

Portland State University

PDXScholar

Northwest Economic Research Center
Publications and Reports

Northwest Economic Research Center

2-1-2016

Oregon Manufacturing Extension Partnership: An Economic Impact Analysis

Emma Willingham

Portland State University

Mike Paruszkiewicz

Portland State University

Follow this and additional works at: https://pdxscholar.library.pdx.edu/nerc_pub



Part of the [Urban Studies Commons](#), and the [Urban Studies and Planning Commons](#)

Let us know how access to this document benefits you.

Citation Details

Willingham, Emma and Paruszkiewicz, Mike, "Oregon Manufacturing Extension Partnership: An Economic Impact Analysis" (2016). *Northwest Economic Research Center Publications and Reports*. 3.

https://pdxscholar.library.pdx.edu/nerc_pub/3

This Report is brought to you for free and open access. It has been accepted for inclusion in Northwest Economic Research Center Publications and Reports by an authorized administrator of PDXScholar. Please contact us if we can make this document more accessible: pdxscholar@pdx.edu.



Oregon Manufacturing Extension Partnership: An Economic Impact Analysis

NeRC

Northwest Economic Research Center
College of Urban and Public Affairs

February 2016

NeRC

Northwest Economic Research Center

Portland State University
College of Urban and Public Affairs
PO Box 751
Portland, OR 97207-0751
503-725-8167
nerc@pdx.edu

www.pdx.edu/NERC
@nercpdx

Cover image by Eric Sakalowsky (Cyfac International) [Public Domain], via Wikimedia Commons

ACKNOWLEDGEMENTS

This report was researched and produced by the Northwest Economic Research Center (NERC) with support from Oregon Manufacturing Extension Partnership (OMEP).



OMEP is a non-profit organization that aims to help Oregon manufacturers respond to the challenges of competing in an increasingly global economy. They work with owners, executives, managers and operators to assess company needs in all areas.

Every client requires a customized approach focusing on their specific obstacles to growth. Entry points range from creating improved flow on the production line, to speeding sales order processing, to training the workforce on problem solving approaches, to developing a strategy to enter new markets. Whatever the need, OMEP offers the tools, expertise, and the flexibility to engage with manufacturers at all levels.



NERC is based at Portland State University in the College of Urban and Public Affairs. The Center focuses on economic research that supports public-policy decision-making, and relates to issues important to Oregon and the Portland Metropolitan Area. NERC serves the public, nonprofit, and private sector economic analysis. Dr. Tom Potiowsky is the Director of NERC, and also serves as the Chair of the Department of Economics at Portland State University. Dr. Jenny H. Liu is NERC's Assistant Director and Assistant Professor in the Toulon School of Urban Studies and Planning. Researched and written by Emma Willingham and Mike Paruszkiewicz.





By Kleuske (Own work) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons

I. EXECUTIVE SUMMARY

The Hollings Manufacturing Extension Partnership (MEP), founded in 1988, is a network of non-profit agencies staffed by industry professionals and consultants. Historically, MEP has sought to increase the competitiveness of small to mid-size enterprises (which as a group comprise 99% of all U.S. manufacturing firms) by providing expert guidance and access to resources. In recent years, the severe economic recession sparked increased interest in the strength of the manufacturing sector, due to its longtime status as one of the major drivers of the domestic economy. Oregon Manufacturing Extension Partnership (OMEP), the Oregon branch of MEP, works to provide data-driven analysis and consulting services within the state, improving productivity and competitiveness on both a local and international scale.

The Northwest Economic Research Center has provided two previous analyses of OMEP's contribution to regional manufacturing, using data collected from participating firms to estimate OMEP's impact on output, employment, and tax revenues. This third report carries the analysis forward into 2014. The survey data consists of firm-level estimates of OMEP contributions to sales, employment, investment, and new product development (relative to expected production levels without OMEP). NERC used the industry-

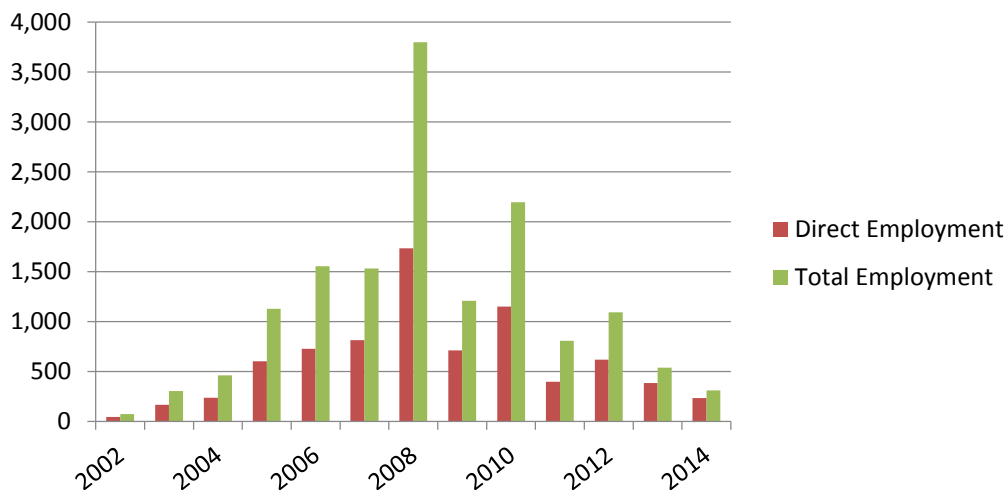
Northwest Economic Research Center

NeRC

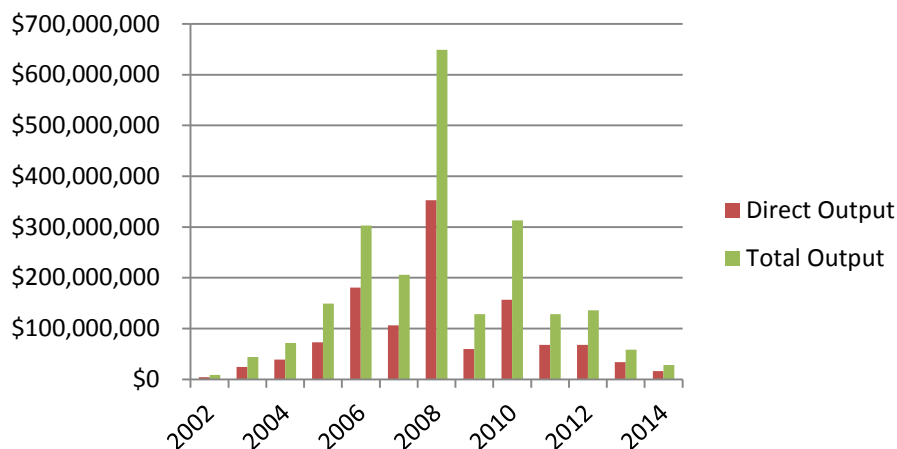
standard modelling software package IMPLAN, which produces estimates of the total impact of OMEP across multiple sectors, considering both direct and indirect effects.

Figure 1 shows the employment impacts of OMEP's services to manufacturers since 2002. The number of jobs directly created or retained by the Extension's activity peaked during the challenging years of the recent recession and has tapered over the recovery.

Figure 1: Oregon Employment Impacts (2002-2014)



The same pattern can be seen in OMEP's impact to production (output) in Oregon (Figure 2 and Table 1). Note that the economy-wide indirect and induced effects exceed the direct payroll impacts to OMEP's clients in many years.

Figure 2: Oregon Output¹ Impacts (2002-2014)²**Table 1: Total Economic Impacts³ (2002-2014)**

Year	Direct Employment	Total Employment	Direct Output	Total Output
2002	43	72	\$4,515,257	\$8,619,547
2003	165	305	\$24,330,544	\$44,081,732
2004	238	460	\$39,089,399	\$71,696,374
2005	603	1,127	\$73,236,188	\$149,458,398
2006	729	1,554	\$180,864,568	\$303,200,581
2007	815	1,533	\$106,171,576	\$206,165,213
2008	1,734	3,798	\$352,626,543	\$648,812,668
2009	711	1,207	\$59,546,626	\$128,741,542
2010	1,151	2,197	\$156,844,449	\$313,022,215
2011	399	808	\$68,032,123	\$128,673,371
2012	618	1,092	\$67,784,248	\$136,235,270
2013	383	540	\$33,741,798	\$58,309,047
2014	234	312	\$16,048,056	\$28,268,072
Total	7,822	15,005	\$1,182,831,374	\$2,225,284,030

Table 2 breaks statewide impacts into rural and urban areas of Oregon. Naturally, the distribution of direct and total effects reflects the concentration of manufacturing activity and

¹ All monetary figures are expressed in 2014 USD

² A reminder that the output detailed here is IMPLAN output, which is a gross measure that most likely overestimates output relative to traditional GDP.

