



ADVANCED MANUFACTURING LABOR MARKET REPORT

2018

THE COLUMBIA-WILLAMETTE WORKFORCE COLLABORATIVE
Working together to support and develop regional talent.



In 2016, the Columbia-Willamette Workforce Collaborative (CWWC) published its first data report about the Advanced Manufacturing industry. The 2016 report affirmed Advanced Manufacturing as a high growth industry in the Portland-Vancouver Metro Area and led the Collaborative to revise the 2014 Manufacturing Workforce Plan to establish new goals for 2016-2018.

Since the 2016 report, Advanced Manufacturing has added over 3,000 jobs, reaching some of the fastest growth rates for the sector in the 21st century. The impressive growth in recent years has spurred sector employment past pre-recession levels. A broad array of occupations experience considerable demand in Advanced Manufacturing, including engineers, machinists, managers, quality assurance techs, truck drivers, and software developers. The jobs being added in the Manufacturing industry are high wage, averaging nearly \$22 per hour. Demand, however, far-outpaces the current available skilled workforce in the region.

Advanced Manufacturing represents one of the most demographically diverse sectors in the Portland-Vancouver Metro Area. Age, however, remains a major concern for employers—nearly one-in-four of the sector's workforce is 55 or older and set to retire in the next decade. While job growth is expected to slow over the next decade, looming retirements and career changes mean that an estimated 94,000 job openings will exist through 2027.

Utilizing the labor market information found in this data report, the CWWC held a series of convenings with industry and stakeholders to again update the Manufacturing Workforce Plan and create new goals for 2019-2021. Updating the Manufacturing Workforce Plan allowed for the identification of common industry workforce challenges, the opportunity to coalesce around shared goals and resources, and align the efforts of the public workforce system to make a greater overall impact for the Manufacturing sector in our region.

Companies identified several areas of focus for revised Manufacturing Workforce Plan, indicating a strong emphasis be placed on making manufacturing a career of choice for emerging workers, connecting manufactures to the right candidates now, and strengthening the manufacturing industry throughout our region. The CWWC will work with employers and industry experts throughout the three-year plan, utilizing their skills and abilities to increase opportunities for industry exposure for youth and the individuals who influence their career decisions, identify and allocate resources for training and work readiness skills, advance workplace diversity, and strengthen the manufacturing industry through strategic partnerships.

The Columbia-Willamette Workforce Collaborative is committed to supporting the needs of the industry by ensuring that a skilled labor pool is ready to fill open positions now and in the future.

ABOUT THE COLUMBIA-WILLAMETTE WORKFORCE COLLABORATIVE

The Columbia-Willamette Workforce Collaborative (Collaborative) is a partnership between Clackamas Workforce Partnership, Workforce Southwest Washington and Worksystems: the three Workforce Development Boards covering the Portland-Vancouver Metropolitan Area. The Collaborative delivers a unified approach to serving industry, supporting economic development, and guiding public workforce training investments to better address the needs of our combined labor shed. We know that people are willing to travel throughout the region for the best opportunities and that employers need the most qualified workers regardless of where they live. By working together, we can cultivate our regional talent pool and build the foundation for a strong economy.

ABOUT THE GEOGRAPHIES

Throughout this report, data is often provided for all nine counties found on the map above. These nine counties, when combined, are referred to as the Portland-Vancouver Metro Area (PVMA). The PVMA is a combination of the seven-county Portland-Vancouver-Hillsboro Metro Statistical Area (MSA) and two additional counties served by the Collaborative—Cowlitz and Wahkiakum counties in Southwest Washington.



Columbia, Yamhill, and Skamania counties are not a part of the Collaborative's geography, however, remain an important part of this report as they are included with the Portland MSA. In instances where data is not available for the nine-county region combined, data instead is provided for the seven-county MSA.

ABOUT THIS REPORT

The Collaborative is focused on aligning and investing resources to support the workforce needs of four sectors: Advanced Manufacturing, Healthcare, Technology, and Construction. Sectors are chosen based on factors such as their economic significance to the region, current number of openings and job growth projections, average wages that support self-sufficiency, and career ladder opportunities across the skill continuum. By examining labor market intelligence (such as the data contained in this report) and vetting the information with business partners, we are able to better understand industry trends, identify current and emergent workforce needs, and develop customized solutions for each sector.

OVERVIEW

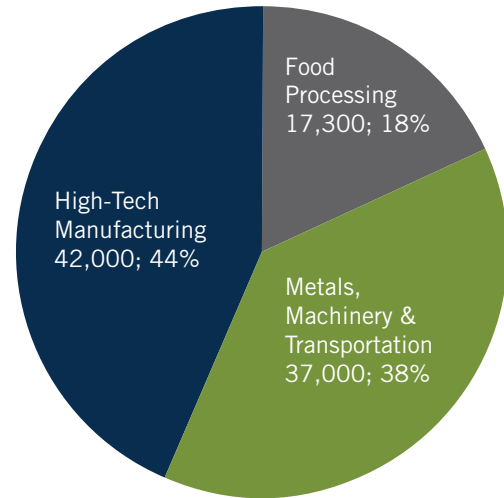
With over 96,000 jobs and a payroll of \$8.4 billion, Advanced Manufacturing accounts for nine percent of the Portland-Vancouver Metro Area’s private-sector employment and 14 percent of payroll.

While the region’s economy is well diversified, the manufacturing sector remains a critical component. In 2017, the Portland Metro Area ranked first nationally among the nation’s metro areas with populations greater than one million in proportion of its Gross Domestic Product generated by manufacturing: 23 percent compared to 11 percent nationally.

The Advanced Manufacturing sector includes High-Tech, Metals, Machinery & Transportation Equipment, and Food Processing.

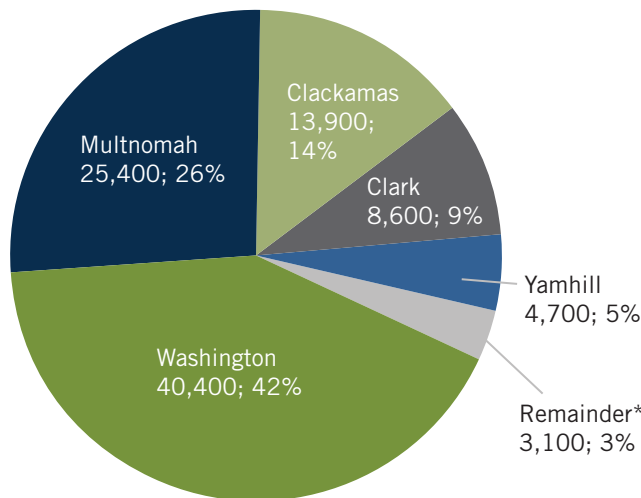
ADVANCED MANUFACTURING EMPLOYMENT BY COMPONENT PORTLAND-VANCOUVER METRO AREA, 2017

