2019 FOREST REPORT

AN ECONOMIC SNAPSHOT OF OREGON'S FOREST SECTOR

Oregon Forest Resources Institute

OREGON'S FOREST ECONOMY

A FOREST-BASED ECONOMY

Nearly half of Oregon is covered in forests, making it one of the most forested states in the country. Among the many benefits of this vast natural resource is the supply of raw material for local mills to make wood and paper products.

The 2019 Forest Sector Report quantifies how significant forests are to Oregon's economy. It examines the continued importance of the forest sector – the part of the state economy derived from forests. The report reveals the sector not only remains a source of jobs for tens of thousands of Oregonians but also ranks among the state's top economic sectors, making up nearly 4 percent of the state gross domestic product.

That doesn't mean the forest sector is not without its challenges. The number of mills in Oregon has decreased by about half over the last three decades. Our forests themselves also increasingly face a range of threats to their health and productivity, such as wildfires, insect outbreaks and tree diseases.

Still, there's reason to be optimistic. Despite having fewer mills and using about the same amount of timber volume, Oregon's annual lumber production has increased over the last decade. The state continues to be the top U.S. producer of both softwood lumber and plywood. Demand for wood building products both for housing and commercial construction is rising. Oregon has also become a national leader in manufacturing innovative "mass timber" engineered wood products such as cross-laminated timber and mass plywood panels.

Facts about Oregon's forests and forest sector

The total amount of public and private forestland in Oregon has held steady for more than 60 years at **30 million acres**, and records indicate it may have been at that level since the 1600s.

Oregon's forestland represents nearly **4 percent of the total U.S. forestland**. This makes Oregon the fourth most forested state in the U.S., after Alaska, Texas and California.

Forestland accounts for about **48 percent of Oregon's land base**. It comprises nearly 80 percent of the total land area in western Oregon, while about 34 percent of the eastern Oregon land base is classified as forestland.

About **80 percent** of Oregon's forestland is classified as "**timberland**." Timberland is forestland that can productively grow commercial-grade timber.

In the three most recent years for which data is available (2015-17), Oregon timber harvest remained steady at around **3.8 billion board feet per year**.

Oregon is the **top state in the U.S. for softwood lumber production**, ahead of Washington, Georgia and Arkansas. It also beats out Louisiana, Mississippi and Texas as the nation's number-one producer of softwood plywood.

Forestland acreage and harvest by owner

ABOUT THE REPORT

The *2019 Forest Report* was commissioned by the Oregon Forest Resources Institute (OFRI) to provide a snapshot of the forest sector's status and capacity. The report updates a similar study commissioned in 2012. Key points from *The 2019 Forest Report* are summarized on the following pages. To download the full report, go to **TheForestReport.org**.

THE AUTHORS

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PHOTO CREDIT

Cover image and mill worker photos on page 3, 4 and 5 of this summary report provided courtesy of Thomas Boyd at AHM Brands.

While the federal government manages about 60 percent of the forestland in Oregon, only about 13 percent of Oregon's timber harvest happens on federal land. About 78 percent of the total state harvest comes from private timberlands, which account for 34 percent of Oregon's forestland. To sustain the state's forest resources, Oregon law requires private landowners to promptly replant trees after harvesting timber, and far more trees are planted each year than are harvested.

CONTRIBUTING TO

Economic impact

In 2016, the forest sector generated more than **$18 billion** in output, **71,000** total jobs and **$8 billion** in gross domestic product (GDP). This accounts for 4.7 percent of total state output, almost 3 percent of state employment and **3.7%** of state GDP.

Despite taking a hit during the Great Recession, which crushed demand for new housing and therefore wood products, Oregon's forest sector continues to recover and remains a vital contributor to the state economy. This is especially evident in rural communities, where timber has long been an economic cornerstone, and wood products companies are often the largest employers in town.

The Oregon forestry and wood products sector is among the top contributors to the state economy, ranking third overall.