³ All monetary figures are reported in 2014 USD.

population in urban areas of the state. Note that, while impacts in rural communities are quantitatively smaller than impacts in urban areas, said impacts are large in relative terms.

Table 2: Total Economic Impacts⁴ in 2014

Impact Type	Employment	Labor Income	Total Value Added	Output
Oregon	312	\$8,288,430	\$12,411,306	\$28,268,072
Rural Oregon	129	\$790,154	\$1,165,672	\$3,436,345
Urban Oregon	174	\$7,030,937	\$10,410,589	\$22,981,389



By Cacophony (Own work) [GFDL (<http://www.gnu.org/copyleft/fdl.html>), CC-BY-SA-3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons

⁴ See the footnote on page 17 for an explanation of why the rural and urban numbers do not sum to the Oregon total.



By Niklem (Own work) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0>) or GFDL (<http://www.gnu.org/copyleft/fdl.html>)], via Wikimedia Commons

II. INTRODUCTION

The manufacturing sector is one of the most important sectors of a strong economy – thanks to a powerful multiplier effect, manufacturing creates many additional jobs. In addition, the sector produces profitable output, and attracts significant foreign investment. If the US manufacturing sector were a country, it would have the tenth largest economy in the world.⁵

In recent decades, this sector has lost some of its global market share; many manufacturers have moved overseas. This loss is connected to decreases in employment, and while the manufacturing sector contributed 47% of U.S exports in 2011, its overall export share is declining (down from 58% in 2000). The pressures facing the industry are unique and numerous: complex tax structure, a skilled labor force (and resultant higher labor expense), and international competition combine with pro-cyclical demand to form an environment that can be difficult to navigate efficiently, especially for smaller-scale manufacturers.

⁵ “Facts about Manufacturing”. (November 2012) The Manufacturing Institute.

In Oregon, manufacturing is a major component of the state economy, accounting for 39% of total GDP in 2012 (up from 25% in 2007, and triple the national average of 12.5%). This is the highest relative share in the nation, making Oregon's a top manufacturing state. Additionally, wages within the sector tend to be higher than the state median, and the 10.5% of the state workforce employed by manufacturing (compared to 8.9% nationally) creates significant indirect boosts to other sectors.⁶

In order to counteract the negative employment and capacity pressures that accompany declining market share, the federal government has taken numerous measures to assist manufacturers, especially since the recent recession. An important component of this aid is the Hollings Manufacturing Extension Partnership (MEP), a US Department of Commerce program that has worked to grow and improve the U.S. manufacturing sector since 1988. With offices in every state, MEP seeks to connect small- and medium-sized manufacturing firms with resources to facilitate better competitiveness, investment, and productivity.

The Oregon Manufacturing Extension Partnership works to implement MEP goals at the state level by providing consulting services to business owners in order to improve their global competitiveness. OMEP consultants work to provide business owners with a better understanding of their own manufacturing process; and methods to cut costs, increase sales, and enhance productivity.

Specific strategies that an OMEP consultant might recommend include:

- ❖ Training for employees and managers
- ❖ Structural reorganization
- ❖ Changes to the corporate image
- ❖ Enhanced organizational communication
- ❖ Modification of processes to minimize waste and redundancy
- ❖ Improved factory layout
- ❖ Production capacity improvement
- ❖ Reduction of lead times

⁶ "Manufacturing Employment and Output". (June 2013) Office of Economic Analysis, State of Oregon. Posted by Josh Lehner



By Beate Meier [Own work] [CC: <https://creativecommons.org/licenses/by-sa/2.0/>], via Flickr

III. DATA DESCRIPTION AND SURVEY METHODOLOGY

In order to quantify the economic impact of OMEP's work with Oregon manufacturers, a third party surveys participating firms. Participants are asked to quantify the changes in economic activity associated with their work with OMEP consultants. The economic input-output software used to calculate the total economic impacts of OMEP's work (IMPLAN) uses new economic activity as inputs. The estimated impacts (reported in a later section) that are produced by IMPLAN assume that the activity being modeled is new activity above an expected baseline. In most cases, the participating firms would continue to operate without OMEP's assistance. The goal of the study is to isolate the firm activity that would *not* exist without this assistance.

Survey respondents take the survey online, and are told that it should take approximately 15 minutes to complete. The questions are a mix of multiple choice and short fill-in-the-blank. Respondents are asked to report general information on their firm and activity, including overall sales and employment. Respondents are then asked questions about the outcomes of services

they received, and if the outcomes led to increases in sales or employment. If respondents indicate an increase in sales or employment, they are asked to write in the amount.

Respondents report on:

- ❖ Increased Sales
- ❖ Retained Sales
- ❖ Cost Savings
- ❖ Plant Equipment Investments
- ❖ Information Systems Investments
- ❖ Workforce Practices Investment
- ❖ New Products and Processes (and associated sales)
- ❖ Savings from Avoided Investments
- ❖ Job Creation
- ❖ Job Retention

Economic impact models are generally ill-equipped to forecast future activity due to investment (or avoided investment). We report the sums of the reported investment changes, but are not estimating their long-term impacts. When estimating the total economic impacts of OMEP's work, we consider increased sales, retained sales, cost savings, new products and processes, and job creation and retention. These economic impacts are simpler to quantify and their connection to specific OMEP interventions is easier to establish.

A potential shortcoming of the analysis is our reliance on self-reported impacts. Firms fill out the surveys after working with OMEP, and do not receive any difference in service due to survey responses. There is no incentive for respondents to inflate or deflate survey responses. Additionally, the survey is conducted by an outside, third party. However, even without incentives to report or collect inaccurate results, there is still the risk of respondents reporting incorrect data due to confusion or error. The survey asks respondents to report overall firm activity levels and list specific services received before asking about new economic activity. This should eliminate confusion about the appropriate activity to report. When creating inputs for IMPLAN, we compared new sales and employment numbers to overall firm activity. Some firms credit OMEP's intervention with saving the firm, and attribute most or all of their ongoing activity to OMEP.

IV. DESCRIPTION OF IMPLAN

When conducting economic impact studies, it is important to differentiate between new economic activity, and economic activity that may just be replacing already existing activity. If expansion for one firm occurs at the expense of another, then no actual growth has been created. The survey questions ask respondents to break out this new activity, allowing us to consider only outcomes above the level of activity expected with no OMEP intervention.

IMPLAN models are constructed using Social Accounting Matrices (SAM) based on spending and purchasing data from the Bureau of Economic Analysis (BEA) supplemented by data from other publicly available sources. SAMs are constructed to reflect the actual industry interactions in a region, and include government activities that are not traditionally reflected in this type of economic analysis.

SAMs create a map showing how money and resources flow through the economy. In a simulation, new economic activity is assumed to occur in an industry or group of industries. Based on past spending and purchasing activity, IMPLAN simulates the purchasing and spending necessary for this new economic activity to occur. IMPLAN tracks this new economic activity as it works its way through the economy. Also included in SAMs are household and government behavior. In addition to following purchasing and spending through the private sector, IMPLAN also estimates the impact of changes in disposable income and tax revenue.

A production function is constructed for each industry, reflecting its connections to other industries. Economic changes or events are propagated through this process as

IMPLAN Impacts

The impact summary results are given in terms of employment, labor income, total value added, and output:

Employment represents the number of annual, 1.0 FTE jobs. These job estimates are derived from industry wage averages.

Labor Income is made up of total employee compensation (wages and benefits) as well as proprietor income. Proprietor income is profits earned by self-employed individuals.

Total Value Added is made up of labor income, property type income, and indirect business taxes collected on behalf of local government. This measure is comparable to familiar net measurements of output like gross domestic product.