Source: Emsi



ADVANCED MANUFACTURING JOBS BY COUNTY PORTLAND-VANCOUVER METRO AREA, 2017

Source: Emsi



*Columbia, Cowlitz, Skamania, Wahkiakum counties

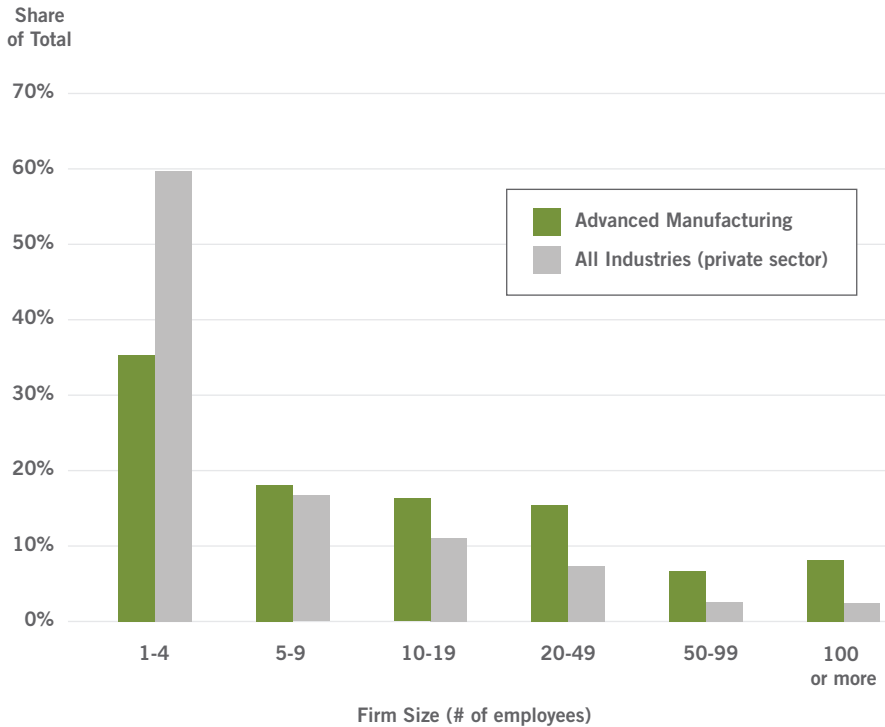
A substantial portion of Advanced Manufacturing jobs are concentrated in Washington County, specifically in the high-tech manufacturing subsector. Meanwhile, Multnomah County, despite having the second most number of manufacturing jobs, has a smaller concentration relative to the overall size of its economy.

Clackamas County has roughly 14,000 jobs (15 percent share of regional employment), and Southwest Washington adds about 10,000 jobs (11 percent).

Companies tend to be clustered along major road, water, and rail transportation corridors.

FIRMS BY SIZE CLASS: ADVANCED MANUFACTURING PORTLAND-VANCOUVER METRO AREA, 2017

Source: Oregon Employment Department, Washington Employment Security Department

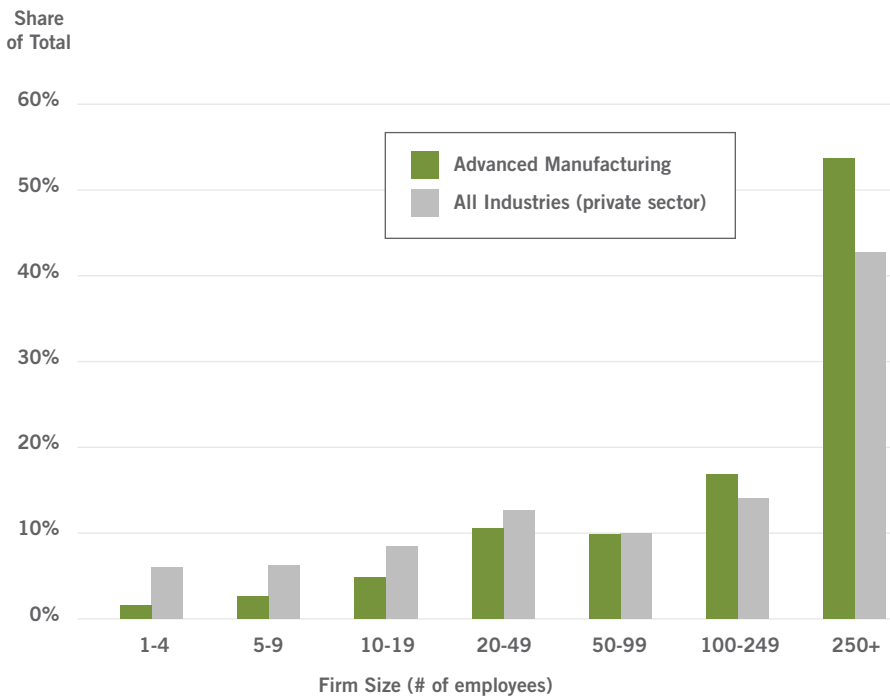


The sector has more larger firms and fewer small firms relative to the overall economy. The share of firms with at least 50 employees accounts for 15 percent of Advanced Manufacturing employment, compared to just 5 percent of the overall economy.

The average firm size is over three times larger than the average company in the region: 45 employees per company compared to 15 across all industries.

EMPLOYMENT BY SIZE CLASS: ADVANCED MANUFACTURING PORTLAND-VANCOUVER METRO AREA (OREGON PORTION)

Source: Oregon Employment Department



Over half of the region's Advanced Manufacturing employment works in establishments employing more than 250 workers.

MAJOR EMPLOYERS - NUMBER OF EMPLOYEES

MAJOR EMPLOYERS: ADVANCED MANUFACTURING

Source: Equifax (EMSI), The Business Journal, The Oregonian

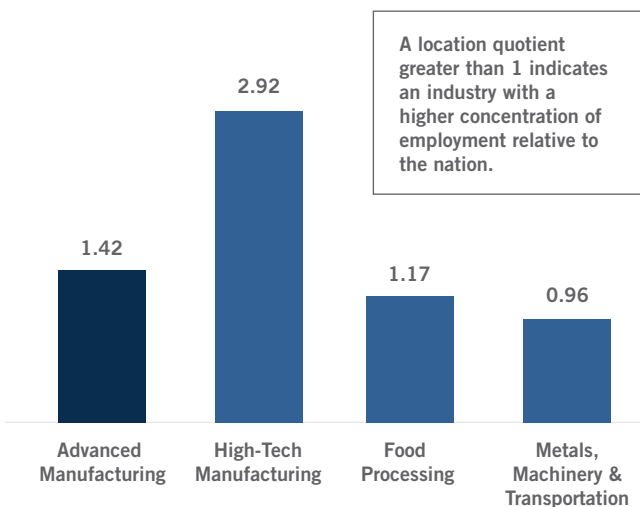
A-dec	Leatherman Tool Group, Inc.	Rockwell Collins Aerospace & Electronics, Inc.
Blount International Inc.	LifePort, Inc.	SEH America
Bob's Red Mill Natural Foods	Linear Technology	Siltronic Corporation
Boeing	Mondelez International	Steelscape, Inc.
C-Tech Industries	Norpac LLC	Tektronix
Columbia Machine	Neil Jones Food Co	Qorvo
Daimler Trucks	Oregon Iron Works (Vigor)	United States Bakery
Electro Scientific Industries Inc.	PDM Steel Service Centers	TTm Technologies
Esco	Precision Castparts/PCC Structurals	WaferTech
Evraz Oregon Steel Mills	Reser's Fine Foods Inc.	Waite Specialty Machine Inc.
Gunderson		Xerox Corporation
Intel Corporation		

Intel remains the largest private-sector employer in the region, with an estimated 20,000 employees in Washington County as of 2017. Other companies, however, help diversify the Advanced Manufacturing sector. Local employers manufacture a broad set of goods and devices outside of semiconductors, ranging from machinery, food, medical equipment, and aerospace parts.

LOCATION QUOTIENTS

LOCATION QUOTIENTS ADVANCED MANUFACTURING AND COMPONENTS PORTLAND-VANCOUVER METRO AREA, 2017

Source: Emsi



Location quotients are used to measure a sector's employment concentration in an area. A figure greater than one indicates a higher concentration of employment relative to the nation.

