

## Chapter 4 The Input-Output Impact Multipliers

An impact multiplier is defined as the ratio of an industrial sector's or a project's total impact to its direct impact. Expressed as single numbers, multipliers are used as a quick reference for a summary measure of estimated total impacts; thus they lack industrial details.

There are numerous types of Input-Output impact multipliers. Table 4-1 shows the four most widely utilized multipliers obtained from the aggregated three-sector 2007 Washington I/O table presented in previous chapters (Table 1-1, Table 3-1, and Table 3-2).

**Table 4-1  
2007 WASHINGTON STATE INPUT-OUTPUT MULTIPLIERS  
Three Sector Model**

	<b>Total Jobs (Per \$ million direct Output)</b>	<b>Total Employment (per direct job)</b>	<b>Total Labor Income (per \$ direct output)</b>	<b>Total Output (per \$ direct output)</b>
Natural Resources/Utilities	10.422	2.194	0.5629	1.9150
Manufacturing/Construction	7.010	2.651	0.3950	1.6980
Trade and Services	13.756	1.839	0.6649	1.9535

The formal definitions of these multipliers are:

1. **Total jobs multiplier** (jobs per \$million direct output). Total number of jobs (wage and salary workers, and proprietors) generated in all sectors of the economy per million dollars of the industry's direct output change in the economy.
2. **Total employment multiplier** (jobs per direct job). Total number of jobs (wage and salary works and proprietors) generated in all sectors of the economy per direct job change in the industry.
3. **Labor income multiplier** (\$ earnings per \$dollar direct output). Total labor income (wages, salaries, proprietor's income and other labor income) generated in all sectors of the economy per dollar of direct output change in the industry.
4. **Total output multiplier** (\$output per \$dollar direct output). Total output generated in all sectors of the economy per dollar of direct output change in the industry.

Multipliers for all industries defined in the Washington State Input-Output Table are reported in Table 4-2. Again as discussed in Chapter 3, the input-output model is a Type II model, which treats households as an endogenous part of the model. So the multipliers presented here are Type II multipliers.

**Table 4-2  
2007 WASHINGTON STATE INPUT-OUTPUT MULTIPLIERS**

		<b>Total Jobs (Per \$ million direct Output)</b>	<b>Total Employment (per direct job)</b>	<b>Total Output (per \$ final demand)</b>	<b>Total Labor Income (per \$ final demand)</b>
IO-01	Crop Production	17.71	1.55	1.94	0.63
IO-02	Animal Production	15.29	2.14	2.26	0.66
IO-03	Forestry and Logging	9.87	3.10	2.07	0.50
IO-04	Fishing, Hunting, and Trapping	8.59	2.82	1.97	0.58
IO-05	Mining	10.85	2.15	1.92	0.49
IO-06	Electric Utilities	7.08	4.45	1.96	0.60
IO-07	Gas Utilities	3.27	6.11	1.44	0.19
IO-08	Other Utilities	12.06	2.59	2.11	0.66
IO-09	Highway, Street, and Bridge Construction	10.08	2.88	1.97	0.56
IO-10	Other Construction	10.89	2.58	1.97	0.54
IO-11	Food, Beverage and Tobacco Manufacturing	6.64	3.46	1.77	0.32
IO-12	Textiles and Apparel Mills	10.57	2.10	1.82	0.46
IO-13	Wood Product Manufacturing	10.05	3.14	2.21	0.49
IO-14	Paper Manufacturing	5.85	3.90	1.77	0.35
IO-15	Printing and Related Activities	12.23	1.98	1.91	0.58
IO-16	Petroleum and Coal Products Manufacturing	0.58	6.80	1.09	0.04
IO-17	Chemical Manufacturing	5.84	3.11	1.62	0.41
IO-18	Nonmetallic Mineral Products Manufacturing	6.34	2.36	1.59	0.33
IO-19	Primary Metal Manufacturing	6.63	3.88	1.81	0.36
IO-20	Fabricated Metals Manufacturing	9.36	2.30	1.80	0.46
IO-21	Machinery Manufacturing	7.62	3.28	1.84	0.41
IO-22	Computer and Electronic Product Manufacturing	8.56	3.73	1.98	0.53
IO-23	Electrical Equipment Manufacturing	6.29	2.92	1.66	0.36
IO-24	Aircraft and Parts Manufacturing	5.17	2.67	1.45	0.36
IO-25	Ship and Boat Building	9.51	2.88	1.91	0.58
IO-26	Other Transportation Equipment Manufacturing	5.50	2.75	1.54	0.29
IO-27	Furniture Product Manufacturing	11.39	1.92	1.84	0.51
IO-28	Other Manufacturing	9.76	2.28	1.85	0.47
IO-29	Wholesale	9.56	2.17	1.73	0.55

**Table 4-2 (Continued)**  
**2007 WASHINGTON STATE INPUT-OUTPUT MULTIPLIERS**

		<b>Total Jobs (Per \$ million direct Output)</b>	<b>Total Employment (per direct job)</b>	<b>Total Output (per \$ final demand)</b>	<b>Total Labor Income (per \$ final demand)</b>
IO-30	Non-Store Retail	13.69	1.60	1.74	0.49
IO-31	Other Retail	17.54	1.48	1.81	0.65
IO-32	Air Transportation	5.71	2.75	1.65	0.32
IO-33	Water Transportation	8.59	3.24	1.93	0.49
IO-34	Truck Transportation	13.04	2.08	2.06	0.63
IO-35	Other Transportation/Postal Offices	13.99	2.11	2.18	0.77
IO-36	Support Activities for Storage, Transportation and Warehousing	13.52	2.62	2.21	0.72
IO-37	Software Publishers, Data Processing & Internet Service Providers	7.16	3.96	1.71	0.52
IO-38	Telecommunications	6.68	3.53	1.82	0.39
IO-39	Other Information	10.95	2.08	1.79	0.69
IO-40	Credit Intermediation and Related Activities	8.47	4.20	2.07	0.49
IO-41	Other Finance and Insurance	16.02	2.77	2.51	0.82
IO-42	Real Estate and Rental and Leasing	13.59	1.31	1.47	0.33
IO-43	Legal /Accounting and Bookkeeping /Management Services	20.00	1.85	2.25	1.19
IO-44	Architectural, Engineering, and Computing Services	14.31	2.09	2.00	0.85
IO-45	Educational Services	23.34	1.66	2.33	0.75
IO-46	Ambulatory Health Care Services	18.58	2.35	2.43	0.98
IO-47	Hospitals	14.08	2.46	2.13	0.75
IO-48	Nursing and Residential Care Facilities, Social Assistance	25.38	1.50	2.18	0.83
IO-49	Arts, Recreation, and Accommodation	20.48	1.64	2.10	0.67
IO-50	Food Services and Drinking Places	22.80	1.44	2.08	0.64
IO-51	Administrative/Employment Support Services	27.72	1.39	2.08	1.01
IO-52	Waste Management/Other, and Agriculture Services	17.01	1.89	2.17	0.69