Output is a gross measure of production. It includes the value of both intermediate and final goods. Because of this, some double counting will occur. Output is presented as a gross measure because IMPLAN is capable of analyzing custom economic zones. Producers may be creating goods that would be considered intermediate from the perspective of the greater national economy, but may leave the custom economic zone, making them a local final good.

new economic activity motivates additional economic activity in other parts of the supply chain, and through changes in spending habits.

IMPLAN breaks out analysis results into three types: direct, indirect, and induced.

- ❖ **Direct Impacts:** These are defined by the modeler, and placed in the appropriate industry. They are not subject to multipliers. In this case, purchasing, employment, and wage data were collected from the sources described above and placed into the appropriate industry.
- ❖ **Indirect Impacts:** These impacts are estimated based on national purchasing and sales data that model the interactions between industries. This category reflects the economic activity necessary to support the new economic activity in the direct impacts by other firms in the supply chain.
- ❖ **Induced Impacts:** These impacts are created by the change in wages and employee compensation. Employees change purchasing decisions based on changes in income and wealth.

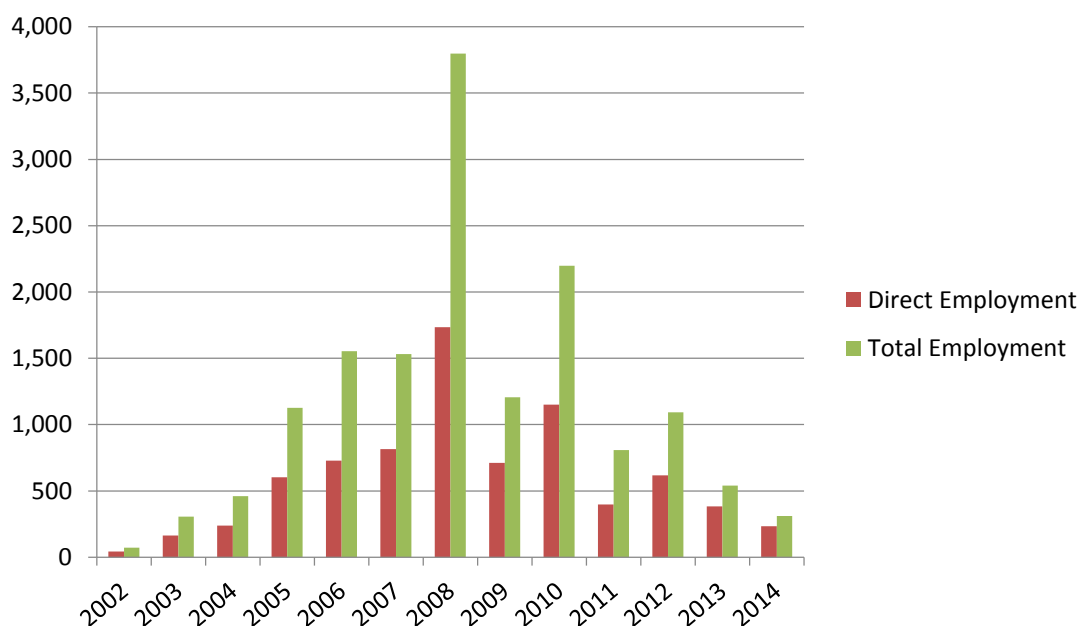


By en:User:DubbaG [GFDL (<http://www.gnu.org/copyleft/fdl.html>) or CC-BY-SA-3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons

V. IMPLAN RESULTS

The following tables summarize the employment and output impacts of OMEP projects over the period 2002-2014 (Figures 3 and 4). Impact is a function of the number of consultants working with manufacturers and the funding support available to them. The type of industry contributes to impact as well; manufacturers that produce medical and healthcare devices typically report more significant growth in revenue following their partnership with OMEP, for example. There is considerable variability in OMEP's total impact from year to year, due in part to large-impact projects.

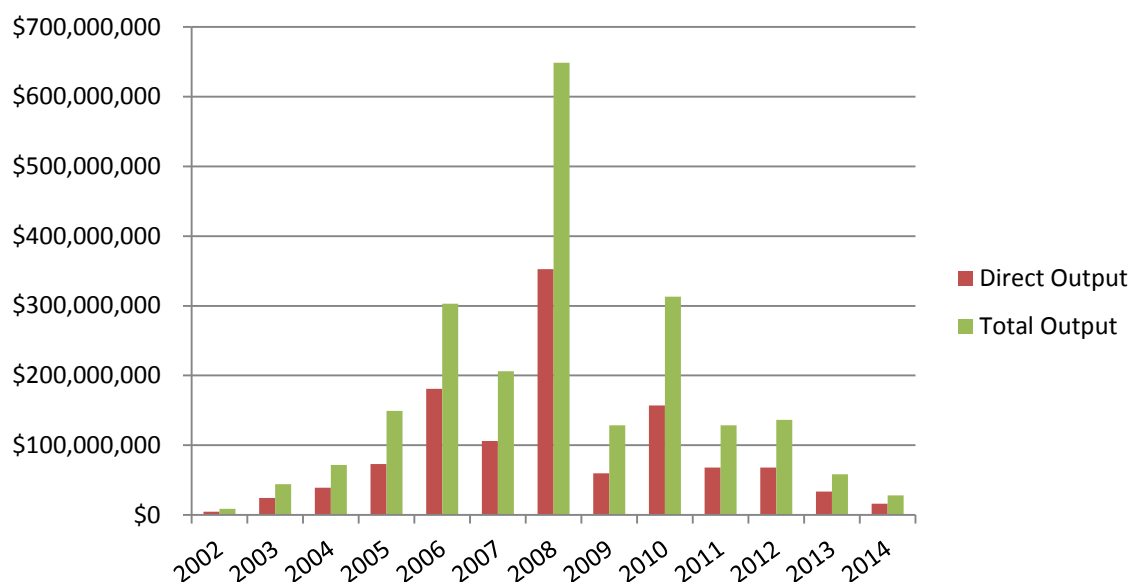
Figure 3: Oregon Employment Impacts (2002-2014)



As observed in the previous edition of this report, 2008 was a big year for OMEP—many new projects were implemented, and as a result, employment and output contributions are markedly higher.



By User:Cacophony (Own work) [CC BY-SA 2.5 (<http://creativecommons.org/licenses/by-sa/2.5>)], via Wikimedia Commons

Figure 4: Oregon Output Impacts (2002-2014)⁷

Statewide Impacts

In 2014, OMEP's direct support of 234 jobs in the state contributed to 312 jobs in total. The associated total economic output associated with this work topped \$28 million.

Table 3: 2014 Impacts - Oregon

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	234	\$4,475,989	\$5,950,619	\$16,048,056
Indirect Effect	36	\$2,045,132	\$3,300,707	\$6,757,503
Induced Effect	42	\$1,767,308	\$3,159,981	\$5,462,514
Total Effect	312	\$8,288,430	\$12,411,306	\$28,268,072

Table 4 shows the most positively-affected industries based on total employment impacts. Wood manufacturing experienced the greatest employment impact, while medical device manufacturing experienced the largest gains in labor income, value added, and total output.

⁷ A reminder that the output detailed here is IMPLAN output, which is a gross measure that is higher than relative traditional measures of Gross Regional Product. The latter is more accurately reflected by Total Value Added.

Table 4: Industries Affected - Oregon

Sector	Description	Total Employment	Total Labor Income	Total Value Added	Total Output
99	Wood windows and doors and millwork manufacturing	107	\$226,969	\$245,365	\$822,304
219	Special tool, die, jig, and fixture manufacturing	30	\$278,950	\$267,873	\$649,215
149	Other plastics product manufacturing	23	\$309,944	\$491,499	\$1,426,843
68	Seasoning and dressing manufacturing	14	\$4,387	\$5,877	\$43,174
305	Surgical and medical instrument, laboratory and medical instrument manufacturing	11	\$1,597,828	\$2,363,561	\$5,274,737
187	Ornamental and architectural metal products manufacturing	10	\$1,425,164	\$1,674,195	\$5,054,092
105	Paper mills	10	\$23,562	\$49,012	\$192,625

Any increase in economic activity, labor income, or hiring has indirect effects on public tax revenues. *Table 5* details the increased tax revenue at all levels of government due to OMEP projects in 2014. Combining impacts at the local, state, and federal level, OMEP projects resulted in a \$2.6 million increase in tax revenue.