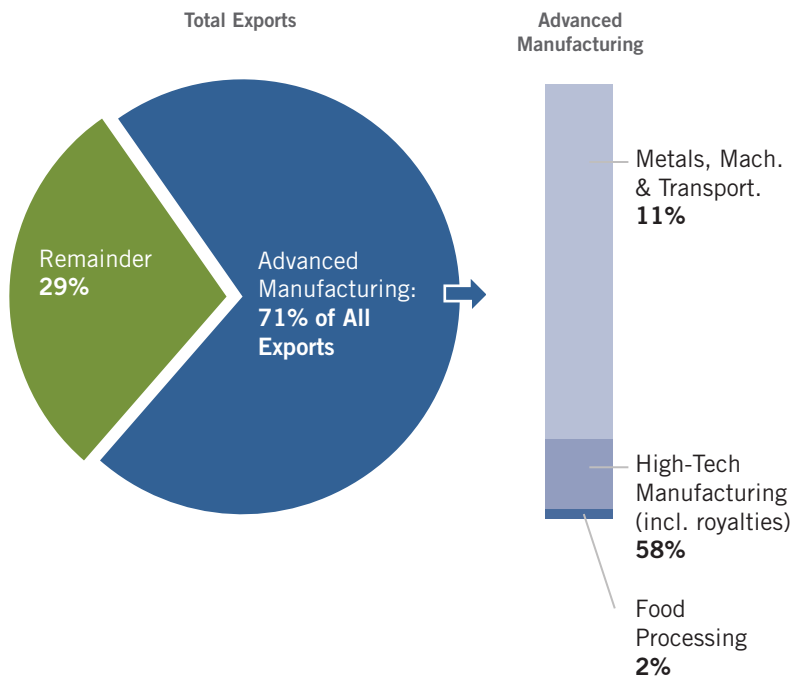
Advanced Manufacturing comprises a larger share of employment in the Portland-Vancouver Metro Area compared to the U.S. due primarily to the high-tech component, where employment is nearly three times as concentrated as the nation. These numbers remain consistent with 2014 LQ's, however, the metal, machinery, & transportation subsector has increased to 0.96 from 0.89.

The region has a competitive advantage in Advanced Manufacturing and is a net exporter of goods, driven by computer and electronic products, and metals.

EXPORTING

PORTLAND METRO AREA EXPORTS, 2017

Source: The Brookings Institution



Exports remain a critical component of the region's economy. According to the Brookings Institution, total exports directly supported an estimated 77,000 jobs in the metro area in 2017. Furthermore, despite being just the 23rd largest labor force, the metro area ranks 17th in exports—indicating the high concentration of exporting industries.

Advanced Manufacturing accounted for 71 percent of the Portland MSA's total exports—the largest share among the nation's 100 largest metro areas. Semiconductors accounted for about 40 percent of all exports in 2017.

Between 2014 and 2017, the metro area's Gross Domestic Product grew by four percent, the 21st fastest in the nation. The manufacturing sector grew similarly, about 4.5 percent, over the same period.

EMPLOYMENT TRENDS

Advanced Manufacturing is a cyclical industry, both locally and nationally.

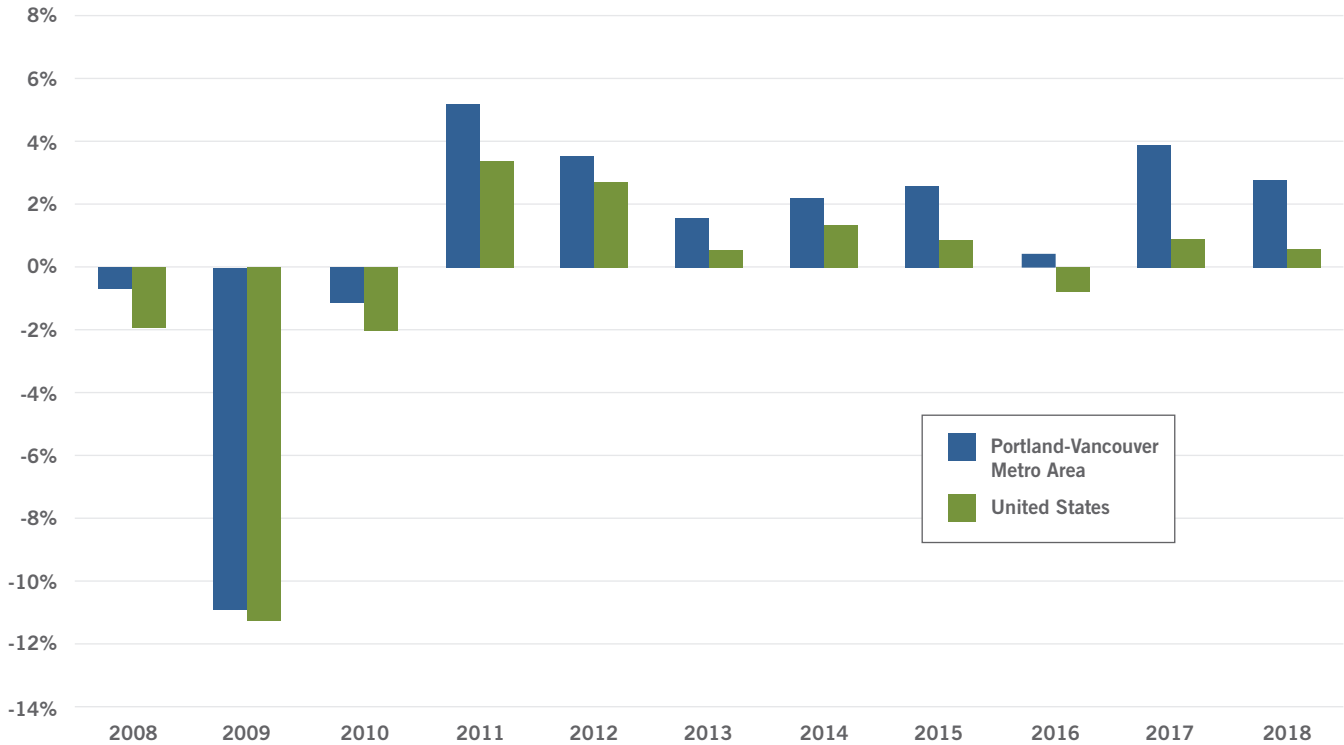
The Advanced Manufacturing sector in the Portland-Vancouver Metro Area consistently outperforms the nation.

The sector was hit hard during the Great Recession, losing 12 percent of its employment base (11,600 jobs). Even then, the sector regionally lost a smaller share of workers compared to across the nation.

The sector has bounced back strongly from the recession, with continued job growth for eight consecutive years. Following a slower period of growth, 2017 and 2018 displayed a revitalized sector as employer confidence led to more workers on payroll. All jobs lost from the Great Recession have now been recovered.

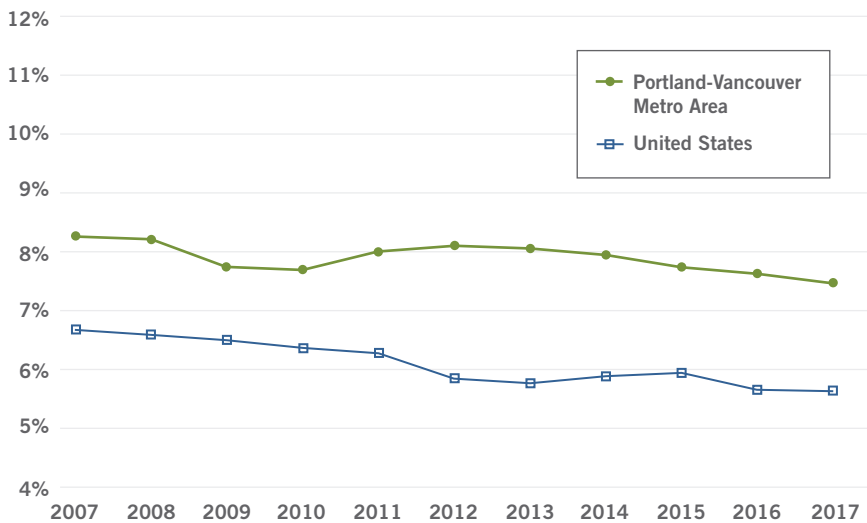
ADVANCED MANUFACTURING ANNUAL GROWTH RATES PORTLAND-VANCOUVER METRO AREA VS. UNITED STATES

Source: Emsi, QCEW



ADVANCED MANUFACTURING'S SHARE OF EMPLOYMENT PORTLAND-VANCOUVER METRO AREA AND U.S.

