



Southwest Pennsylvania's  
**WORKFORCE  
CHARACTERISTICS  
TECHNICAL REPORT**

A report for Pennsylvania's  
State System of Higher Education

2016



# CONTENTS

<b>5</b>	<b>1. Introduction</b>
6	1.1 Goal of Report of the Workforce Characteristics Report
7	1.2 Pennsylvania's State System of Higher Education Gap Analysis Project
<b>9</b>	<b>2. Pennsylvania's State System of Higher Education</b>
10	2.1 Universe of Postsecondary Degree Granting Institutions in Pennsylvania
10	2.2 The State System's Bachelor's Degree Output
<b>12</b>	<b>3. Identifying the State System's Sub-regions</b>
13	3.1 Pennsylvania's Sub-regions and State System Learner Origin
<b>16</b>	<b>4. Overview of the Labor Market of Southwest Pennsylvania</b>
17	4.1 About Employment Projections
<b>19</b>	<b>5. Industries in Southwest Pennsylvania</b>
20	5.1 Top Employers in Southwest Pennsylvania
<b>22</b>	<b>6. Occupations in Southwest Pennsylvania</b>
22	6.1 Skilled Occupations
23	6.2 Top Skilled Occupations in Southwest Pennsylvania
26	6.3 Key Skilled High Demand Occupations Aligning to University-level Education
30	6.4 Staffing Patterns for Key Skilled High Demand Occupations in Southwest Pennsylvania
32	6.5 Key Skilled High Demand Occupational Profiles
<b>39</b>	<b>7. Demographic and Socio-economic Indicators in Southwest Pennsylvania</b>
39	7.1 Southwest Pennsylvania's Demographics

<b>45</b>	<b>8. Next Steps</b>
<b>46</b>	<b>Data Sources Key</b>
<b>47</b>	<b>Appendix A: State System Sub-regions with PREP Regions and WIA Regions</b>
<b>48</b>	<b>Appendix B: Pennsylvania State and County Enrollment and Employment</b>
<b>50</b>	<b>Appendix C: Industry Projections 2014-2024 for Southwest Pennsylvania</b>
<b>60</b>	<b>Appendix D: Occupation Projections 2014-2024 for Southwest Pennsylvania</b>
<b>87</b>	<b>About The State System's Gap Analysis Project</b>

## GLOSSARY OF TERMS

The following descriptions provide a point of reference to understand terminology as well as the types of data and analysis undertaken in this study, reflecting historic and contemporary narratives.

**Industry Change:** A measure of the change in employment within an industry, used to identify whether an industry is growing or declining, as well as the rate of change. Projected changes lay out expectations of growth/decline for specific industries.

**Job Postings:** The number of unique (de-duplicated) online postings for a job in a given occupation.

**Location Quotient:** A comparative statistic used to calculate the relative employment concentration of a given industry or occupation against the average employment of the industry in a larger geography (for example, countrywide). Industries with a higher location quotient (usually greater than 1.2) indicate that the region has a comparative advantage or specialization in the production of that good or service or has a high degree of specialization within its workforce. For example, in Silicon Valley, we would expect the concentration of computer programming occupations to be greater than the rest of the U.S., giving rise to the conclusion that Silicon Valley has a comparative advantage in the computer programming workforce.

**New and Replacement Jobs:** A demand-side estimate of the number of job openings in an occupation that result from new job growth as well as replacement demand. Replacement demand comprises occupation job leavers based on separations, retirement, and death.

**Occupation Jobs:** A measure of employment within an occupation category, used to identify which occupations have been growing or declining, as well as the rate of change. Projected changes lay out expectations of growth/decline for specific occupation categories.

**State System Learner Capture Rate:** The percentage of State System enrolled learners from a specific county that are attending a given Pennsylvania State System university. State System universities typically capture a higher proportion of State System enrolled learners from counties in proximity to the institution.

**State System Learner Share:** Represents the contribution of learners from a defined geographic area that are enrolled in a State System university.

**Sub-regions:** A geographic area within Pennsylvania defined for more focused workforce and education gap analyses. Sub-regions were determined primarily on Partnerships for Regional Economic Performance (PREP) boundaries. PREP is Pennsylvania's network of business assistance partners designed to help companies start, grow, and prosper. Please refer to Appendix A for mapping of the Sub-regions and PREP boundaries.

## ACRONYMS USED

**ACS:** American Community Survey

**BLS:** Bureau of Labor Statistics

**EMSI:** Economic Modeling Specialists International

**CEW:** Center on Education and the Workforce (Georgetown University)

**IPEDS:** Integrated Postsecondary Education Data System

**LAUS:** Local Area Unemployment Statistics

**LEHD:** Longitudinal Employment and Housing Dynamics

**NCES:** National Center for Education Statistics

**OES:** Occupational Employment Statistics

**O\*NET:** Occupational Network

**PUMS:** Public Use Microdata Sample

**QCEW:** Quarterly Census of Employment and Wages

**SAIPE:** Small Area Income and Poverty Estimates

**USDOE:** U.S. Department of Education

**USDOL:** U.S. Department of Labor

# 1. INTRODUCTION

Pennsylvania’s State System of Higher Education (State System) comprises 14 universities, four branch campuses, multiple regional centers and the McKeever Environmental Learning Center.<sup>1</sup> The universities are located in rural, suburban, and small-town settings around Pennsylvania. The State System’s two educational hubs (with locations in Harrisburg, the Dixon University Center, and Philadelphia, State System @ Center City) offer academic programs through a consortium of public and private colleges and universities. Per Act 188 of 1982, the State System’s mission “is the provision of instruction for undergraduate and graduate students to and beyond the master’s degree in the liberal arts and sciences, and in the applied fields, including the teaching profession.” In doing so, the State System’s purpose is “to provide high quality education at the lowest possible cost to students.”<sup>2</sup> Analysis and understanding of the economy and workforce the State System supports, as well as future demands for talent, advances the State System’s mission and philosophy—a key component of this report. Further, it enables effective and targeted strategies and decision-making, grounded in data-driven evidence.

Like all institutions of higher education, the State System’s universities face challenges in their efforts to identify and quantify program needs for Pennsylvania residents and businesses that demand talent. They must account for the changing economic and workforce dynamics within the region they support, such as industry and occupation growth/decline, as well as the changing quality of the area’s workforce. Furthermore, as technology progresses, a growing need to address increasingly complex and specialized occupational tasks requires additional customization to education. As a result, education institutions are increasingly called upon to incorporate relevant courses that meet the needs of students and businesses in their service area—a departure from traditional supply-based education towards a more employer demand-driven model.

A fundamental challenge for any higher education system is to first understand

---

1 One of the State System’s entities, System-wide Functions and Services, is primarily located at the Dixon University Center in Harrisburg and includes: System-wide shared administrative services; System leadership functions of the Chancellor and Board of Governors; some System-wide initiatives and grants managed on behalf of the universities; and the academic, student, and facilities support for the multi-university sites in Harrisburg and Philadelphia.

2 Source: The State System’s Economic and Employment Impact on the Commonwealth of Pennsylvania – released April 15, 2015

---

the characteristics of the economy and workforce it supports. This study and the broader set of deliverables under the State System’s Supply/Demand Gap Analysis Project—hereinafter, Gap Analysis Project—will assist universities and education planners by providing an infrastructure of resources for internal planning, as well as external engagement. Understanding key economic aspects of the geography helps to better align policy and strategic direction in order to continue supporting the talent needs of Pennsylvania.

## **1.1 Goal of Report of the Workforce Characteristics Report**

The first phase of the State System’s Gap Analysis Project was creating the context for the supply/demand analysis. This was possible with a Georgetown University-State System collaboration, which resulted in the production of the report “Degrees of Value: College Majors and the Pennsylvania State System’s Contribution to the Workforce”.<sup>3</sup> Georgetown University’s Center on Education and the Workforce is a premier world-class independent, nonprofit research and policy institute that studies the link between education, career qualifications, and workforce demands. In their report, Georgetown’s Center on Education and the Workforce (CEW) provides contextual data on Baccalaureate-level education output in order to support and inform efforts associated with the State System’s Gap Analysis Project. This report is similar to previous national level work from CEW that examines earnings, employment, and occupational outcomes by major for bachelor’s degree (BD) holders. In this report, customized to the State System and Pennsylvania, CEW delves into the increasing importance of BD holders in the Pennsylvania workforce, the critical role of the State System as part of the state’s BD sector, and how earnings and employment vary by field of study and occupational area.

The Gap Analysis Project produced both a Workforce Characteristics Report and a Supply/Demand Gap Analysis Report for both the state and five sub-regions. The Workforce Characteristics Report contains a set of economic, workforce, demographic, and socio-economic information to contextualize the supply/demand gap analysis. The Supply/Demand Gap Analysis Report for Pennsylvania and its sub-regions provides a data-driven perspective of employer demand (new and replacement jobs by occupation in the state) and higher education supply (degree production by major program). The data sources used for the Gap Analysis Project are diverse including Bureau of Labor Statistics (BLS), U.S. Census Bureau, American Community Survey (ACS), System Research Office, National Center for Education Statistics (NCES,

---

<sup>3</sup> Georgetown’s Center on Education and the Workforce analysis of degree production in the Pennsylvania Baccalaureate Sector.

Integrated Postsecondary Education Data System), IMPLAN (Input/Output Model), and Economic Modeling Specialists International (EMSI). Ultimately, the reports generated from this project will assist the State System universities with strategic engagement, program development and evaluation, student engagement, and marketing.

The intentions of this Workforce Characteristics Report are fourfold.

- First, it provides a baseline reporting structure to evaluate workforce characteristics at the state level and sub-region level within Pennsylvania, which can be repeated in the future.
- Second, it identifies sub-regions within Pennsylvania that will be used to conduct regionally specific analysis in subsequent reports.
- Third, it builds on CEW's State System degree production report. The Workforce Characteristics Report is a data-driven analysis and discussion of trends in Pennsylvania's economy, including projections of industry and occupational employment, key skilled high demand occupations, and changes in socio-economic characteristics.
- Finally, this report creates the foundation to construct the State System's Gap Analysis reports for the state and its regions and complements the

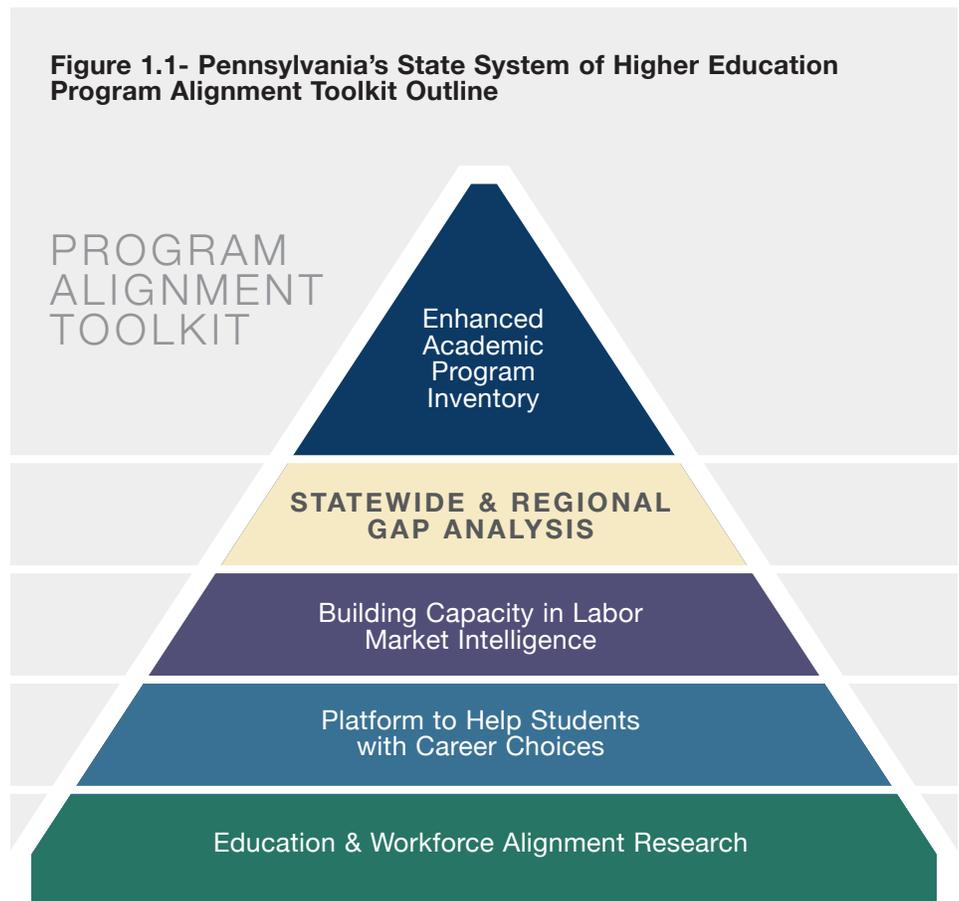
While the main body of this report provides a high-level summary, the Appendices provide an abundance of information for those seeking additional detail. Appendix A provides a map of the state sub-region boundaries along with PREP and WIA boundaries. Appendix B provides detail on the employment and enrollment by each county in Pennsylvania. Appendix C provides nearly 300 detailed industry employment projections for the region along with a measure of competitiveness for each industry. Lastly, Appendix D provides a description of occupation levels and employment projections for over 400 detailed occupations.

content of the supply/demand gap analysis reports.

## **1.2 Pennsylvania's State System of Higher Education Gap Analysis Project**

In a fast-changing economic and social environment that is also experiencing rising costs for higher education, institutions are increasingly called upon to align their programs to the changing needs of the economy.

In response to improving career outcomes for its learners, Pennsylvania's State System of Higher Education (State System) has produced a Program Alignment Toolkit—a central clearinghouse for key academic planning information, developed in response to the State System's Strategic Plan "Rising to the Challenge 2020." The Program Alignment Toolkit helps provide multiple perspectives of how higher education can connect to the state's economy and lead to career success for students. A key component of this toolkit is the development of a statewide and regional gap analysis. Other high impact strategies that are a part of the State System's Program Alignment Toolkit are presented in the figure below. The ultimate goal of this plan is to assist the



State System's fourteen universities to increase their individual and collective impact on Pennsylvania's economy.

The next section provides a high-level overview of the State System and its fourteen universities in terms of location, enrollment, and bachelor's degree output.

**Figure 2.1 – Locations of Pennsylvania’s State System of Higher Education Universities**



Source: U.S. Department of the Interior – U.S. Geological Survey: Colleges and Universities (published 09-30-2010)

**Table 2.1 – Pennsylvania’s State System of Higher Education Enrollment by University**

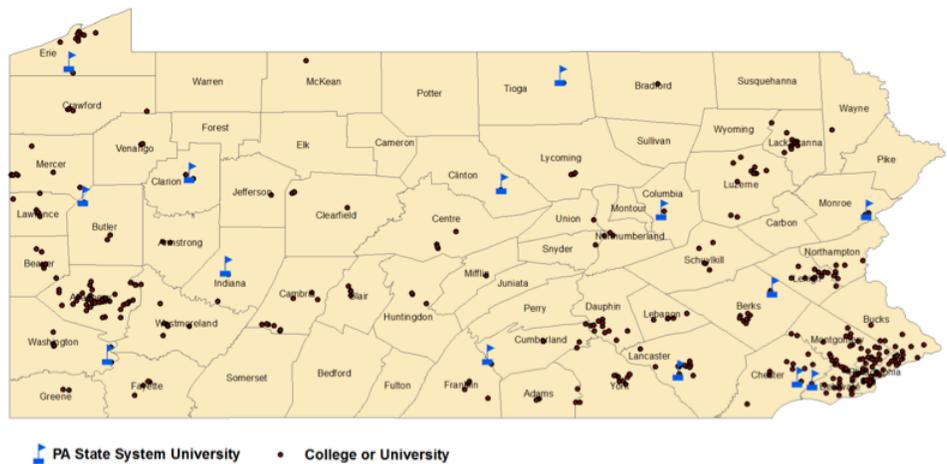
University	Fall 2013 Enrollment
Bloomsburg University of Pennsylvania	10,127
California University of Pennsylvania	8,243
Cheyney University of Pennsylvania	1,212
Clarion University of Pennsylvania	6,080
East Stroudsburg University of Pennsylvania	6,778
Edinboro University of Pennsylvania	7,098
Indiana University of Pennsylvania	14,925
Kutztown University of Pennsylvania	9,513
Lock Haven University	5,260
Mansfield University of Pennsylvania	2,970
Millersville University of Pennsylvania	8,279
Shippensburg University of Pennsylvania	7,548
Slippery Rock University of Pennsylvania	8,347
West Chester University of Pennsylvania	15,845

Source: National Center for Education Statistics’ Integrated Postsecondary Education Data System (IPEDS)

## 2. PENNSYLVANIA'S STATE SYSTEM OF HIGHER EDUCATION

During the fall of 2013, total enrollment in State System universities was 112,225—inclusive of resident and non-resident enrollment. Figure 2.1 depicts the geographic location of each university across Pennsylvania, while Table 2.1 shows the enrollment by university.