CONTRIBUTIONS OF MAJOR OREGON ECONOMIC SECTORS

SECTOR	BASE OUTPUT	BASE EMPLOYMENT	BASE GDP
Professional/Technical/ Scientific Services	$22.7 billion	160,350 jobs	$13.9 billion
Food Processing	$20.4 billion	86,923 jobs	$6.7 billion
Forestry/Wood Products	$18.1 billion	71,218 jobs*	$8.1 billion
Transportation Equipment Manufacturing	$8.1 billion	29,384 jobs	$2.8 billion
Machinery Manufacturing	$7.3 billion	30,569 jobs	$3.0 billion

OREGON'S ECONOMY

GROSS ECONOMIC DATA	WEST	EAST	OREGON
	Jobs unless otherwise indicated		
Primary Forest Products	17,476	2,923	20,399
Forestry Support	11,709	1,479	13,188
Secondary Forest Products	7,986	4,317	12,303
Forestry Management	4,735	705	5,440
Other Forestry Sector Firms	571	29	600
Truck Transportation	3,811	1,060	4,871
All Other	3,019	197	3,216
Total Gross Employment	**49,310**	**10,710**	**60,020**
Average Annual Wage ($/yr)	54,807	47,894	53,518

BASE ECONOMIC CONTRIBUTIONS

Base Output ($1M)	15,039	3,054	18,093
Base Jobs	58,192	13,026	71,218 *
State GDP ($1M)	6,757	1,006	8,074

The base economic contribution of the forest sector can be broken down into direct, indirect and induced effects. The direct effects are new dollars or jobs brought into the state, while indirect effects are jobs created in other sectors with links to the forest industry. Induced effects are when the forest sector pays wages to workers who use that money to purchase goods and services from other sectors of the Oregon economy.

*Note: The 60,000 forest sector jobs shown under Gross Economic Data was developed by the Oregon Employment Department to estimate "forest-related" employment. This includes direct and some indirect jobs in 2016. The 71,000 jobs estimate shown under Base Economic Contributions uses a model that counts direct, indirect and induced jobs. The model was used to compare the forest sector to other economic sectors.

FOREST SECTOR JOBS

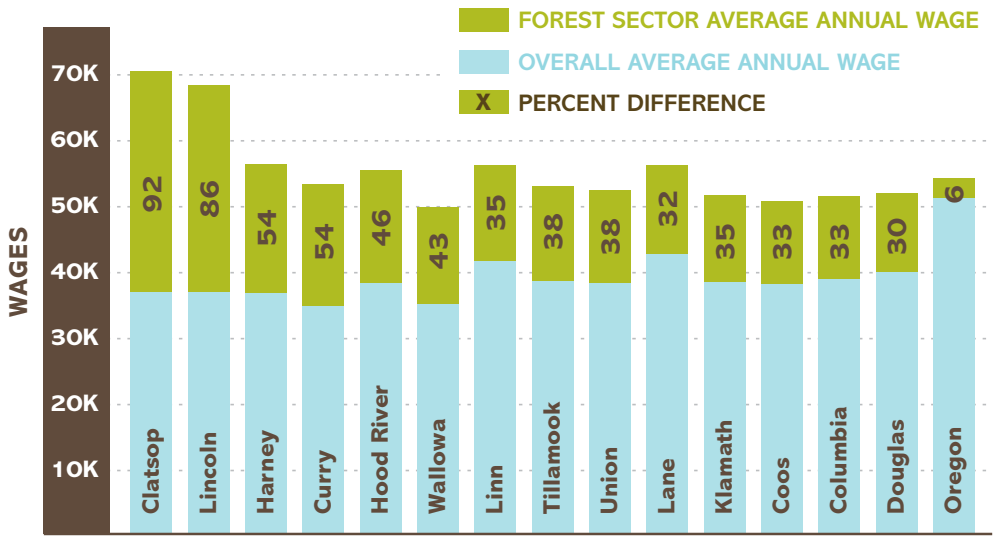
Oregon's forest sector offers a wide array of employment, including work in forestry, logging, millwork, cabinetmaking, engineering, hydrology, business management and academic research. Earlier Oregon Forest Resources Institute studies have estimated that each million board feet of timber harvest creates or retains about 11 forest sector jobs.