Source: Emsi

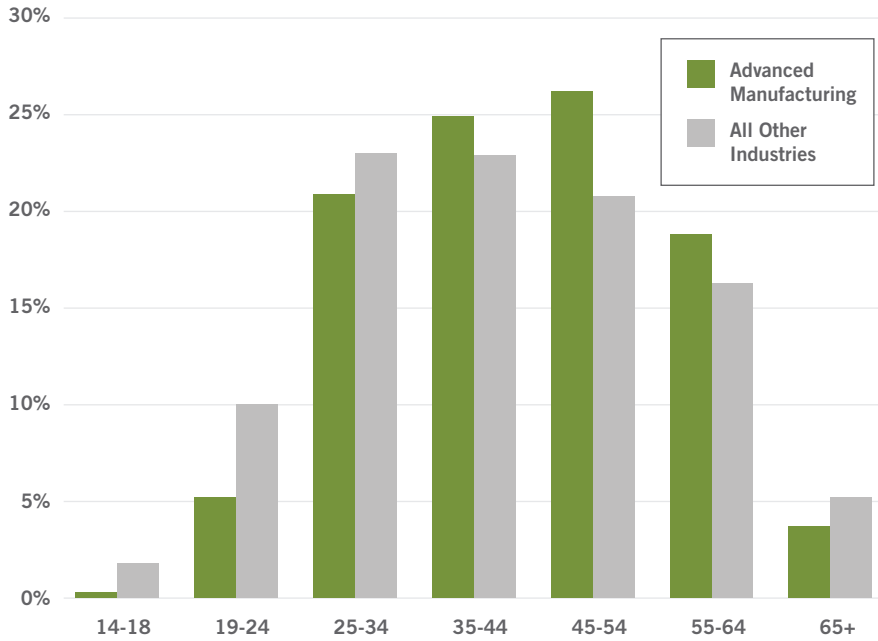


While the Advanced Manufacturing sector has grown in recent years, nearly all industries throughout the region are also experiencing growth, and often at a faster rate. Consequently, the sector's share of employment throughout the region has steadily decreased following a slight uptick in the immediate aftermath of the Great Recession. Despite the decline, Advanced Manufacturing continues to play a larger role in the economy regionally than compared to the nation.

CHARACTERISTICS OF THE WORKFORCE

ADVANCED MANUFACTURING EMPLOYMENT BY AGE PORTLAND-VANCOUVER METRO AREA, 2017

Source: Emsi

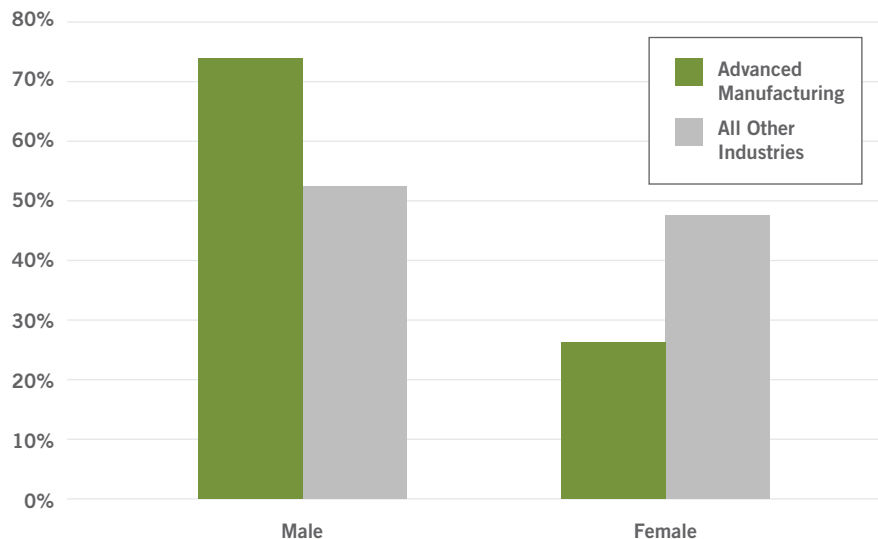


Age remains a major concern for employers in the Advanced Manufacturing sector. Nearly one-fourth of the sector’s workforce is 55 or older and set to retire in the next decade—meaning tens of thousands of replacement jobs will be available.

At the same time, only about five percent of the sector’s workforce is aged 14-24, compared to twelve percent across all industries. The lack of young workers entering the sector persists as an issue following the Great Recession.

ADVANCED MANUFACTURING EMPLOYMENT BY GENDER PORTLAND-VANCOUVER METRO AREA, 2017

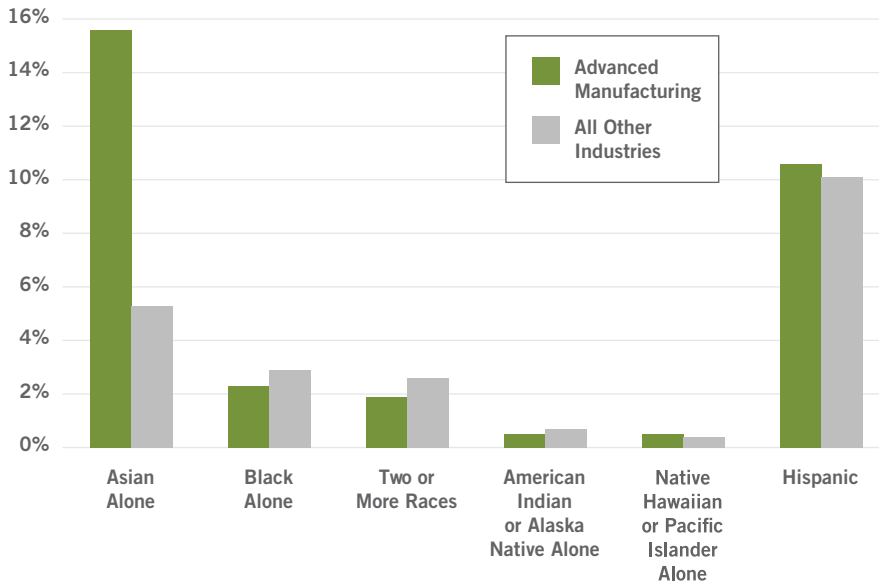
Source: Emsi



Males continue to represent the overwhelming majority (74 percent) of the Advanced Manufacturing sector’s workforce, especially compared to all other industries (52 percent).