**Figure 2.2 – Locations of Pennsylvania's Colleges and Universities**



Source: U.S. Department of the Interior – U.S. Geological Survey: Colleges and Universities (published 09-30-2010)

### 2.1 Universe of Postsecondary Degree Granting Institutions in Pennsylvania

There are approximately 400 postsecondary institutions in Pennsylvania with 394 reporting their enrollment data in 2013. Figure 2.2 illustrates the locations of colleges and universities in 2010—latest latitude and longitude data available—for institutions that report to IPEDS. Latest data indicate these 394 institutions had 814,120 students enrolled. This means approximately one in eight postsecondary enrollees in Pennsylvania institutions are from the fourteen

State System universities.<sup>4</sup> Furthermore, enrollment in the 166 four-year institutions during this time period was 618,738 indicating that one in six four-year enrollees came from the State System universities.

## 2.2 The State System's Bachelor's Degree Output

In response to “Rising to the Challenge 2020” strategic plan, the State System formed a unique partnership with Georgetown’s Center on Education and the Workforce (CEW) to produce a report on the statewide bachelor’s degree output from the State System universities and contextualize the output within Pennsylvania’s baccalaureate sector. The forthcoming report provides key data and analysis on the State System’s contribution to Pennsylvania’s production of bachelor’s degrees, the top fields of study among completers, recent trends in the bachelor’s degree population and workforce in the state, and occupational areas of employment among incumbent Pennsylvania workers with these undergraduate majors. High-level key findings from the report indicate:<sup>5</sup>

- In recent years, bachelor’s degree-holders constituted a growing share of Pennsylvania’s population and workforce. About one-out-of-five bachelor’s degrees awarded in Pennsylvania were from State System institutions, and the most common State System major groups were STEM-H, Business, Education, Humanities & Liberal Arts, and Social Sciences.
- Pennsylvania bachelor’s degree-holders in STEM, health, and business majors had relatively high earnings, while education, social science, and humanities and liberal arts majors typically made less than college-educated workers in the state overall.
- Workers with a bachelor’s degree or better had the highest median earnings in the southeast region and the lowest in the northwest region, but the magnitude of these geographic differences varied by field of study.
- Pennsylvania workers with a bachelor’s degree in education or health had tighter relationships with a single related occupational area, while humanities and liberal arts and social sciences majors had more varied occupational destinations. Business majors fell somewhere in between.

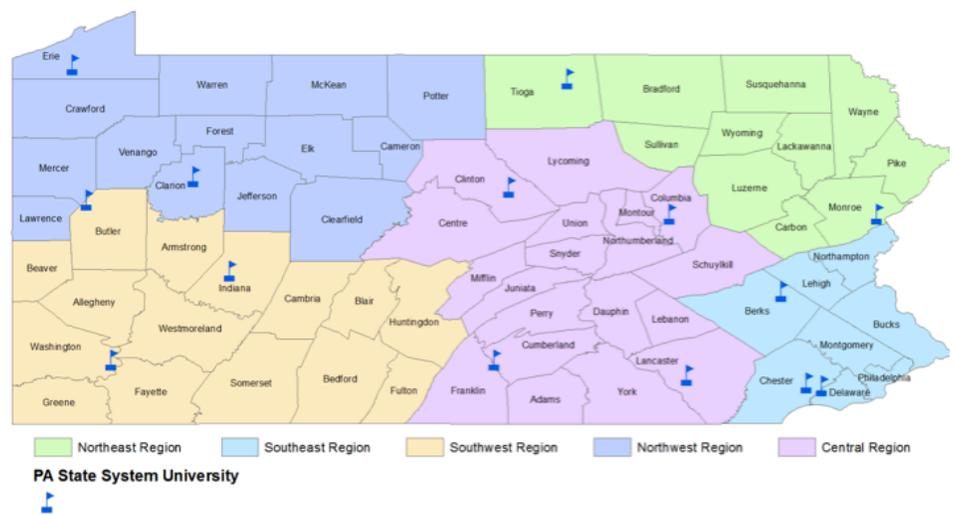
---

4 Source: National Center for Education Statistics’ [NCES], Integrated Postsecondary Education Data System [IPEDS]

5 Key findings are extracted from a forthcoming report from Georgetown University’s Center on Education and the Workforce’s State System Report.

With an understanding of where institutions are located and a high-level view of degree production, the next section evaluates where State System learners originate. This provides additional geographic perspective of enrollment and workforce size.

**Figure 3.1 – Pennsylvania State System Sub-regions**



Source: Oxford Economics mapping

### 3. IDENTIFYING THE STATE

Allegheny	Butler	Huntingdon
Armstrong	Cambria	Indiana
Beaver	Fayette	Somerset
Bedford	Fulton	Washington
Blair	Greene	Westmoreland

**Table 3.1 – Pennsylvania Population and State System Learner Enrollment by Sub-region**

<b>Pennsylvania Region</b>	<b>Number of Counties</b>	<b>Regional Population</b>	<b>Regional Population Share</b>	<b>PA Resident State System Learners</b>	<b>Regional State System Learner Share</b>
Northwest	14	941,584	7.4%	11,504	11.7%
Southwest	15	2,943,544	23.1%	21,741	22.1%
Central	19	2,690,436	21.1%	22,813	23.2%
Northeast	11	1,061,613	8.3%	8,202	8.4%
Southeast	8	5,094,204	40.0%	33,940	34.6%
<b>Pennsylvania Total</b>	<b>67</b>	<b>12,731,381</b>	<b>100.0%</b>	<b>98,200</b>	<b>100.0%</b>

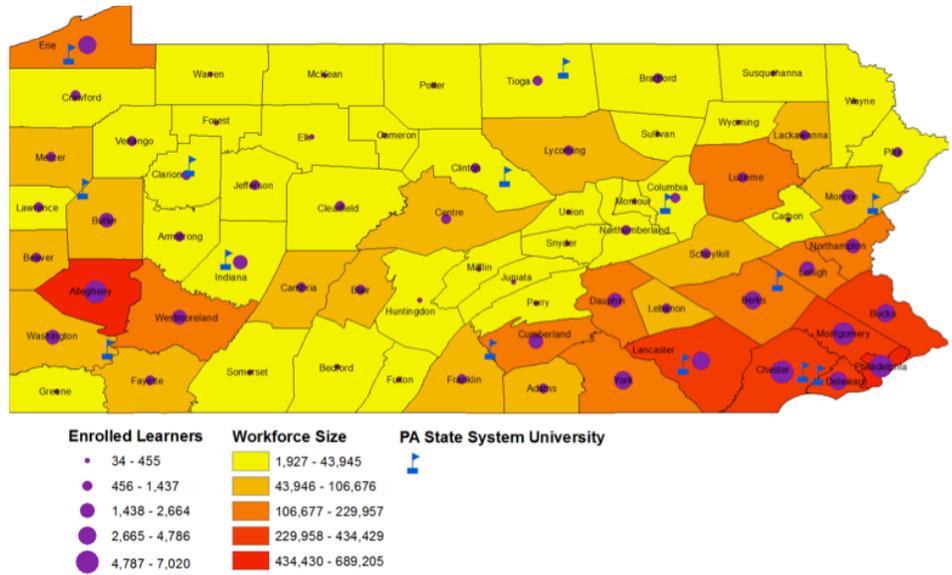
Source: American Community Survey 2009-2013 five-year file; Pennsylvania’s State System of Higher Education Research Office

## SYSTEM’S SUB-REGIONS

Pennsylvania’s economically diverse geography supports the need for a more regionalized perspective of economic and workforce characteristics. The State System conducted original research to identify five broad sub-regions as well as fourteen university-specific workforce regions. It is important to note that these five regions align with Pennsylvania’s Partnerships for Regional Economic Performance (PREP). The PREP regions are Pennsylvania’s network of businesses as defined by the Department of Community and Economic Development (DCED). Aligning the State System’s five regions to the PREP regions reflects a broader goal of the State System to connect higher education with economic development in the commonwealth.

The only exception to the PREP region boundary is Schuylkill County, which was allocated to the Central sub-region. This allocation balances enrollment

**Figure 3.2 – State System Learner Origin and Workforce Size by County**



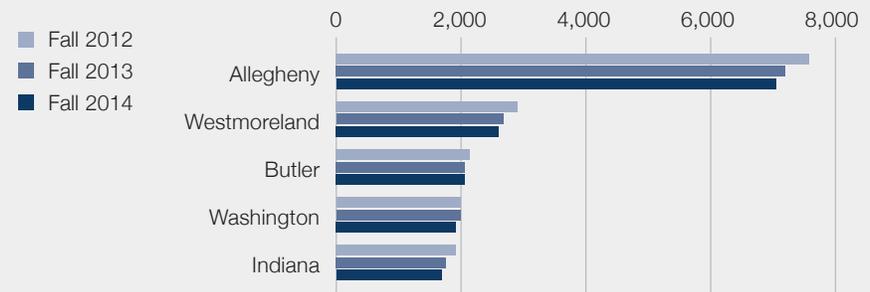
Source: Pennsylvania's State System of Higher Education, Oxford Economics mapping

between regions, although learners from Schuylkill were nearly evenly dispersed between the Central, Northeast and Southeast sub-regions.

Figure 3.1 illustrates the geographic areas for the sub-regions as well as the locations of the State System universities. Table 3.1 provides summary data of the population and learner enrollment for each respective sub-region.

For PREP geographic boundaries please see Appendix A.

**Figure 3.3 – Southwest Pennsylvania State System Learner Enrollment by County**



Source: Pennsylvania's State System of Higher Education

**Table 3.2 Southwest Pennsylvania State System Learner Enrollment by County**

<b>County</b>	<b>Fall 2012</b>	<b>Fall 2013</b>	<b>Fall 2014</b>
Allegheny	7,549	7,172	7,020
Armstrong	916	857	814
Beaver	1,241	1,186	1,121
Bedford	231	209	202
Blair	654	612	584
Butler	2,159	2,070	2,067
Cambria	1,058	993	1,032
Fayette	1,236	1,191	1,137
Fulton	90	76	81
Greene	221	215	201
Huntingdon	205	207	182
Indiana	1,892	1,725	1,645
Somerset	410	347	323
Washington	2,001	1,947	1,915
Westmoreland	2,911	2,664	2,606
<b>Total</b>	<b>22,774</b>	<b>21,471</b>	<b>20,930</b>

Source: Pennsylvania's State System of Higher Education

The counties in Southwest Pennsylvania's region are listed below:

### **3.1 Pennsylvania's Sub-regions and State System Learner Origin**

This section provides an overview of where State System learners come from within Pennsylvania and the region. Pennsylvania's total four-year institution enrollment in 2013 was approximately 618,700 learners. Of this, the Pennsylvania State System of Higher Education comprised 112,225 enrolled learners—of which almost 90% are Pennsylvania residents.<sup>6</sup> The Commonwealth's urban and rural economic geography is very diverse, comprising of two distinct urban centers on the Western and Southeastern portions of the state, as well as key cities located throughout.

The map on the next page (Figure 3.2) illustrates workforce size and the origin of Pennsylvania resident learners enrolled in Pennsylvania's State System of Higher Education.

---

<sup>6</sup> Based on Fall 2013 enrollment.

State System learners, originally from Southwest Pennsylvania, come from every county in the region. State system learner enrollment from the region accounts for about 22% of total resident enrollment in the State System. The top counties in the region include Allegheny, Westmoreland, Butler, Washington, and Indiana. Figure 3.3 highlights the Southwest Pennsylvania resident fall enrollment numbers between 2012 and 2014 for the top 5 counties. Table 3.2 provides enrollment detail for all counties in Southwest Pennsylvania.

The next section of this report describes key economic and workforce data and contextualizes Southwest Pennsylvania’s economic environment.

**Table 4.1 – Summary of Southwest Pennsylvania and Pennsylvania Workforce Characteristics**

<b>Workforce Characteristic</b>	<b>Southwest Pennsylvania</b>	<b>Pennsylvania</b>	<b>Source</b>
Population	2.9 million	12.7 million	2009-2013 American Community Survey 5-Year Estimates
Employed	1.3 million	5.6 million	2014 BLS Quarterly Census of Employment and Wages
Unemployed	85,200	370,000	2014 BLS Local Area Unemployment Statistics
Unemployment Rate	5.80%	5.80%	2014 BLS Local Area Unemployment Statistics
Poverty Rate	13.20%	13.70%	2013 Census Small Area Income and Poverty Estimates
Business Establishments	77,000	347,000	2014 BLS Quarterly Census of Employment and Wages
Educational Attainment (% of 25+ Population with Bachelor's or Higher)	27.30%	27.40%	2009-2013 American Community Survey 5-Year Estimates
Bachelor's or Higher Completions	59,200	137,000	Integrated Postsecondary Education Data System 3-Year Average AY2010-11 to AY2012-13
Projected Employment in 2024	1.5 million	6.2 million	Oxford Economics Projections 2014-2024

---

## 4. OVERVIEW OF THE LABOR MARKET OF SOUTHWEST PENNSYLVANIA

The following sections outline a brief analysis of economic, workforce, demographic and socio-economic information. The purpose of providing this analysis is to gain better insight into how Southwest Pennsylvania's workforce has changed over the past several years, as well as projections of how the region will continue to change over the next several years. Table 4.1 provides a high-level comparative summary of key workforce and economic indicators between Southwest Pennsylvania and the state.

The analysis in the following sections is broken into three key sections, namely:

- 1. Industries** – an evaluation of historic and current changes in sector employment, as well as top employers in the state.
- 2. Occupations** – an evaluation of historic and projected changes in occupations, as well as more detailed analysis of key skilled occupations that align to university education.
  - Top Skilled Occupations: largest skilled employed occupations and new and replacement job demand.
  - Key Skilled High Demand Occupations: five key skilled occupations and new and replacement job demand.
  - Job Posting Analytics: analysis of job postings vs. hires for five key skilled high demand occupations.
  - Industry Staffing Patterns: industry employment breakdown for five key skilled high demand occupations.
  - Key Occupational Profiles: regional demographic profiles for five key skilled high demand occupations.
- 3. Demographics and Socio-economic Indicators** – an evaluation of the demographic profile of Southwest Pennsylvania's population. Also, a brief analysis of three key socio-economic indicators—educational attainment, unemployment, and poverty.

Each section is designed to provide additional context to the economic

---

environment for the universities to consider broader aspects of strategic vision and program planning. Each section also provides the data-driven preparation for the next phase of research—namely the Supply/Demand Gap Analysis Report.

## **4.1 About Employment Projections**

Currently, the industry and occupation employment projections available from Pennsylvania’s Department of Labor and Industry reflect the time period from 2012–2022 and therefore do not incorporate the post-recession recovery that has taken place between 2012 and 2014. In order to capture recovery and reflect current employment data, the State System used 4-digit NAICS (industry) and 5-digit SOC (occupation) projections to 2024 at the county level for Pennsylvania. The projections incorporate Quarterly Census of Employment and Wages (QCEW) data through 2014, and therefore contain the most recent employment trends that further reflects the economic recovery. See Appendix C for 4-digit industry projections and Appendix D for 5-digit occupation projections.

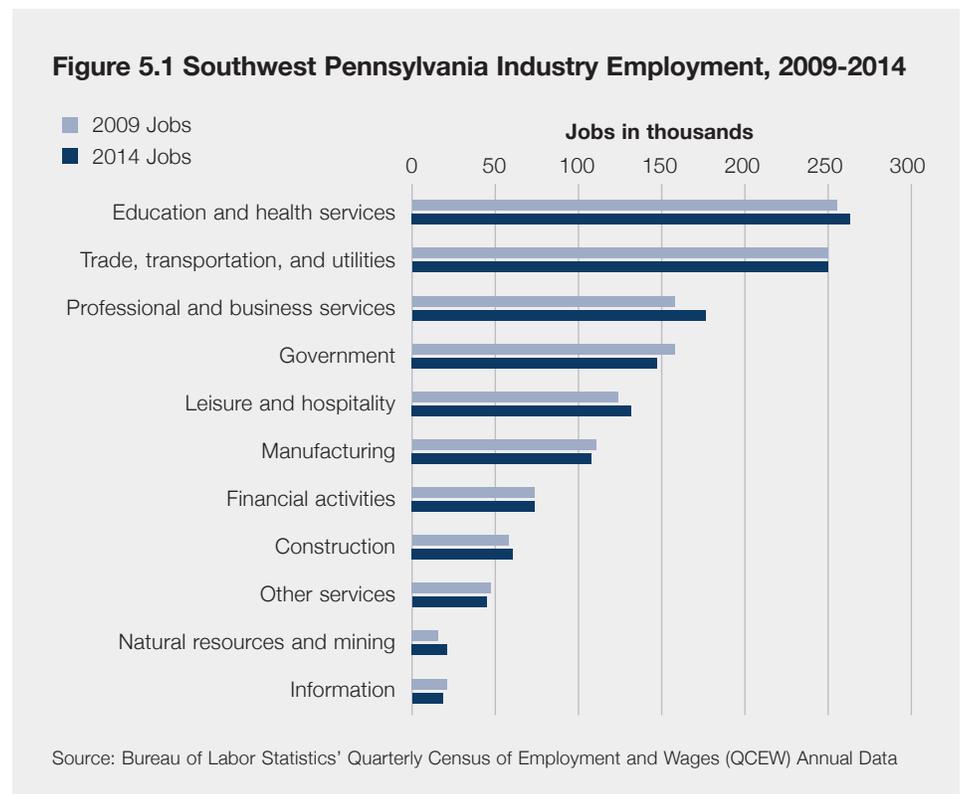
Oxford Economics, a premier economic modeling and consulting firm, produced the projections. By updating the projections, Oxford Economics provided insight into new job growth and occupational demand over the next 10 years.

