



Pennsylvania defines industry clusters to serve as the basis for data-driven workforce development policies. An industry cluster includes industries closely linked by common products, labor pools, technologies, supplier chains and training needs. They take on strategic importance for long-term economic planning as changes that benefit one group member will generally impact other members of the cluster.

Industry clusters are comprised of specific six-digit North American Industry Classification System, or NAICS, codes. They are mutually exclusive, so that no two clusters contain the same NAICS code. Currently, there are 12 clusters identified, along with several critical sub-clusters. Combined, these 12 industry clusters account for nearly 83 percent of all employment in the Commonwealth.

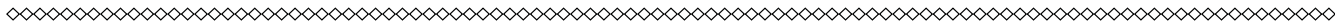
Cluster Summary

The Bio-Medical (BM) cluster includes industries that develop and use technology to enhance life from a health perspective. Industries in this cluster include research laboratories, pharmaceutical manufacturing, surgical and medical equipment manufacturing, and imaging centers. This cluster largely represents industries that employ advanced technology and serve as a foundation for enhanced medical services.

	2012	2017
Employer Units	2,326	2,429
Number of Jobs	76,300	79,638
Percent of Total Pennsylvania Jobs	1.4%	1.4%
Average Annual Wages	\$95,884	\$106,144
Location Quotient (LQ)	1.16	1.21

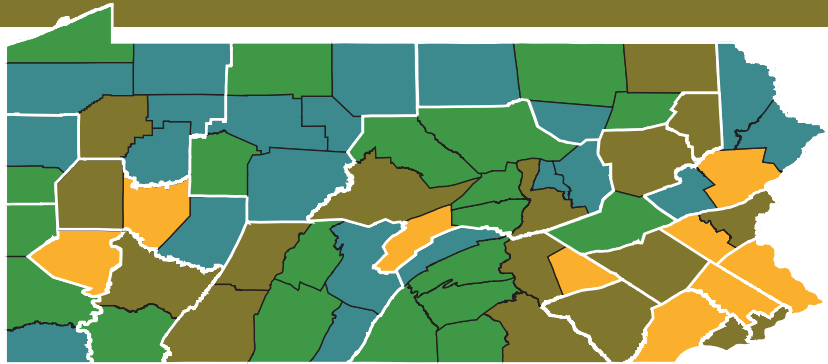
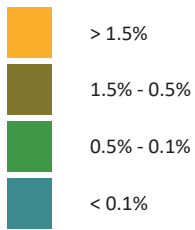
LQs greater than one suggest a competitive advantage.

Statewide employment within the cluster has increased slightly over the 2012-2017 time period (4.4%). While the state continues to maintain a competitive Location Quotient (LQ), it is mostly due to the Montgomery County Workforce Development Area (WDA) LQ of 4.43 (seen on page 3). Much of the employment gain in the cluster appears to have been in higher-paying jobs as the average wage increased considerably (approximately 11 percent) over the same time period.



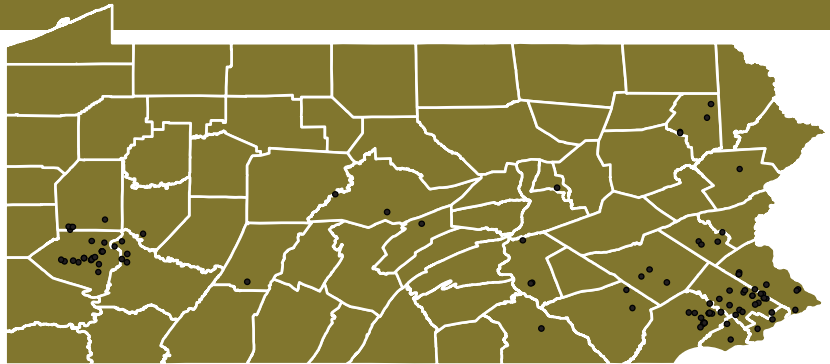
Center for Workforce Information & Analysis
 651 Boas St.
 Harrisburg, PA 17121
www.workstats.dli.pa.gov