Table 5: 2014 Tax Impact - Oregon

	Total
Oregon	
State Personal and Corporate Income Taxes	\$ 286,422
Other State Taxes, fees, and licenses	\$ 302,203
Total	\$ 588,625
Local Governments	
Property Taxes	\$ 344,710
Other Local Taxes, Fees, and Licenses	\$ 7,900
Total	\$ 352,610
Federal Government	
Federal Personal and Corporate Income Taxes	\$ 661,822
Social Insurance and Excise Taxes	\$ 1,003,679
Total	\$ 1,665,501
TOTAL	\$ 2,606,736

Impacts in Previous Years

Statewide impacts, industries affected, and tax revenue increases for the fiscal years 2011-2012 and 2012-2013 (third quarter of first year through second quarter of second year) are presented below,

along with impacts estimated for the 2013 calendar year. Results are presented in reverse chronological order.

2013 Calendar Year

Table 6: 2013 Impacts

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	383	\$ 5,079,397	\$ 7,186,701	\$ 33,164,467
Indirect Effect	89	\$ 5,042,410	\$ 7,616,807	\$ 15,800,225
Induced Effect	68	\$ 2,746,032	\$ 4,909,312	\$ 8,346,673
Total Effect	540	\$ 12,867,838	\$ 19,712,821	\$ 57,311,364

Table 7: 2013 Industries Affected

Description	Total Employment	Total Labor Income	Total Output
311 Food Manufacturing	122	\$ 1,979,038	\$ 20,365,333
337 Furniture and Related Product Manufacturing	91	\$ 285,971	\$ 990,286
321 Wood Product Manufacturing	51	\$ 1,127,697	\$ 3,963,840
332 Fabricated Metal Product Manufacturing	30	\$ 181,517	\$ 1,006,176
327 Nonmetallic Mineral Product Manufacturing	27	\$ 180,087	\$ 600,414

Table 8: 2013 Tax Impact

	Total
Oregon	
State Personal and Corporate Income Taxes	\$ 444,607
Other State Taxes, fees, and licenses	\$ 537,331
Total	\$ 981,938
Local Governments	
Property Taxes	\$ 630,809
Other Local Taxes, Fees, and Licenses	\$ 12,194
Total	\$ 643,003
Federal Government	
Federal Personal and Corporate Income Taxes	\$ 1,039,877
Social Insurance and Excise Taxes	\$ 1,648,553
Total	\$ 2,688,430
TOTAL	\$ 4,313,371

2012-2013

Table 9: 2012-2013 Impacts

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	376	\$ 17,712,676	\$ 20,107,082	\$ 38,836,020
Indirect Effect	107	\$ 5,764,437	\$ 8,915,653	\$ 18,501,639
Induced Effect	158	\$ 6,337,269	\$ 11,329,403	\$ 19,262,258
Total Effect	641	\$ 29,814,382	\$ 40,352,139	\$ 76,599,917

Table 10: 2012-2013 Industries Affected

Description	Total Employment	Total Labor Income	Total Output
311 Food Manufacturing	174	\$ 6,433,548	\$ 23,005,098
321 Wood product manufacturing	52	\$ 2,592,030	\$ 4,186,637
327 Nonmetallic Mineral Product Manufacturing	47	\$ 2,538,229	\$ 20,780
326 Plastics and rubber products manufacturing	27	\$ 1,502,901	\$ 1,017,198
722 Food services and drinking places	21	\$ 455,259	\$ 1,223,873
332 Fabricated Metal Product Manufacturing	20	\$ 1,175,470	\$ 1,811,708
42 Wholesale trade	15	\$ 1,272,766	\$ 2,929,275

Table 11: 2012-2013 Tax Impact

	Total
Oregon	
State Personal and Corporate Income Taxes	\$ 989,224
Other State Taxes, fees, and licenses	\$ 927,025
Total	\$ 1,916,249
Local Governments	
Property Taxes	\$ 1,007,528
Other Local Taxes, Fees, and Licenses	\$ 28,190
Total	\$ 1,035,718
Federal Government	
Federal Personal and Corporate Income Taxes	\$ 2,122,549
Social Insurance and Excise Taxes	\$ 3,757,446
Total	\$ 5,879,995
TOTAL	\$ 8,831,962

2011-2012

The 2011-2012 period had a total employment impact just over twice as large as 2012-2013. As stated in the 2015 version of this report, the difference can be traced back to a handful of large impact firms. It is difficult to draw lessons from what appears to be normal variation. The following tables cover the period from the third quarter of 2011 through the second quarter of 2012.

Table 12: 2011-2012 Impacts

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	584	\$ 47,865,395	\$ 59,861,874	\$ 119,278,034
Indirect Effect	296	\$ 15,548,733	\$ 24,864,806	\$ 49,444,032
Induced Effect	427	\$ 17,162,197	\$ 30,683,363	\$ 52,166,028
Total Effect	1,307	\$ 80,576,325	\$ 115,410,043	\$ 220,888,094

Table 13: 2011-2012 Industries Affected

Description	Total Employment	Total Labor Income	Total Output
321 Wood product manufacturing	113	\$ 5,364,648	\$ 2,615,439
332 Fabricated Metal Product Manufacturing	106	\$ 6,169,270	\$ 17,314,400
336 Transportation equipment manufacturing	90	\$ 4,739,665	\$ 12,780,797
722 Food services and drinking places	58	\$ 1,287,720	\$ 3,461,776
42 Wholesale trade	37	\$ 3,080,307	\$ 7,089,337
531 Real estate	37	\$ 456,996	\$ 5,012,364
331 Primary metal manufacturing	30	\$ 2,487,555	\$ 1,237,730
337 Furniture and related product manufacturing	25	\$ 1,224,287	\$ 7,097,772
621 Ambulatory health care services	24	\$ 1,805,028	\$ 2,964,088