Most of Oregon's forest sector workers have positions related to making primary forests products. This includes pulp and paper manufacturing, sawmills and wood preservation, as well as veneer, plywood and engineered wood production. Forestry support, which includes positions in nurseries, machinery manufacturing, firefighting and logging, form the next largest labor component.

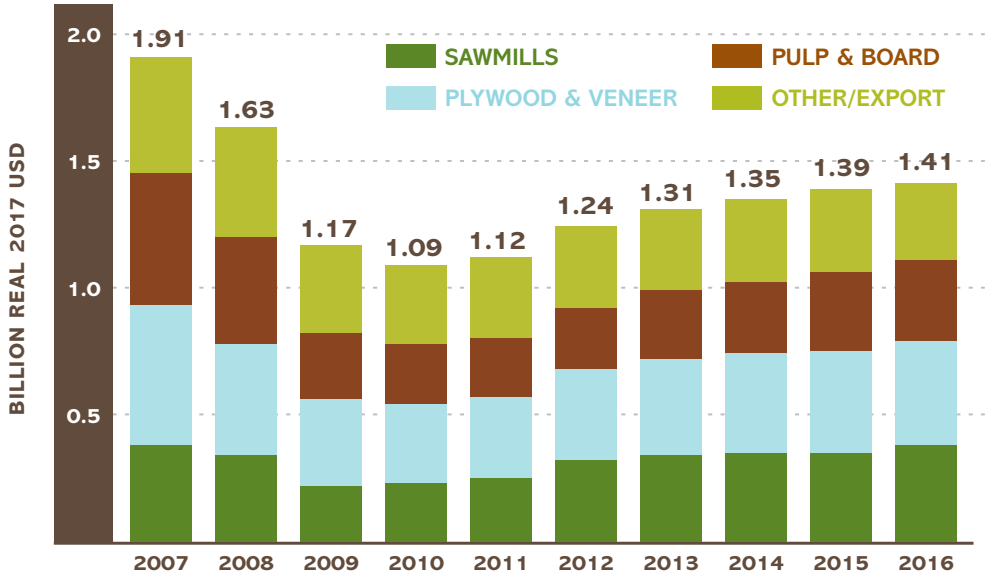
Higher-than-average wages

The average annual wage for forest sector jobs in 2017 was $54,200, roughly **6% higher** than the average annual wage of $51,100 for all Oregon employment, according to the Oregon Employment Department.

Oregon counties with greatest forest sector wage differences (2017)



Total annual wages in Oregon's wood, pulp and paper manufacturing sector



Total annual wages for Oregon's wood products manufacturing sector have steadily increased since 2010. As of 2016, those wages totaled about $1.4 billion. In the pulp and paper sector, wages have experienced a slight downward trend during the same time period, totaling about $320 million dollars in 2016.

