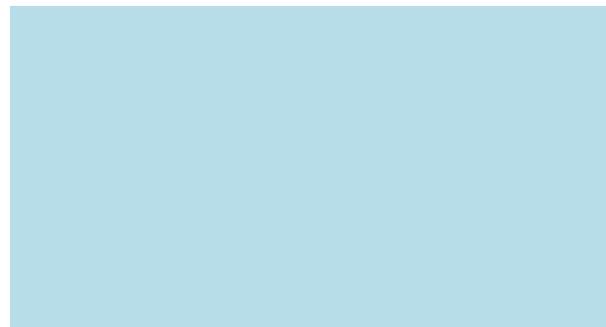


Employment Change in Pennsylvania Industries

A Statewide and Countywide Graphic Update: 2001 - 2019



PennState
College of Agricultural Sciences

**Center for Economic and
Community Development**

About this Report

“Employment Change in Pennsylvania Industries” seeks to tell a story of employment change across numerous industries in the state of Pennsylvania (PA) and its 67 counties between the beginning of 2001 and through the end of 2019. From the turn of the 21st century, through the “Great Recession” of 2008-2009, and into recent years, employment numbers have fluctuated by industry sector and location. Although Pennsylvania’s total increase in employment since 2001 has lagged behind both national statistics and those of its neighboring states, the Commonwealth’s story is one of resilience and growth when it comes to creating jobs for Pennsylvanians.

Much of this report compares three time periods and their business cycles: [2001 to 2008], [2008 to 2019], and [2001 to 2019] overall, just prior to the emergence of the COVID-19 pandemic with its subsequent employment impacts. This is done to capture “pre-recession” and “post-recession” employment trends, marked by the “Great Recession” that began in Q1 of 2008 and hit Pennsylvania’s economy with a loss of nearly 200,000 jobs between June 2008 and December 2009. During this time, statewide unemployment rose from 5.2 to 8.6 percent, setting the stage for a decade-long recovery process, with unemployment reaching a historic low of 4.7% at the end of 2019. These conditions vary at the county level over time, with disparities between counties proximate to metropolitan areas versus those that are more rural. Future CECD reports will document the employment effects of the COVID-19 pandemic, which began in early 2020.

In this report you will find charts, tables, and maps depicting changes in employment over time, geography, and industry using data from the Pennsylvania Department of Labor and Industry and the U.S. Bureau of Labor Statistics. The industries discussed in this report are classified according to the North American Industry Classification System (NAICS), which is the standard classification system used by federal statistical agencies to group similar industries and sectors for reporting. NAICS is used to classify businesses and business establishments for data collection, analysis, and to publish data related to employment, wages, and the US business economy. The NAICS is managed by the Office of Management and Budget (OMB). Industry sector classifications and definitions can be found at https://www.bls.gov/iag/tgs/iag_index_naics.htm.

Pennsylvania industry sectors examined in this report:

Agriculture, Forestry, Fishing, and Hunting	Information
Mining, Quarrying, and Oil and Gas Extraction	Finance and Insurance
Construction	Real Estate and Rental and Leasing
Manufacturing	Professional and Technical Services
Wholesale Trade	Educational Services
Retail Trade	Health Care and Social Assistance
Transportation and Warehousing	Arts, Entertainment, and Recreation
Utilities	Accommodation and Food Services
Administrative and Waste Services	Public Administration
Management of Companies and Enterprises	Other Services

Defining Employment

Employment is defined by the number of filled jobs by place of work, reported by employer. Employment includes full, part-time, temporary, and permanent jobs (U.S. Bureau of Labor Statistics, 2019).

Average annual employment values are defined as the average number of filled jobs calculated using quarterly employment values from the four fiscal quarters within a calendar year. All four quarters are averaged to reflect an employment number for the year overall (U.S. Bureau of Labor Statistics, QCEW, 2019).

Data Sources

U.S. Department of Labor, Bureau of Labor Statistics, 2001 - 2019 Quarterly Census of Employment and Wages (QCEW)

Pennsylvania Department of Labor and Industry, 2001 – 2019 Quarterly Census of Employment and Wages (QCEW)

U.S. Bureau of Economic Analysis, Employment Data by State, 2001 – 2019

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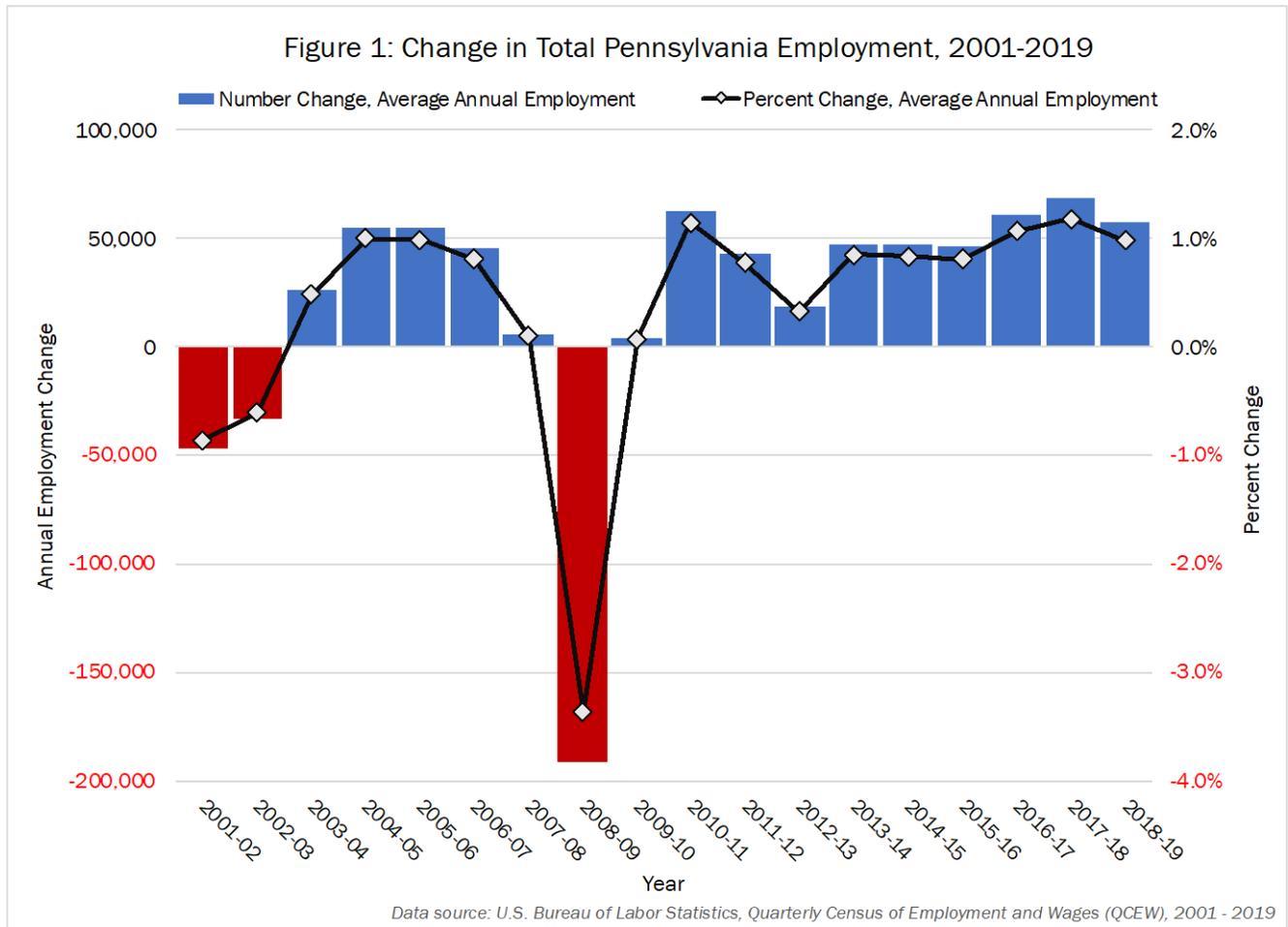
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The Big Picture: Total Statewide Employment from 2001 to 2019

Figure 1 shows both annual number change and percent change in employment levels in Pennsylvania between the years of 2001 and 2019. Average annual employment statewide in 2001 was 5,551,787 jobs and 5,925,582 jobs in 2019.

The early years of the 21st century show the impacts of a minor recession on Pennsylvania jobs, characterized by a loss of 47,238 jobs between 2001 and 2002, and 33,298 jobs between 2003 and 2004, followed by a rapid recovery from 2003 to 2005.

Upon the widespread collapse of the U.S. housing market in 2008, subsequent economic crises severely impacted employment across the Commonwealth: 190,592 jobs vanished. Although the recovery process to regain employment opportunities was meager in 2009-2010, the state proved resilient in climbing to its pre-recession levels throughout the 2010s. At the end of 2019, Pennsylvania had gained 57,807 jobs and achieved an unemployment rate of 4.7%.



In a Table: Statewide Annual Employment Changes

Table 1 lists the annual number and percent changes in employment reflected in Figure 1. The bottom of the table shows a key overall trend for Pennsylvania employment across nearly two decades: growth. Between 2001 to 2019, the state gained a net 373,795 jobs (+6.73% growth).