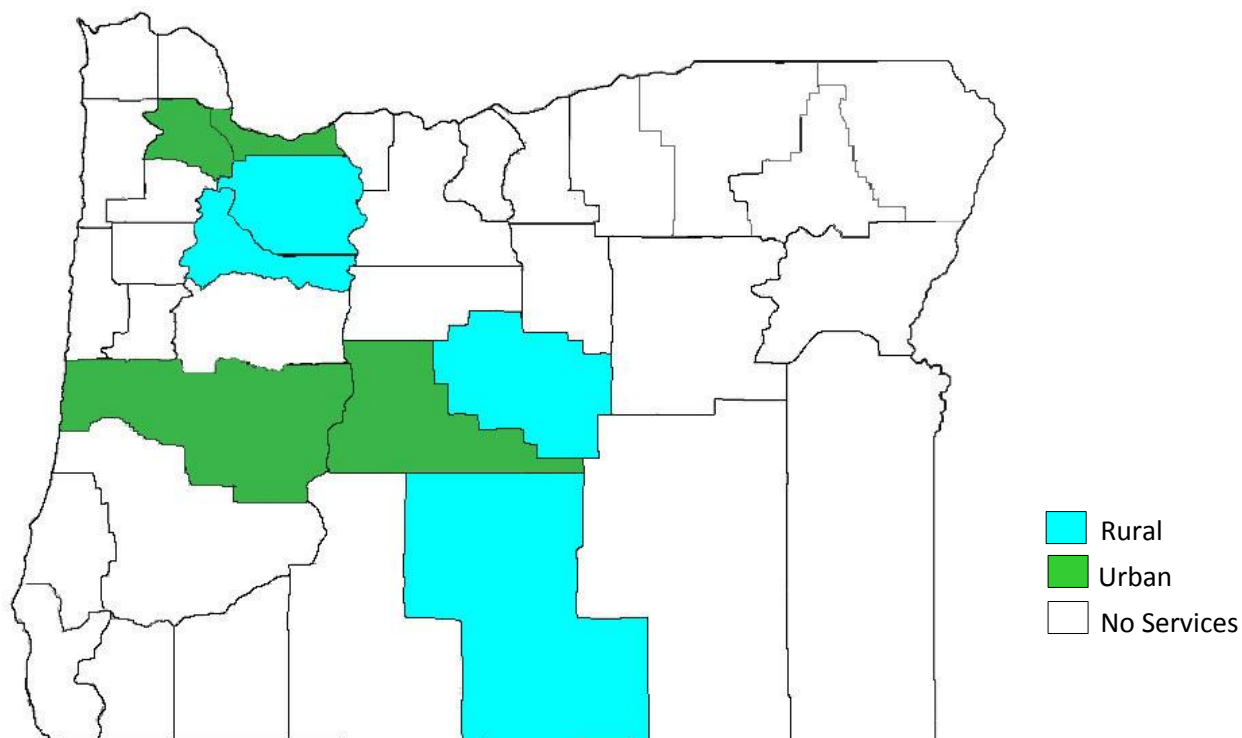
Table 14: 2011-2012 Tax Impact

	Total
Oregon	
State Personal and Corporate Income Taxes	\$ 2,734,885
Other State Taxes, fees, and licenses	\$ 2,601,675
Total	\$ 5,336,560
Local Governments	
Property Taxes	\$ 2,865,031
Other Local Taxes, Fees, and Licenses	\$ 76,437
Total	\$ 2,941,468
Federal Government	
Federal Personal and Corporate Income Taxes	\$ 6,138,918
Social Insurance and Excise Taxes	\$ 9,964,380
Total	\$ 16,103,298
TOTAL	\$ 24,381,326

Rural/Urban Breakdown

We have also broken out results into rural and urban impacts, using the U.S. Census Bureau’s definition of rural and urban areas. *Figure 5* shows how each county was classified, based on the location of the participating firms. For a more detailed look at impacts by county, see *Appendix A*⁸.

Figure 5: County Definitions



Rural Oregon

The following tables summarize OMEP’s 2014 impacts in rural Oregon. As noted previously, while the figures are small when compared to those observed in urban areas, they are large in relative terms. OMEP’s contributions in rural areas can be seen as comparable to those observed in urban areas, when total size of the two groups is taken into consideration.

⁸ Careful readers will note that the sum of the Total Impacts for the urban and rural areas does not equal the Oregon total. This is because there is leakage in the smaller models; activity in rural areas leads to some increase in activity in the urban areas, and vice versa. In the rural and urban models, this leakage is not captured by either model. All of this activity is captured by the full Oregon model, leading to higher indirect and induced impacts.

Table 15: 2014 Impacts – Rural Oregon

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	122	\$460,181	\$611,424	\$2,415,915
Indirect Effect	4	\$198,680	\$308,343	\$603,238
Induced Effect	3	\$131,293	\$245,905	\$417,193
Total Effect	129	\$790,154	\$1,165,672	\$3,436,345

Table 16: 2014 Industries Affected – Rural Oregon

Sector	Description	Total Employment	Total Labor Income	Total Value Added	Total Output
99	Wood windows and doors and millwork manufacturing	107	\$236,327	\$254,204	\$805,988
107	Paperboard container manufacturing	5	\$9,516	\$11,773	\$55,676
260	Lighting fixture manufacturing	4	\$113,448	\$200,605	\$999,250
53	Frozen food manufacturing	3	\$6,119	\$8,652	\$54,256
103	All other miscellaneous wood product manufacturing	3	\$101,789	\$143,953	\$527,880

Table 17: 2014 Tax Impact – Rural Oregon

	Total
Oregon	
State Personal and Corporate Income Taxes	\$26,304
Other State Taxes, fees, and licenses	\$26,704
Total	\$53,008
Local Governments	
Property Taxes	\$28,965
Other Local Taxes, Fees, and Licenses	\$725
Total	\$29,690
Federal Government	
Federal Personal and Corporate Income Taxes	\$60,907
Social Insurance and Excise Taxes	\$100,691
Total	\$161,868
TOTAL	\$244,566

Rural Impacts in Previous Years

The following tables provide IMPLAN estimates of OMEP's impacts in rural Oregon, again for the 2013 calendar year followed by the 2012-2013 and 2011-2012 fiscal years (third quarter of first year through second quarter of second year).

2013 Calendar Year

Table 18: 2013 Impacts

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	182	\$ 1,649,471	\$ 2,017,610	\$ 6,151,500
Indirect Effect	11	\$ 502,160	\$ 755,339	\$ 1,582,318
Induced Effect	11	\$ 401,412	\$ 755,905	\$ 1,260,744
Total Effect	204	\$ 2,553,043	\$ 3,528,854	\$ 8,994,562

Table 19: Industries Affected

Description	Total Employment	Total Labor Income	Total Output
337 Furniture and Related Product Manufacturing	91	\$ 238,093	\$ 990,007
321 Wood Product Manufacturing	50	\$ 1,187,276	\$ 3,812,128
332 Fabricated Metal Product Manufacturing	30	\$ 161,398	\$ 1,000,090
326 Plastics and Rubber Products Manufacturing	8	\$ 8,940	\$ 50,337
334 Computer and Electronic Product Manufacturing	3	\$ 66,053	\$ 335,006
722 Food Services and Drinking Places	2	\$ 39,758	\$ 111,813

Table 20: Tax Impact

	Total
Oregon	
State Personal and Corporate Income Taxes	\$ 82,786
Other State Taxes, fees, and licenses	\$ 82,760
Total	\$ 165,546
Local Governments	
Property Taxes	\$ 88,352
Other Local Taxes, Fees, and Licenses	\$ 2,336
Total	\$ 90,688
Federal Government	
Federal Personal and Corporate Income Taxes	\$ 181,879
Social Insurance and Excise Taxes	\$ 327,915
Total	\$ 509,794
TOTAL	\$ 766,028

2012-2013

Table 21: 2012-2013 Impacts

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	140	\$ 6,930,380	\$ 7,556,970	\$ 11,680,000
Indirect Effect	18	\$ 836,138	\$ 1,328,721	\$ 2,736,213
Induced Effect	41	\$ 1,448,909	\$ 2,728,911	\$ 4,551,217
Total Effect	199	\$ 9,215,427	\$ 11,614,603	\$ 18,967,430

Table 22: 2012-2013 Industries Affected

Description	Total Employment	Total Labor Income	Total Output
311 Food manufacturing	63	\$ 2,302,320	\$ 3,197,303
321 Wood product manufacturing	51	\$ 2,511,599	\$ 3,894,930
332 Fabricated Metal Product Manufacturing	20	\$ 1,173,386	\$ 1,800,173
339 Miscellaneous manufacturing	6	\$ 909,857	\$ 2,909,784
722 Food services and drinking places	6	\$ 118,883	\$ 334,342
531 Real estate	3	\$ 27,075	\$ 355,146
621 Ambulatory health care services	3	\$ 185,078	\$ 310,328
622 Hospitals	2	\$ 154,692	\$ 310,491

Table 23: 2012-2013 Tax Impact

	Total
Oregon	
State Personal and Corporate Income Taxes	\$ 289,144
Other State Taxes, fees, and licenses	\$ 235,348
Total	\$ 524,492
Local Governments	
Property Taxes	\$ 230,108
Other Local Taxes, Fees, and Licenses	\$ 8,391
Total	\$ 238,499
Federal Government	
Federal Personal and Corporate Income Taxes	\$ 593,150
Social Insurance and Excise Taxes	\$ 1,136,231
Total	\$ 1,729,381
TOTAL	\$ 2,492,372

2011-2012

Table 24: 2011-2012 Impacts

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	319	\$ 18,129,110	\$ 20,424,489	\$ 37,292,819
Indirect Effect	51	\$ 2,295,909	\$ 3,649,887	\$ 7,280,247
Induced Effect	107	\$ 3,806,469	\$ 7,165,379	\$ 11,952,196
Total Effect	477	\$ 24,231,488	\$ 31,239,755	\$ 56,525,262

Table 25: 2011-2012 Industries Affected

Description	Total Employment	Total Labor Income	Total Output
321 Wood product manufacturing	133	\$ 6,503,965	\$ 5,217,577
336 Transportation equipment manufacturing	90	\$ 4,739,731	\$ 12,779,681
332 Fabricated Metal Product Manufacturing	32	\$ 1,691,747	\$ 3,765,602
339 Miscellaneous manufacturing	22	\$ 2,835,414	\$ 9,067,847
311 Food manufacturing	15	\$ 509,214	\$ 4,094,436
722 Food services and drinking places	15	\$ 311,195	\$ 875,194
333 Machinery manufacturing	14	\$ 979,572	\$ 311,693
531 Real estate	7	\$ 73,084	\$ 958,651

Table 26: 2011-2012 Tax Impact

	Total
Oregon	
State Personal and Corporate Income Taxes	\$ 764,769
Other State Taxes, fees, and licenses	\$ 633,406
Total	\$ 1,398,175
Local Governments	
Property Taxes	\$ 616,665
Other Local Taxes, Fees, and Licenses	\$ 22,014
Total	\$ 638,679
Federal Government	
Federal Personal and Corporate Income Taxes	\$ 1,601,251
Social Insurance and Excise Taxes	\$ 3,203,468
Total	\$ 4,804,719
TOTAL	\$ 6,841,573

Urban Oregon

The following tables summarize OMEP's 2014 impacts in urban Oregon.