Percent Employment by County



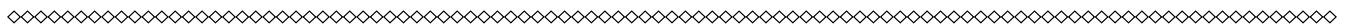
Major Employers

- Merck Sharp & Dohme Corporation
- Aventis Pasteur Inc
- Quest Diagnostics Inc
- Bayer US LLC
- B Braun Medical Inc
- Teva Pharmaceuticals USA



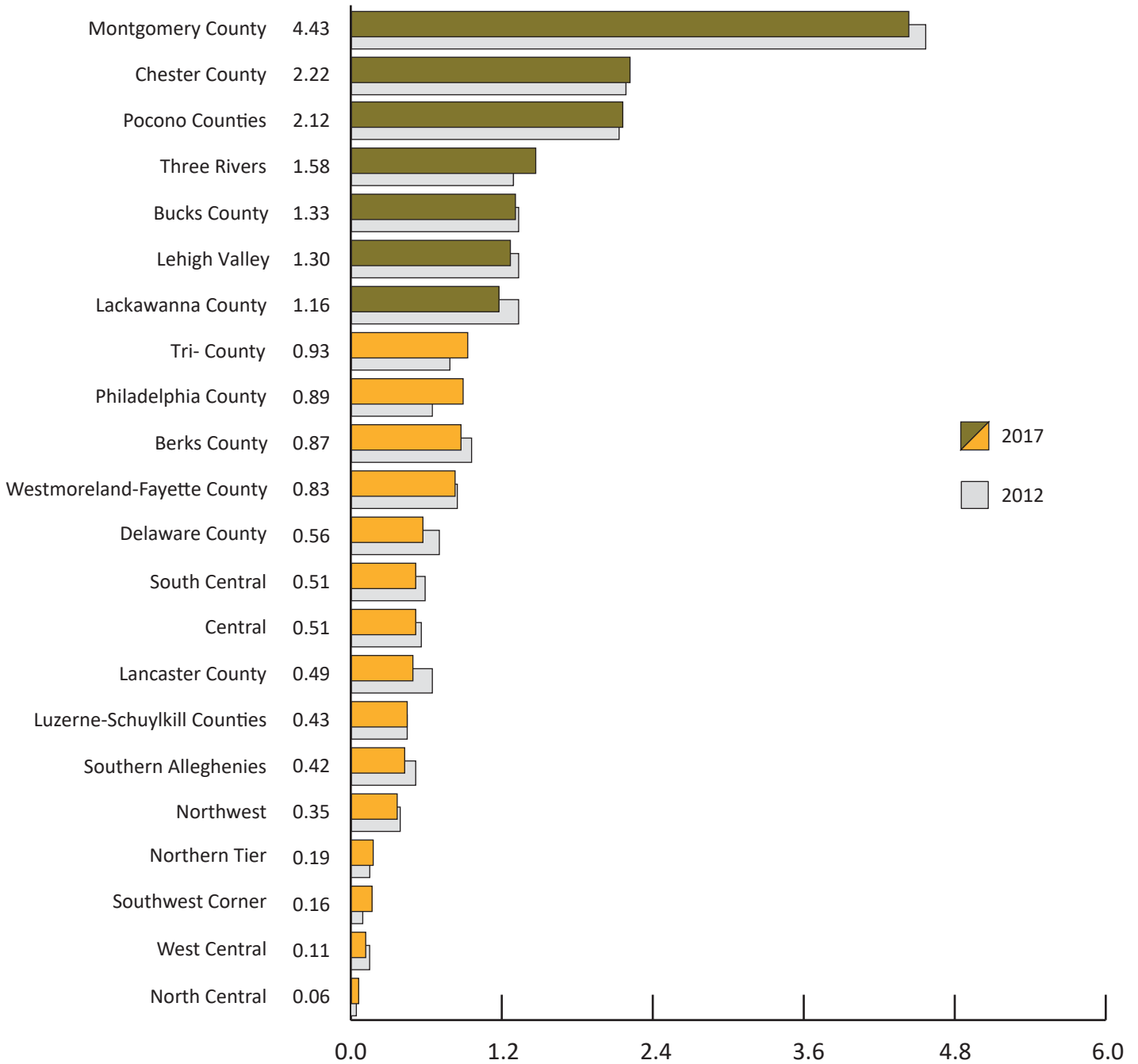
Top Industries Based on Employment

- Physical, Engineering & Biological Research
- Pharmaceutical Preparation Manufacturing
- Medical Laboratories
- Surgical & Medical Instrument Manufacturing
- Other Biological Product Manufacturing
- Surgical Appliance & Supplies Manufacturing
- Diagnostic Imaging Centers
- Electromedical Apparatus Manufacturing
- Social Science & Humanities Research
- Dental Laboratories
- Dental Equipment & Supplies Manufacturing
- Ophthalmic Goods Manufacturing
- Medicinal & Botanical Manufacturing
- In-Vitro Diagnostic Substance Manufacturing
- Optical Instrument & Lens Manufacturing



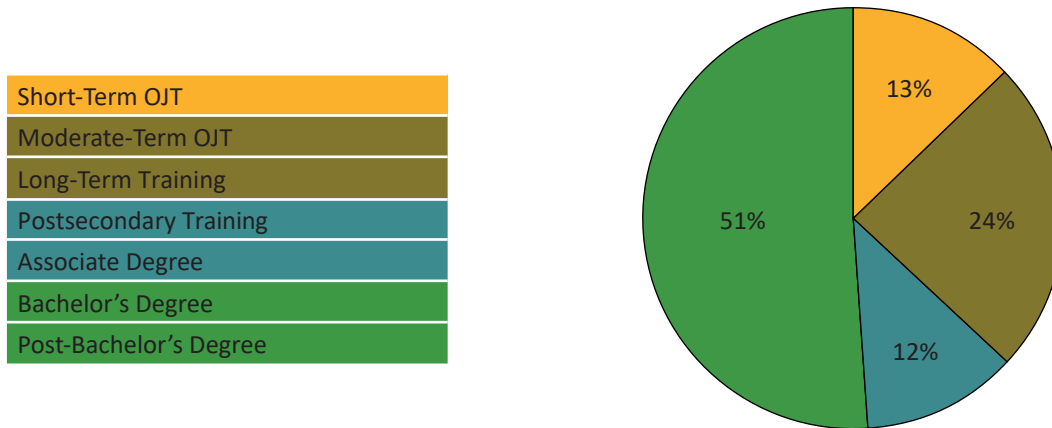
Employment Concentration

A location quotient, or LQ, compares a cluster's share of local employment to its share of national employment. This value can be used when evaluating the strength of an industry cluster within an area. An LQ greater than one indicates that the cluster has, on average, more employees locally than typically expected implying a possible competitive advantage. While the Montgomery County WDA has the highest LQ of any area, it has declined since 2012. Only the Chester County, Pocono Counties and Three Rivers WDAs have LQs greater than one and have also slightly increased their competitiveness since 2012.