Table 1: Change in Pennsylvania Average Annual Employment		
Year	Number Change, Average Annual Employment	Percent Change, Average Annual Employment
2001 - 2002	-47,238	-0.85%
2002 - 2003	-33,298	-0.60%
2003 - 2004	26,272	0.48%
2004 - 2005	54,865	1.00%
2005 - 2006	54,847	0.99%
2006 - 2007	45,496	0.81%
2007 - 2008	6,043	0.11%
2008 - 2009	-190,592	-3.37%
2009 - 2010	4,059	0.07%
2010 - 2011	63,005	1.15%
2011 - 2012	43,141	0.78%
2012 - 2013	18,461	0.33%
2013 - 2014	47,620	0.85%
2014 - 2015	47,159	0.84%
2015 - 2016	46,161	0.81%
2016 - 2017	61,401	1.07%
2017 - 2018	68,586	1.18%
2018 - 2019	57,807	0.99%
2001 - 2008	106,987	1.93%
2008 - 2019	266,808	4.71%
2001 - 2019	373,795	6.73%
<i>Data source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW), 2001 - 2019</i>		

Comparing Total Employment Change Trends by Geography

Figures 2, 3, and 4 demonstrate how Pennsylvania measures in percent change in total employment over time when compared to surrounding states (Ohio, West Virginia, New York, Delaware, Maryland, and Virginia), as well as nationally. Across all three time periods, Pennsylvania lags behind in employment growth relative to most of its neighbors. Between 2001-2019, Pennsylvania employment expanded by 13.9%, 9.2% lower than the national rate.

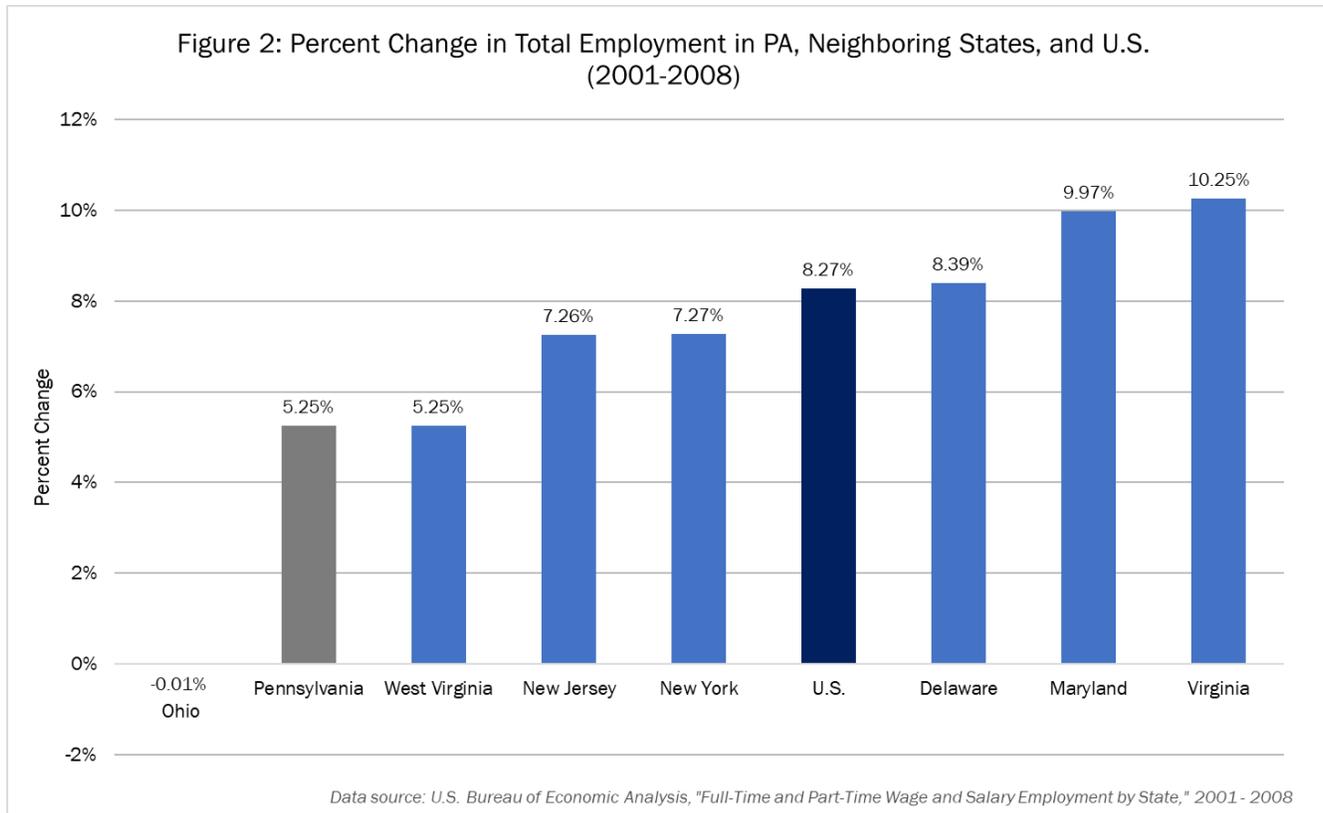
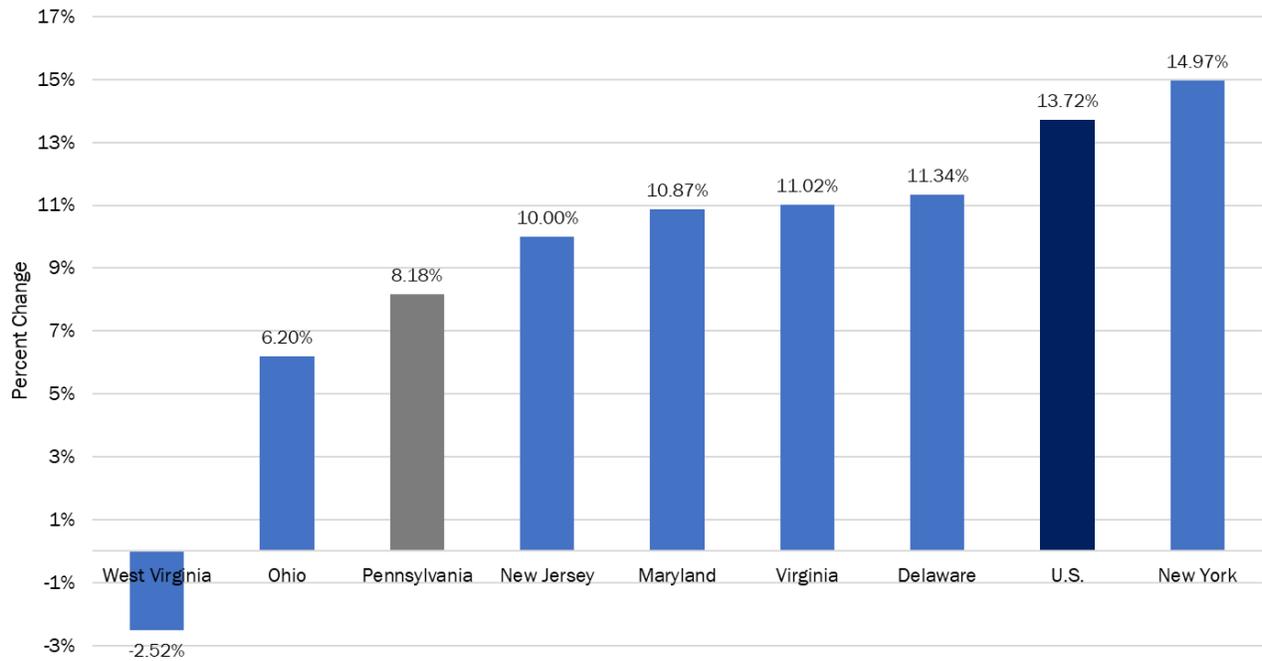
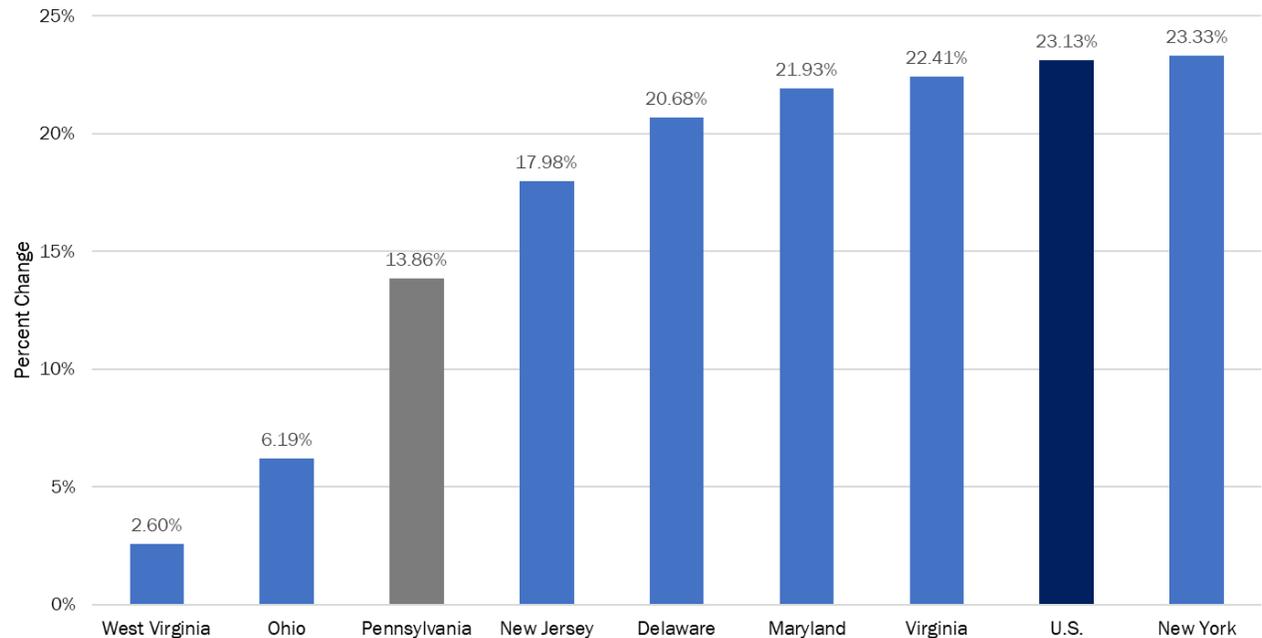