Table 27: 2014 Impacts – Urban Oregon

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	112	\$3,766,470	\$5,035,245	\$13,214,409
Indirect Effect	28	\$1,731,259	\$2,717,844	\$5,243,460
Induced Effect	34	\$1,533,208	\$2,657,501	\$4,542,019
Total Effect	174	\$7,030,937	\$10,410,589	\$22,981,389

Table 28: 2014 Industries Affected – Urban Oregon

Sector	Description	Total Employment	Total Labor Income	Total Value Added	Total Output
219	Special tool, die, jig, and fixture manufacturing	30	\$299,379	\$288,861	\$649,111
149	Other plastics product manufacturing	23	\$320,439	\$500,982	\$1,431,581
68	Seasoning and dressing manufacturing	14	\$4,444	\$5,889	\$42,978
305	Surgical and medical instrument, laboratory and medical instrument manufacturing	11	\$1,592,962	\$2,360,695	\$5,275,637
187	Ornamental and architectural metal products manufacturing	10	\$1,424,864	\$1,673,287	\$5,041,483



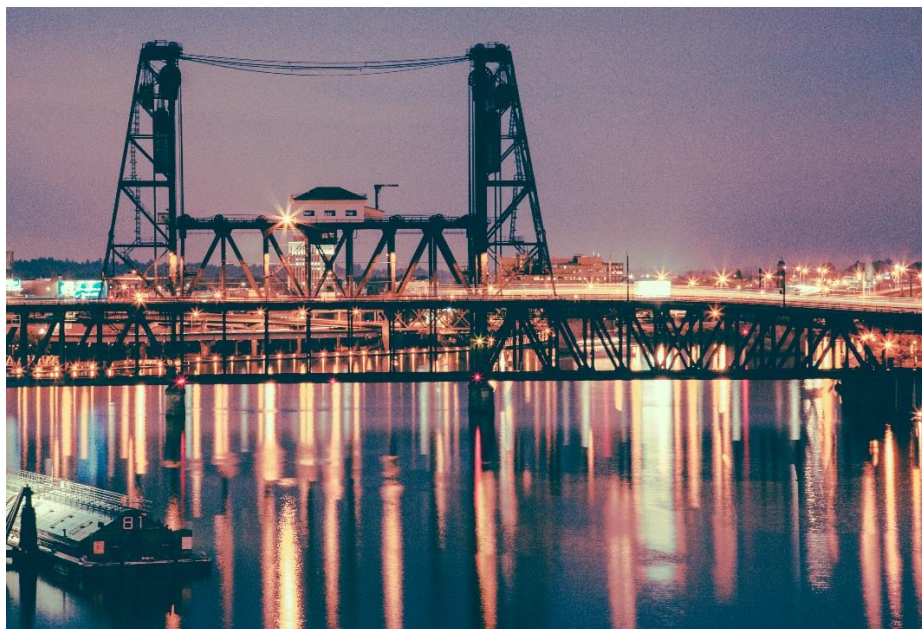
By John Kline [Own work] [CC by <https://creativecommons.org/publicdomain/zero/1.0/deed.en>], via Pixabay.com

Table 29: 2014 Tax Impact – Urban Oregon

Oregon	
State Personal and Corporate Income Taxes	\$247,285
Other State Taxes, fees, and licenses	\$239,233
Total	\$486,518
Local Governments	
Property Taxes	\$270,314
Other Local Taxes, Fees, and Licenses	\$6,856
Total	\$277,170
Federal Government	
Federal Personal and Corporate Income Taxes	\$0
Social Insurance and Excise Taxes	\$0
Total	\$0
TOTAL	\$763,688

Urban Impacts in Previous Years

The following section provides data identical to that above, considering urban areas rather than rural ones.



By Tony Webster [Own work] [CC: <https://creativecommons.org/licenses/by/2.0/legalcode>], via Flickr

Table 30: 2013 Impacts – Urban Oregon

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	112	\$3,766,470	\$5,035,245	\$13,214,409
Indirect Effect	28	\$1,731,259	\$2,717,844	\$5,243,460
Induced Effect	34	\$1,533,208	\$2,657,501	\$4,542,019
Total Effect	174	\$7,030,937	\$10,410,589	\$22,981,389

Table 31: 2013 Industries Affected – Urban Oregon

Sector	Description	Total Employment	Total Labor Income	Total Value Added	Total Output
219	Special tool, die, jig, and fixture manufacturing	30	\$299,379	\$288,861	\$649,111
149	Other plastics product manufacturing	23	\$320,439	\$500,982	\$1,431,581
68	Seasoning and dressing manufacturing	14	\$4,444	\$5,889	\$42,978
305	Surgical and medical instrument, laboratory and medical instrument manufacturing	11	\$1,592,962	\$2,360,695	\$5,275,637
187	Ornamental and architectural metal products manufacturing	10	\$1,424,864	\$1,673,287	\$5,041,483
105	Paper mills	10	\$19,154	\$42,237	\$171,894

Table 32: 2013 Tax Impact – Urban Oregon

	Total
Oregon	
State Personal and Corporate Income Taxes	\$247,285
Other State Taxes, fees, and licenses	\$239,233
Total	\$486,518
Local Governments	
Property Taxes	\$270,314
Other Local Taxes, Fees, and Licenses	\$6,856
Total	\$277,170
Federal Government	
Federal Personal and Corporate Income Taxes	\$565,082
Social Insurance and Excise Taxes	\$835,571
Total	\$1400,653
TOTAL	\$2,164,341

2012-2013

Table 33: 2012-2013 Impacts

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	235	\$ 10,751,728	\$ 12,517,477	\$ 27,111,020
Indirect Effect	64	\$ 3,964,956	\$ 5,890,524	\$ 11,419,398
Induced Effect	96	\$ 4,085,579	\$ 7,108,444	\$ 11,941,803
Total Effect	395	\$ 18,802,263	\$ 25,516,445	\$ 50,472,221

Table 34: 2012-2013 Industries Affected

Description	Total Employment	Total Labor Income	Total Output
311 Food Manufacturing	116	\$ 4,115,970	\$ 20,779,276
327 Nonmetallic mineral product manufacturing	47	\$ 2,538,151	\$ 20,495
326 Plastics and rubber products manufacturing	27	\$ 1,501,421	\$ 1,008,686
332 Fabricated metal product manufacturing	13	\$ 843,199	\$ 2,080,681
722 Food services and drinking places	13	\$ 291,749	\$ 759,587
531 Real estate	10	\$ 130,817	\$ 1,315,206
551 Management of companies and enterprises	10	\$ 984,328	\$ 1,969,582
42 Wholesale trade	9	\$ 849,110	\$ 1,852,753
322 Paper manufacturing	8	\$ 371,514	\$ 391,992

Table 35: 2012-2013 Tax Impact

	Total
Oregon	
State Personal and Corporate Income Taxes	\$ 635,351
Other State Taxes, fees, and licenses	\$ 564,676
Total	\$ 1,200,027
Local Governments	
Property Taxes	\$ 613,924
Other Local Taxes, Fees, and Licenses	\$ 18,104
Total	\$ 632,028
Federal Government	
Federal Personal and Corporate Income Taxes	\$ 1,363,493
Social Insurance and Excise Taxes	\$ 2,364,566
Total	\$ 3,728,059
TOTAL	\$ 5,560,114