The next section provides an analysis of industries in Southwest Pennsylvania with a focus on the post-recession recovery period 2009 to 2014, as well as top employers in the region.

# 5. INDUSTRIES IN SOUTHWEST PENNSYLVANIA

Over the five years of 2009 to 2014, the Southwest Pennsylvania economy experienced significant growth in natural resources and mining and several service-based sectors, while information and government saw a reduction in jobs. Sectors such as education and health care, professional and business services, leisure and hospitality added a combined 34,500 new jobs between 2009 and 2014. Also during this period, natural resources and mining experienced significant growth (44%), adding nearly 6,700 jobs. Manufacturing declined modestly, while the largest job losses occurred within government and information. Overall, the economy added about 26,000 jobs during this period, 2009 to 2014. This growth reflects the recovery period for Pennsylvania from one of the worst recessions since the Great Depression—the Great Recession which lasted from 2007 to 2009.

Figure 5.1 illustrates historic and current employment, while Table 5.1 provides data on broad industry categories by employment, growth and percentage change.



**Table 5.1 – Southwest Pennsylvania Industry Employment, 2009-2014**

<b>Industry Employment</b>	<b>2009 Jobs</b>	<b>2014 Jobs</b>	<b>Absolute Change 09-14</b>	<b>% Change 09-14</b>
<b>Total, all industries</b>	<b>1,287,851</b>	<b>1,313,818</b>	<b>25,967</b>	<b>2.0%</b>
Education and health services	257,752	266,453	8,701	3.4%
Trade, transportation, and utilities	252,791	252,573	-218	-0.1%
Professional and business services	161,203	178,958	17,755	11.0%
Government	160,500	148,233	-12,267	-7.6%
Leisure and hospitality	126,120	134,189	8,069	6.4%
Manufacturing	111,759	110,357	-1,402	-1.3%
Financial activities	74,072	75,675	1,603	2.2%
Construction	60,069	60,192	123	0.2%
Other services	46,859	46,457	-402	-0.9%
Natural resources and mining	14,978	21,636	6,658	44.5%
Information	21,724	19,104	-2,620	-12.1%

Source: Bureau of Labor Statistics' Quarterly Census of Employment and Wages (QCEW) Annual Data

Appendix C contains additional data on employment in detailed industry sectors as well as location quotients.

## 5.1 Top Employers in Southwest Pennsylvania

Amongst the top employers within Southwest Pennsylvania, education and health service establishments comprise a majority of the list. Other top employers in the region include federal, state, and local government as well as several mining and construction establishments.

Major employers in the region are listed in Table 5.2 on the next page.

While this section focused on the places where people in Southwest Pennsylvania work, the next section builds a perspective of occupational employment. This perspective describes the types of jobs people have in Southwest Pennsylvania and identifies the skills and characteristics of those people.

**Table 5.2 – Top Employers in Southwest Pennsylvania**

<b>Firm Name</b>
Armstrong County Memorial Hospital
Armstrong School District
Conemaugh Valley Memorial Hospital
Consol Pennsylvania Coal Company
Federal Government
Giant Eagle
Indiana Regional Medical Center
JLG Industries
Juniata College
Nemacolin Woodlands
New Enterprise Stone & Lime Company
Pennsylvania State System of Higher Education
PNC Bank
Rosebud Mining Company
Seven Springs Mountain Resort
State Government
The Washington Hospital
University of Pittsburgh
UPMC Altoona
UPMC Presbyterian Shadyside
Valley Medical Facilities
Wal-Mart
Washington Trotting Association
Western Penn Allegheny Health
Westinghouse Electric

Source: Pennsylvania Department of Labor and Industry Quarterly Census of Employment and Wages (QCEW)

## 6. OCCUPATIONS IN SOUTHWEST PENNSYLVANIA

The workforce within the region can be evaluated from many different angles in order to build a deeper profile of the qualities and attributes of workers. The next five sub-sections provide insight into the qualities of Southwest Pennsylvania's workforce, answering questions such as:

- What are the largest skilled occupations employed within the region?
- What are the key skilled high demand occupations that typically align to university-level education?
- Within the key skilled high demand occupations what is the current market demand in terms of jobs postings and hires?
- What sectors typically employ the key skilled high demand occupations?
- What type of demographic is typically found in key skilled high demand occupations?

Each perspective provides data-driven content for the universities to consider when engaging businesses, learners and program planners.

### 6.1 Skilled Occupations

The O\*NET program is the nation's primary source of occupational information. Essential to the project is the O\*NET database, containing information on hundreds of standardized and occupation-specific descriptors.<sup>7</sup>

For this analysis a "skilled" occupation is defined as an occupation in O\*NET Job Zones Three, Four, or Five. A Job Zone is a group of occupations that are similar in how much education people need to do the work, how much related experience people need to do the work, and how much on-the-job training people need to do the work.<sup>8</sup>

Most occupations in Job Zone Three require training in vocational schools, related on-the-job experience, or an associate's degree. Most occupations in

---

<sup>7</sup> <http://www.onetcenter.org/overview.html>

<sup>8</sup> <https://www.onetonline.org/help/online/zones>

Job Zone Four require a four-year bachelor's degree, but some do not. Most occupations in Job Zone Five require graduate school. For example, they may require a master's degree, and some require a Ph.D., M.D., or J.D. (law degree). For a more detailed description of O\*NET Job Zones and training requirements see Appendix D.

For the five key skilled high demand occupations, over 50% of those employed have attained an associate's degree or higher and are generally associated with university-level education.

## **6.2 Top Skilled Occupations in Southwest Pennsylvania**

Top skilled occupations in the state are driven by industry composition. Medical centers employ a cadre of health professionals, while enterprise management companies employ a range of business professionals. Given the dominating presence of trade, transportation and utilities; healthcare and education services; and professional and business services establishments in Southwest Pennsylvania, top skilled occupations include: registered nurses, general and operations managers, secretaries and administrative assistants, sales representatives, and teachers. Figure 6.1 and Table 6.1 highlight the top 20 skilled occupations in the region, 10-year job growth projections, and new and replacement jobs.<sup>9</sup>

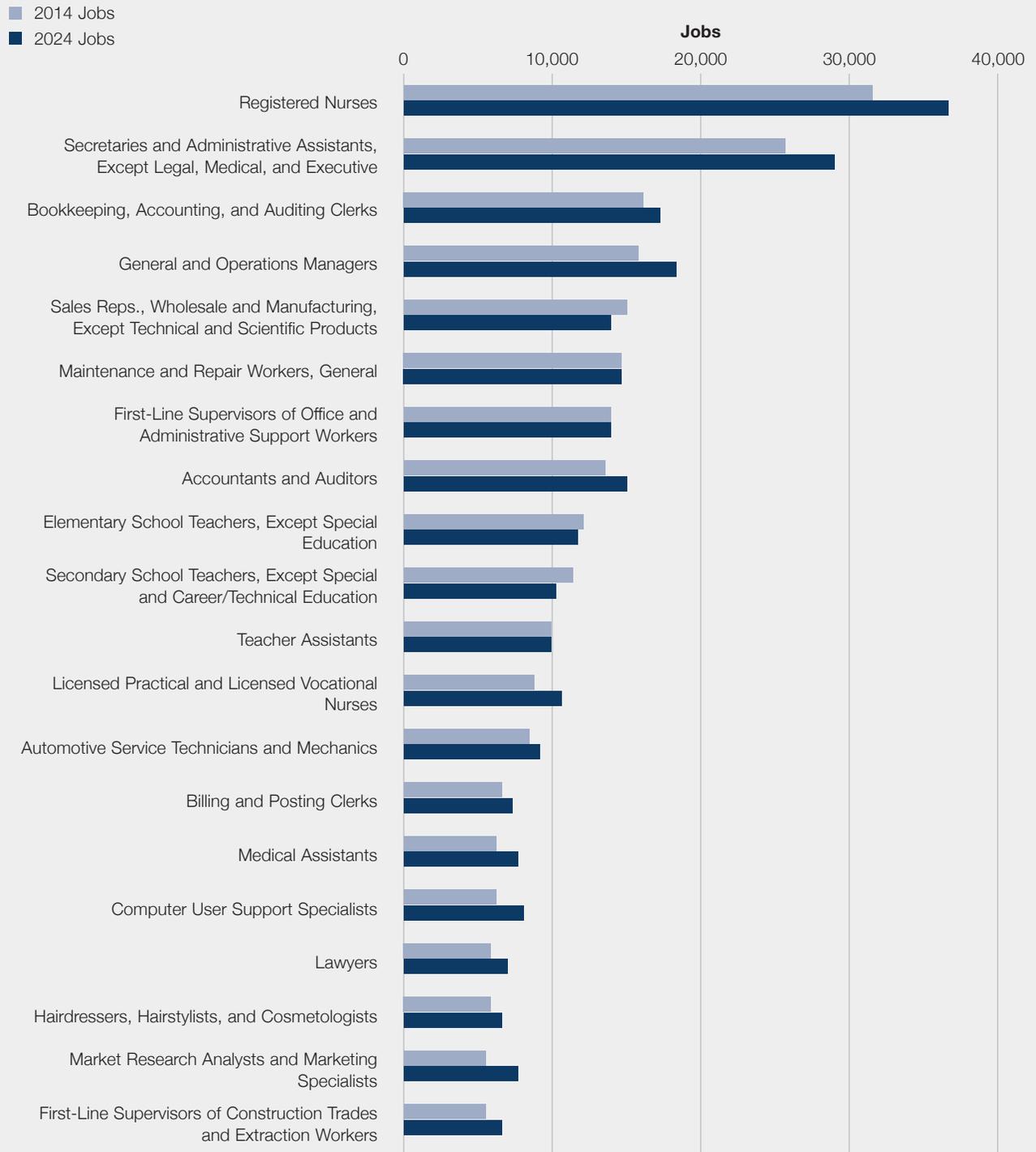
An important aspect to distinguish skilled occupations, in this sub-section, is that postsecondary education is not necessarily a pre-requisite for employment. However, a high percentage of those employed in the skilled occupations have a postsecondary education.

The next section provides a more narrow view of skilled occupations, focusing specifically on occupations that align to university-level education and have high demand for new and replacement jobs.

---

<sup>9</sup> New and replacement job change takes into account demand for occupations based on: industry growth (new jobs), occupation productivity, workforce ageing, migration and other factors that would contribute to new and replacement job openings.

**Figure 6.1 – Largest Skilled Occupations in Southwest Pennsylvania and Projections, 2014-2024**



Source: BLS (QCEW and OES); Pennsylvania Department of Labor & Industry; Oxford Economics Projections

**Table 6.1 – Largest Skilled Occupations in Southwest Pennsylvania and Projections, 2014-2024**

<b>SOC Code</b>	<b>Occupation Title</b>	<b>2014 Jobs</b>	<b>2024 Jobs</b>	<b>10-Year New and Replacement Demand</b>
29-1141	Registered Nurses	31,551	36,580	11,418
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	25,780	28,784	6,354
43-3031	Bookkeeping, Accounting, and Auditing Clerks	16,135	17,258	2,718
11-1021	General and Operations Managers	15,775	18,124	5,158
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	14,944	13,987	2,514
49-9071	Maintenance and Repair Workers, General	14,567	14,800	3,443
43-1011	First-Line Supervisors of Office and Administrative Support Workers	13,752	13,948	3,490
13-2011	Accountants and Auditors	13,610	15,001	5,922
25-2021	Elementary School Teachers, Except Special Education	12,188	11,602	2,480
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	11,208	10,184	2,793
25-9041	Teacher Assistants	9,855	9,965	2,560
29-2061	Licensed Practical and Licensed Vocational Nurses	8,681	10,777	4,388
49-3023	Automotive Service Technicians and Mechanics	8,374	9,014	3,076
43-3021	Billing and Posting Clerks	6,691	7,195	1,857
31-9092	Medical Assistants	6,255	7,577	2,578
15-1151	Computer User Support Specialists	6,103	8,101	3,090
23-1011	Lawyers	6,038	6,866	1,859
39-5012	Hairdressers, Hairstylists, and Cosmetologists	5,810	6,425	2,258
13-1161	Market Research Analysts and Marketing Specialists	5,648	7,542	2,799
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	5,642	6,541	1,591

Source: BLS (QCEW and OES); Pennsylvania Department of Labor & Industry; Oxford Economics Projections

## 6.3 Key Skilled High Demand Occupations Aligning to University-level Education

Occupation demand can represent different perspectives of employment need. One perspective evaluates demand due to growth of new jobs. It also represents the need for replacement jobs. When combined, new and replacement job projections provide a more realistic perspective of labor demand.

To support the occupational demand for new and replacement jobs, this analysis also evaluates real-time job posting data. By measuring the number of unique job postings for a specific job title, which is then translated into an occupation classification, it is possible to gauge real-time demand—another perspective of employment need. The number of unique postings provides guidance on real-time changes in occupations that companies may be seeking to hire. As with all datasets, job posting data have caveats. Discrepancies between postings and actual hires can be challenging to measure—wherein a job posting may not result in a hire for one occupation, but another job posting for a different occupation may result in multiple hires.<sup>10</sup>

This section looks at both perspectives—occupation demand using projections of new and replacement jobs as well as real-time job postings—in order to draw specific insight into occupation demand within Southwest Pennsylvania.

### 6.3.1 New and Replacement Demand for Key Skilled High Demand Occupations

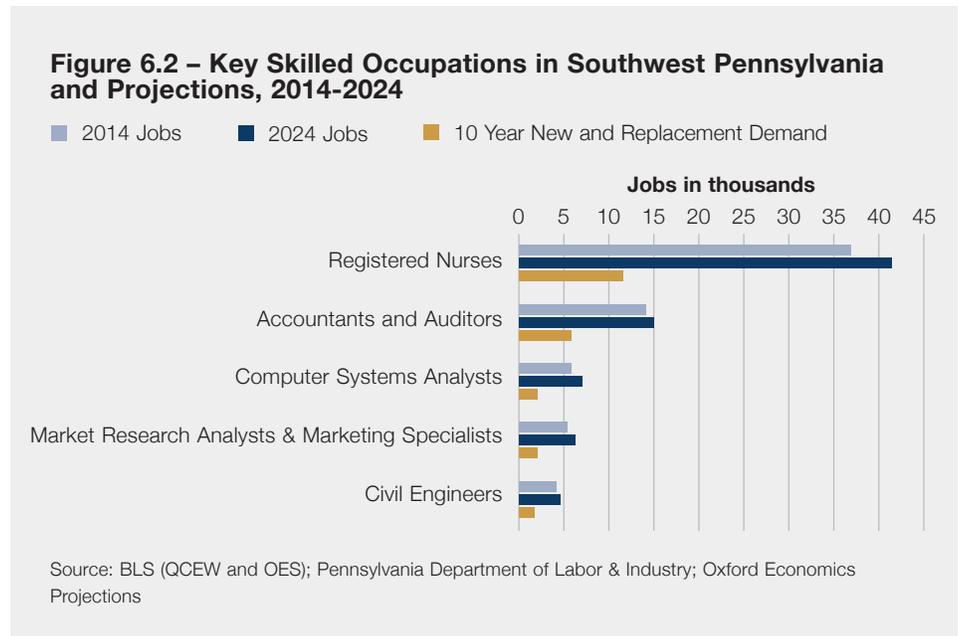
Many skilled occupations exist in Pennsylvania. Demand for new and replacement jobs for key skilled high demand occupations that tie more closely to university-level programs are typically determined by the sheer size of the employment within the occupation and the demographic characteristics of those who are currently employed—specifically age. For example, Pennsylvania businesses employ approximately 54,400 accountants and auditors. Projections indicate that new employment for accountants and auditors will increase to about 60,000 by 2024—5,600 new jobs in 10 years. However, 47% of the employed accountants and auditors are over the age of 45, meaning that many of the currently employed accountants and auditors will likely retire over the next 10 years. This retirement will drive up the need to replace outgoing

---

<sup>10</sup> When evaluating jobs postings, a specific caveat focuses on net openings and jobs filled (i.e. openings that result in an opportunity for a new entrant, rather than normal job turn wherein a worker moves to a different company in the region and their vacant job is filled by yet another incumbent worker at another company).

accountants and auditors with new workers—hence the reason we see nearly 23,700 new and replacement jobs (5,600 new and 18,100 replacement) for the occupation over the next 10 years.<sup>11</sup>

Figure 6.2 and Table 6.2 outline the five key skilled high demand occupations for new and replacement jobs over the next 10 years, specifically: registered nurses, accountants and auditors, computer system analysts, market research analysts and marketing specialists, and civil engineers.<sup>12</sup>



**Table 6.2 – Key Skilled Occupations in Southwest Pennsylvania and Projections, 2014-2024**

Code	Occupation Title	2014 Jobs	2024 Jobs	10 Year New and Replacement Demand
29-1141	Registered Nurses	37,044	41,339	11,796
13-2011	Accountants and Auditors	14,001	14,956	5,616
15-1121	Computer Systems Analysts	5,870	7,030	2,199
13-1161	Market Research Analysts and Marketing Specialists	5,252	6,291	1,881
17-2051	Civil Engineers	4,043	4,686	1,745

Source: BLS (QCEW and OES); Pennsylvania Department of Labor & Industry; Oxford Economics Projections

11 Retirement is only one of the metrics factored into new and replacement jobs. Other metrics include out-migration and death.  
 12 Teachers (elementary and secondary) were found in the top skilled high demand occupations. However, the analysis focuses on private sector jobs and opportunities.