Figure 3: Percent Change in Total Employment in PA, Neighboring States, and U.S. (2008-2019)



Data source: U.S. Bureau of Economic Analysis, "Full-Time and Part-Time Wage and Salary Employment by State," 2008 - 2019

Figure 4: Percent Change in Total Employment in PA, Neighboring States, and U.S. (2001-2019)



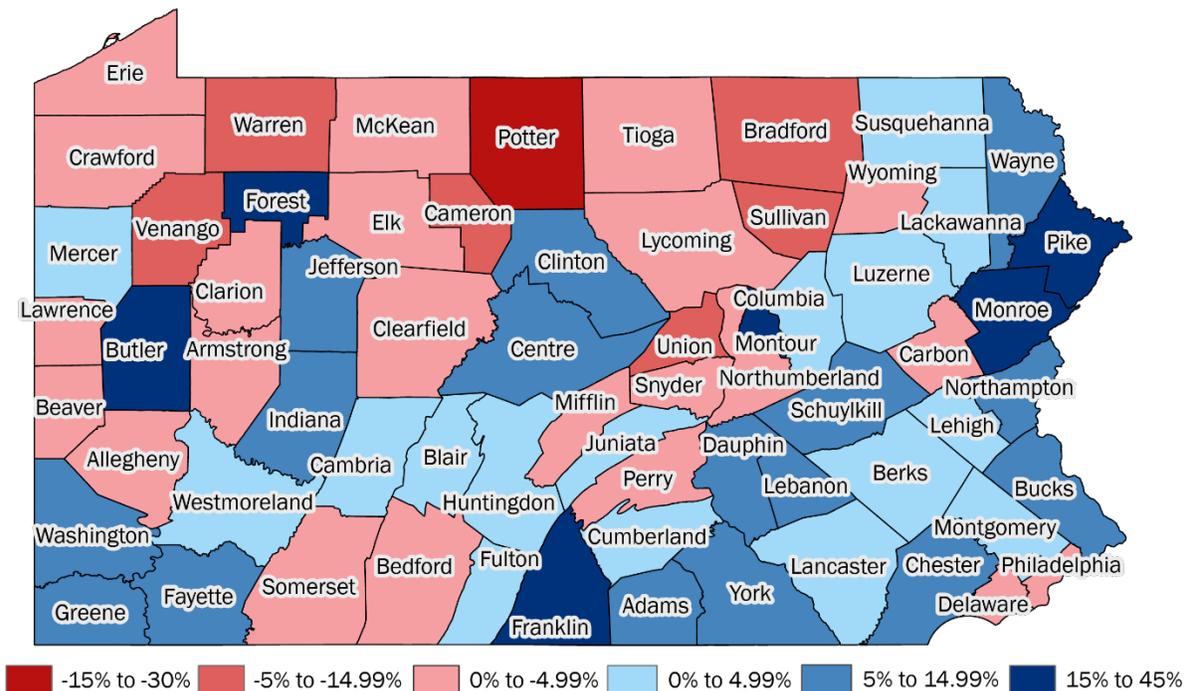
Data source: U.S. Bureau of Economic Analysis, "Full-Time and Part-Time Wage and Salary Employment by State," 2001 - 2019

County-Level Employment Analysis in Pennsylvania

This section examines employment trends at the county level across the Commonwealth of Pennsylvania, beginning with Maps 1, 2, and 3. These three county maps show how average annual employment levels in each county changed between [2001 to 2008], [2008 to 2019], and overall, between [2001 to 2019].

Map 1 shows that between 2001 and 2008, most counties remained relatively steady (less than +/- 4.99% change) in their employment levels throughout the early 2000s leading up to the Great Recession. Urban counties such as Allegheny and Philadelphia both experienced overall job losses of about 3.8% from 2001 to 2008, whereas most of the eastern and southeastern counties had strong net positive job growth.

Map 1: Percent Change in County Average Annual Employment (2001 to 2008)

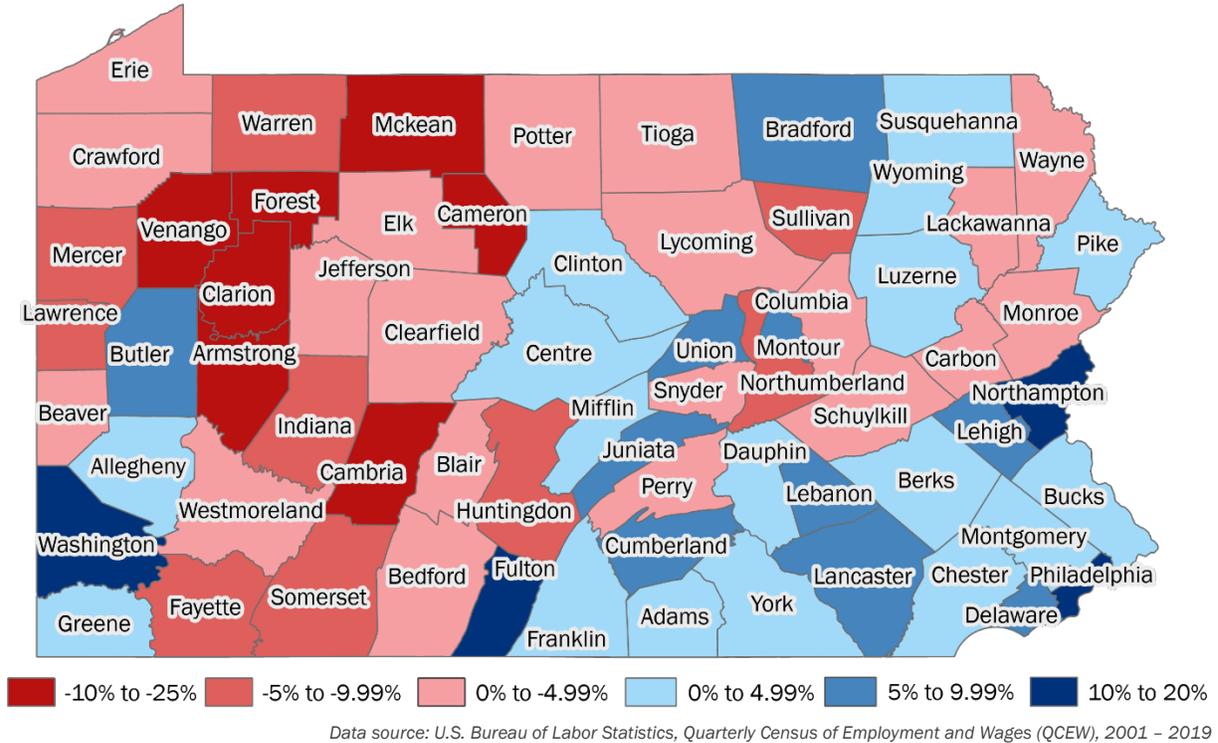


Data source: U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages (QCEW), 2001 - 2019

Below, Map 2 depicts a story of mild recovery following the Great Recession in southeastern Pennsylvania counties and some counties proximate to the Philadelphia and Pittsburgh metropolitan areas. However, many western and northern counties experienced greater employment losses between 2008 and 2019 than they did between 2001 and 2008. For example, while Indiana County jobs expanded by 7.19% from '01 to '08, the County's employment levels fell by 9.07% from '08 to '19.

