of 16 percent higher in every quarter in 1988 than in 1987. The 1988 harvest level of 409 MMbf on national forest land was the highest since 1980.

Harvests from Native lands have equaled or exceeded harvests from national forests in the last four years. While national forest timber policy requires a long-term non-declining yield, Native corporations do not: their forests have been cut at a rate that probably cannot be sustained for even a few more years. Native corporations only began acquiring sig-

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**Further information on the Alaska Economic Database is available from the Division of Business Development of the Alaska Department of Commerce and Economic Development. This database was prepared under the sponsorship of the Alaska Industrial Development and Export Authority and the Alaska Department of Commerce and Economic Development by the Institute of Social and Economic Research, University of Alaska Anchorage. This overview was prepared by Marybeth Holleman of ISER.**
significant amounts of their land entitlements in the 1980s.

Exports of softwood logs, most of which are from non-federal land, have multiplied since the late 1970s, growing from about 50 MMbf in 1977 to 520 MMbf in 1988. In the two-year period from 1986 to 1988, 50 percent more logs were exported. This incredible increase represents liquidation by Native corporations, particularly Southeast region village corporations. As noted above, this inflated export level will soon decline as these inventories are exhausted.

As shown in Figure 2, the lumber industry, which gets most of its material from logging on federal lands, has been slowly recovering since 1986 from a prolonged recession. The decline from 1979 to 1985 coincided not only with the period of a strong dollar and correspondingly weak Japanese demand, but also with the increase in log exports from Native corporation lands. The 1988 volume of 167 MMbf was 26 percent higher than in 1987 and 92 percent higher than in 1985. However, the 1973 volume was still much higher, around 400 MMbf. Part of the reason for this decline is that, despite the sustained yield policy, most higher value and higher volume timber stands of Sitka spruce have already been cut and are being replaced by lower volume and lower quality hemlock stands.

Wood chips, often exported as a close substitute for pulp logs, were exported in high quantities—over 80,000 tons—during the late 1970s and early 1980s. However, in recent years little has been exported. The volume of Alaska pulpwood exported has ranged from a high of about 320,000 tons in 1980 to a low of 200,000 tons in 1985. Pulpwood exports increased by 40 percent from 1985 to 1988.

Exports

The Alaska logging industry exports logs, lumber, and pulpwood. Because of federal regulations, most logs cut from national forests are processed into lumber before export; logs from private land are typically exported directly. Spruce logs comprise just over 30 percent of the export logs, hemlock logs about 50 to 60 percent, and western red and Alaska yellow cedar the rest. Alaska's two pulp mills export most of their products.

Japanese buyers have historically purchased most Alaska forest products, as illustrated in Figure 3. In recent years, other nations received a larger than usual share of Alaska exports, in part because high harvest rates on Native corporation lands created a surplus of pulpwood. This surplus was sold to Canadian mills. Other customers for Alaska forest products include China, Taiwan, and Korea.

In 1988, the total value of exports was a record $515 million. This record was due for the most part to increased log exports from Native corporation lands and increased demand from the Japanese, as explained below.

Exploration and Development

On federal lands, new areas open to logging have become less accessible, requiring higher road-building expenses as covered by the Tongass Timber Supply Fund. These areas have shifted from high volume and high quality spruce forests to lower volume and quality hemlock forests. Native corporation logging continues to expand into new areas. In particular, Chugach Native Corporation has built a wood processing plant in Seward, and has plans for extensive logging on its lands in the Prince William Sound and Kenai peninsula areas. The state government has focused logging development efforts on trying to sell Susitna Valley timber, despite strong opposition from sportsmen and local residents.
Prices

As noted earlier, Alaska exports most of its wood products to Pacific Rim countries, but its volume as compared to other countries is too small to affect prices. Therefore, changes in Pacific Rim demand for timber are a primary driving force on prices received by Alaska producers.

Because Japan is the principal buyer of Alaska wood products, the appreciation of the yen relative to the dollar was a leading factor in the upward price trends in 1987 and 1988. As the yen's appreciation provided more purchasing power to the Japanese, their demand increased and pushed up the dollar price.

Figure 4 shows how the export value of logs has generally followed the appreciation of the yen. A similar trend also shows up in lumber values. This suggests that, while Alaskan companies have enjoyed increasing prices for their wood products, Japanese consumers have been paying relatively constant prices. Prices for pulp reflect world market prices for dissolving pulp, the main product of Alaska mills. This product market declined severely with a drop in demand from 1983 to 1985. Since this decline ended, pulpwood prices have also generally followed the appreciation of the yen.