While this section focused on 10-year new and replacement demand, the next section highlights the importance of current demand using real-time job posting analytics.

### 6.3.2 Real-time Job Postings for Key Skilled High Demand Occupations

Analysis of job postings for key skilled high demand occupations generally supports the findings from Section 6.3.1. Between July 2014 and July 2015 approximately 3,200 unique (de-duplicated) job postings appeared in Southwest Pennsylvania for the top five key skilled high demand occupations (registered nurses, accountants and auditors, computer system analysts, market research analysts and marketing specialists, and civil engineers). Sizable job postings include: registered nurses (1,412 unique postings per month) and accountants and auditors (773 unique postings per month).

Table 6.3 provides details on the average monthly job postings and the estimated average monthly hires between July 2014 and July 2015 for the key skilled high demand occupations.

**Table 6.3 – Job Postings and Hires for Key Skilled High Demand Occupations in Southwest Pennsylvania**

Occupation	Average Monthly Postings (Jul 2014 - Jul 2015)	Average Monthly Hires (Jul 2014 - Jul 2015)	Ratio of Postings to Hires
Registered Nurses	1,412	1,199	1.2
Accountants and Auditors	773	638	1.2
Computer Systems Analysts	551	209	2.6
Market Research Analysts and Marketing Specialists	283	210	1.3
Civil Engineers	234	157	1.5

Source: Economic Modeling Specialists International (EMSI)

Job posting analytics also provide insight into the skills and certifications that employers seek from qualified job candidates. Individuals seeking jobs in the key skilled high demand occupations would increase their competitiveness by demonstrating skill proficiency and/or certifications. The following lists specific unique skills or certifications for each occupation that employers demand.

---

### **Registered Nurses**

*Unique skills:* acute care, surgery, schedule/record keeping

*Certifications:* Cardiopulmonary Resuscitation (CPR), Basic Life Support (BLS),  
Advanced Life Support (ALS), Registered Nurse (RN) license

### **Accountants and Auditors**

*Unique skills:* audits, finance, Generally Accepted Accounting Principles (GAAP)

*Certifications:* Certified Public Accountant (CPA)

### **Market Research Analysts and Marketing Specialists**

*Unique skills:* product marketing, product management, marketing concepts, market analysis, social media, product development, presentations

*Certifications:* Six Sigma, Project Management Professional (PMP)

### **Computer Systems Analysts**

*Unique skills:* information systems, SAP software, SQL programming, Oracle databases

*Certifications:* security clearance, Certified Information Systems Security Professional (CISSP), Microsoft certified professional, Certified Information Systems Auditor (CISA)

### **Civil Engineers**

*Unique skills:* structural engineering, design, construction management, structural analysis

*Certifications:* Professional Engineer (PE), Abet accredited, Chartered Engineer (C.Eng)

This list of skills and certifications does not encompass the entirety of skills and certifications that may be required for different industry sectors and job functions. However, these skills reflect the general online job posting minimum qualifications for those seeking to apply to one of the occupations.

The next section builds a broader sense of which industry sectors typically employ each of the top five skilled high demand occupations.

## 6.4 Staffing Patterns for Key Skilled High Demand Occupations in Southwest Pennsylvania

Understanding which industries employ key skilled high demand occupations is helpful when engaging businesses, as well as communicating programs and potential career opportunities to learners. Also knowing the industries that predominately employ certain occupations can help align program planning.

The following tables show the staffing patterns for the key skilled high demand occupations by identifying the top five industries that employ each respective key skilled high demand occupation within the region. For each occupation, the table contains:

- The number of jobs in each respective industry in 2014 (e.g. general medical and surgical hospitals employ over 17,600 registered nurses);
- The percentage of the occupation's employment in the region that is employed in the industry (e.g. the 17,600 registered nurses employed in general medical and surgical hospitals represent almost 56% of the total registered nurse workforce in the region);
- The percentage of the industry sector's employment that is made up of the occupation (e.g. the 17,600 registered nurses make up about 27% of employment within general medical and surgical hospitals).

### Staffing Patterns for Registered Nurses Employed in Southwest Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
General Medical and Surgical Hospitals	17,632	27.2%	55.9%
Offices of Physicians	2,754	9.4%	8.7%
Home Health Care Services	2,550	21.0%	8.1%
Nursing Care Facilities (Skilled Nursing Facilities)	2,067	9.9%	6.6%
Outpatient Care Centers	1,312	15.9%	4.2%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

### Staffing Patterns for Accountants and Auditors Employed in Southwest Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Accounting, Tax Preparation, Bookkeeping, and Payroll Services	3,489	38.6%	25.6%
Management of Companies and Enterprises	2,128	5.0%	15.6%
Other Financial Investment Activities	445	8.9%	3.3%
Insurance Carriers	374	2.4%	2.7%
Depository Credit Intermediation	373	1.3%	2.7%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

### Staffing Patterns for Computer Systems Analysts Employed in Southwest Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Computer Systems Design and Related Services	1,956	12.8%	35.0%
Management of Companies and Enterprises	1,008	2.4%	18.0%
Insurance Carriers	440	2.8%	7.9%
Wholesale Electronic Markets and Agents and Brokers	303	2.7%	5.4%
Depository Credit Intermediation	261	0.9%	4.7%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

### Staffing Patterns for Market Research Analysts and Marketing Specialists Employed in Southwest Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Management of Companies and Enterprises	851	2.0%	15.1%
Management, Scientific, and Technical Consulting Services	656	6.0%	11.6%
Computer Systems Design and Related Services	299	2.0%	5.3%
Architectural, Engineering, and Related Services	274	1.2%	4.8%
Other Professional, Scientific, and Technical Services	261	4.8%	4.6%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

## Staffing Patterns for Civil Engineers Employed in Southwest Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Architectural, Engineering, and Related Services	3,378	14.4%	78.5%
Nonresidential Building Construction	201	2.5%	4.7%
Executive, Legislative, and Other General Government Support	182	0.6%	4.2%
Highway, Street, and Bridge Construction	71	1.3%	1.6%
Justice, Public Order, and Safety Activities	57	0.6%	1.3%

Source: Bureau of Labor Statistics – OES & QCEW Annual Data

The above data establishes the top sectors where the key skilled high demand occupations are employed. However, to further give a perspective on these occupation profiles, it is important to consider the types of people who generally fill these roles. The next section contains a demographic profile for people from Pennsylvania who work in these key skilled occupations.

### 6.5 Key Skilled High Demand Occupational Profiles

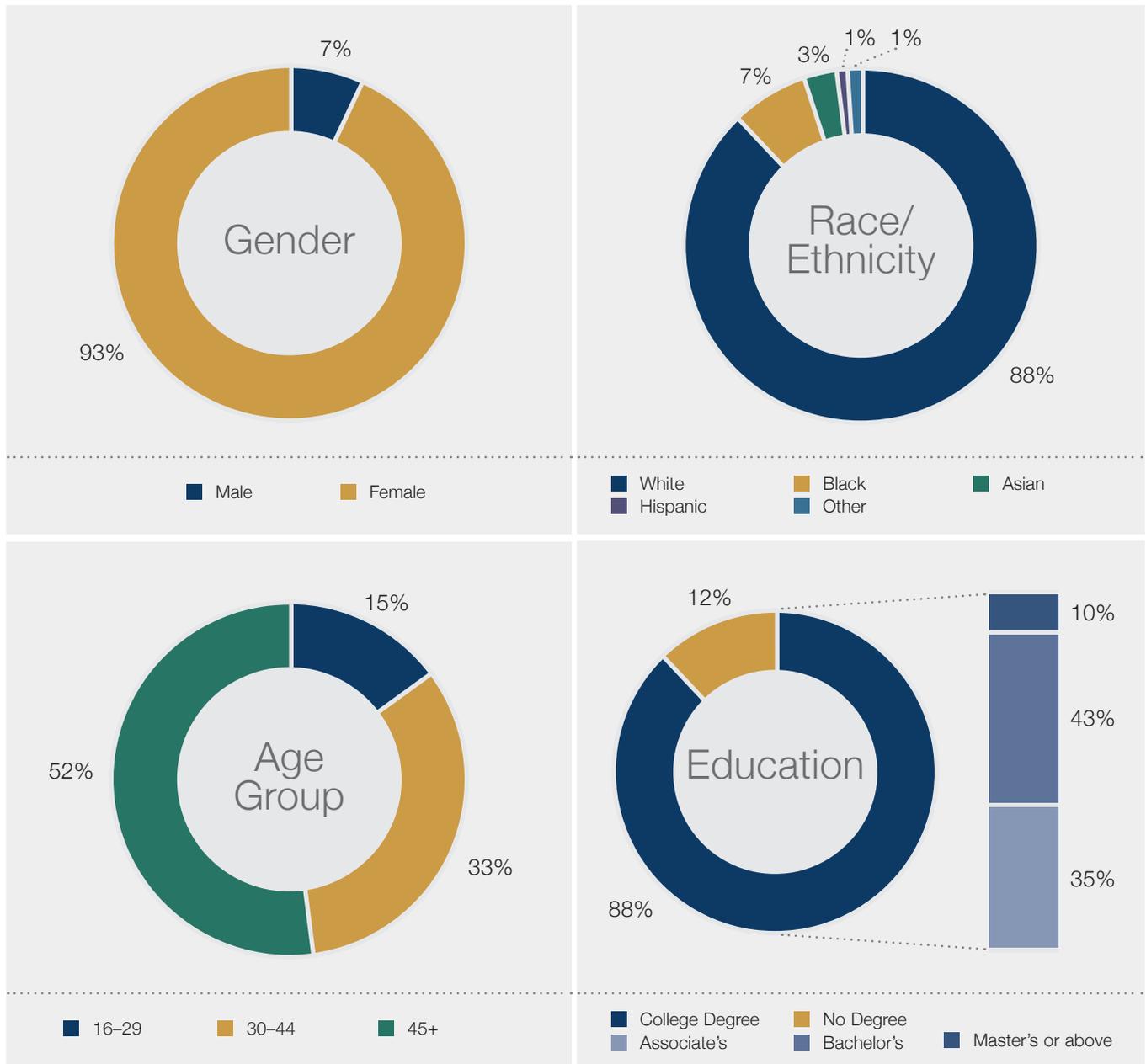
In addition to understanding the industries that employ key skilled high demand occupations, another lens focuses on the characteristics of those employed. The following section outlines the demographics for people from Pennsylvania who work in these key skilled occupations by showing each occupation's composition by gender, race/ethnicity, age, and education. This lends further insight into who generally works in the occupation and answers questions such as:

- Are women or men typically found in the occupation?
- Do certain races/ethnicities occupy larger shares of the occupation?
- What is the age distribution of the occupation?
- What is the educational attainment of workers in the occupation?

For comparative purposes, the demographic composition of Southwest Pennsylvania's entire population is further described in Section 7 of the report.

## REGISTERED NURSES IN PENNSYLVANIA

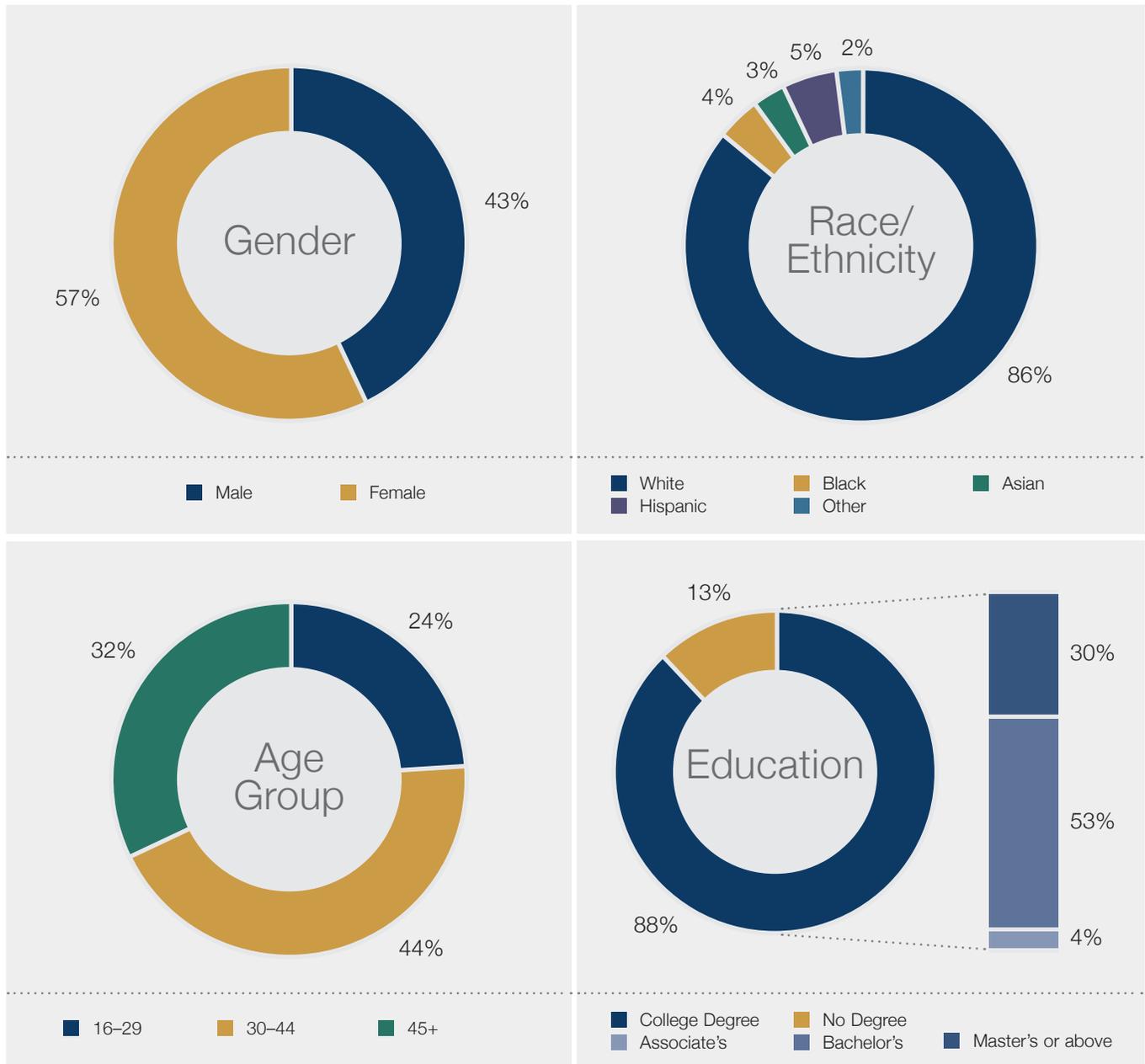
The demographic profile of registered nurses is dominated by white females. Age distribution indicates that registered nurses are a more mature cohort of workers (45 years and older), which can put increasing pressure on replacement jobs due to retirements over the next 10 years. Nearly 90% of registered nurses have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