**ADVANCED MANUFACTURING EMPLOYMENT BY RACE (NONWHITE) AND ETHNICITY
PORTLAND-VANCOUVER METRO AREA, 2017**

Source: Emsi



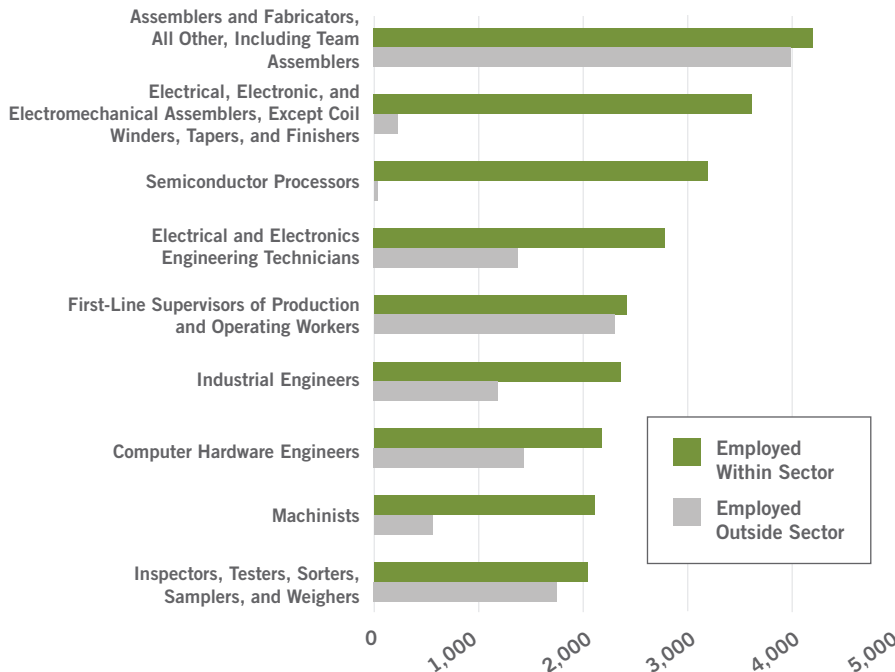
Advanced Manufacturing represents one of the most diverse sectors in the Portland-Vancouver Metro Area—Whites represent less than 70 percent of the workforce, compared to 77 percent of all other industries.

Asians are more than twice as likely to work in Advanced Manufacturing than in other industries.

OCCUPATIONS

**TOP ADVANCED MANUFACTURING SECTOR OCCUPATIONS
EMPLOYMENT WITHIN SECTOR VS. OUTSIDE OF SECTOR
PORTLAND-VANCOUVER METRO AREA, 2017**

Source: Emsi



Advanced Manufacturing employs a diverse array of jobs with over 400 occupations found in the sector.

The ten largest occupations account for 27 percent of employment in the sector.

Electrical assemblers and semiconductor processors tend to be unique to the sector and are not often found elsewhere in the economy. Additionally, about four-in-five machinists are employed in Advanced Manufacturing.

2017-2027 PROJECTED GROWTH: PORTLAND-VANCOUVER METRO AREA

Source: Emsi

Occupation	2017	2027	Projected Annual Growth Openings
Packaging and Filling Machine Operators and Tenders	1,152	1,397	24
Industrial Engineers	2,369	2,607	24
Food Batchmakers	1,317	1,551	23
Machinists	2,108	2,321	21
Electronics Engineers, Except Computer	1,559	1,714	16
Industrial Machinery Mechanics	1,032	1,174	14
Laborers and Freight, Stock, and Material Movers, Hand	1,463	1,581	12
First-Line Supervisors of Production and Operating Workers	2,417	2,534	12
Semiconductor Processors	3,193	3,305	11
Electrical Engineers	1,268	1,371	10
Helpers--Production Workers	889	986	10
Welders, Cutters, Solderers, and Brazers	2,024	2,119	10
Industrial Truck and Tractor Operators	805	888	8
Packers and Packagers, Hand	771	850	8
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	1,407	1,484	8

While growth is expected to slow for occupations in Advanced Manufacturing over the next decade, over 90,000 replacement openings are expected due to retirements and career changes. See the table of occupations on page 20 for replacement openings data.

LARGEST OCCUPATIONS IN ADVANCED MANUFACTURING, PORTLAND-VANCOUVER METRO AREA

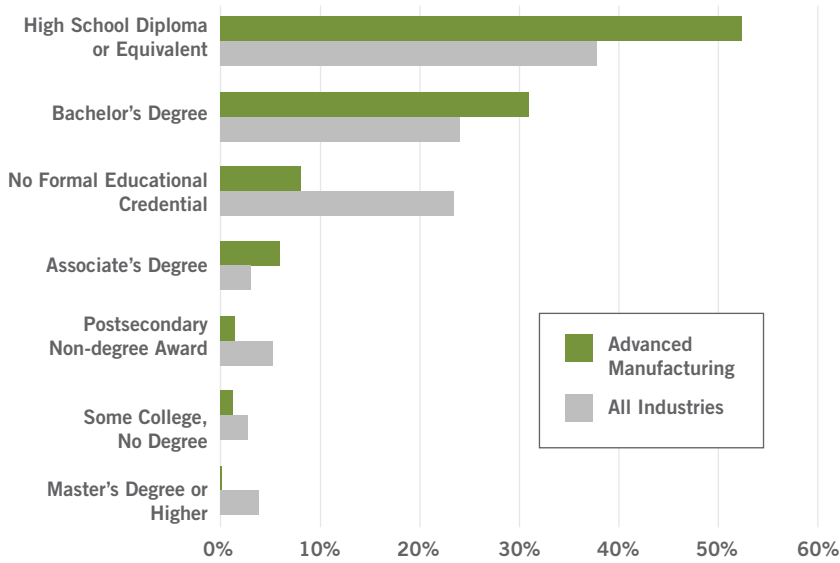
Source: Emsi

Occupation	2017 Sector Employment	% of Sector Employment	2017 Median Wage	% of Median Wage, All Occupations	Location Quotient	Education Level
Assemblers and Fabricators, All Other, Including Team Assemblers	4,207	4.5%	\$16.08	82%	0.70	High school diploma or equivalent
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	3,625	3.9%	\$16.64	84%	1.72	High school diploma or equivalent
Semiconductor Processors	3,193	3.4%	\$18.07	92%	16.79	High school diploma or equivalent
Electrical and Electronics Engineering Technicians	2,779	3.0%	\$32.01	162%	3.55	Associate's degree
First-Line Supervisors of Production and Operating Workers	2,417	2.6%	\$28.17	143%	0.91	High school diploma or equivalent
Industrial Engineers	2,369	2.5%	\$49.16	249%	1.54	Bachelor's degree
Computer Hardware Engineers	2,179	2.3%	\$62.76	318%	5.63	Bachelor's degree
Machinists	2,108	2.3%	\$23.07	117%	0.85	High school diploma or equivalent
Inspectors, Testers, Sorters, Samplers, and Weighers	2,048	2.2%	\$20.81	105%	0.82	High school diploma or equivalent
Welders, Cutters, Solderers, and Brazers	2,024	2.2%	\$21.69	110%	0.95	High school diploma or equivalent
Total All Occupations	93,212		\$19.73			

EDUCATIONAL REQUIREMENTS

ADVANCED MANUFACTURING EMPLOYMENT BY EDUCATIONAL LEVEL PORTLAND-VANCOUVER METRO AREA, 2017

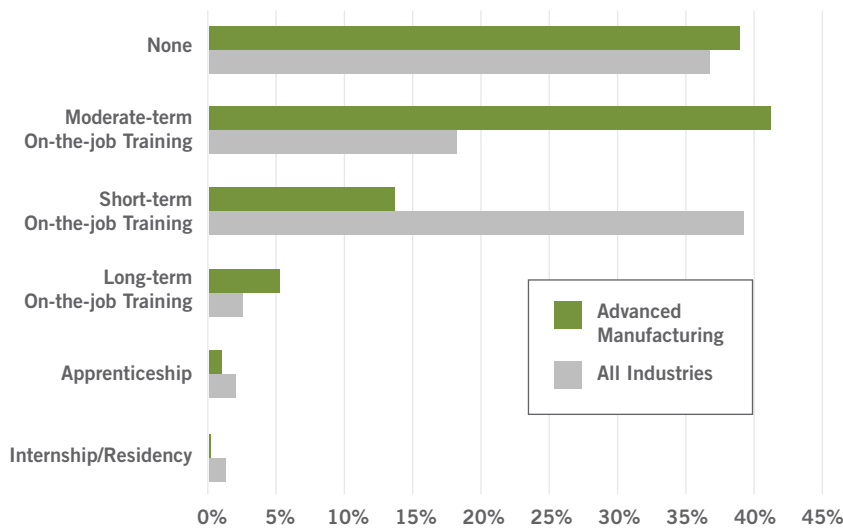
Source: Emsi



While nearly a third of Advanced Manufacturing occupations require higher levels of education (engineers and managers), more than half require no education beyond a high school diploma.