2011-2012

Table 36: 2011-2012 Impacts

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	245	\$ 28,359,844	\$ 37,915,724	\$ 79,699,882
Indirect Effect	185	\$ 10,427,311	\$ 16,371,351	\$ 30,720,943
Induced Effect	253	\$ 10,792,716	\$ 18,781,771	\$ 31,550,102
Total Effect	683	\$ 49,579,871	\$ 73,068,845	\$ 141,970,927

Table 37: 2011-2012 Industries Affected

Description	Total Employment	Total Labor Income	Total Output
332 Fabricated Metal Product Manufacturing	87	\$ 5,033,471	\$ 16,098,982
722 Food services and drinking places	36	\$ 835,556	\$ 2,175,423
331 Primary metal manufacturing	29	\$ 2,478,176	\$ 1,154,753
531 Real estate	25	\$ 340,062	\$ 3,418,903
337 Furniture and related product manufacturing	25	\$ 1,265,254	\$ 7,096,093
42 Wholesale trade	22	\$ 1,996,706	\$ 4,356,800
311 Food manufacturing	20	\$ 773,778	\$ 128,397
523 Securities, commodity contracts, and other financial investments and related activities	14	\$ 401,577	\$ 1,916,717
621 Ambulatory health care services	14	\$ 1,081,819	\$ 1,736,532

Table 38: 2011-2012 Tax Impact

	Total
Oregon	
State Personal and Corporate Income Taxes	\$ 1,742,800
Other State Taxes, fees, and licenses	\$ 1,584,579
Total	\$ 3,327,379
Local Governments	
Property Taxes	\$ 1,760,775
Other Local Taxes, Fees, and Licenses	\$ 48,329
Total	\$ 1,809,104
Federal Government	
Federal Personal and Corporate Income Taxes	\$ 3,980,583
Social Insurance and Excise Taxes	\$ 5,833,908
Total	\$ 9,814,491
TOTAL	\$ 14,950,974

VI. OTHER MANUFACTURING BENEFITS

In addition to providing services related to labor and output decisions, OMEP assists participating firms with the planning and implementation of longer-term investments. Such investments do not lend themselves to short-term impact analysis, but can have strong impacts over time. Table 12 show investments facilitated, and unnecessary investments avoided, with OMEP’s assistance.

Table 39: Other Benefits 2014

	Plant/ Equipment	Information Systems	Workforce Practices	Other Areas	Saved Investments
Oregon	\$1,795,500	\$873,000	\$368,000	\$127,500	\$567,500
Rural	\$1,075,000	\$513,000	\$61,000	\$0	\$60,000
Urban	\$720,500	\$360,000	\$327,000	\$127,500	\$507,500

The general magnitude of the overall impact of investment activity is well documented. More detailed surveys could be allow a detailed, longer-term analysis of OMEP’s role in such impacts in Oregon in the future.



Steve Morgan [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0>) or GFDL (<http://www.gnu.org/copyleft/fdl.html>)], via Wikimedia Commons

Other Benefits in Previous Years

Below, other benefits estimated from the 2013 calendar year and 2012-2013 and 2011-2012 fiscal years are shown.

Table 40: Other Benefits 2013

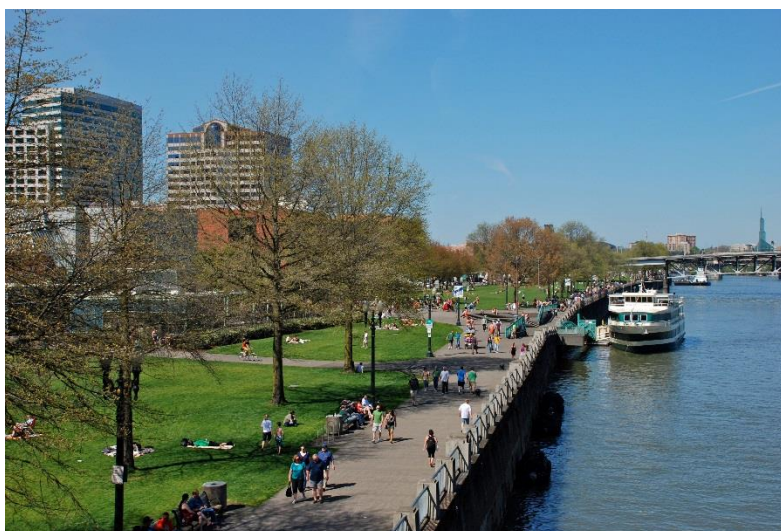
	Plant Equipment	Information Systems	Workforce Practices	Other Areas	Saved Investments
Oregon	\$ 11,414,000	\$ 815,750	\$ 693,860	\$ 73,000	\$ 871,001
Rural	\$ 1,426,000	\$ 673,750	\$ 262,860	\$ 55,000	\$ 148,001
Urban	\$ 9,488,000	\$ 142,000	\$ 431,000	\$ 18,000	\$ 223,000

Table 41: Other Benefits 2012-2013

	Plant Equipment	Information Systems	Workforce Practices	Other Areas	Saved Investments
Oregon	\$ 11,201,000	\$ 713,000	\$ 755,000	\$ 122,000	\$ 924,000
Rural	\$ 3,717,000	\$ 600,000	\$ 242,000	\$ 100,000	\$ 677,000
Urban	\$ 7,484,000	\$ 113,000	\$ 513,000	\$ 22,000	\$ 247,000

Table 42: Other Benefits 2011-2012

	Plant Equipment	Information Systems	Workforce Practices	Other Areas	Saved Investments
Oregon	\$ 8,440,600	\$ 3,451,100	\$ 2,143,320	\$ 8,454,700	\$ 1,774,500
Rural	\$ 6,490,800	\$ 3,229,600	\$ 1,463,520	\$ 8,308,000	\$ 1,315,000
Urban	\$ 1,949,800	\$ 221,500	\$ 679,800	\$ 146,700	\$ 459,500

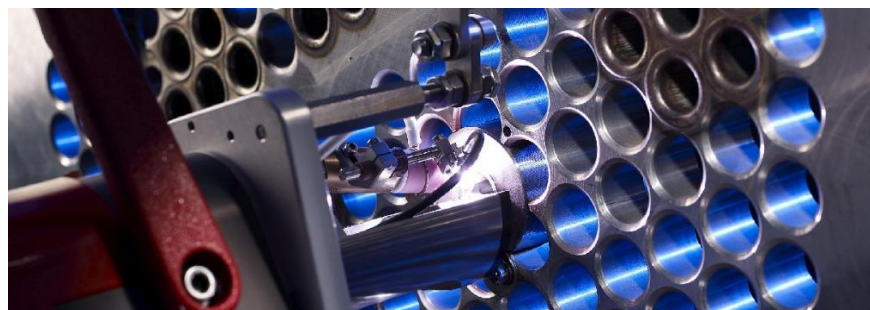


By Steve Morgan (Own work) [CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0>) or GFDL (<http://www.gnu.org/copyleft/fdl.html>)], via Wikimedia Commons

VII. CONCLUSION

While a complete accounting of total OMEP contribution to the local and national economy is not possible given data limitations, we find clear evidence that OMEP continues to provide substantial benefit to the manufacturing sector within Oregon, and to the national economy. While large manufacturers are more visible to the general public, the data underlying these results illuminates the contributions that small- to mid-size firms provide. Enhancing the health of such smaller businesses, particularly in ways that allow them to increase their employment, creates a notable aggregate effect. We are confident that, as our analysis is limited in timespan, the real impact is much greater than the explicit estimates given in this report. Investments, for example, will yield dividends over the long run that are not represented. Even absent long-term analysis, the figures above present a sizeable low-end estimate: OMEP's services facilitated an additional \$28 million in output over 2014 alone, accompanied by a \$486,000 boost to state tax revenues and an \$8 million increase in labor income.

OMEP's efficacy is highlighted by its continuing work with sectors identified by state and local agencies as key to Oregon's economic success, indicating the Extension's sensitivity to regional attributes and specialization.⁹ As noted previously, OMEP's contributions to the local economy are a function of the number of consultants that they employ and the amount of funding available to support firms with the resources appropriate to their unique situations (for example, process analysis, e-Value stream mapping, and marketing strategy implementation). Of course, funding for this type of work is provided in part by the state, meaning that decisions to increase funding must be balanced with other priorities. That said, the relatively large size of the manufacturing sector in Oregon, paired with strong public and legislative support, indicate the continuing need and strong demand for OMEP's services.