# MARKET RESEARCH ANALYSTS AND MARKETING SPECIALISTS IN PENNSYLVANIA

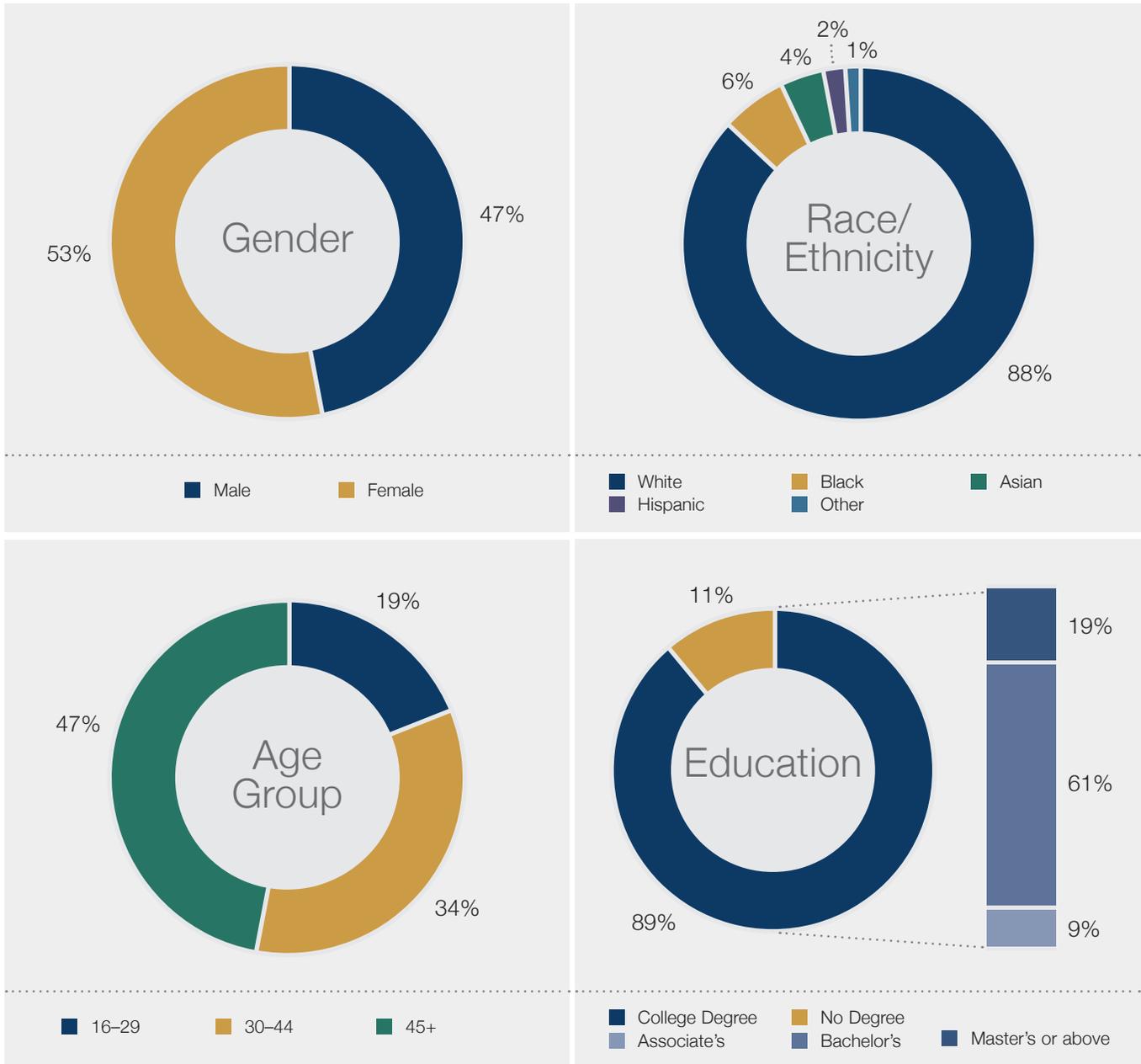
Market research analysts and marketing specialists indicate a larger proportion of females within the occupation compared to males. The race/ethnicity distribution within the occupation is predominately white. Additionally, the age distribution of the occupation tends to favor a younger demographic. More than two thirds of the employed market research analysts and marketing specialists are under 45 years old. Nearly 90% of market research analysts and marketing specialists have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

# ACCOUNTANTS AND AUDITORS IN PENNSYLVANIA

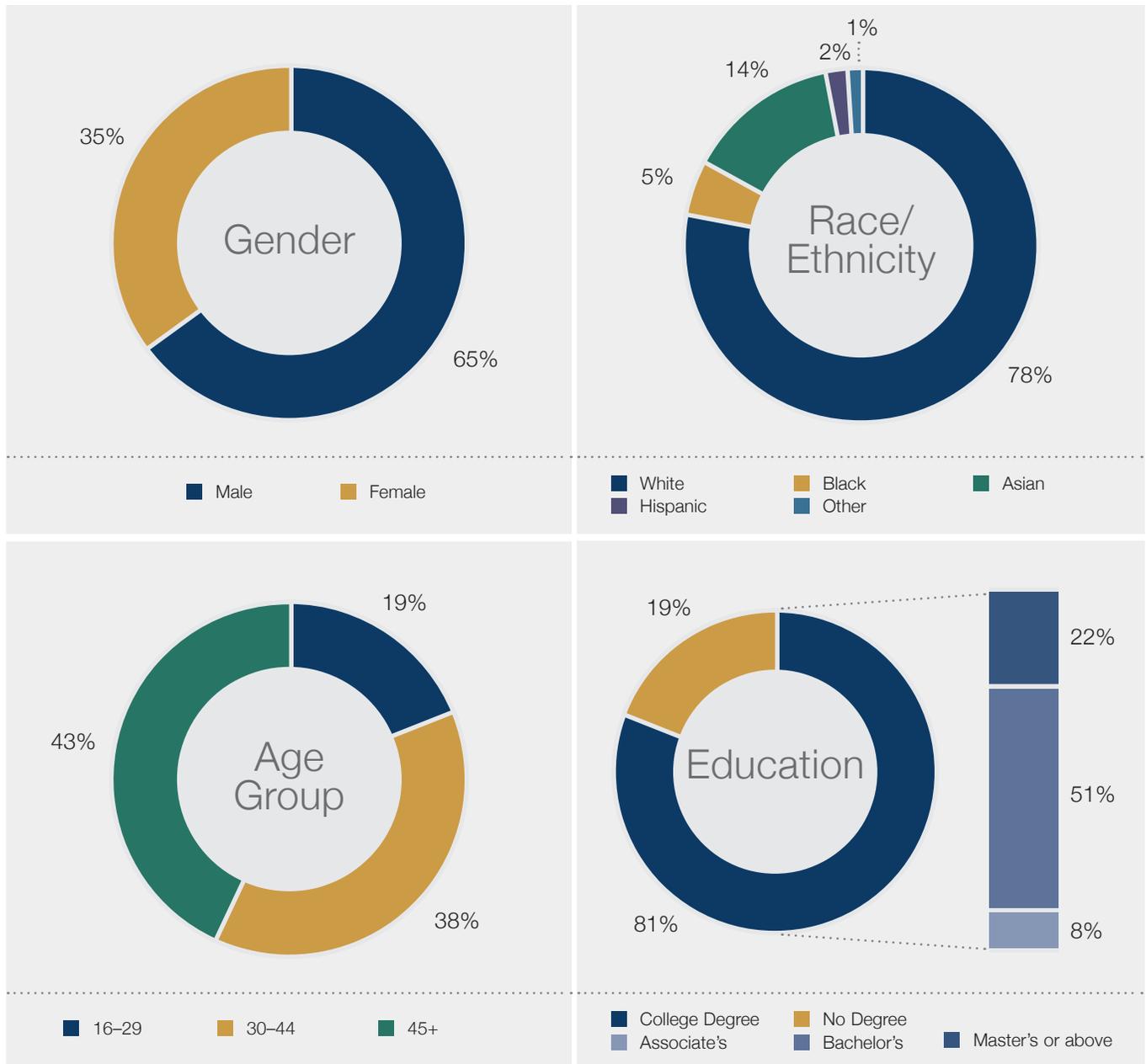
Accountants and auditors are fairly evenly split between male and female, though a slightly higher percent of employed accountants and auditors are female. A high proportion of white individuals are found in the occupation. Additionally, the age distribution is fairly even between entry-level and mature workers, indicating that the occupation provides good opportunities for first destinations of recent college graduates. Nearly 90% of accountants and auditors have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

## COMPUTER SYSTEMS ANALYSTS IN PENNSYLVANIA

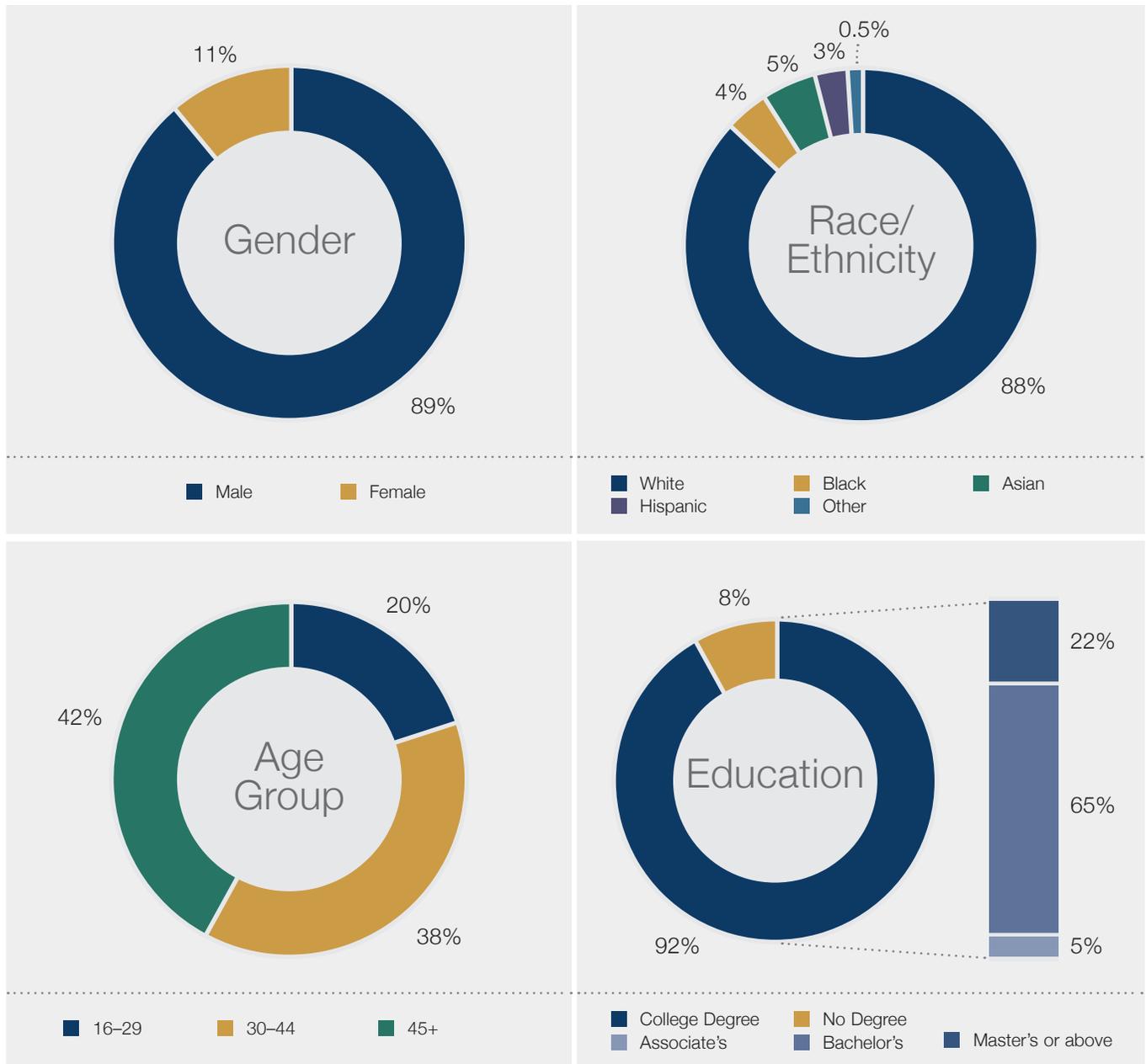
Computer systems analysts show a larger proportion of males in the occupation compared to females. While still represented by a larger share of white workers, a significant number of Asian workers are found in the occupation, making this occupation more diverse than the average Pennsylvania demographic makeup. The age composition of this occupation indicates that a higher proportion of younger (16-29) and mid-career (30-44) workers make up the workforce. Over 80% of computer systems analysts have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

## CIVIL ENGINEERS IN PENNSYLVANIA

Civil engineers show a larger proportion of males in the occupation compared to females. A high proportion of white individuals are found in the occupation. The age composition of this occupation indicates that a higher proportion of younger (16-29) and mid-career (30-44) workers make up the workforce. Over 90% of civil engineers have an associate's degree or higher indicating that this is a highly educated occupation.



Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

---

The final section of this report explores Southwest Pennsylvania's demographic and socio-economic characteristics. While not tied to a specific occupation, the analysis further contextualizes the region's population and workforce.

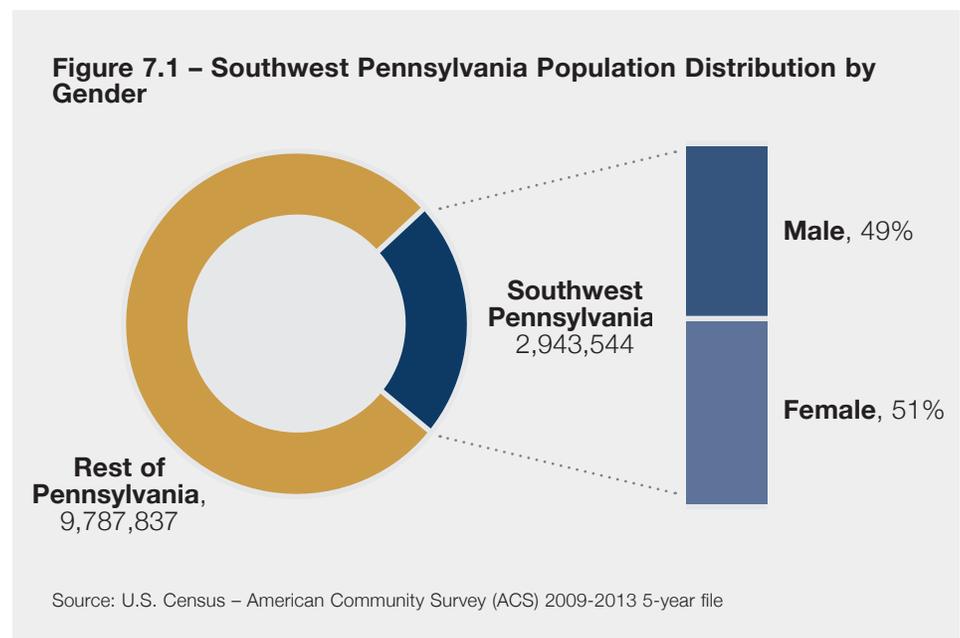
# 7. DEMOGRAPHIC AND SOCIO-ECONOMIC INDICATORS IN SOUTHWEST PENNSYLVANIA

This section provides further information about the regional demographic and socio-economic composition of Southwest Pennsylvania's workforce in order to better understand the characteristics of the population. An additional focus evaluates changes in age cohorts for university-age residents.

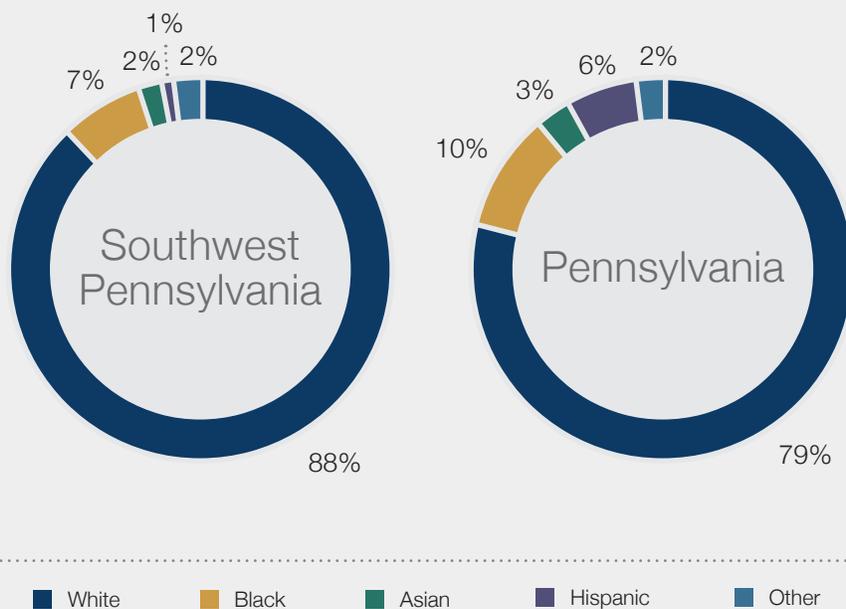
Analysis of three socio-economic indicators—education, unemployment, and poverty—also provides insight into the segment of the population that may be considered economically disadvantaged. Areas with high proportions of economically disadvantaged learners may require additional considerations in education and financial support.

## 7.1 Southwest Pennsylvania's Demographics

The Southwest Pennsylvania region has a population of about 2.9 million people. As shown in Figure 7.1, females make up a slightly larger share of the population compared to males. Figure 7.2 illustrates that the majority of the region is represented by a White demographic, with Blacks representing the next largest group, followed by all others.