Educational Requirements

This graph illustrates the minimum educational attainment levels for jobs found in this cluster's various industries. Postsecondary education is very important to this cluster as nearly 63 percent of BM jobs require some formal postsecondary education to enter employment. This cluster offers the fewest opportunities for employment for low-skilled workers.



Occupations with Significant Employment

The following table lists occupations that employ at least 1,000 people in the BM cluster.

SOC Code	Occupation	Cluster Wage 2017	Job Openings	
			Industry Cluster	All Industries
19-1042	Medical Scientists	\$113,982	145	204
19-2031	Chemists	\$81,173	91	166
19-4021	Biological Technicians	\$48,766	73	158
19-1021	Biochemists & Biophysicists	\$90,052	50	59
43-9061	Office Clerks, General	\$37,753	35	3,071
43-6014	Secretaries	\$42,457	17	1,330
43-4051	Customer Service Representatives	\$40,606	42	3,302
51-9111	Packaging & Filling Machine Operators	\$38,596	52	622
51-9011	Chemical Equipment Operators	\$44,971	40	145
11-1021	General & Operations Managers	\$176,748	39	1,993
51-9061	Inspectors, Testers, Sorters, Samplers & Weighers	\$44,302	34	558
51-1011	Supervisors- Production & Operating Workers	\$65,984	19	456
51-9082	Medical Appliance Technicians	\$43,474	27	32
19-4031	Chemical Technicians	\$47,339	37	147
51-9081	Dental Laboratory Technicians	\$39,923	26	35