ADVANCED MANUFACTURING EMPLOYMENT BY TYPICAL ON-THE-JOB TRAINING PORTLAND-VANCOUVER METRO AREA, 2017

Source: Emsi



Over 60 percent, however, do require some form of on-the-job training, typically indicating that upskilling beyond a high school diploma may be required.

ADVANCED MANUFACTURING TRAINING AND DEGREE PROGRAM GRADUATE DATE

Source: Emsi

Training	2017	Award of less than 1 academic year	Award of at least 1 but less than 2 academic years	Associate's	Award of at least 2 but less than 4 academic years	Bachelor's	Postbaccalaureate	Master's	Doctorate's
Airframe Mechanics and Aircraft Maintenance Technology/Technician	77	--	35	17	25	--	--	--	--
Autobody/Collision and Repair Technology/Technician	36	18	0	8	10	--	--	--	--
Bioengineering and Biomedical Engineering	28	--	--	14	--	--	--	9	5
CAD/CADD Drafting and/or Design Technology/Technician	9	--	--	9	--	--	--	--	--
Computer Numerically Controlled (CNC) Machinist Technology/CNC Machinist	4	--	4	--	--	--	--	--	--
Drafting and Design Technology/Technician, General	34	34	--	--	--	--	--	--	--
Electrical and Electronics Engineering	205	--	--	7	--	67	--	128	3
Electrical, Electronic and Communications Engineering Technology/Technician	77	4	29	44	--	--	--	--	--
Electromechanical Technology/Electromechanical Engineering Technology	49	14	17	18	--	--	--	--	--
Engineering Technology, General	3	--	--	1	--	--	2	--	--
Engineering, General	58	--	--	24	--	32	--	2	--
Engineering, Other	5	--	--	--	--	--	5	--	--
Engineering/Industrial Management	28	--	--	--	--	--	4	22	2
Industrial and Product Design	8	--	--	--	--	8	--	--	--
Industrial Mechanics and Maintenance Technology	2	--	--	2	--	--	--	--	--
Industrial Production Technologies/Technicians, Other	66	32	22	--	12	--	--	--	--
Industrial Technology/Technician	3	--	--	3	--	--	--	--	--
Logistics, Materials, and Supply Chain Management	159	--	--	--	--	129	6	24	--
Machine Shop Technology/Assistant	105	81	23	1	--	--	--	--	--
Machine Tool Technology/Machinist	86	1	20	63	2	--	--	--	--
Manufacturing Engineering Technology/Technician	62	14	15	33	--	--	--	--	--
Materials Engineering	2	--	--	--	--	--	--	2	--

Continued on next page

ADVANCED MANUFACTURING TRAINING AND DEGREE PROGRAM GRADUATE DATE (CON'T)

Source: Emsi

Training	2017	Award of less than 1 academic year	Award of at least 1 but less than 2 academic years	Associate's	Award of at least 2 but less than 4 academic years	Bachelor's	Postbaccalaureate	Master's	Doctorate's
Mechanical Drafting and Mechanical Drafting CAD/CADD	9	--	1	8	--	--	--	--	--
Mechanical Engineering	186	--	--	11	--	146	--	28	1
Mechanical Engineering Related Technologies/Technicians, Other	67	67	--	--	--	--	--	--	--
Mechanical Engineering/Mechanical Technology/Technician	21	--	--	20	1	--	--	--	--
Quality Control Technology/Technician	2	2	--	--	--	--	--	--	--
Welding Technology/Welder	364	209	100	55	--	--	--	--	--
Total	1,755	476	266	338	50	382	17	215	11

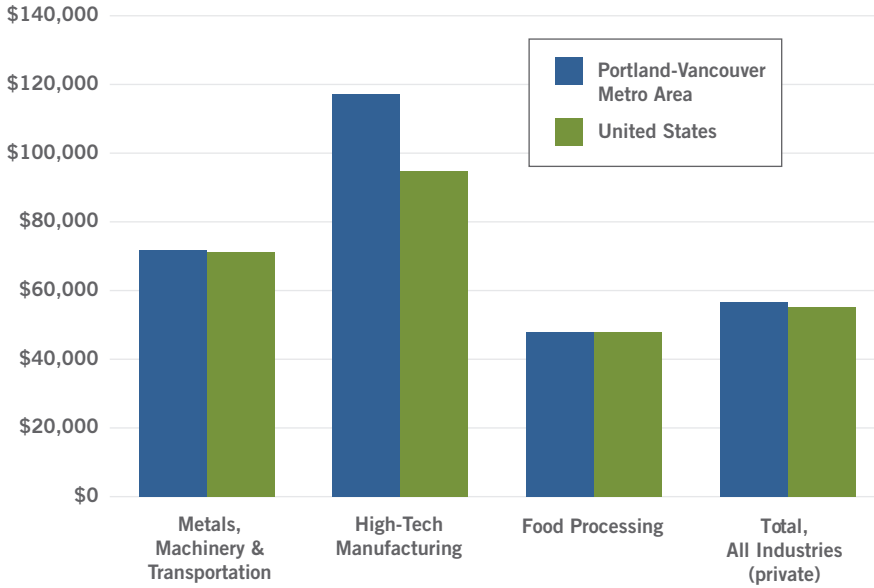
The institution data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

This data only provides training completers from post-secondary institutions found in the IPEDS database published by the U.S. Department of Education's National Center for Education Statistics. Consequently, apprenticeship and private training programs are not included.

WAGES

ANNUAL AVERAGE WAGES FOR COMPONENTS OF ADVANCED MANUFACTURING: PORTLAND-VANCOUVER METRO AREA AND U.S., 2017

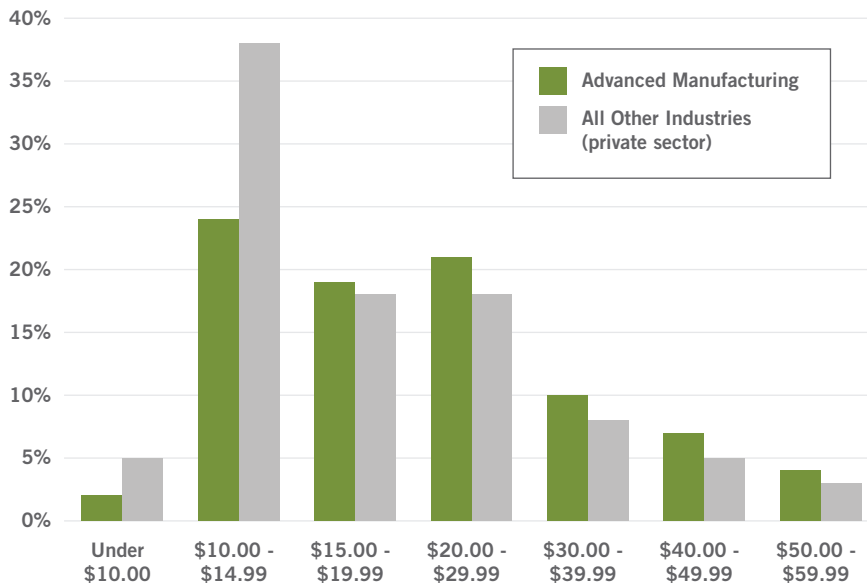
Source: Emsi



Several high-paying industries comprise the Advanced Manufacturing sector in the Portland-Vancouver metro area. They typically pay more than their national counterparts. Overall, the Advanced Manufacturing sector pays 19 percent more in the region than the nation.