**Figure 7.2 – Southwest Pennsylvania and Pennsylvania Race/Ethnicity Composition**

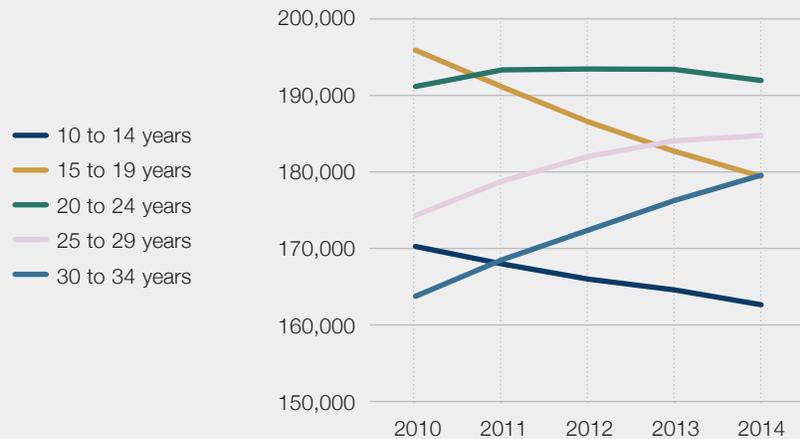


Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

Fall 2014 data from the State System Research Office indicates that approximately 83% (90,966) of learners within the State System are traditional students—ages 18 to 22 year old high school graduates—and 17% (18,640) are adult learners. A view of the change in population by age indicates a diminishing number in the traditional age cohort and a growing number of adults aged 25 to 34 years old. As illustrated in figure 7.3, the 10 to 19 year old cohort population declined by over 24,000 people between 2010 and 2014—a 7% decline. Conversely, the 25-34 year old cohort increased nearly 8%, or 26,000 people, over the same time period. This demographic shift presents an opportunity to incorporate a broader university recruitment strategy.

The next sub-section further explores the shifting socio-economic characteristics in Southwest Pennsylvania by identifying three inter-related variables.

**Figure 7.3 – Southwest Pennsylvania Changes in Age Cohorts**



Source: U.S. Census

## 7.2 Southwest Pennsylvania’s Socio-economic Indicators

This final section outlines three key socio-economic variables—educational attainment, poverty, and unemployment. Poverty data provides understanding on relative income inequality within an area. If poverty rates decline, then the standard of living, social inclusion, and equality of opportunity are typically considered to be increasing. Economic opportunities are often linked with access to jobs and training. Regions with high unemployment indicate the population is unable to find work or is not adequately trained to perform work in the jobs available within the region.

### 7.2.1 Educational Attainment in Southwest Pennsylvania

The levels of educational attainment in a population indicate several characteristics in an economy. Areas with better educated workers earn higher wages, are more productive and can typically adjust more quickly to changing economic conditions. Additionally, an educated workforce is less likely to be unemployed, require social assistance, and more likely to lead a healthier lifestyle—aspects that bolster value in an economy.<sup>13, 14</sup>

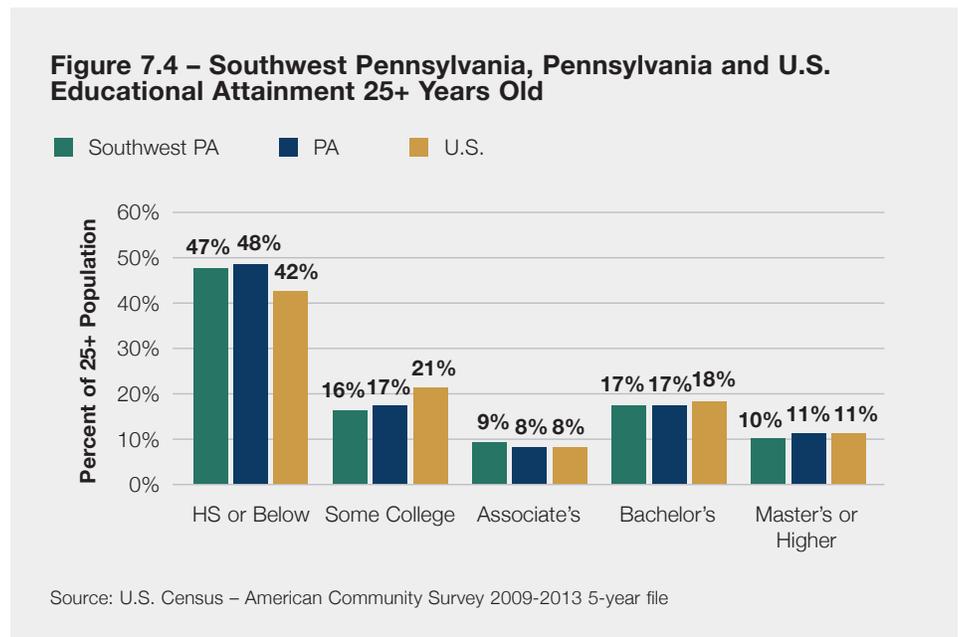
13 Feinstein et. al. (2006), “The effects of education on health: Concepts, evidence and policy implications: A review for the OECD Center for Educational Research and Innovation (CERI)”, unpublished manuscript, OECD, Paris.

14 Mitra, Dana (2011), “Pennsylvania’s Best Investment: The Social and Economic Benefits of Public Education.” Report published for the Education Law Center.

A view of Southwest Pennsylvania’s educational attainment indicates that more than half (53%) of those over 25 years old have had some postsecondary education or higher. Some college is defined by ACS as having some college, but less than one year or one or more years of college credit, but no degree. This lags behind the national average of 58% of the population having had at least some postsecondary education or higher.

When comparing degree completion, Southwest Pennsylvania is near the national average for the proportion of the population with an associate’s degree, bachelor’s degree, and master’s degrees or higher.

Figure 7.4 compares the educational attainment of the 25 years and older population in the U.S., Pennsylvania, and Southwest Pennsylvania.

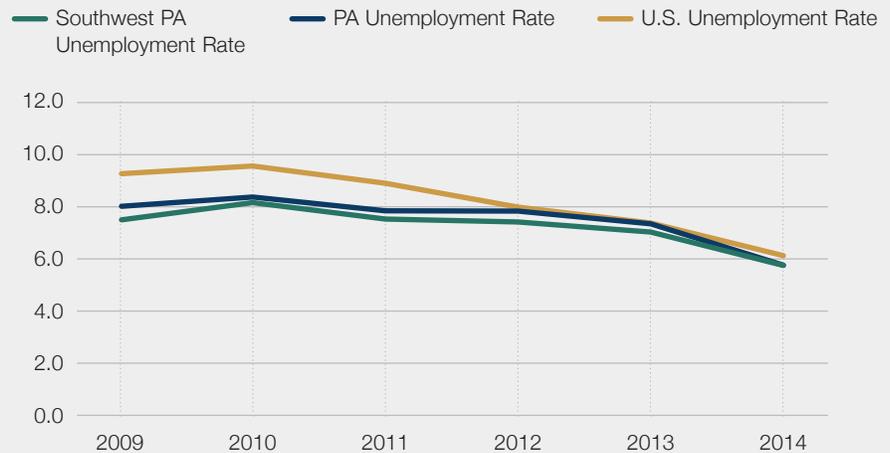


### 7.2.2 Unemployment and Poverty in Southwest Pennsylvania

Southwest Pennsylvania’s unemployment rate—5.8% in 2014—trended closely with the state and national unemployment rate since 2012. This suggests that opportunities for dislocated workers on average are roughly the same, compared to the rest of the nation.

Figure 7.5 shows the convergence of the unemployment rates of Southwest Pennsylvania, Pennsylvania, and the U.S. from 2009 to 2014.

**Figure 7.5 – Southwest Pennsylvania, Pennsylvania and U.S. Unemployment Rates**



Source: Bureau of Labor Statistics – Local Area Unemployment Statistics

In Southwest Pennsylvania, the poverty rate trended upward from 2009 to 2013. The region's poverty rate is below both the state poverty rate and the U.S. average.<sup>15</sup> Given the lower poverty rate compared with the nation, there is an underlying assumption that the compensation associated with the jobs in Southwest Pennsylvania may be higher than the national average.

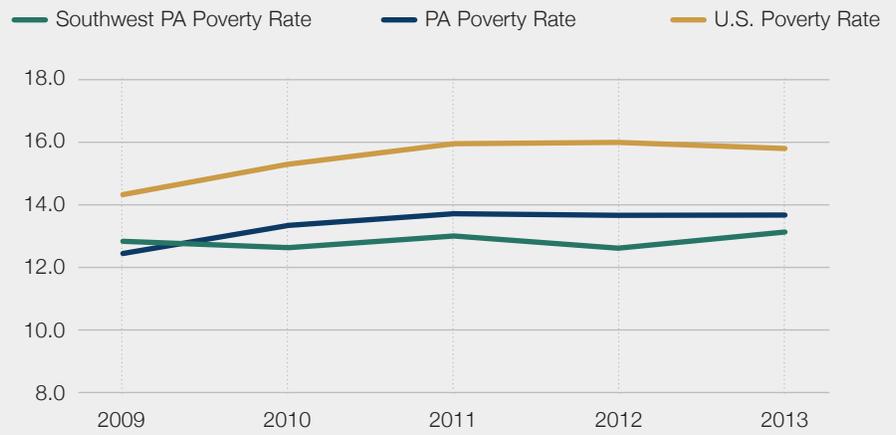
Figure 7.6 compares the poverty rates of Southwest Pennsylvania, Pennsylvania, and the U.S. from 2009 to 2013.

When unemployment and poverty are evaluated together, a significant decline in unemployment to pre-recession levels, coupled with a small uptick in the poverty rate, suggests an underlying cause that is contributing to marginally increased poverty rates. This cause may be associated with the quality of new jobs that have emerged since the recession, which have done little to abate poverty rates, despite decreasing unemployment.

Although the poverty rate indicates an overall small increasing trend, the unemployment rate shows a decreasing trend, meaning a larger proportion of the workforce is either employed or is no longer seeking employment.

<sup>15</sup> Poverty estimates are based on U.S. Census Bureau's Small Area Income and Poverty Estimates data series. Calculations comprise the total number of individuals (all ages) in the geography, divided by the number of individuals (all ages) that are classified as being in poverty.

**Figure 7.6 – Southwest Pennsylvania, Pennsylvania and U.S. Poverty Rates**



Source: U.S. Census – Small Area Income & Poverty Estimates (SAIPE)

---

## 8. NEXT STEPS

This report sets the foundation for program planning by accomplishing three key tasks:

- Defining the state's sub-region workforce areas.
- Describing key economic, workforce and demographic attributes in the regional economy.
- Forecasting the initial demand for skilled occupations.

The next steps for research to support Pennsylvania's State System of Higher Education Program Alignment Toolkit are the development of an education supply and workforce demand gap analysis. Key data-driven aspects in the gap analysis research include:

- Development of an education program to occupation crosswalk.
- Analysis of completion data from the State System institutions as well as other institutions in Pennsylvania.
- Comparison of the occupation forecasts against the recent completions of education programs.
- Identification of programs that may require expansion or development, as well as programs that indicate a potential surplus of talent within the state.

---

# DATA SOURCES KEY

Bureau of Labor Statistics (BLS):

- QCEW - Quarterly Census of Employment & Wages (Bureau of Labor Statistics) - <http://www.bls.gov/cew/>
- OES – Occupational Employment Statistics (Bureau of Labor Statistics) - <http://www.bls.gov/oes/>
- LAUS – Local Area Unemployment Statistics (Bureau of Labor Statistics) - <http://www.bls.gov/lau/>

U.S. Census Bureau (Census):

- LEHD – Longitudinal Employer-Household Dynamics - <http://lehd.census.gov/>
- ACS – American Community Survey - <http://www.census.gov/acs/www/>
- SAIPE – Small Area Income and Poverty Estimates - <http://www.census.gov/did/www/saipe/>

National Center for Education Statistics (NCES):

- IPEDS – Integrated Postsecondary Education Data System (National Center for Education Statistics) - <https://nces.ed.gov/ipeds/>

Pennsylvania Department of Labor and Industry (PADLI):

- CWIA – Center for Workforce Information & Analysis (PA Department of Labor & Industry) – [www.paworkstats.pa.gov](http://www.paworkstats.pa.gov)

O\*NET Resource Center (O\*NET)

- Job Zones [www.onetonline.org/help/online/zones](http://www.onetonline.org/help/online/zones)

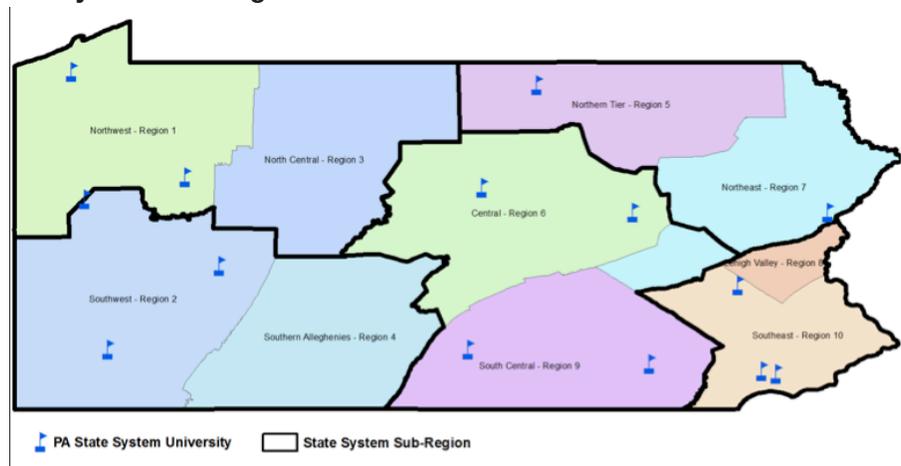
Economic Modeling Specialists International (EMSI)

# APPENDIX A: STATE SYSTEM SUB-REGIONS WITH PREP REGIONS AND WIA REGIONS

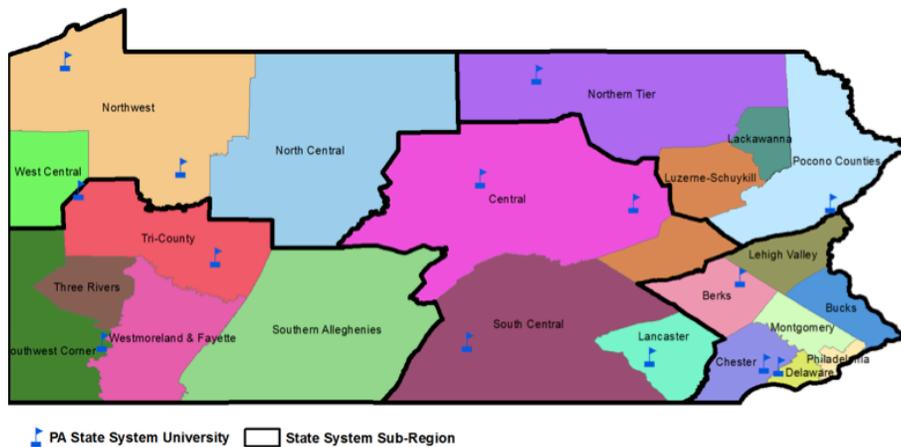
Partnerships for Regional Economic Performance (PREP) regions provide geographic context of how the Pennsylvania Department of Community & Economic Development divides resources and services to support business development, start-ups, investment and other economic development initiatives. To define sub-regions for this project, PREP regions served as the starting point. The following figures outline the sub regions in relation to PREP regions.

An additional map of Pennsylvania's Workforce Investment Act (WIA) regional boundaries is also provided.

**State System Sub-regions and PREP Boundaries**



**State System Sub-regions and WIA Boundaries**



# APPENDIX B: PENNSYLVANIA STATE AND COUNTY ENROLLMENT AND EMPLOYMENT

County	Fall 2014 Enrollment in PA's State System	2014 QCEW Employment
Allegheny	7,020	683,111
Chester	5,996	240,469
Montgomery	5,401	472,655
Philadelphia	5,263	640,987
Lancaster	4,786	225,673
Delaware	4,206	216,261
Bucks	4,145	250,889
Berks	3,759	166,792
Erie	3,469	124,095
York	3,104	172,145
Lehigh	2,664	180,757
Westmoreland	2,606	132,312
Cumberland	2,537	126,939
Monroe	2,532	52,933
Northampton	2,514	105,825
Butler	2,067	84,472
Dauphin	1,952	176,004
Washington	1,915	86,961
Indiana	1,645	32,653
Luzerne	1,437	140,329
Franklin	1,302	56,715
Fayette	1,137	39,979
Beaver	1,121	52,811
Mercer	1,095	48,028
Columbia	1,074	24,974
Schuylkill	1,068	50,049
Cambria	1,032	53,915
Crawford	1,024	31,113
Lycoming	1,013	53,197
Lackawanna	986	97,259

<b>County</b>	<b>Fall 2014 Enrollment in PA's State System</b>	<b>2014 QCEW Employment</b>
Northumberland	938	27,985
Clarion	883	13,586
Clearfield	881	29,938
Venango	840	19,251
Armstrong	814	17,582
Lawrence	810	29,500
Lebanon	803	48,869
Adams	705	34,139
Centre	699	67,147
Tioga	656	12,973
Bradford	641	24,568
Pike	633	10,748
Clinton	600	13,043
Jefferson	587	15,435
Blair	584	58,233
Carbon	455	16,974
Elk	398	14,994
Wayne	356	14,651
Montour	340	15,578
Warren	324	15,031
Somerset	323	24,398
Perry	319	7,661
Union	313	16,597
Mifflin	290	15,544
McKean	277	15,770
Snyder	269	15,522
Susquehanna	219	9,281
Bedford	202	15,397
Greene	201	14,844
Huntingdon	182	12,343
Wyoming	162	10,181
Potter	140	5,291
Juniata	123	6,146
Fulton	81	4,807
Cameron	65	2,015
Forest	57	2,053
Sullivan	34	1,772
<b>Total Pennsylvania</b>	<b>96,074</b>	<b>5,643,676</b>

Source: Enrollment- Pennsylvania State System of Higher Education Website, Employment- BLS QCEW

---

# APPENDIX C: INDUSTRY PROJECTIONS 2014-2024 FOR SOUTHWEST PENNSYLVANIA

A common measure of industry competitiveness is through the use of a location quotient statistic. Location quotients (LQ) provide a relative perspective on local comparative advantages in specific industry classifications by comparing employment within a local or state economy to a larger geographic area (e.g. nation). On its own, the analysis achieves little. However, when evaluated jointly with the employment data and growth, one gains a sense of the industry sectors that might benefit from efforts to align educational opportunities with economic development (i.e. industries that State System universities may consider engaging in larger conversations about aligning employer and educational needs).

