



University  
of Idaho

# **ECONOMIC CONTRIBUTION OF FORESTRY IN OREGON**

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# INTRODUCTION

- I Tasked to estimate the economic contribution of forestry sectors to the Oregon economy and to individual Oregon counties
- Started with data provided by Oregon Department of Labor



# STATEWIDE GROSS FOREST-RELATED EMPLOYMENT IN PRIMARY FOREST PRODUCTS INDUSTRIES

NAICS	Industry Name	Federal	State	Local	Private	Nonemployers	Total
321211	Hardwood veneer and plywood				1,439	573	2,012
3211	Sawmills and wood preservation				6,450		6,450
322	Paper manufacturing				4,238	17	4,255
321212	Softwood veneer and plywood				4,390		4,390
321219	Reconstituted wood products				1,245		1,245
321213	Engineered wood member (except truss)				895		895
321214	Truss manufacturing				590		590
<b>Group Total</b>	Primary Forest Products				19,247	590	19,837



# STATEWIDE GROSS FOREST-RELATED EMPLOYMENT IN FORESTRY SUPPORT INDUSTRIES

NAICS	Industry Name	Federal	State	Local	Private	Nonemployers	Total
1133	Logging				5,947	1,471	7,418
11531	Support activities for forestry				3,624	520	4,144
333243	Sawmill, woodworking, and paper machinery				1,061		1,061
1132	Forest nurseries and gathering forest products		11		111		122
62431	Vocational rehabilitation services	46			-		46
<b>Group Total</b>	Forestry Support	46	11		10,743	1,991	12,791



# STATEWIDE GROSS FOREST-RELATED EMPLOYMENT IN SECONDARY FOREST PRODUCTS INDUSTRIES

NAICS	Industry Name	Federal	State	Local	Private	Nonemployers	Total
32191	Millwork				5,331		5,331
33711	Wood kitchen cabinets and countertops				2,964	481	3,445
321991	Manufactured and mobile homes				994		994
32192	Wood containers and pallets				810		810
321999	All other miscellaneous wood products				387		387
337212	Custom architectural woodwork and millwork				408		408
337122	Nonupholstered wood household furniture				321		321
321992	Prefabricated wood buildings				203		203
337211	Wood office furniture				64		64
<b>Group Total</b>	Secondary Forest Products				11,482	481	11,963



# STATEWIDE GROSS FOREST-RELATED EMPLOYMENT IN FORESTRY MANAGEMENT INDUSTRIES

NAICS	Industry Name	Federal	State	Local	Private	Nonemployers	Total
1131	Timber tract operations	3,147	181		299		3,627
924120	Administration of conservation programs	1,632	662		-		2,294
551114	Corporate, subsidiary, and regional managing offices				725		725
6113	Colleges, universities, and professional schools			225	-		225
813910	Business associations				26		26
9211	County government foresters and support staff			27	-		27
-	Additional private certified foresters/consultants				22		22
<b>Group Total</b>	<b>Forestry Management</b>	<b>4,779</b>	<b>843</b>	<b>252</b>	<b>1,072</b>	<b>-</b>	<b>6,946</b>



# STATEWIDE GROSS FOREST-RELATED EMPLOYMENT IN FORESTRY MANAGEMENT INDUSTRIES

NAICS	Industry Name	Federal	State	Local	Private	Nonemployers	Total
42331	Lumber, plywood, millwork, and wood panel merchant wholesalers				2,229	137	2,366
42411	Printing and writing paper merchant wholesalers				306	58	364
42413	Industrial and personal service paper merchant wholesalers				398		398
<b>Group Total</b>	Forestry-Dependent Industries				2,933	195	3,128



# STATEWIDE GROSS FOREST-RELATED EMPLOYMENT IN TRANSPORTATION AND OTHER FOREST SECTOR INDUSTRIES

NAICS	Industry Name	Federal	State	Local	Private	Nonemployers	Total
Multiple	Transportation				4,738		4,738
-	All other identified forestry sector firms				582		582
Group Total	Transportation and Other						5,320





# TOTAL GROSS FOREST-RELATED EMPLOYMENT IN OREGON

Total Oregon Forest Products	Federal	State	Local	Private	Nonemployers	Total
Grand Total	4,825	854	252	50,797	3,257	59,985



# STATE BASE CONTRIBUTION

- I Generated a Social Accounting Matrix for the State of Oregon
  - From IMPLAN
  - Broke out the sectors corresponding to the data provided by ODL
    - For example, if the “forestry wholesale” sector employment from ODL represented 40% of the total employment that was present in that sector from IMPLAN, then the sector was split into a “forestry wholesale” sector which would comprise 40% of the total of each cell in the SAM for each column and row and the remaining 60% would be considered “all other wholesale”
    - In this way, it is identical to say that “forest wholesale” would be 40% of the base contribution of the total aggregated “wholesale” sector