ADVANCED MANUFACTURING SHARE OF EMPLOYMENT BY HOURLY WAGE OREGON, 2017

Source: Oregon Employment Department Unemployment Insurance Wage Records

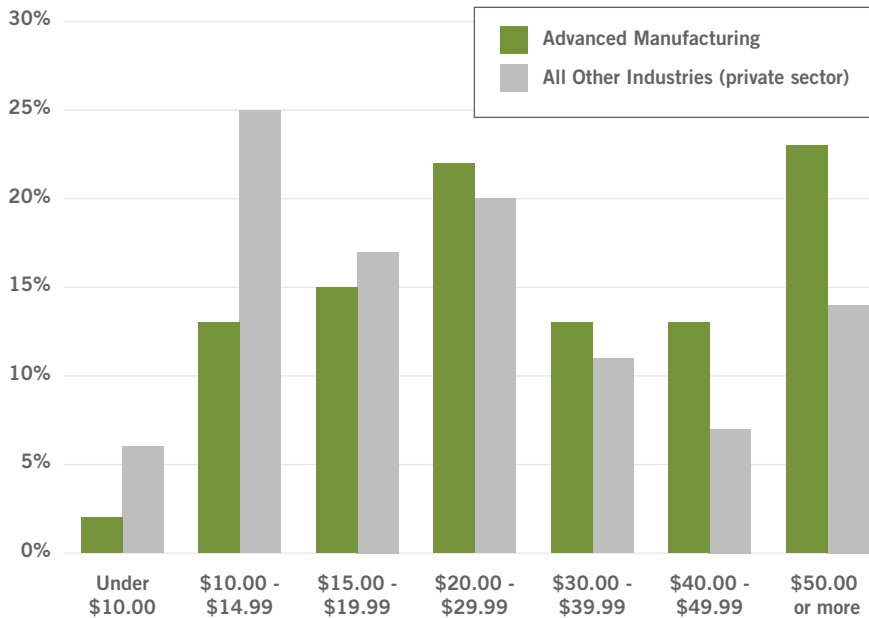


The median wage for Advanced Manufacturing throughout all of Oregon is \$21.68 (2017)—29 percent more than across all industries (\$16.80).

About one-in-four workers in Advanced Manufacturing earn at least \$40 per hour compared to just 13 percent across all other industries.

ADVANCED MANUFACTURING SHARE OF EMPLOYMENT BY HOURLY WAGE WASHINGTON, 2017

Source: Washington Employment Security Department



Throughout Washington, 36 percent of the Advanced Manufacturing’s workforce earns at least \$40 per hour, compared to just 21 percent of workers across all other industries.

TURNOVER

TURNOVER RATE IN ADVANCED MANUFACTURING PORTLAND-VANCOUVER METRO AREA, 2017

Source: Worksystems analysis of U.S. Census Bureau (LEHD) data

Total, Advanced Manufacturing	5.4%
Metals, Machinery & Transportation	5.7%
High-Tech Manufacturing	3.8%
Food Processing	8.9%
Total, All Industries (private sector)	9.4%

Excludes Skamania County
4 quarter average ending 3Q2017

Turnover refers to the change in the workforce due to employee separations and hiring.

There is less turnover in Advanced Manufacturing than in the overall economy. Turnover in the sector has increased 0.5 percentage points since 2015, likely due to a tight labor market.

Turnover in Food Processing (8.9%) is similar to all private industries (9.4%) while workers in High-Tech are more likely to stay at their current jobs.

VACANCIES

LARGEST NUMBER OF VACANCIES IN MANUFACTURING-RELATED OCCUPATIONS PORTLAND TRI-COUNTY, 2017

Source: Oregon Employment Department, 2017 Job Vacancy Survey

Occupation	2017 Vacancies, All Industries
Heavy and Tractor-Trailer Truck Drivers	731
Production Workers, All Other	676
Production Workers, All Other	676
Light Truck or Delivery Services Drivers	478
Machinists	257
Laborers and Freight, Stock, and Material Movers, Hand	225
Welders, Cutters, Solderers, and Brazers	174
Helpers—Installation, Maintenance, and Repair Workers	170
Food Batchmakers	156
Team Assemblers	135
Automotive and Watercraft Service Attendants	109
Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	84
Helpers—Production Workers	76

Tri-County: Clackamas, Multnomah, Washington counties

NOTE: Information not available for SW Washington

An overwhelming amount of jobs that will become available in Advanced Manufacturing over the next decade will be vacancies due to retirements or career changes.

Over 90,000 vacancies are expected across the region through 2027.

CURRENT SUPPLY

REGISTERED JOBSEEKERS

ADVANCED MANUFACTURING: PORTLAND METRO AREA (OREGON PORTION)

Source: Oregon Employment Department

Occupation	Jobseekers ¹
Semiconductor Processors	136
Electrical and Electronic Equipment Assemblers	381
Industrial Engineers	179
Machinists	266
Industrial Engineering Technicians	108
Welders, Cutters, Solderers, and Brazers	386
Team Assemblers	685
Inspectors, Testers, Sorters, Samplers, and Weighers	552
Electrical and Electronic Engineering Technicians	280
Computer-Controlled Machine Tool Operators, Metal and Plastic	217
Computer Hardware Engineers	131
Mechanical Engineers	150

¹ Data represents jobseekers registered with The Oregon Employment Department, iMatchSkills (active status, August 2018). Data is self-reported. Job seekers can include more than one occupation in their iMS profile, therefore job seekers might be counted more than once in the data.

Portland Metro Area (Oregon portion): Clackamas, Columbia, Multnomah, Washington, Yamhill counties

NOTE: Information not available for SW Washington

There are several ways to depict the current supply of workers. Unemployment Insurance (UI) claimants are a subset of jobseekers and does not include those unemployed workers who don't qualify for, or have exhausted, benefits. This data is only available in Washington State.

Persons registered with the Oregon Employment Department are both employed and unemployed jobseekers including but not limited to those receiving unemployment benefits. This is a much larger pool of workers than UI claimants.

**UNEMPLOYMENT INSURANCE CLAIMANTS
SOUTHWEST WASHINGTON**

Source: Washington Employment Security Department

Occupation	Claimants ¹
Welders, Cutters, Solderers, and Brazers	20
Inspectors, Testers, Sorters, Samplers, and Weighers	6
Computer-Controlled Machine Tool Operators, Metal and Plastic	2
Electrical and Electronic Engineering Technicians	3
Mechanical Engineers	11
Machinists	6
Team Assemblers	1
Semiconductor Processors	1
Electrical and Electronic Equipment Assemblers	2
Industrial Engineering Technicians	1

In Southwest Washington, there were just 53 unemployed workers claiming unemployment insurance in Advanced Manufacturing's 12 largest occupations (August 2018).

1 Data represents claimants registered with The Washington Employment Security Department (active status, August 2018).

Southwest Washington: Clark, Cowlitz, Wahkiakum, Skamania counties

CURRENT DEMAND

ADVANCED MANUFACTURING OCCUPATIONS WITH LARGEST NUMBER OF ONLINE JOB POSTINGS PORTLAND-VANCOUVER METRO AREA, JUNE 2017 - MAY 2018

Source: Emsi

Occupation (SOC)	Unique Postings (Oct 2017 - Sep 2018)	Median Posting Duration
Industrial Engineers	1,419	49 days
Software Developers, Applications	1,324	43 days
Marketing Managers	1,204	36 days
Sales Managers	818	33 days
First-Line Supervisors of Production and Operating Workers	803	39 days
Retail Salespersons	717	36 days
Computer Occupations, All Other	707	36 days
Maintenance and Repair Workers, General	702	47 days
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	701	35 days
Stock Clerks and Order Fillers	690	34 days
Inspectors, Testers, Sorters, Samplers, and Weighers	657	22 days
Mechanical Engineers	605	40 days
Heavy and Tractor-Trailer Truck Drivers	596	53 days
Customer Service Representatives	491	32 days
Electrical Engineers	468	52 days
Managers, All Other	429	31 days
General and Operations Managers	421	33 days
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	407	35 days
First-Line Supervisors of Office and Administrative Support Workers	399	34 days
Computer User Support Specialists	391	38 days

Online job postings have become more common in manufacturing compared to traditional methods of hiring (word of mouth, unionization), especially for positions that typically require higher levels of education including engineers, software developers, and managers.