To interpret results, LQs equal to 1 indicate that the area's industry concentration is equal the national concentration of the same industry. Industries with a higher location quotient (usually greater than 1.2) indicate that an area has a relatively higher concentration of jobs in the sector and therefore concludes that the area has a comparative advantage or specialization in the production of that good or service, compared to the national average. Note: High employment industries do not necessarily result in large location quotients, as this is a comparative statistic.

The following table provides the industry LQs at the 4-digit NAICS level in Pennsylvania. Also included in the table are the number of jobs in 2014 and the projected job growth/decline to 2024.

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
<b>Total</b>	<b>All Industries</b>	<b>1,347,867</b>	<b>1,450,485</b>	<b>7.6%</b>	<b>1.0</b>
1111	Oilseed and Grain Farming	91	109	19.8%	0.2
1112	Vegetable and Melon Farming	252	237	-6.0%	0.3
1113	Fruit and Tree Nut Farming	148	168	13.5%	0.1
1114	Greenhouse, Nursery, and Floriculture Production	490	467	-4.7%	0.3
1119	Other Crop Farming	42	47	11.9%	0.1
1121	Cattle Ranching and Farming	733	776	5.9%	0.5
1122	Hog and Pig Farming	15	16	6.7%	0.0
1123	Poultry and Egg Production	61	66	8.2%	0.2
1124	Sheep and Goat Farming	15	18	20.0%	1.0
1125	Aquaculture	18	22	22.2%	0.3
1129	Other Animal Production	63	60	-4.8%	0.3
1131	Timber Tract Operations	18	21	16.7%	0.3
1132	Forest Nurseries and Gathering of Forest Products	7	8	14.3%	0.3
1133	Logging	70	68	-2.9%	0.1
1142	Hunting and Trapping	14	17	21.4%	0.8
1151	Support Activities for Crop Production	111	126	13.5%	0.0
1152	Support Activities for Animal Production	121	114	-5.8%	0.4
1153	Support Activities for Forestry	29	34	17.2%	0.2
2111	Oil and Gas Extraction	4,206	5,593	33.0%	2.2
2121	Coal Mining	5,818	4,768	-18.0%	8.2
2122	Metal Ore Mining	21	24	14.3%	0.0
2123	Nonmetallic Mineral Mining and Quarrying	1,376	1,344	-2.3%	1.6
2131	Support Activities for Mining	9,789	10,949	11.9%	2.3
2211	Electric Power Generation, Transmission and Distribution	4,712	4,347	-7.7%	1.0
2212	Natural Gas Distribution	1,994	2,058	3.2%	1.7
2213	Water, Sewage and Other Systems	4,207	4,565	8.5%	2.0
2361	Residential Building Construction	6,789	8,614	26.9%	1.1
2362	Nonresidential Building Construction	7,989	9,439	18.1%	1.2
2371	Utility System Construction	5,739	6,748	17.6%	1.3
2372	Land Subdivision	554	686	23.8%	1.3
2373	Highway, Street, and Bridge Construction	5,432	6,792	25.0%	1.4
2379	Other Heavy and Civil Engineering Construction	1,319	1,691	28.2%	1.3
2381	Foundation, Structure, and Building Exterior Contractors	6,178	6,468	4.7%	0.8
2382	Building Equipment Contractors	16,683	18,625	11.6%	0.9
2383	Building Finishing Contractors	5,993	6,336	5.7%	0.9
2389	Other Specialty Trade Contractors	8,141	9,773	20.0%	1.4

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3111	Animal Food Manufacturing	249	294	18.1%	0.5
3112	Grain and Oilseed Milling	96	70	-27.1%	0.2
3113	Sugar and Confectionery Product Manufacturing	999	1,029	3.0%	1.5
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	1,133	1,263	11.5%	0.7
3115	Dairy Product Manufacturing	704	638	-9.4%	0.5
3116	Animal Slaughtering and Processing	771	805	4.4%	0.2
3118	Bakeries and Tortilla Manufacturing	2,162	2,149	-0.6%	0.8
3119	Other Food Manufacturing	1,441	1,677	16.4%	0.8
3121	Beverage Manufacturing	1,111	1,183	6.5%	0.6
3122	Tobacco Manufacturing	93	109	17.2%	0.7
3131	Fiber, Yarn, and Thread Mills	36	41	13.9%	0.1
3132	Fabric Mills	253	215	-15.0%	0.5
3133	Textile and Fabric Finishing and Fabric Coating Mills	78	91	16.7%	0.2
3141	Textile Furnishings Mills	137	152	10.9%	0.3
3149	Other Textile Product Mills	544	561	3.1%	0.9
3152	Cut and Sew Apparel Manufacturing	174	174	0.0%	0.2
3159	Apparel Accessories and Other Apparel Manufacturing	101	79	-21.8%	0.9
3161	Leather and Hide Tanning and Finishing	17	20	17.6%	0.4
3162	Footwear Manufacturing	184	151	-17.9%	1.4
3169	Other Leather and Allied Product Manufacturing	42	50	19.0%	0.4
3211	Sawmills and Wood Preservation	926	1,218	31.5%	1.0
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	363	475	30.9%	0.5
3219	Other Wood Product Manufacturing	1,558	2,030	30.3%	0.8
3221	Pulp, Paper, and Paperboard Mills	693	814	17.5%	0.7
3222	Converted Paper Product Manufacturing	2,260	1,943	-14.0%	0.9
3231	Printing and Related Support Activities	4,235	3,588	-15.3%	0.9
3241	Petroleum and Coal Products Manufacturing	2,331	2,208	-5.3%	2.1
3251	Basic Chemical Manufacturing	1,448	1,378	-4.8%	1.0
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	941	820	-12.9%	1.0
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	158	127	-19.6%	0.4
3254	Pharmaceutical and Medicine Manufacturing	289	234	-19.0%	0.1
3255	Paint, Coating, and Adhesive Manufacturing	781	708	-9.3%	1.3
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	1,012	1,120	10.7%	1.0
3259	Other Chemical Product and Preparation Manufacturing	1,121	1,116	-0.4%	1.4
3261	Plastics Product Manufacturing	4,607	4,606	0.0%	0.9
3262	Rubber Product Manufacturing	1,108	1,086	-2.0%	0.8

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3271	Clay Product and Refractory Manufacturing	1,328	1,264	-4.8%	3.4
3272	Glass and Glass Product Manufacturing	2,217	2,412	8.8%	2.7
3273	Cement and Concrete Product Manufacturing	1,678	1,690	0.7%	1.0
3274	Lime and Gypsum Product Manufacturing	280	298	6.4%	2.0
3279	Other Nonmetallic Mineral Product Manufacturing	475	518	9.1%	0.7
3311	Iron and Steel Mills and Ferroalloy Manufacturing	6,799	6,362	-6.4%	7.5
3312	Steel Product Manufacturing from Purchased Steel	1,806	1,652	-8.5%	3.1
3313	Alumina and Aluminum Production and Processing	480	552	15.0%	0.8
3314	Nonferrous Metal (except Aluminum) Production and Processing	2,199	2,152	-2.1%	3.6
3315	Foundries	2,385	2,523	5.8%	1.9
3321	Forging and Stamping	1,321	1,400	6.0%	1.3
3322	Cutlery and Handtool Manufacturing	519	499	-3.9%	1.4
3323	Architectural and Structural Metals Manufacturing	4,934	5,558	12.6%	1.4
3324	Boiler, Tank, and Shipping Container Manufacturing	1,170	1,258	7.5%	1.2
3325	Hardware Manufacturing	119	126	5.9%	0.5
3326	Spring and Wire Product Manufacturing	456	492	7.9%	1.1
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	5,779	5,990	3.7%	1.6
3328	Coating, Engraving, Heat Treating, and Allied Activities	1,629	1,695	4.1%	1.2
3329	Other Fabricated Metal Product Manufacturing	1,863	1,877	0.8%	0.7
3331	Agriculture, Construction, and Mining Machinery Manufacturing	2,442	2,557	4.7%	1.0
3332	Industrial Machinery Manufacturing	841	894	6.3%	0.8
3333	Commercial and Service Industry Machinery Manufacturing	650	513	-21.1%	0.8
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	521	502	-3.6%	0.4
3335	Metalworking Machinery Manufacturing	4,453	4,055	-8.9%	2.5
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	588	566	-3.7%	0.6
3339	Other General Purpose Machinery Manufacturing	3,453	3,759	8.9%	1.3
3341	Computer and Peripheral Equipment Manufacturing	447	418	-6.5%	0.3
3342	Communications Equipment Manufacturing	1,433	1,074	-25.1%	1.5
3343	Audio and Video Equipment Manufacturing	14	11	-21.4%	0.1
3344	Semiconductor and Other Electronic Component Manufacturing	2,181	1,841	-15.6%	0.6
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5,503	5,812	5.6%	1.4
3346	Manufacturing and Reproducing Magnetic and Optical Media	117	134	14.5%	0.7
3351	Electric Lighting Equipment Manufacturing	243	252	3.7%	0.5
3352	Household Appliance Manufacturing	215	236	9.8%	0.4
3353	Electrical Equipment Manufacturing	3,506	3,762	7.3%	2.5

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3359	Other Electrical Equipment and Component Manufacturing	1,683	1,781	5.8%	1.3
3361	Motor Vehicle Manufacturing	246	310	26.0%	0.1
3362	Motor Vehicle Body and Trailer Manufacturing	845	832	-1.5%	0.6
3363	Motor Vehicle Parts Manufacturing	459	443	-3.5%	0.1
3364	Aerospace Product and Parts Manufacturing	503	434	-13.7%	0.1
3365	Railroad Rolling Stock Manufacturing	1,807	1,921	6.3%	6.7
3366	Ship and Boat Building	146	119	-18.5%	0.1
3369	Other Transportation Equipment Manufacturing	596	677	13.6%	1.9
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	636	666	4.7%	0.3
3372	Office Furniture (including Fixtures) Manufacturing	506	524	3.6%	0.5
3379	Other Furniture Related Product Manufacturing	97	109	12.4%	0.3
3391	Medical Equipment and Supplies Manufacturing	2,892	2,698	-6.7%	1.0
3399	Other Miscellaneous Manufacturing	1,748	1,729	-1.1%	0.6
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	4,720	5,423	14.9%	1.4
4232	Furniture and Home Furnishing Merchant Wholesalers	629	691	9.9%	0.6
4233	Lumber and Other Construction Materials Merchant Wholesalers	2,298	2,339	1.8%	1.2
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	4,834	4,891	1.2%	0.8
4235	Metal and Mineral (except Petroleum) Merchant Wholesalers	1,747	1,913	9.5%	1.4
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	2,293	2,320	1.2%	0.7
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	2,015	2,343	16.3%	0.9
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	7,565	8,107	7.2%	1.1
4239	Miscellaneous Durable Goods Merchant Wholesalers	3,180	3,510	10.4%	1.1
4241	Paper and Paper Product Merchant Wholesalers	768	762	-0.8%	0.6
4242	Drugs and Druggists' Sundries Merchant Wholesalers	701	729	4.0%	0.4
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	195	218	11.8%	0.1
4244	Grocery and Related Product Merchant Wholesalers	5,705	6,180	8.3%	0.8
4245	Farm Product Raw Material Merchant Wholesalers	115	130	13.0%	0.2
4246	Chemical and Allied Products Merchant Wholesalers	1,319	1,384	4.9%	1.0
4247	Petroleum and Petroleum Products Merchant Wholesalers	1,500	1,620	8.0%	1.5
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	1,120	1,370	22.3%	0.6
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	1,992	1,916	-3.8%	0.6
4251	Wholesale Electronic Markets and Agents and Brokers	11,131	10,965	-1.5%	1.3
4411	Automobile Dealers	14,111	15,575	10.4%	1.2
4412	Other Motor Vehicle Dealers	980	1,037	5.8%	0.7

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
4413	Automotive Parts, Accessories, and Tire Stores	4,705	4,731	0.6%	0.9
4421	Furniture Stores	1,818	1,884	3.6%	0.9
4422	Home Furnishings Stores	1,981	1,993	0.6%	0.8
4431	Electronics and Appliance Stores	3,881	3,545	-8.7%	0.8
4441	Building Material and Supplies Dealers	9,896	10,079	1.8%	0.9
4442	Lawn and Garden Equipment and Supplies Stores	1,355	1,421	4.9%	0.9
4451	Grocery Stores	26,340	23,466	-10.9%	1.0
4452	Specialty Food Stores	1,605	1,445	-10.0%	0.7
4453	Beer, Wine, and Liquor Stores	2,113	2,402	13.7%	1.4
4461	Health and Personal Care Stores	11,965	11,928	-0.3%	1.2
4471	Gasoline Stations	10,216	10,548	3.2%	1.2
4481	Clothing Stores	10,079	9,608	-4.7%	1.0
4482	Shoe Stores	1,634	1,665	1.9%	0.8
4483	Jewelry, Luggage, and Leather Goods Stores	1,366	1,303	-4.6%	1.0
4511	Sporting Goods, Hobby, and Musical Instrument Stores	5,667	6,137	8.3%	1.1
4512	Book Stores and News Dealers	871	843	-3.2%	1.0
4521	Department Stores	12,952	12,314	-4.9%	0.9
4529	Other General Merchandise Stores	16,871	17,767	5.3%	1.0
4531	Florists	872	619	-29.0%	1.4
4532	Office Supplies, Stationery, and Gift Stores	2,612	2,377	-9.0%	0.9
4533	Used Merchandise Stores	1,779	2,251	26.5%	1.1
4539	Other Miscellaneous Store Retailers	3,145	3,098	-1.5%	1.1
4541	Electronic Shopping and Mail-Order Houses	4,361	5,453	25.0%	1.4
4542	Vending Machine Operators	578	572	-1.0%	1.6
4543	Direct Selling Establishments	886	818	-7.7%	0.7
4811	Scheduled Air Transportation	2,211	2,341	5.9%	0.5
4812	Nonscheduled Air Transportation	389	438	12.6%	1.1
4832	Inland Water Transportation	274	259	-5.5%	1.0
4841	General Freight Trucking	8,364	9,573	14.5%	0.9
4842	Specialized Freight Trucking	5,800	7,089	22.2%	1.3
4851	Urban Transit Systems	2,469	2,698	9.3%	1.1
4852	Interurban and Rural Bus Transportation	215	225	4.7%	1.0
4853	Taxi and Limousine Service	410	433	5.6%	0.5
4854	School and Employee Bus Transportation	8,072	8,804	9.1%	3.3
4855	Charter Bus Industry	971	1,065	9.7%	3.3
4859	Other Transit and Ground Passenger Transportation	1,160	1,401	20.8%	1.2
4862	Pipeline Transportation of Natural Gas	598	750	25.4%	2.1