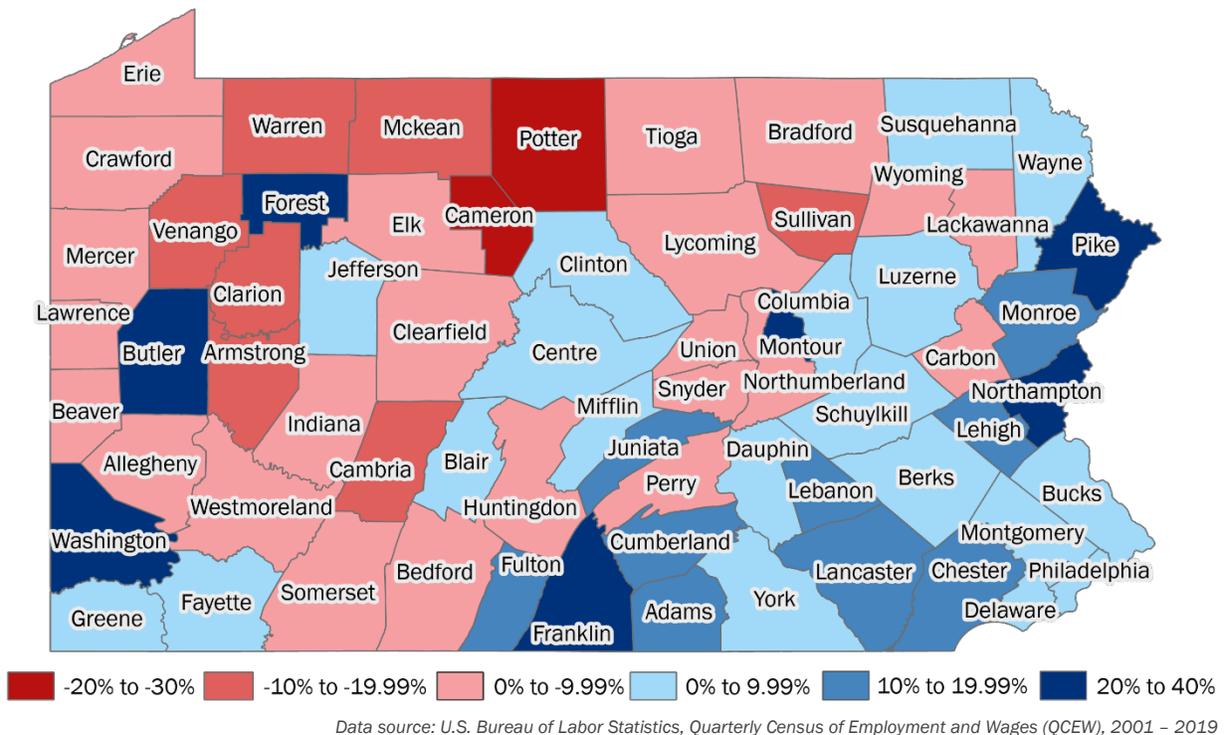
Further, employment growth across the board was greater in magnitude in many counties in the early 2000s time period rather than from '08 to '19. For example, the highest county-level employment growth experienced from '01 to '08 was in Forest (44.4%), Pike (38.2%), and Franklin (22.2%) counties. A state correctional institution was constructed in the sparsely populated Forest County, influencing a steep increase of jobs throughout the early 2000s. From '08 to '19, the largest increases were significantly smaller, with Northampton (20.03%), Fulton (15.11%), and Philadelphia (10.42%) counties leading the highest relative employment change.

Map 2: Percent Change in County Average Annual Employment (2008 to 2019)



Map 3 displays the net effect of Maps 1 and 2, showing the overall percentage change in employment at the county level from 2001 to 2019. During this time period, counties in southeast Pennsylvania experienced positive employment growth, while many counties in the north and west areas of the state experienced employment decline.

Map 3: Percent Change in County Average Annual Employment (2001 to 2019)



Pennsylvania Employment Growth Trends by Industry Sector

This section details positive number change in employment by industry sector across the three time periods: Figure 5 [2001-2008], Figure 6 [2008-2019], and Figure 7 [2001-2019].

Figure 5 shows the twelve industry sectors in Pennsylvania that experienced the highest growth in the number of jobs between 2001 to 2008. Health Care and Social Assistance jobs were, by far, the leading contributors to employment growth in the state during this time period, creating 130,931 jobs in Pennsylvania. These jobs include positions at hospitals, nursing homes, child day care providers, family services, and other healthcare providers. The second largest growth industries in terms of employment were Management of Companies and Enterprises (56,501 filled jobs) and Educational Services (43,672 filled jobs).

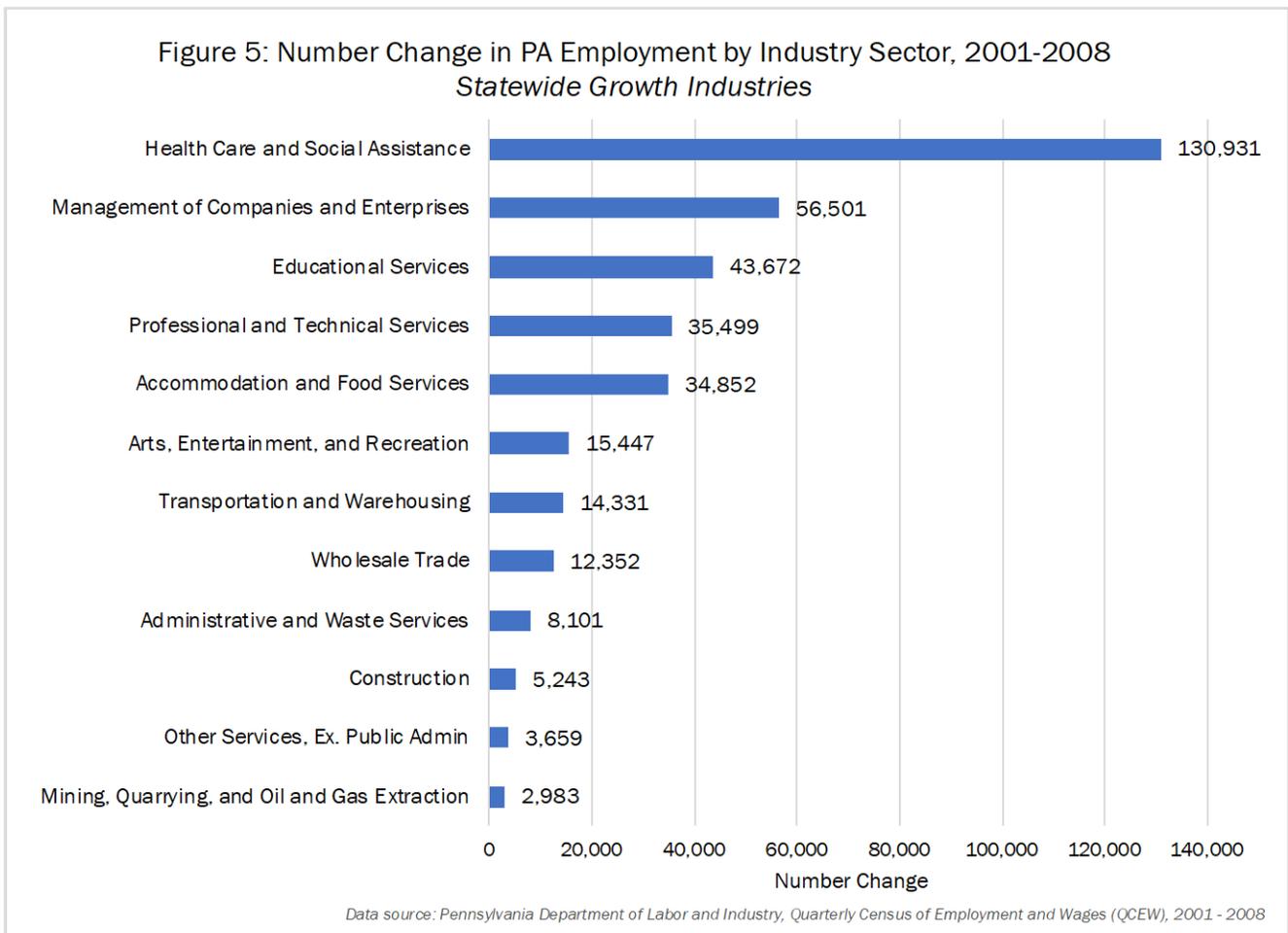


Figure 6 shows the thirteen industry sectors in Pennsylvania that experienced the highest growth in the number of jobs between 2008 to 2019. Similar to the early 2000s, Healthcare and Social Assistance jobs contributed most to statewide employment growth, with an increase of 186,666 filled jobs in the sector across the state. The second largest employment growth industry sectors from 2008 to 2019 were Accommodation and Food Services (60,440 filled jobs) and Transportation and Warehousing (53,832 filled jobs), which includes air travel, tourism transportation, and mail postal services. Most leading job-creating industries in Pennsylvania during this time are service-oriented.