A higher median posting duration likely indicates that regional employers struggle to fill these positions. The median average for all job postings is 31 days.

LONG-TERM DEMAND

OCCUPATIONS ADDING THE LARGEST NUMBER OF JOBS: ADVANCED MANUFACTURING PORTLAND-VANCOUVER METRO AREA

Source: Emsi

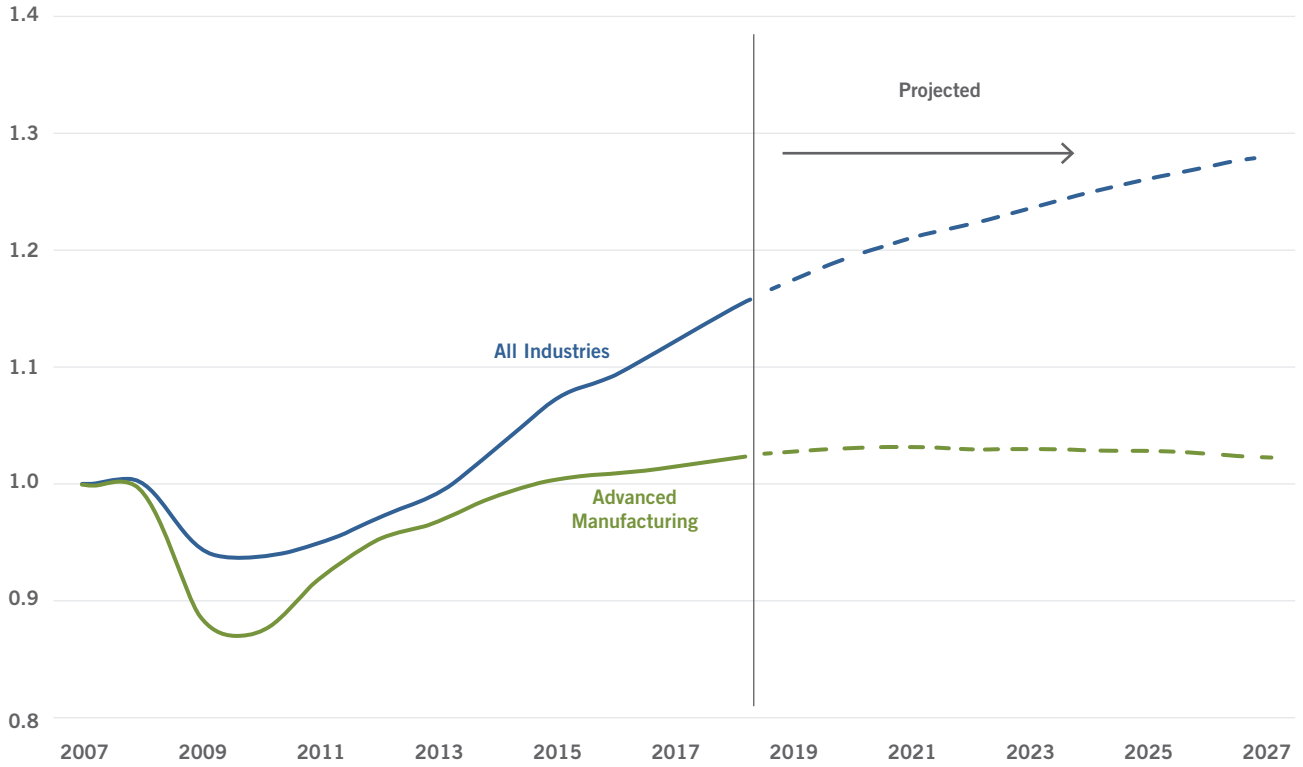
Occupation	2017	2027	Change	Percent Growth	Projected Annual Growth Openings	Estimated Replacement Openings*	Estimated Total Annual Openings
Machinists	2,113	2,323	210	10%	21	3,168	338
Packaging and Filling Machine Operators and Tenders	1,160	1,352	192	17%	19	3,766	396
Food Batchmakers	1,321	1,505	184	14%	18	2,609	279
Industrial Engineers	2,371	2,548	177	7%	18	2,760	294
Industrial Machinery Mechanics	1,038	1,159	121	12%	12	2,913	303
Laborers and Freight, Stock, and Material Movers, Hand	1,469	1,588	119	8%	12	29,270	2,939
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	1,405	1,505	100	7%	10	15,531	1,563
First-Line Supervisors of Production and Operating Workers	2,426	2,521	95	4%	10	5,062	516
Welders, Cutters, Solderers, and Brazers	2,029	2,122	93	5%	9	3,858	395
Helpers--Production Workers	893	975	82	9%	8	4,450	453
Electronics Engineers, Except Computer	1,559	1,639	80	5%	8	1,643	172
Electrical Engineers	1,272	1,343	71	6%	7	1,911	198
Packers and Packagers, Hand	777	843	66	8%	7	8,286	835
Industrial Truck and Tractor Operators	806	871	65	8%	7	6,163	623
Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	432	489	57	13%	6	615	67
Total Sector	92,679	92,258	-420	0%	-42	--	--

* Replacement openings are for occupations across all industries, not just Advanced Manufacturing.

While the Advanced Manufacturing sector has shown strong growth in recent years, current projections temper growth over the next decade, effectively showing stagnation. Even if growth does slow, an estimated 94,000 replacement openings will exist through 2027 due to retirements and career changes.

**HISTORICAL & PROJECTED GROWTH
PORTLAND-VANCOUVER METRO AREA
2007 INDEXED TO 1**

Source: Emsi



IMPORTING TALENT

H-1B VISAS FOR MANUFACTURING-RELATED OCCUPATIONS PORTLAND-VANCOUVER METRO AREA, 2017

Source: Department of Labor

Occupation	# of Certified H-1B Visas
Computer Systems Analysts	1,880
Software Developers, Systems Software	1,257
Electronics Engineers, Except Computer	1,038
Software Developers, Applications	928
Materials Engineers	901
Computer Occupations, All Other	848
Sales Engineers	154
Computer and Information Systems Managers	104
Accountants and Auditors	93
Computer Hardware Engineer	81
Mechanical Engineers	76
Computer and Information Research Scientists	72
Industrial Engineers	66
Electrical Engineers	49
Information Security Analysts	49
Architectural And Engineering Managers	28
Engineers, All Other	24
Commercial and Industrial Designers	22
General and Operations Managers	12
Marketing Managers	12
Logisticians	9
Biomedical Engineers	6
Environmental Engineers	2

The H-1B Visa allows employers to temporarily employ foreign workers in specialty occupations which include engineering, math, and medicine, and generally require a Bachelor's degree or equivalent.

Nearly 9,500 H-1B visas were certified in the Portland-Vancouver Metro Area in 2017. Over 7,700 were issued for occupations prevalent in the Advanced Manufacturing sector.

More than ninety percent of certified visas were filed by firms in just three cities: Hillsboro, Beaverton, and Portland. While the region does not utilize H-1B visas as frequently as other metros throughout the country, the Portland-Vancouver Metro Area is unique in that just a few employers drive most of the demand for H-1B visas in the region.

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THE COLUMBIA-WILLAMETTE WORKFORCE COLLABORATIVE



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