MADE IN OREGON

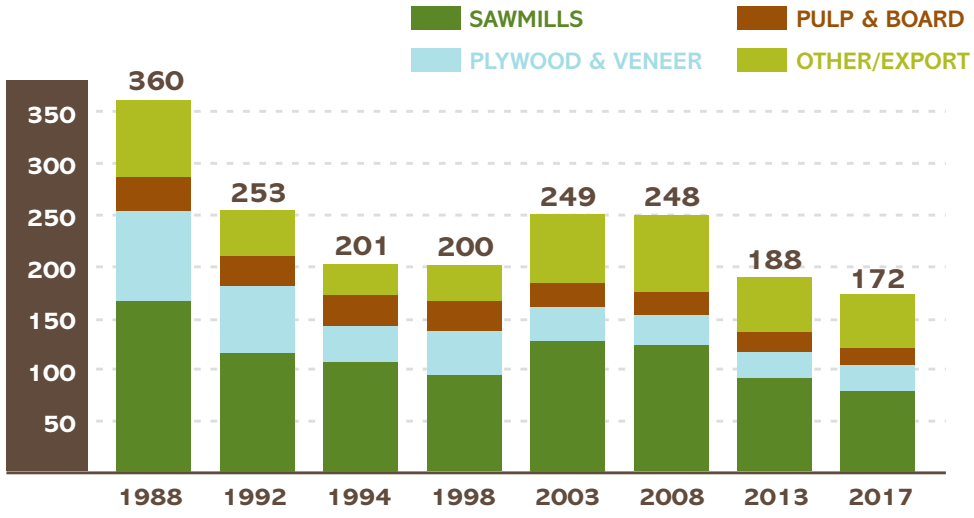
Oregon wood is used to make a wide range of products, generating income and employment for many rural communities. Some examples include:

- Softwood and hardwood lumber and plywood
- Engineered wood products
- Composite wood products
- Posts, poles and timber
- Millwork
- Biomass energy
- Heating

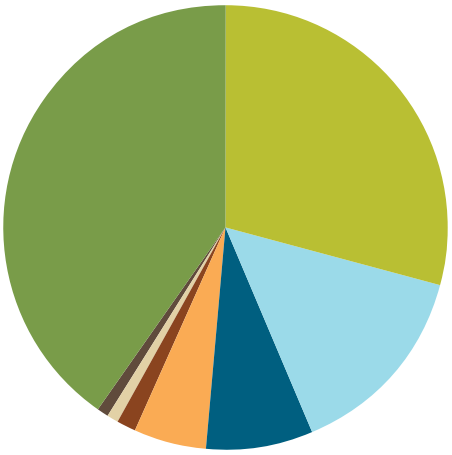
Most of the facilities that make these products are located in western Oregon, close to the state's main timber stocks. In 2013, Oregon wood processing facilities received more than 3.7 billion board feet of timber, 94.5 percent of which was harvested in Oregon.

The number of lumber mills in Oregon decreased 53 percent from 1988 to 2017 and by 38 percent from 2003 to 2017. While the number of sawmills has declined, it may not necessarily be because of declining industry. The decrease can also be partly explained by changes in mill efficiency, timber supply and industry consolidation.

Number of wood processing facilities in Oregon (1988-2017)

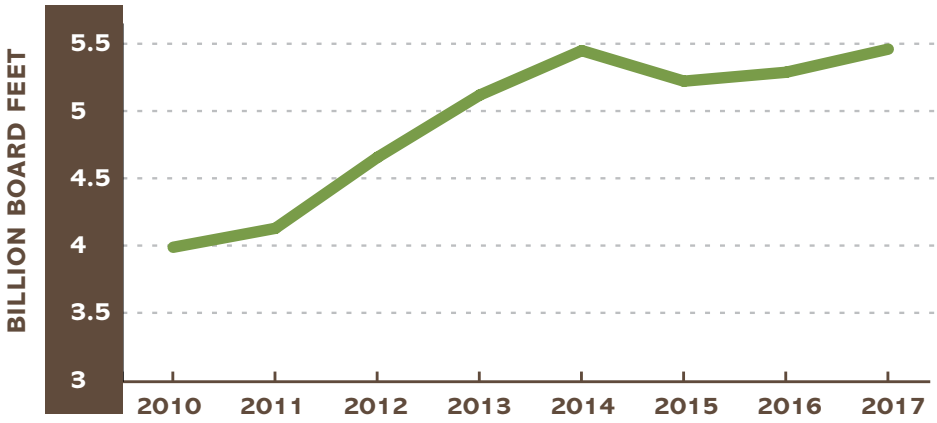


How Oregon wood is used (2013)