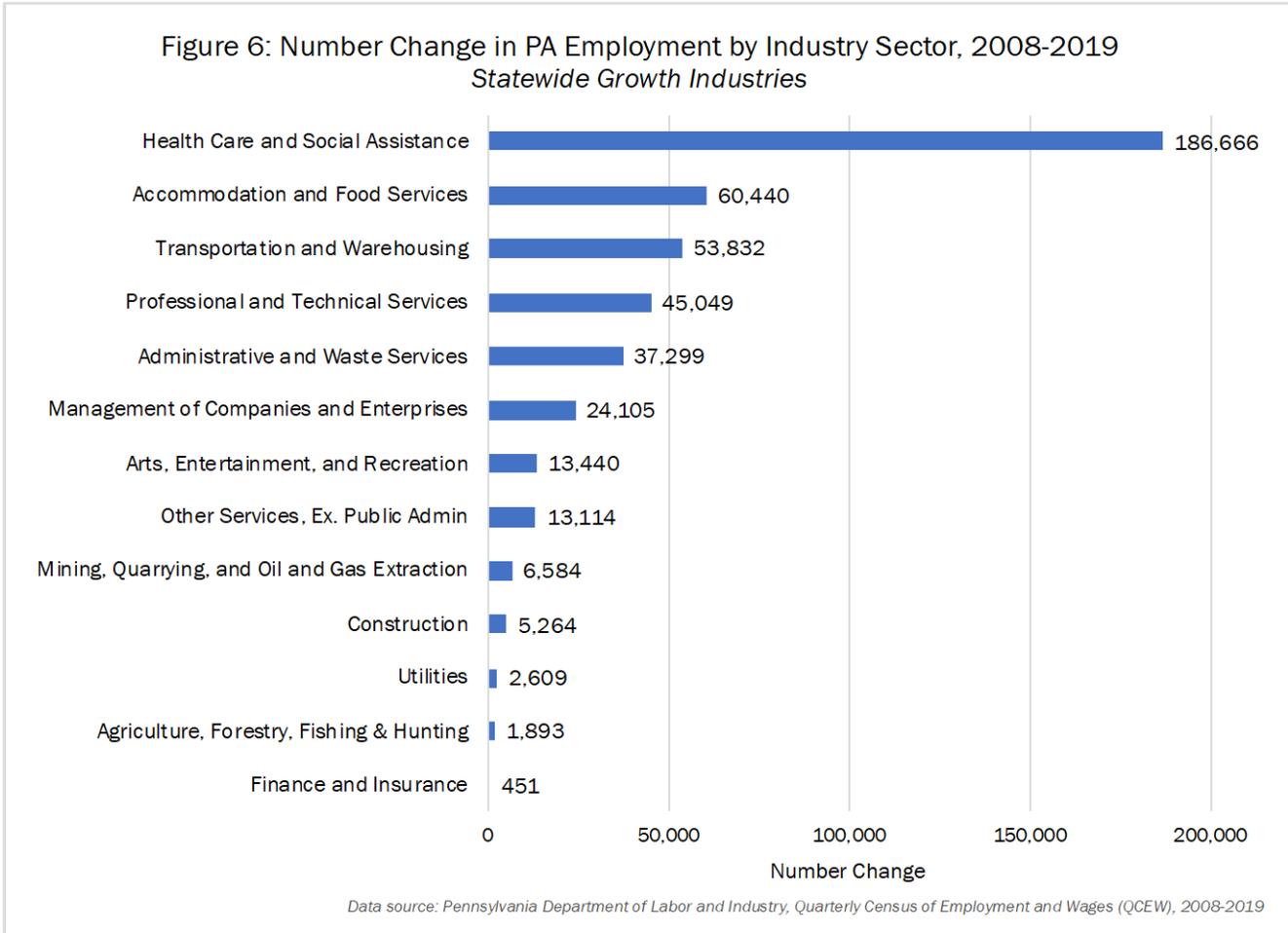
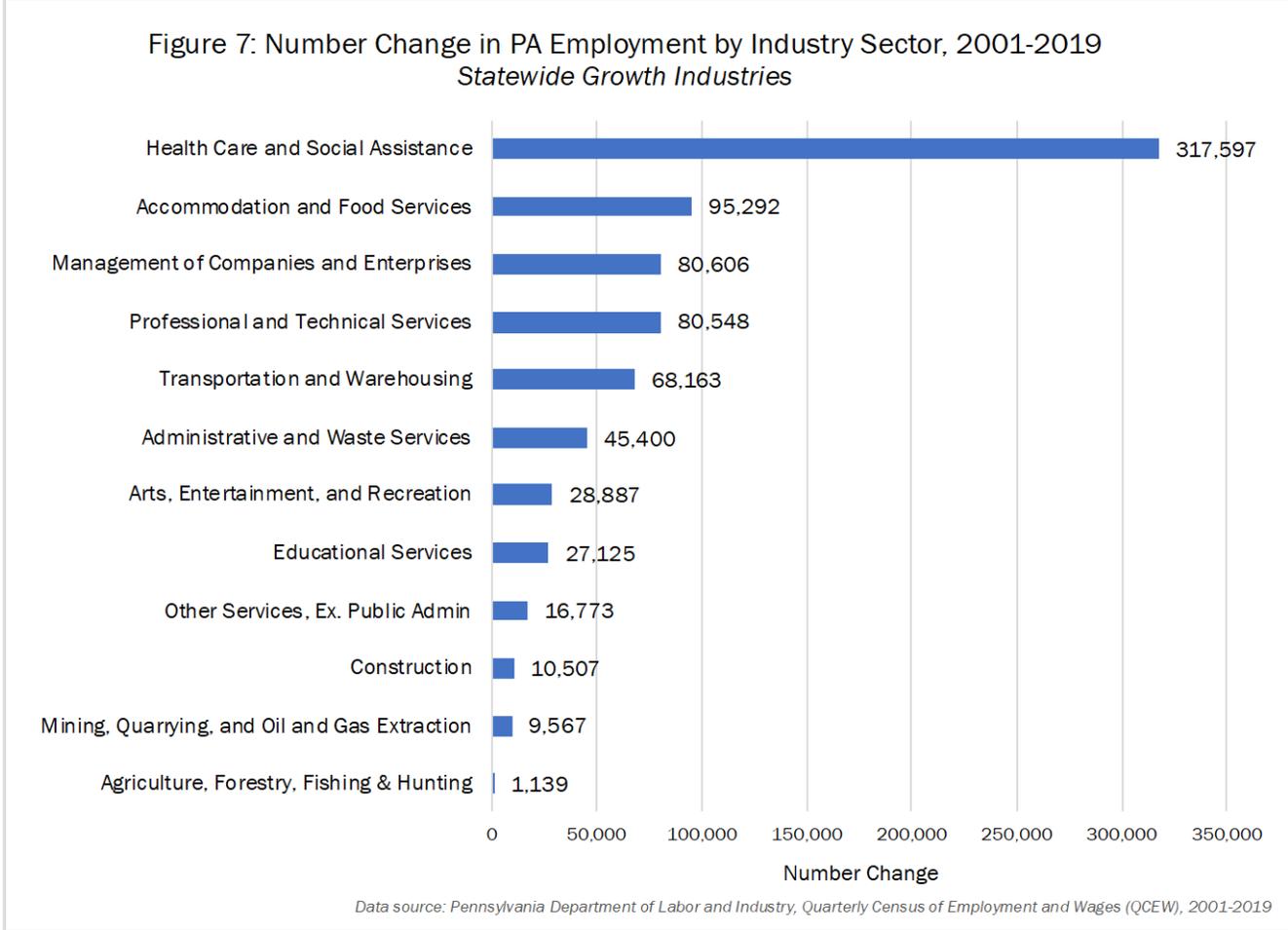


Figure 7 shows the net change in jobs by industry sectors in Pennsylvania that gained jobs across both time periods. Health Care and Social Assistance jobs drove employment gains in the state throughout the 2001-2019 decades, creating 317,597 employment opportunities for Pennsylvanians.



Pennsylvania Employment Decline Trends by Industry Sector

This section examines negative number change in employment across the state by industry sector type across the three time periods used for this report: Figure 8 [2001-2008], Figure 9 [2008-2019], and Figure 10 [2001-2019].

Figure 8 demonstrates that the Manufacturing industry sector experienced a precipitous loss of jobs between 2001 and 2008 (-178,490 jobs), following a nationwide downward trend in manufacturing employment in part due to automation and international competition. The dramatic loss of employment in the manufacturing sector was larger than the losses experienced by any other industry in the Commonwealth. Comparatively, the Information sector, which includes positions in telecommunications and broadcasting, data processing, and publishing, lost 28,657 jobs. The industry sector with the third largest employment decline was the Retail Trade sector (-24,647 jobs).