Employment

Alaska employment in logging and lumber industries closely follows the trend in production. Figure 5 shows that logging and lumber employment was around 2,600 in 1988, slightly higher than in the previous boom year of 1980. However, lumber employment comprised about half the total in 1980, but only around 25 percent in 1988. Most of this drop was a result of the large increase in logging activity on Native corporation lands. In recent years, logging employment has grown steadily, and was up 26 percent between 1987 and 1988. Lumber employment did not increase until 1987, with a 16 percent increase between 1987 and 1988.

Employment in pulp manufacturing has averaged around 1,000 workers annually for the last 25 years. It peaked in 1977 and then dropped by about 40 percent during 1984 and 1985, when world market demand declined and companies cut wages. It has been slowly increasing since. In 1988, employment reached 923, approaching long-term average annual employment levels.

Wages

Logging earnings show pronounced seasonal fluctuation, but no trend over time can be distinguished. Lumber earnings, less seasonal than logging earnings, have risen by an average of $500 per worker per month from the 1985 level. Average earnings in pulp manufacturing are higher than in either logging or lumber, and have been rising since 1986 to around $40,000 average annual salary. However, they have not yet returned to their 1984 levels, before the wage cuts mentioned above.

Costs

Taxes play a minor role in business costs because the industry is, for the most part, not taxed at all. Most private timber lands are located outside organized local government boundaries, and so contribute little local tax revenue. And, other than the corporate income tax, Alaska does not have any state taxes on the timber industry. Transportation costs, except for the costs of roads, are also fairly insignificant. Because harvesting and processing areas are located along the coast, transportation is by water and is relatively inexpensive.

Land ownership is important in determining prices and production costs for Alaska lumber. In particular, costs of timber growth, roads, and other

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Figure 4. Average Value of Softwood Logs Exported from Alaska and $/Yen Exchange Rates

Figure 5. Average Annual Employment, 1959-1988
infrastructure in the Tongass National Forest, owned and operated by the federal government, are financed by the federal Tongass Timber Supply Fund. In addition, purchase of this timber is regulated by special 50-year contracts with the two pulp mills, under which the price paid to the federal government is typically below the price paid in competitive sales in the region—and considerably less than what timber from private land brings. Further, the competitive market value paid for Alaska's trees is less than the true market value (with no regulations or subsidies) by the further contribution of the Tongass Timber Supply Fund to managing the forest land.

The costs of raw materials for wood processors include costs of wood supplies—logs, chips, stumpage—and the costs of energy used in pulp processing. The basic raw material for the processing industry is the log. However, because the industry is made up of a small number of vertically integrated industries, information on log prices gives little valid market information. So, the best available indicator of raw materials is the national forest stumpage cost—that is, the price loggers pay per thousand board feet (Mbf) for a particular stand of trees.

From 1983 through 1988, the cost of Alaska national forest timber has averaged $3 per Mbf. As shown in Figure 6, huge losses were experienced during 1985 and 1987. During these two periods, Alaska's two pulp mills requested and received, under the 50-year contract terms, repayments from rate redeterminations on non-competitive long term sales. The average net cost of stumpage also has not yet been increased in response to the rapid rise in prices brought about by Japanese demand. At the beginning of the period shown in Figure 6, prices were as high as $40 per Mbf.

Low national forest stumpage values also reflect increased road costs (which are paid for through the Tongass Timber Supply Fund), federal log export restrictions, non-competitive stumpage sales under long-term contracts, and land management policies. In the absence of these restrictions, private timber landowners realize much higher stumpage values.

Although Alaska processing industries purchase most logs from national forest sources, some purchase residual chips from lumber mills, pulp logs and wood chips from private and state lands, and on occasion chips from British Columbia. Except for prices of over $70 per ton between 1980 and 1982, chip prices have ranged from $40 to $50 per ton since 1976. In 1988, prices averaged $49 per ton.

Figure 6. Average Net Stumpage Value of Timber Harvested from Alaska National Forests

Quarterly

Note: Negative values reflect emergency rate redetermination of long-term sales.
Source: Production, Prices, Employment, and Trade.

End Notes
1. Since most Alaska wood products are exported, export data is a good indicator of production volume. In this report, export data is used to indicate production volume for all product types.