- 40.3% **PAPER & BOARD PRODUCTS**
- 29.3% **LUMBER & OTHER SAWN PRODUCTS**
- 14.4% **EXPORTS**
- 7.8% **PLYWOOD & VENEER**
- 5.3% **ENERGY**
- 1.4% **LUMBER SHRINKAGE** (water)
- 0.8% **OTHER PRODUCTS** (e.g., poles)
- 0.7% **UNUSED**

Softwood lumber production in Oregon (2010-2017)



In 2017, Oregon sawmills produced more than 5.4 billion board feet of lumber, continuing the state's longtime status as the nation's top softwood lumber producer. Annual lumber production in Oregon has increased by 33.7 percent from 2010 to 2017. Softwood lumber prices have also increased by nearly 5 percent over the same period.

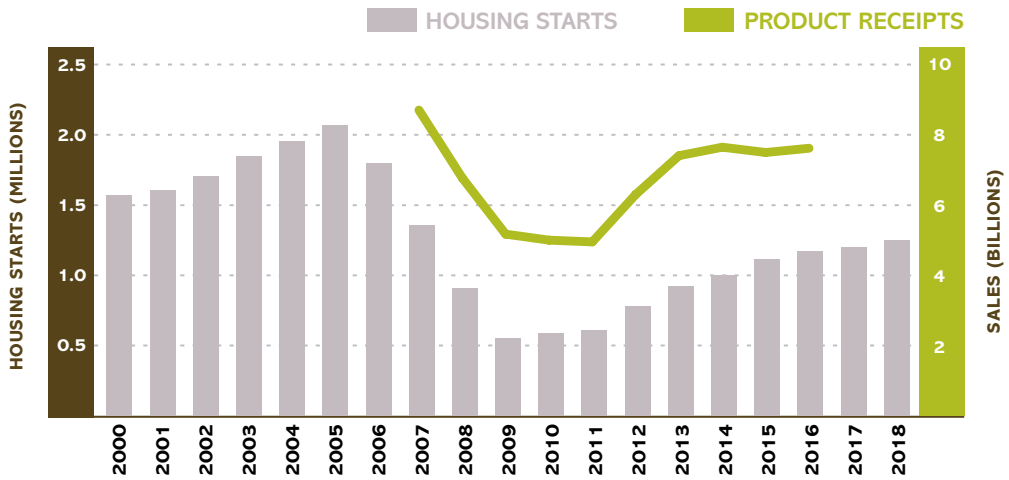
Oregon's forest products industry has a long history of innovation and adaption. Changes in demand for forest products have led to periods of painful adjustments but also to new opportunities and more efficient production.

Housing construction, a key indicator of wood products demand, is on the rise post-recession, and total wood products sales in Oregon are increasing.

In recent years, emerging trends such as the use of engineered mass timber products to construct apartments, condominiums and commercial buildings have created new markets for Oregon wood products. And advances in wood product manufacturing technology have made it possible for the state to produce more softwood lumber and plywood per board feet of timber harvested, despite having fewer mills.