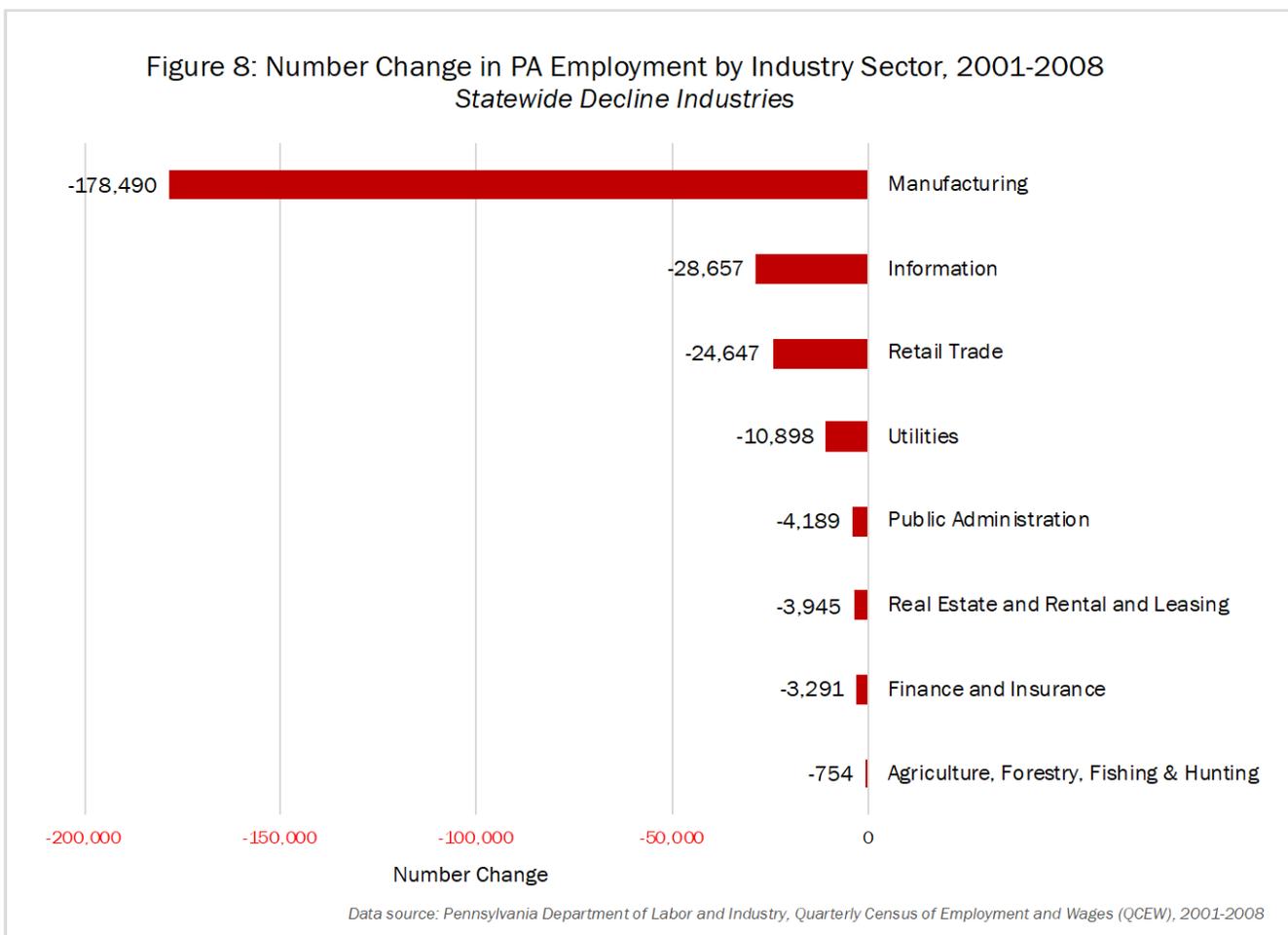
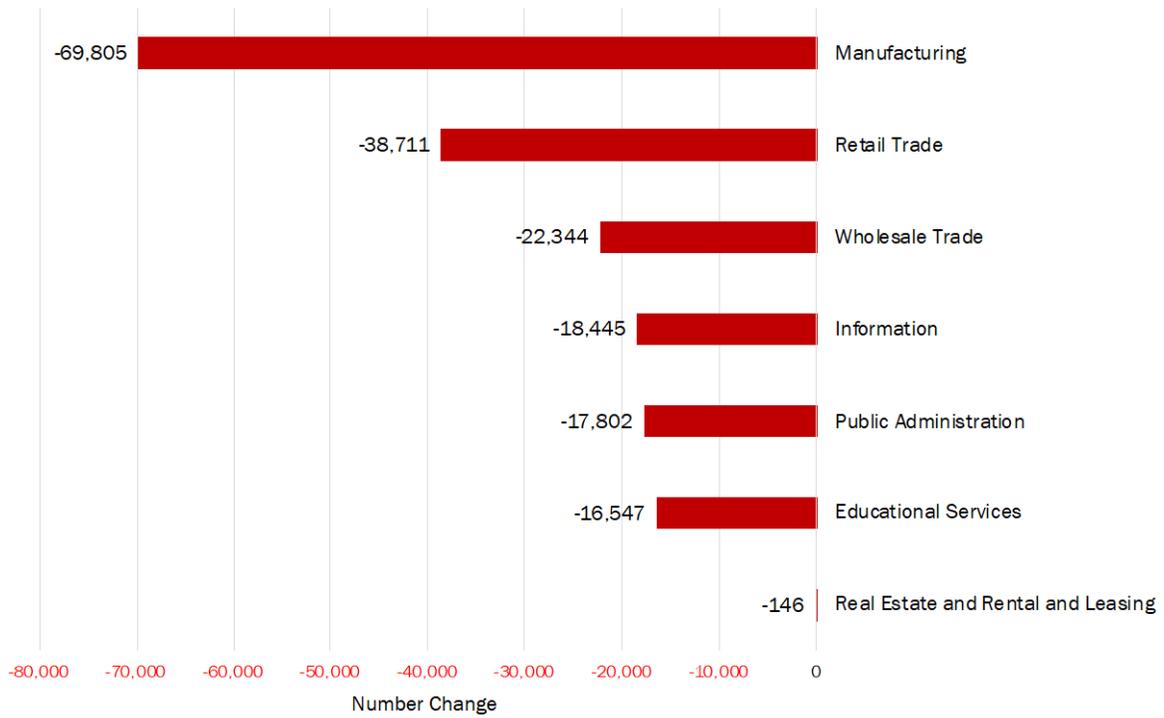


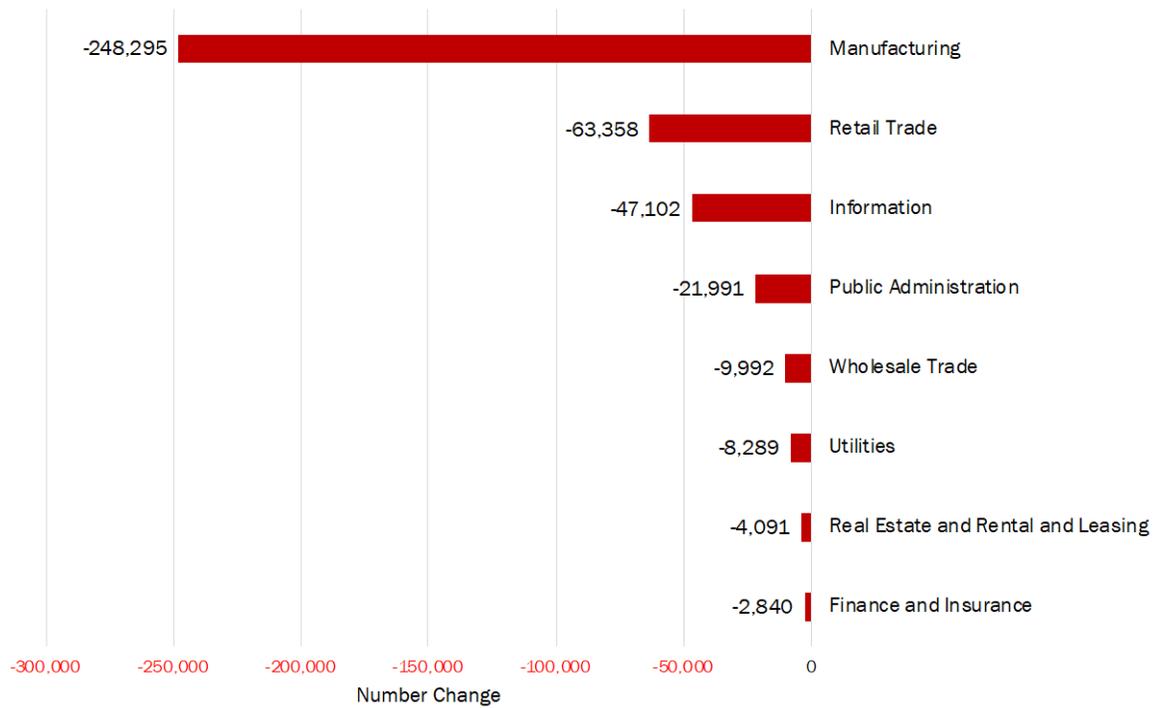
Figure 9 shows further steep manufacturing job losses in Pennsylvania from 2008 to 2019 (-69,805 jobs). Although the manufacturing employment decline between 2008 and 2019 was less than half of the number of jobs lost in the industry from 2001 to 2008, vanishing employment opportunities in manufacturing roles remained stark for Pennsylvanians. Industry sectors that also experienced significant job shrinkage were the Retail Trade and Wholesale Trade sectors: -38,711 and -22,344 jobs lost respectively. Figure 10 shows the net losses from 2001 to 2019 in these industries.