# STATE BASE CONTRIBUTION



NAICS Sector	Base Output (\$1M)	Base Employment	Base GDP (\$1M)
113 Forestry & Logging	\$692	7,139	\$412
115 Forestry Svcs	\$216	4,274	\$148
321 Wood Products	\$10,304	36,968	\$4,427
322 Paper Manufacturing	\$3,707	5,746	\$1,449
333 Forest Machinery Mfg	\$614	1,650	\$254
337 Furniture & Related Mfg	\$1,209	6,766	\$534
42 Forestry Wholesale Trade	\$393	1,813	\$241
484 Forestry Truck transportation	\$408	2,404	\$215
541 Forestry Professional/Scientific Svcs	\$3	19	\$2
551 Management of Forestry Companies	\$179	699	\$109
611 Forestry Educational Services	\$3	58	\$2
624 Forestry Related Social Assistance	\$1	17	\$1
813 Forestry Related Clubs and NGOs	\$0.4	3	\$0.2
92 Forestry Related Government	\$366	3,663	\$280
<b>Total</b>	<b>\$18,093</b>	<b>71,218</b>	<b>\$8,074</b>
<b>Percent of State Total</b>	<b>4.65%</b>	<b>2.92%</b>	<b>3.65%</b>



# COUNTY BASE CONTRIBUTION

- I We first needed to generate gross employment figures by county
  - State level total employment by industry and total employment by county are provided by the Oregon Department of Labor, but those totals must be distributed
  - County Business Pattern data was used to derive estimates, or seed data, for the county-industry matrix to be populated
    - Midpoint employment
  - Entropy algorithm was applied to the seeds and state sector totals and county forest employment totals were used as constraints



	Total	Logging	Forestry Support Activities	Sawmill, Woodworking, and Paper Machinery	Forest Nurseries*	Vocational Rehabilitation Services
Baker	28	28	0	0	0	0
Benton	435	233	201	0	0	1
Clackamas	520	140	190	188	0	2
Clatsop	347	346	0	0	0	2
Columbia	374	370	0	0	0	4
Coos	603	492	110	0	0	1
Crook	111	111	0	0	0	0
Curry	172	172	0	0	0	0
Deschutes	277	88	186	0	0	2
Douglas	1,987	1,555	340	90	0	2
Gilliam	0	0	0	0	0	0
Grant	143	143	0	0	0	1
Harney	101	36	65	0	0	0
Hood River	49	48	0	0	0	1
Jackson	1,498	400	1,067	0	29	2
Jefferson	12	12	0	0	0	0
Josephine	368	200	166	0	0	2
Klamath	212	201	10	0	0	2
Lake	0	0	0	0	0	0
Lane	1,297	605	266	327	96	3
Lincoln	203	203	0	0	0	0
Linn	569	489	79	0	0	1
Malheur	1	0	0	0	0	1
Marion	858	227	624	0	0	6
Morrow	60	60	0	0	0	0
Multnomah	576	17	122	428	0	9
Polk	933	341	592	0	0	0
Sherman	0	0	0	0	0	0
Tillamook	341	341	0	0	0	0
Umatilla	76	76	0	0	0	0
Union	204	162	42	0	0	0
Wallowa	162	154	8	0	0	0
Wasco	92	92	0	0	0	0
Washington	376	157	159	57	0	3
Wheeler	0	0	0	0	0	0
Yamhill	203	166	35	0	0	2



# COUNTY BASE CONTRIBUTION

- Once we had county level employment estimates by sector, we applied the same methodology implemented in the state base contribution model for each county individually
  - Social Accounting Matrix model
  - Disaggregate forestry sectors from overall sectors
  - If a given forestry sector (say forestry wholesale) represents 10% of the overall sector (i.e. wholesale), then it would have 10% of the contribution of the overall sector



County	Base Output (\$1M)	Base Jobs	State GDP (\$1M)
Baker	\$101.8	454	\$37.7
Benton	\$249.2	1,659	\$121.1
Clackamas	\$807.9	3,263	\$301.2
Clatsop	\$1,046.0	1,689	\$305.0
Columbia	\$180.3	813	\$59.4
Coos	\$372.8	2,688	\$150.7
Crook	\$222.2	898	\$64.0
Curry	\$173.1	675	\$46.3
Deschutes	\$454.3	2,500	\$170.9
Douglas	\$1,498.6	6,595	\$491.3
Gilliam	\$22.0	289	\$17.5
Grant	\$164.8	716	\$42.9
Harney	\$3.3	101	\$1.7
Hood River	\$42.1	224	\$14.3
Jackson	\$1,268.0	6,192	\$443.3
Jefferson	\$240.6	998	\$87.3
Josephine	\$315.2	2,157	\$96.8
Klamath	\$904.2	3,149	\$288.0
Lake	\$98.4	421	\$28.8
Lane	\$2,468.7	10,404	\$829.1
Lincoln	\$770.3	1,140	\$267.9
Linn	\$1,138.3	3,522	\$404.9
Malheur	\$3.8	116	\$1.5
Marion	\$1,026.8	5,107	\$384.2
Morrow	\$52.5	212	\$19.2
Multnomah	\$1,363.2	5,273	\$561.1
Polk	\$66.9	1,103	\$35.9
Sherman	\$32.7	312	\$32.7
Tillamook	\$184.2	894	\$73.2
Umatilla	\$220.1	1,133	\$80.8
Union	\$317.5	1,139	\$85.8
Wallowa	\$34.5	304	\$15.5
Wasco	\$76.7	292	\$23.4
Washington	\$1,292.2	4,152	\$477.6
Wheeler	\$8.6	145	\$8.6
Yamhill	\$304.0	1,326	\$100.0