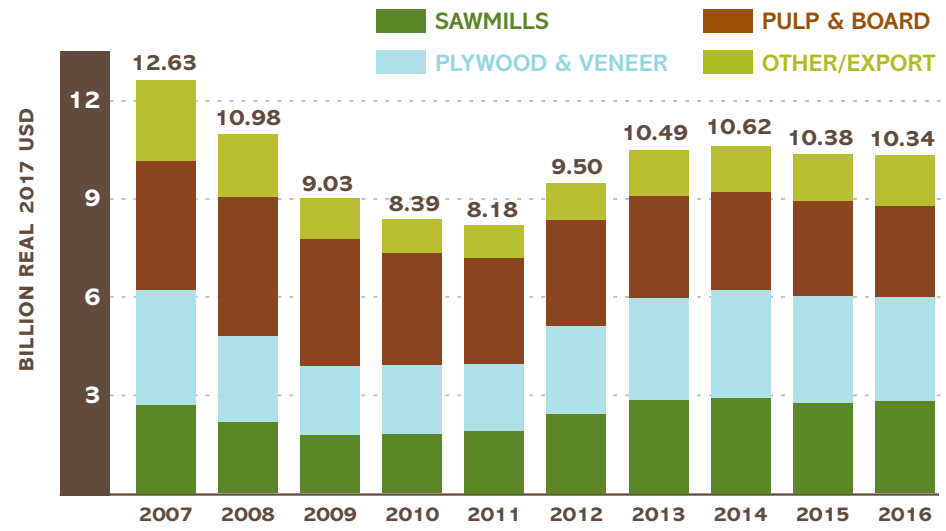
AN EVOLVING INDUSTRY

Sales value of Oregon wood products in relation to U.S. housing starts



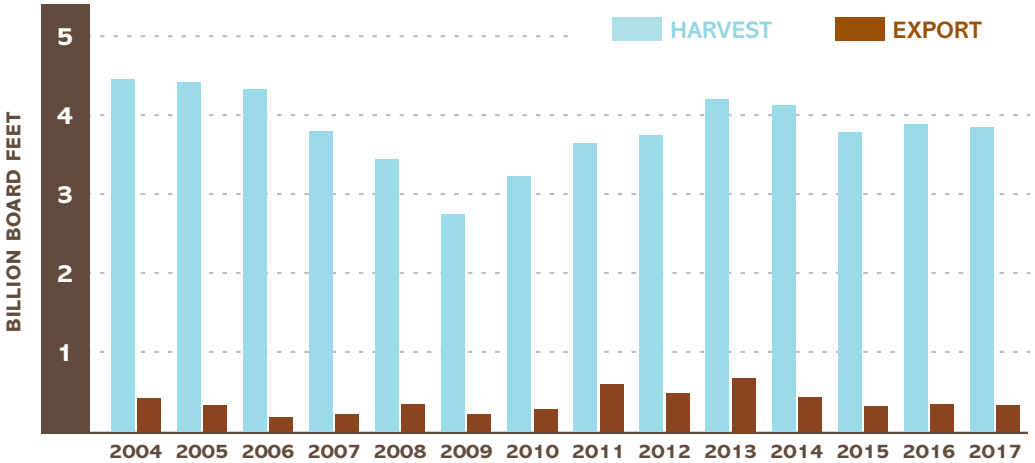
U.S. housing starts are up in recent years, but housing repair and remodeling is expected to be a greater source of domestic lumber demand than building new homes. Housing construction is around its highest point since the U.S. housing crisis and recession in 2008, although still below its pre-recession peak. Total spending on commercial construction is also on the rise.

Total receipts in wood products sector (2007-2016)



Total wood and paper products sales in Oregon increased from $8.2 billion in 2011 to $10.3 billion in 2016 as the economy recovered from the financial crisis years. While sales from pulp, paper and board facilities decreased from 2010 to 2016, sales from sawmills, plywood and veneer facilities, chipping facilities, and other sectors substantially increased.

Comparison of Oregon timber harvest exported to total harvest (2004-2017)



Log exports can be a significant source of revenue for Oregon forest landowners and tend to go up when there is low domestic demand for wood products. After peaking in 2011 to 2013, mainly due to high Chinese demand, log exports have decreased in recent years as the U.S. housing market recovers. In 2017, approximately 9 percent of Oregon's timber harvest was exported.

ABOUT THE OREGON FOREST RESOURCES INSTITUTE

The Oregon Legislature created the Oregon Forest Resources Institute (OFRI) in 1991 to advance public understanding of forests, forest management and forest products, and to encourage sound forestry through landowner education. A 13-member board of directors governs OFRI. It is funded by a portion of the forest products harvest tax.

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