Figure 9: Number Change in PA Employment by Industry Sector, 2008-2019
Statewide Decline Industries



Data source: Pennsylvania Department of Labor and Industry, Quarterly Census of Employment and Wages (QCEW), 2008-2019

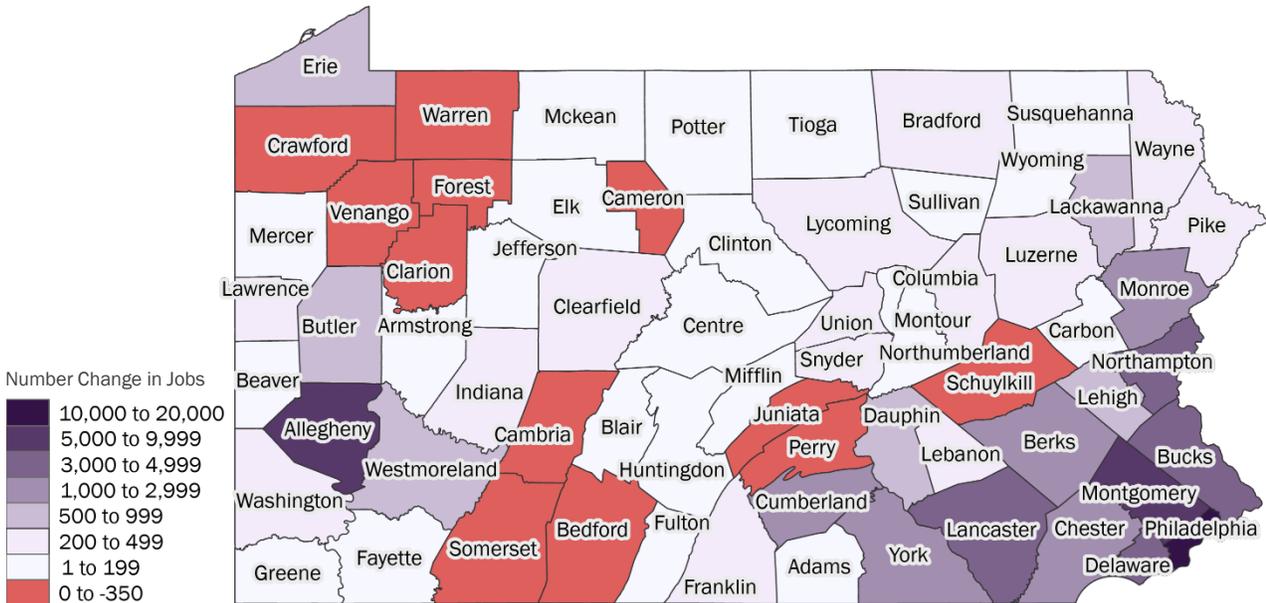
Figure 10: Number Change in PA Employment by Industry Sector, 2001-2019
Statewide Decline Industries



Data source: Pennsylvania Department of Labor and Industry, Quarterly Census of Employment and Wages (QCEW), 2001-2019

Map 5 shows a similar concentration of employment gains in the Accommodation and Food Services industry sector in counties proximate to the cities of Pittsburgh and Philadelphia between 2008 and 2019. Many counties throughout the northeastern and southwestern portions of the state contributed mildly to job growth in the sector. Only 12 counties lost jobs in this overall growing sector for the state, and those losses were mild and less than 350 jobs per county.

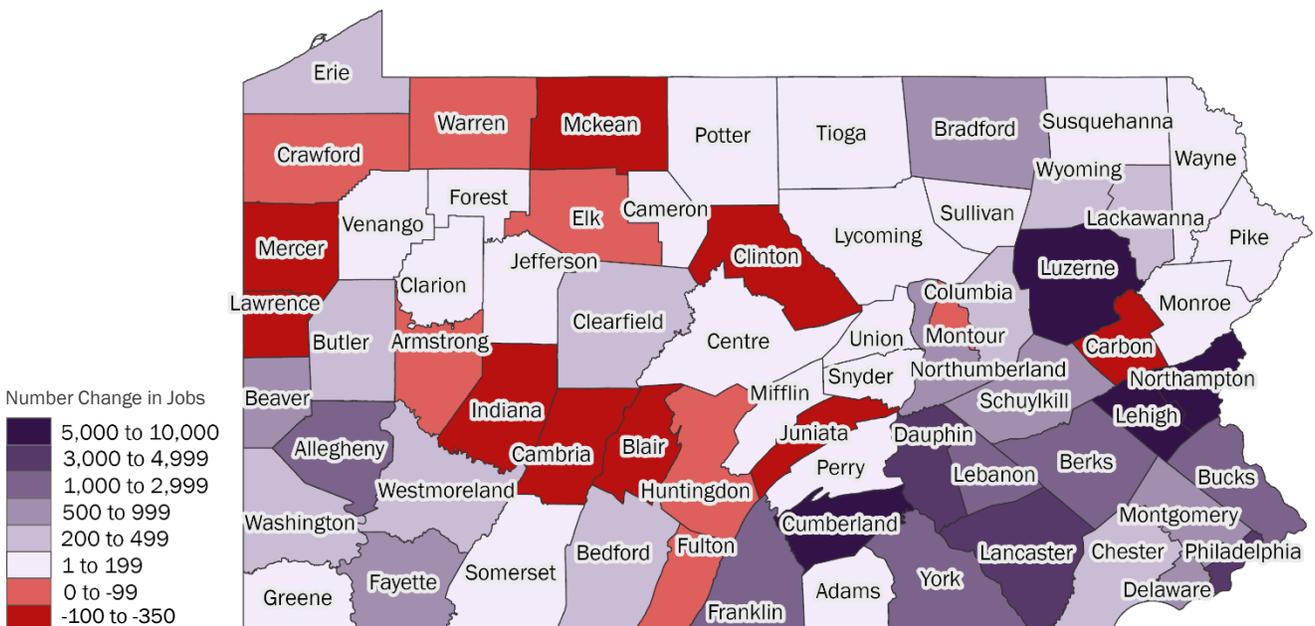
Map 5: Number Change in Accommodation and Food Services Industry Sector Employment by PA County (2008-2019)



Data source: Pennsylvania Department of Labor and Industry, Quarterly Census of Employment and Wages (QCEW), 2001 - 2019

Map 6 shows employment that growth in the Transportation and Warehousing industry sector was heavily led by Cumberland, Dauphin, Lancaster, Northampton, Lehigh, and Luzerne Counties between 2008 and 2019. Like the Accommodation and Food Services industry sector, no county lost more than 350 jobs in transportation and warehousing roles during this time period.

Map 6: Number Change in Transportation and Warehousing Industry Sector Employment by PA County (2008-2019)

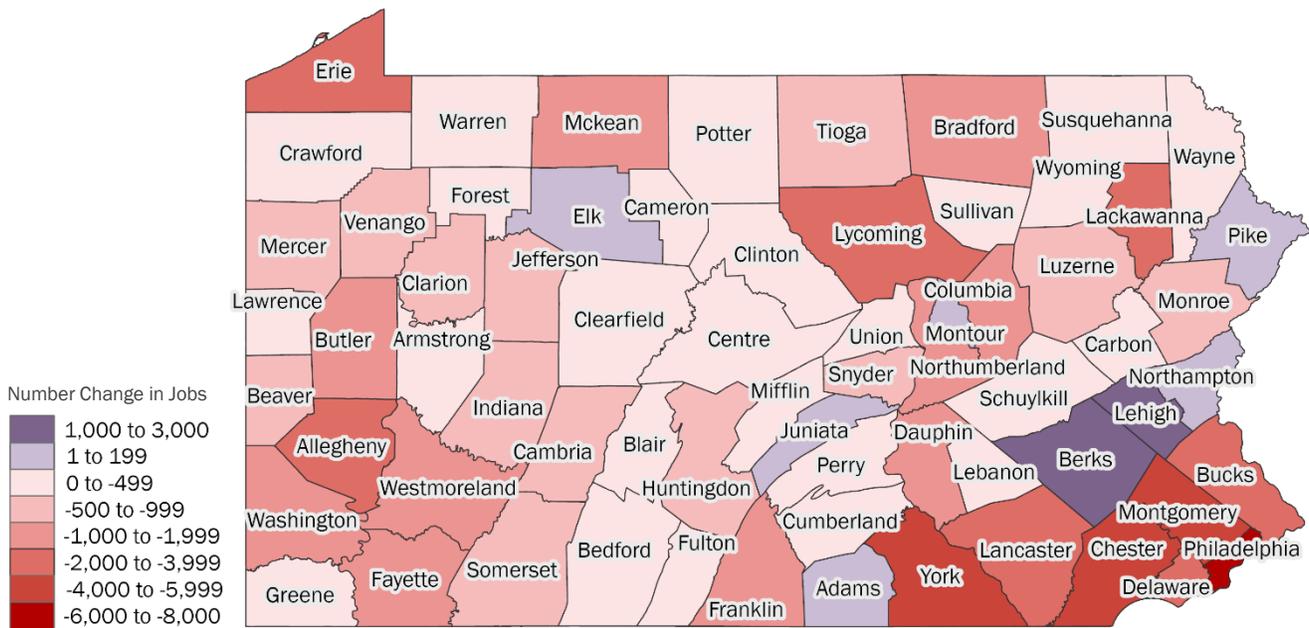


Data source: Pennsylvania Department of Labor and Industry, Quarterly Census of Employment and Wages (QCEW), 2001 - 2019

Maps 7, 8, and 9 show the counties in which job opportunities declined in the “top three” industry sectors with the largest employment shrinkages from 2008 to 2019: Manufacturing, Retail Trade, and Wholesale Trade.

Map 7 shows the widespread impact of decline of jobs in the Manufacturing sector across the entirety of the state from 2008 to 2019, led by employment losses in Philadelphia (-7,812 jobs), York (-5,885 jobs), Chester (-4,781 jobs), and Montgomery (-4,303 jobs) Counties. Only 8 counties experienced manufacturing sector job growth in this time period, driven by Lehigh County (+2,673 jobs) and Berks County (+1,730 jobs).