By POLYSOUDE1 (Own work) [GFDL (<http://www.gnu.org/copyleft/fdl.html>) or CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons

⁹ Business Oregon and Greater Portland Inc., two local agencies that work to enhance the industrial climate in the state, identify manufacturing as a key growth industry. Specifically, the agencies emphasize “clean” and high-tech manufacturing; forestry and wood products; and outdoor gear and activewear, all sectors that appear repeatedly in the “Industries Affected” tables of this report. Both agencies are concerned primarily with maintaining and enhancing local clusters and firms, a priority that they share with OMEP.

VIII. APPENDIX A: 2014 COUNTY RESULTS

Clackamas

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	8	\$205,831	\$340,273	\$1,033,325
Indirect Effect	1	\$37,001	\$62,140	\$105,607
Induced Effect	1	\$40,953	\$75,747	\$126,135
Total Effect	10	\$283,785	\$478,161	\$1,265,067

Crook

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	27	\$65,094	\$69,618	\$209,422
Indirect Effect	0	\$14,991	\$21,010	\$53,538
Induced Effect	0	\$7,944	\$18,753	\$31,379
Total Effect	28	\$88,029	\$109,381	\$294,339

Deschutes

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	12	\$320,356	\$499,614	\$1,769,491
Indirect Effect	3	\$126,487	\$227,912	\$405,255
Induced Effect	3	\$102,682	\$192,667	\$329,714
Total Effect	18	\$549,525	\$920,193	\$2,504,460

Lake

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	80	\$164,556	\$177,471	\$575,911
Indirect Effect	1	\$20,673	\$35,421	\$81,615
Induced Effect	0	\$13,394	\$35,480	\$61,967
Total Effect	81	\$198,623	\$248,372	\$719,494

Lane

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	3	\$2,659	\$14,686	\$51,678
Indirect Effect	0	\$2,617	\$3,990	\$7,796
Induced Effect	0	\$1,183	\$2,214	\$3,692
Total Effect	3	\$6,459	\$20,890	\$63,167

Marion

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	3	\$5,827	\$8,239	\$51,667
Indirect Effect	0	\$3,677	\$5,400	\$11,290
Induced Effect	0	\$1,859	\$3,386	\$5,618
Total Effect	3	\$11,363	\$17,025	\$68,575

Multnomah

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	44	\$1,515,576	\$1,797,877	\$5,428,564
Indirect Effect	11	\$734,907	\$1,092,512	\$2,228,936
Induced Effect	11	\$505,944	\$853,844	\$1,462,831
Total Effect	66	\$2,756,427	\$3,744,234	\$9,111,830

Washington

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	57	\$2,017,868	\$2,871,497	\$6,700,842
Indirect Effect	8	\$472,593	\$788,064	\$1,311,329
Induced Effect	11	\$470,912	\$847,962	\$1,380,764
Total Effect	75	\$2,961,373	\$4,507,524	\$9,382,936



By Ian Sane [Own work] [CC: <https://creativecommons.org/licenses/by/2.0/legalcode>], via Flickr

IX. APPENDIX B: 2002-2013 OREGON IMPACT RESULTS

The following tables show the total annual Oregon impacts from 2002-2012.

2002

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	43	\$ 2,419,708	\$ 2,847,656	\$ 4,438,000
Indirect Effect	9	\$ 495,923	\$ 793,113	\$ 1,642,159
Induced Effect	20	\$ 786,926	\$ 1,406,859	\$ 2,391,905
Total Effect	72	\$ 3,702,557	\$ 5,047,628	\$ 8,472,064

2003

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	165	\$ 12,581,733	\$ 15,571,235	\$ 23,914,242
Indirect Effect	41	\$ 2,223,460	\$ 3,555,973	\$ 7,273,360
Induced Effect	99	\$ 3,994,034	\$ 7,140,201	\$ 12,139,880
Total Effect	305	\$ 18,799,228	\$ 26,267,409	\$ 43,327,482

2004

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	238	\$ 16,311,466	\$ 20,391,815	\$ 38,420,569
Indirect Effect	81	\$ 4,559,431	\$ 7,360,059	\$ 14,883,370
Induced Effect	141	\$ 5,647,378	\$ 10,096,614	\$ 17,165,691
Total Effect	460	\$ 26,518,275	\$ 37,848,488	\$ 70,469,630

2005

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	603	\$ 37,771,551	\$ 42,046,594	\$ 71,983,098
Indirect Effect	198	\$ 10,712,027	\$ 17,004,009	\$ 35,162,687
Induced Effect	325	\$ 13,079,609	\$ 23,382,391	\$ 39,755,341
Total Effect	1,127	\$ 61,563,188	\$ 82,432,994	\$ 146,901,125

2006

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	729	\$ 53,547,361	\$ 69,753,535	\$ 177,769,927
Indirect Effect	335	\$ 18,778,644	\$ 29,940,817	\$ 60,412,070
Induced Effect	490	\$ 19,684,139	\$ 35,191,207	\$ 59,830,741
Total Effect	1,554	\$ 92,010,144	\$ 134,885,559	\$ 298,012,738

2007

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	815	\$ 51,745,755	\$ 62,122,531	\$ 104,354,952
Indirect Effect	280	\$ 13,379,059	\$ 21,386,692	\$ 44,729,030
Induced Effect	438	\$ 17,618,830	\$ 31,499,296	\$ 53,553,689
Total Effect	1,533	\$ 82,743,644	\$ 115,008,518	\$ 202,637,671

2008

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	1,734	\$ 140,571,063	\$ 177,845,622	\$ 346,593,009
Indirect Effect	814	\$ 44,290,056	\$ 70,988,449	\$ 138,467,404
Induced Effect	1,250	\$ 50,220,866	\$ 89,787,877	\$ 152,650,898
Total Effect	3,798	\$ 235,081,985	\$ 338,621,948	\$ 637,711,311

2009

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	711	\$ 40,381,963	\$ 45,230,218	\$ 58,527,767
Indirect Effect	169	\$ 8,426,494	\$ 13,535,452	\$ 28,016,785
Induced Effect	327	\$ 13,158,599	\$ 23,521,847	\$ 39,994,188
Total Effect	1,207	\$ 61,967,056	\$ 82,287,516	\$ 126,538,740

2010

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	1,151	\$ 67,500,384	\$ 80,657,598	\$ 154,160,799
Indirect Effect	431	\$ 23,614,914	\$ 37,171,512	\$ 78,319,779
Induced Effect	615	\$ 24,737,733	\$ 44,218,061	\$ 75,185,744
Total Effect	2,197	\$ 115,853,032	\$ 162,047,171	\$ 307,666,321

2011

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	399	\$ 24,546,037	\$ 29,705,958	\$ 66,868,075
Indirect Effect	179	\$ 9,660,762	\$ 15,213,695	\$ 31,418,777
Induced Effect	231	\$ 9,273,426	\$ 16,576,001	\$ 28,184,883
Total Effect	808	\$ 43,480,226	\$ 61,495,653	\$ 126,471,735

2012

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	618	\$ 34,305,970	\$ 39,686,835	\$ 66,624,441
Indirect Effect	180	\$ 9,504,835	\$ 14,947,742	\$ 31,355,328
Induced Effect	294	\$ 11,819,040	\$ 21,129,748	\$ 35,924,479
Total Effect	1,092	\$ 55,629,845	\$ 75,764,325	\$ 133,904,248

2013

Impact Type	Employment	Labor Income	Total Value Added	Output
Direct Effect	383	\$ 5,079,397	\$ 7,186,701	\$ 33,164,467
Indirect Effect	89	\$ 5,042,410	\$ 7,616,807	\$ 15,800,225
Induced Effect	68	\$ 2,746,032	\$ 4,909,312	\$ 8,346,673
Total Effect	540	\$ 12,867,838	\$ 19,712,821	\$ 57,311,364



By Hekolambert (Own work) [GFDL (<http://www.gnu.org/copyleft/fdl.html>) or CC BY-SA 3.0 (<http://creativecommons.org/licenses/by-sa/3.0/>)], via Wikimedia Commons

NeRC