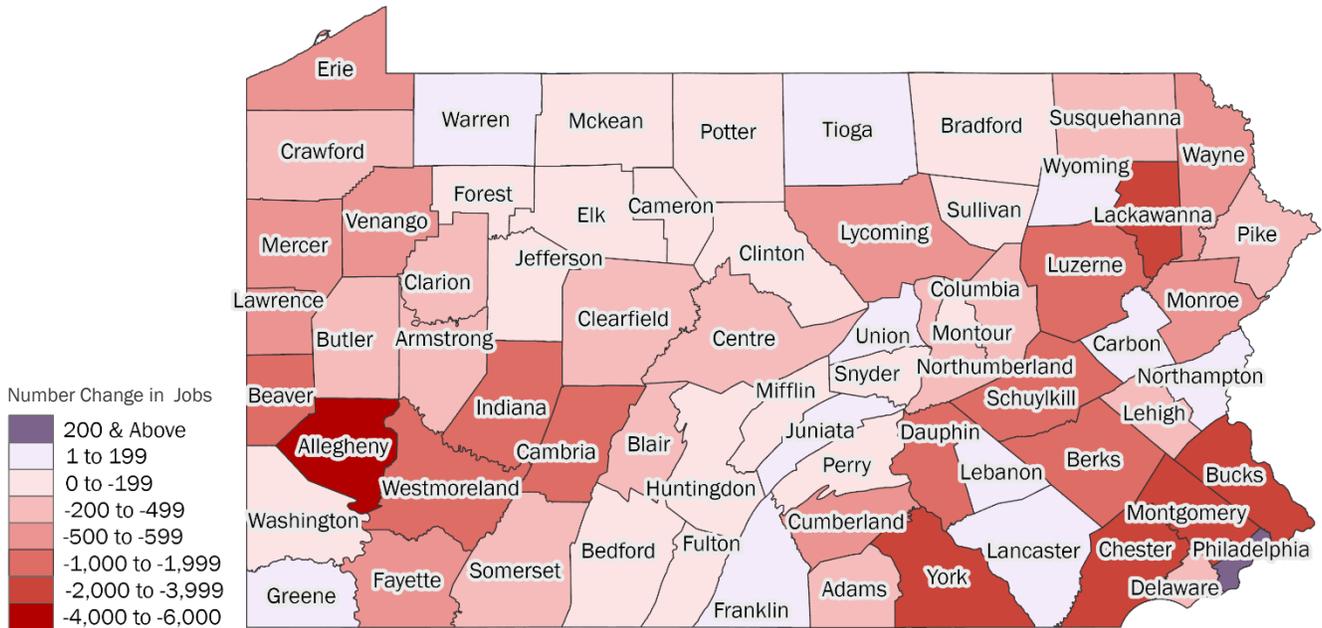
Map 7: Number Change in Manufacturing Industry Sector Employment by PA County (2008-2019)



Data source: Pennsylvania Department of Labor and Industry, Quarterly Census of Employment and Wages (QCEW), 2001 - 2019

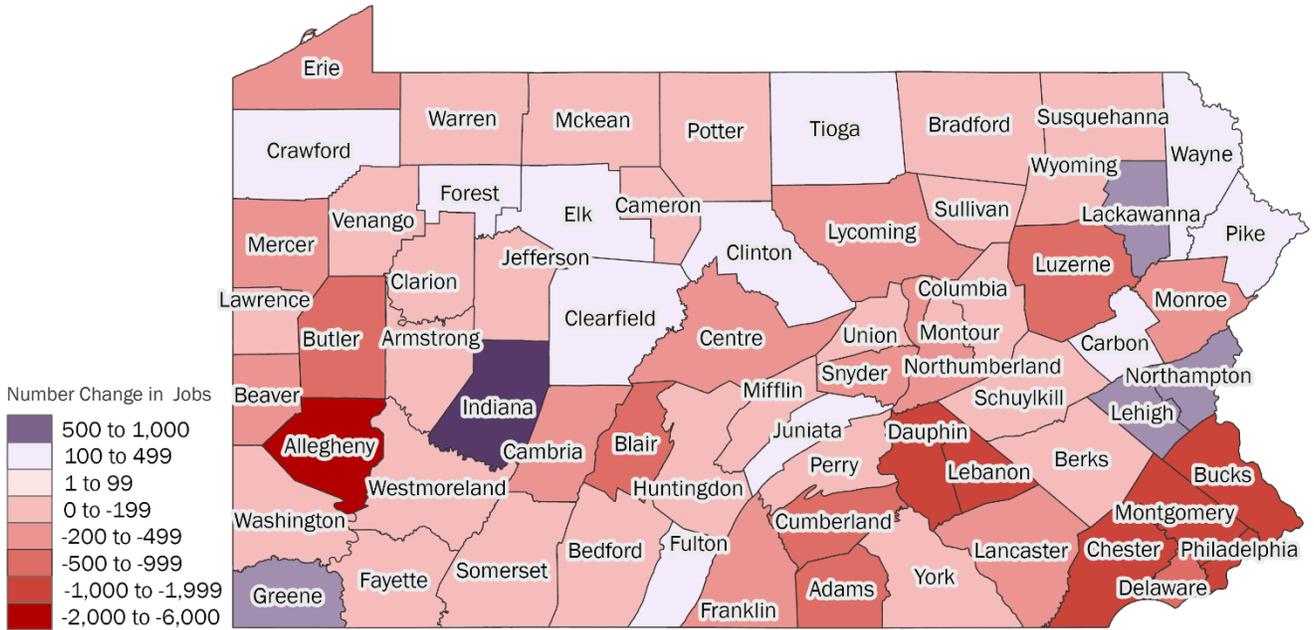
Maps 8 and 9 below depict county-level employment decline in the Retail Trade and Wholesale Trade industry sectors from 2008 to 2019, which are the second and third largest job-loss sectors in the Commonwealth, respectively. Allegheny County led with losses of up to 6,000 jobs in each sector. While Philadelphia County gained 2,185 jobs in the Retail Trade industry sector, it lost 1,246 jobs in the Wholesale Trade industry sector.

Map 8: Number Change in Retail Trade Industry Sector Employment by PA County (2008-2019)



Data source: Pennsylvania Department of Labor and Industry, Quarterly Census of Employment and Wages (QCEW), 2001 – 2019

Map 9: Number Change in Wholesale Trade Industry Sector Employment by PA County (2008-2019)



Data source: Pennsylvania Department of Labor and Industry, Quarterly Census of Employment and Wages (QCEW), 2001 – 2019

Big Picture Summary: County-Level Employment Change

Table 2 is an aggregation of which counties experienced employment growth and decline in both the “pre-recession” time period [2001 to 2008] and the “post-recession” time period [2008 to 2019]. For example, counties that experienced “double growth” had job increases from 2001 to 2008 and also from 2008 to 2019.

Table 2: Pennsylvania County Employment Growth and Decline Summary, 2001-2008 and 2008-2019			
Growth '01 to '08 and Growth '08 to '19	Decline '01 to '08 and Growth '08 to '19	Growth '01 to '08 and Decline '08 to '19	Decline '01 to '08 and Decline '08 to '19
Adams County	Allegheny County	Blair County	Armstrong County
Berks County	Bradford County	Cambria County	Beaver County
Bucks County	Delaware County	Columbia County	Bedford County
Butler County	Mifflin County	Fayette County	Cameron County
Centre County	Philadelphia County	Forest County	Carbon County
Chester County	Snyder County	Huntingdon County	Clarion County
Clinton County	Union County	Indiana County	Clearfield County
Cumberland County	Wyoming County	Jefferson County	Crawford County
Dauphin County		Lackawanna County	Elk County
Franklin County		Mercer County	Erie County
Fulton County		Monroe County	Lawrence County
Greene County		Schuylkill County	Lycoming County
Juniata County		Wayne County	McKean County
Lancaster County		Westmoreland County	Northumberland County
Lebanon County			Perry County
Lehigh County			Potter County
Luzerne County			Somerset County
Montgomery County			Sullivan County
Montour County			Tioga County
Northampton County			Venango County
Pike County			Warren County
Susquehanna County			
Washington County			
York County			

For information on each county’s current employment statistics, visit Pennsylvania’s short county profile reports at <https://www.workstats.dli.pa.gov/Products/CountyProfiles/Pages/default.aspx>

For more detailed analyses of Pennsylvania’s 67 counties, visit the CECD’s 2019 county profile archive: <https://aese.psu.edu/research/centers/cecd/publications/2019-county-profile-reports>

Looking Forward: Employment Impacts of the COVID-19 Pandemic

In the years immediately following 2019, employment levels across the nation and in Pennsylvania were impacted significantly by the negative impacts of the COVID-19 pandemic on economies across the globe. Forthcoming reports from Penn State's Center for Economic and Community Development will examine these impacts on employment in Pennsylvania's economic ecosystem.

Other reports in this CECD series:

- Pennsylvania Employment on the Move: 2001-17 (2018) [link](#)
- Pennsylvania Population on the Move: 2000-17 (2018) [link](#)
- Pennsylvania: Bust to Boom? Great Recession to Recovery & Beyond (2019) [link](#)

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This report was prepared by Siena J. Baker, Theodore R. Alter, Theodore E. Fuller, and Nolan C. Martino. With questions about this report, please contact Ted Alter at tra2@psu.edu.

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The Center conducts more detailed analysis around these and other topics of interest. For more information please contact:

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