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
4869	Other Pipeline Transportation	82	110	34.1%	1.1
4871	Scenic and Sightseeing Transportation, Land	200	254	27.0%	1.5
4872	Scenic and Sightseeing Transportation, Water	82	71	-13.4%	0.6
4879	Scenic and Sightseeing Transportation, Other	2	2	0.0%	0.1
4881	Support Activities for Air Transportation	1,226	1,290	5.2%	0.6
4882	Support Activities for Rail Transportation	528	675	27.8%	1.7
4883	Support Activities for Water Transportation	345	366	6.1%	0.3
4884	Support Activities for Road Transportation	1,336	1,884	41.0%	1.2
4885	Freight Transportation Arrangement	958	1,189	24.1%	0.5
4889	Other Support Activities for Transportation	304	381	25.3%	1.0
4911	Postal Service	7,594	5,422	-28.6%	1.3
4921	Couriers and Express Delivery Services	5,773	6,349	10.0%	1.1
4922	Local Messengers and Local Delivery	187	170	-9.1%	0.3
4931	Warehousing and Storage	7,849	8,778	11.8%	1.1
5111	Newspaper, Periodical, Book, and Directory Publishers	4,034	3,538	-12.3%	1.0
5112	Software Publishers	1,726	2,000	15.9%	0.6
5121	Motion Picture and Video Industries	2,050	2,041	-0.4%	0.6
5122	Sound Recording Industries	73	70	-4.1%	0.5
5151	Radio and Television Broadcasting	1,967	2,231	13.4%	0.9
5152	Cable and Other Subscription Programming	60	54	-10.0%	0.1
5171	Wired Telecommunications Carriers	6,112	5,482	-10.3%	1.0
5172	Wireless Telecommunications Carriers (except Satellite)	503	342	-32.0%	0.3
5174	Satellite Telecommunications	17	15	-11.8%	0.2
5179	Other Telecommunications	339	258	-23.9%	0.4
5182	Data Processing, Hosting, and Related Services	1,049	879	-16.2%	0.4
5191	Other Information Services	2,762	3,447	24.8%	0.8
5211	Monetary Authorities-Central Bank	5	4	-20.0%	0.0
5221	Depository Credit Intermediation	27,900	25,818	-7.5%	1.7
5222	Nondepository Credit Intermediation	2,555	2,154	-15.7%	0.4
5223	Activities Related to Credit Intermediation	1,002	799	-20.3%	0.4
5231	Securities and Commodity Contracts Intermediation and Brokerage	1,880	2,009	6.9%	0.4
5232	Securities and Commodity Exchanges	4	6	50.0%	0.1
5239	Other Financial Investment Activities	4,992	7,637	53.0%	1.2
5241	Insurance Carriers	15,728	16,686	6.1%	1.3
5242	Agencies, Brokerages, and Other Insurance Related Activities	9,506	10,981	15.5%	1.0
5251	Insurance and Employee Benefit Funds	7	5	-28.6%	0.3
5311	Lessors of Real Estate	4,930	5,317	7.8%	0.8

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
5312	Offices of Real Estate Agents and Brokers	1,472	1,471	-0.1%	0.5
5313	Activities Related to Real Estate	3,225	3,254	0.9%	0.5
5321	Automotive Equipment Rental and Leasing	1,656	1,916	15.7%	0.9
5322	Consumer Goods Rental	1,383	1,541	11.4%	0.9
5323	General Rental Centers	196	212	8.2%	0.5
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	2,523	3,016	19.5%	1.8
5331	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	108	104	-3.7%	0.5
5411	Legal Services	12,225	13,514	10.5%	1.1
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	9,036	9,879	9.3%	0.9
5413	Architectural, Engineering, and Related Services	23,452	26,454	12.8%	1.7
5414	Specialized Design Services	1,059	1,466	38.4%	0.8
5415	Computer Systems Design and Related Services	15,230	22,301	46.4%	0.9
5416	Management, Scientific, and Technical Consulting Services	10,884	13,243	21.7%	0.9
5417	Scientific Research and Development Services	7,635	9,724	27.4%	1.2
5418	Advertising, Public Relations, and Related Services	3,796	4,348	14.5%	0.8
5419	Other Professional, Scientific, and Technical Services	5,421	6,254	15.4%	0.9
5511	Management of Companies and Enterprises	42,409	47,216	11.3%	2.0
5611	Office Administrative Services	912	810	-11.2%	0.2
5612	Facilities Support Services	1,098	1,562	42.3%	0.8
5613	Employment Services	19,745	22,878	15.9%	0.6
5614	Business Support Services	9,444	9,003	-4.7%	1.1
5615	Travel Arrangement and Reservation Services	1,089	1,004	-7.8%	0.6
5616	Investigation and Security Services	10,178	10,569	3.8%	1.2
5617	Services to Buildings and Dwellings	15,807	16,452	4.1%	0.8
5619	Other Support Services	2,780	3,497	25.8%	0.9
5621	Waste Collection	2,183	2,801	28.3%	1.3
5622	Waste Treatment and Disposal	769	904	17.6%	0.6
5629	Remediation and Other Waste Management Services	1,443	1,619	12.2%	1.1
6111	Elementary and Secondary Schools	65,050	62,126	-4.5%	0.8
6112	Junior Colleges	5,573	5,267	-5.5%	0.8
6113	Colleges, Universities, and Professional Schools	34,594	35,084	1.4%	1.2
6114	Business Schools and Computer and Management Training	190	214	12.6%	0.3
6115	Technical and Trade Schools	1,171	1,242	6.1%	0.8
6116	Other Schools and Instruction	2,402	2,643	10.0%	0.6
6117	Educational Support Services	510	599	17.5%	0.3
6211	Offices of Physicians	29,158	31,694	8.7%	1.2

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
6212	Offices of Dentists	7,576	8,341	10.1%	0.9
6213	Offices of Other Health Practitioners	13,542	17,652	30.4%	1.8
6214	Outpatient Care Centers	8,241	10,733	30.2%	1.1
6215	Medical and Diagnostic Laboratories	2,274	2,469	8.6%	0.9
6216	Home Health Care Services	12,163	17,417	43.2%	1.0
6219	Other Ambulatory Health Care Services	6,293	6,930	10.1%	2.2
6221	General Medical and Surgical Hospitals	64,838	69,652	7.4%	1.2
6222	Psychiatric and Substance Abuse Hospitals	2,150	2,203	2.5%	0.9
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals	4,215	5,289	25.5%	1.7
6231	Nursing Care Facilities (Skilled Nursing Facilities)	20,823	23,289	11.8%	1.2
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	13,554	14,710	8.5%	1.9
6233	Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	12,575	15,302	21.7%	1.5
6239	Other Residential Care Facilities	2,229	2,729	22.4%	1.3
6241	Individual and Family Services	25,799	34,267	32.8%	1.2
6242	Community Food and Housing, and Emergency and Other Relief Services	1,257	1,394	10.9%	0.8
6243	Vocational Rehabilitation Services	2,701	3,332	23.4%	0.8
6244	Child Day Care Services	8,201	9,359	14.1%	1.0
7111	Performing Arts Companies	902	942	4.4%	0.8
7112	Spectator Sports	1,817	2,025	11.4%	1.3
7113	Promoters of Performing Arts, Sports, and Similar Events	1,978	2,172	9.8%	1.6
7114	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	68	81	19.1%	0.3
7115	Independent Artists, Writers, and Performers	126	165	31.0%	0.2
7121	Museums, Historical Sites, and Similar Institutions	2,346	2,686	14.5%	1.0
7131	Amusement Parks and Arcades	2,721	3,438	26.4%	1.4
7132	Gambling Industries	1,866	1,682	-9.9%	0.7
7139	Other Amusement and Recreation Industries	10,981	12,072	9.9%	0.8
7211	Traveler Accommodation	11,048	11,529	4.4%	0.6
7212	RV (Recreational Vehicle) Parks and Recreational Camps	476	547	14.9%	0.8
7213	Rooming and Boarding Houses	59	69	16.9%	0.4
7223	Special Food Services	8,271	9,448	14.2%	1.3
7224	Drinking Places (Alcoholic Beverages)	4,669	4,878	4.5%	1.3
7225	Restaurants and Other Eating Places	87,668	95,081	8.5%	0.9
8111	Automotive Repair and Maintenance	8,539	9,195	7.7%	1.0
8112	Electronic and Precision Equipment Repair and Maintenance	1,156	1,183	2.3%	1.1

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	2,628	2,797	6.4%	1.3
8114	Personal and Household Goods Repair and Maintenance	576	621	7.8%	0.8
8121	Personal Care Services	8,745	9,675	10.6%	1.4
8122	Death Care Services	2,323	2,425	4.4%	1.7
8123	Drycleaning and Laundry Services	2,680	2,612	-2.5%	0.9
8129	Other Personal Services	2,418	2,866	18.5%	0.8
8131	Religious Organizations	2,211	2,258	2.1%	1.2
8132	Grantmaking and Giving Services	1,208	1,167	-3.4%	0.9
8133	Social Advocacy Organizations	1,799	1,862	3.5%	0.9
8134	Civic and Social Organizations	7,853	8,248	5.0%	2.0
8139	Business, Professional, Labor, Political, and Similar Organizations	4,291	4,366	1.7%	1.0
8141	Private Households	977	819	-16.2%	0.4
9211	Executive, Legislative, and Other General Government Support	29,711	28,613	-3.7%	1.0
9221	Justice, Public Order, and Safety Activities	9,347	8,995	-3.8%	0.5
9231	Administration of Human Resource Programs	1,724	1,631	-5.4%	0.2
9241	Administration of Environmental Quality Programs	1,572	1,577	0.3%	0.5
9251	Administration of Housing Programs, Urban Planning, and Community Development	1,215	1,097	-9.7%	1.5
9261	Administration of Economic Programs	1,929	1,824	-5.4%	0.3
9281	National Security and International Affairs	1,060	1,047	-1.2%	0.2

Source: Bureau of Labor Statistics, Occupational Employment Statistics (OES), Pennsylvania Department of Labor & Industry, Oxford Economics Projections

# APPENDIX D: OCCUPATION PROJECTIONS 2014-2024 FOR SOUTHWEST PENNSYLVANIA

For this analysis a “skilled” occupation is defined as an occupation in O\*NET Job Zones<sup>16</sup> Three, Four or Five. Most occupations in Job Zone Three require training in vocational schools, related on-the-job experience, or an associate’s degree.

The O\*NET program is the nation’s primary source of occupational information. Central to the project is the O\*NET database, containing information on hundreds of standardized and occupation-specific descriptors. The database, which is available to the public at no cost, is continually updated by surveying a broad range of workers from each occupation.<sup>17</sup>

## **JOB ZONE ONE: Little or No Preparation Needed**

- *Education* – Some of these occupations may require a high school diploma or GED certificate.
- *Related Experience* – Little or no previous work-related skill, knowledge, or experience is needed for these occupations. For example, a person can become a waiter or waitress even if he/she has never worked before.
- *Job Training* – Employees in these occupations need anywhere from a few days to a few months of training. Usually, an experienced worker could show you how to do the job.
- *Job Zone Examples* – These occupations involve following instructions and helping others. Examples include taxi drivers, amusement and recreation attendants, counter and rental clerks, nonfarm animal caretakers, continuous mining machine operators, and waiters/waitresses.

## **JOB ZONE TWO: Some Preparation Needed**

- *Education* – These occupations usually require a high school diploma.

---

<sup>16</sup> <https://www.onetonline.org/help/online/zones>

<sup>17</sup> <http://www.onetcenter.org/overview.html>

- *Related Experience* – Some previous work-related skill, knowledge, or experience is usually needed. For example, a teller would benefit from experience working directly with the public.
- *Job Training* – Employees in these occupations need anywhere from a few months to one year of working with experienced employees. A recognized apprenticeship program may be associated with these occupations.
- *Job Zone Examples* – These occupations often involve using your knowledge and skills to help others. Examples include sheet metal workers, forest fire fighters, customer service representatives, physical therapist aides, salespersons (retail), and tellers.

### **JOB ZONE THREE: Medium Preparation Needed**

- *Education* – Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree.
- *Related Experience* – Previous work-related skill, knowledge, or experience is required for these occupations. For example, an electrician must have completed three or four years of apprenticeship or several years of vocational training, and often must have passed a licensing exam, in order to perform the job.
- *Job Training* – Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. A recognized apprenticeship program may be associated with these occupations.
- *Job Zone Examples* – These occupations usually involve using communication and organizational skills to coordinate, supervise, manage, or train others to accomplish goals. Examples include food service managers, electricians, agricultural technicians, legal secretaries, occupational therapy assistants, and medical assistants.

### **JOB ZONE FOUR: Considerable Preparation Needed**

- *Education* – Most of these occupations require a four-year bachelor's degree, but some do not.
- *Related Experience* – A considerable amount of work-related skill, knowledge, or experience is needed for these occupations. For example, an accountant must complete four years of college and work for several years in accounting to be considered qualified.

- *Job Training* – Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.
- *Job Zone Examples* – Many of these occupations involve coordinating, supervising, managing, or training others. Examples include accountants, sales managers, database administrators, teachers, chemists, art directors, and cost estimators.

### **JOB ZONE FIVE: Extensive Preparation Needed**

- *Education* – Most of these occupations require graduate school. For example, they may require a master's degree, and some require a Ph.D., M.D., or J.D. (law degree).
- *Related Experience* – Extensive skill, knowledge, and experience are needed for these occupations. Many require more than five years of experience. For example, surgeons must complete four years of college and an additional five to seven years of specialized medical training to be able to do their job.
- *Job Training* – Employees may need some on-the-job training, but most of these occupations assume that the person will already have the required skills, knowledge, work-related experience, and/or training.
- *Job Zone Examples* – These occupations often involve coordinating, training, supervising, or managing the activities of others to accomplish goals. Very advanced communication and organizational skills are required. Examples include librarians, lawyers, sports medicine physicians, wildlife biologists, school psychologists, surgeons, treasurers, and controllers.

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
<b>Total</b>	<b>All Occupations</b>	<b>NA</b>	<b>1,347,867</b>	<b>1,450,485</b>	<b>7.6%</b>	<b>484,490</b>
11-1011	Chief Executives	5	2,670	2,566	-3.9%	529
11-1021	General and Operations Managers	4	15,775	18,124	14.9%	5,158
11-1031	Legislators	4	407	319	-21.6%	20
11-2011	Advertising and Promotions Managers	4	151	133	-11.9%	31
11-2021	Marketing Managers	4	1,343	1,506	12.1%	455
11-2022	Sales Managers	4	2,393	2,419	1.1%	543
11-2031	Public Relations and Fundraising Managers	4	411	390	-5.1%	67
11-3011	Administrative Services Managers	3	1,952	1,940	-0.6%	287
11-3021	Computer and Information Systems Managers	4	2,727	3,579	31.2%	1,251
11-3031	Financial Managers	4	3,955	3,861	-2.4%	637
11-3051	Industrial Production Managers	4	1,549	1,516	-2.1%	324
11-3061	Purchasing Managers	4	549	507	-7.7%	83
11-3071	Transportation, Storage, and Distribution Managers	4	678	752	10.9%	241
11-3111	Compensation and Benefits Managers	4	209	183	-12.4%	38
11-3121	Human Resources Managers	4	890	1,069	20.1%	411
11-3131	Training and Development Managers	4	229	283	23.6%	115
11-9021	Construction Managers	4	1,782	2,275	27.7%	752
11-9031	Education Administrators, Preschool and Childcare Center/Program	4	423	441	4.3%	132
11-9032	Education Administrators, Elementary and Secondary School	5	1,709	1,562	-8.6%	417
11-9033	Education Administrators, Postsecondary	5	1,246	1,163	-6.7%	271
11-9039	Education Administrators, All Other	5	166	198	19.3%	78
11-9041	Architectural and Engineering Managers	5	1,610	1,751	8.8%	558
11-9051	Food Service Managers	3	1,458	1,601	9.8%	438
11-9061	Funeral Service Managers	3	172	164	-4.7%	45
11-9071	Gaming Managers	3	31	30	-3.2%	5
11-9081	Lodging Managers	3	207	240	15.9%	122
11-9111	Medical and Health Services Managers	5	3,343	3,547	6.1%	1,017
11-9121	Natural Sciences Managers	5	387	477	23.3%	185
11-9131	Postmasters and Mail Superintendents	3	294	187	-36.4%	18
11-9141	Property, Real Estate, and Community Association Managers	4	764	879	15.1%	311
11-9151	Social and Community Service Managers	4	1,327	1,535	15.7%	512
11-9161	Emergency Management Directors	4	87	72	-17.2%	1
11-9199	Managers, All Other	4	1,902	2,085	9.6%	597

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
13-1011	Agents and Business Managers of Artists, Performers, and Athletes	4	45	50	11.1%	20
13-1021	Buyers and Purchasing Agents, Farm Products	4	80	82	2.5%	23
13-1022	Wholesale and Retail Buyers, Except Farm Products	3	1,028	961	-6.5%	214
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4	3,467	3,541	2.1%	816
13-1031	Claims Adjusters, Examiners, and Investigators	4	2,982	3,193	7.1%	1,095
13-1032	Insurance Appraisers, Auto Damage	3	157	194	23.6%	93
13-1041	Compliance Officers	4	2,558	2,976	16.3%	949
13-1051	Cost Estimators	4	2,498	2,749	10.0%	1,100
13-1071	Human Resources Specialists	4	4,599	5,474	19.0%	1,857
13-1075	Labor Relations Specialists	4	1,268	1,001	-21.1%	110
13-1081	Logisticians	4	1,138	1,397	22.8%	410
13-1111	Management Analysts	4	4,987	6,104	22.4%	1,947
13-1121	Meeting, Convention, and Event Planners	4	685	896	30.8%	316
13-1131	Fundraisers	4	649	789	21.6%	286
13-1141	Compensation, Benefits, and Job Analysis Specialists	4	955	869	-9.0%	127
13-1151	Training and Development Specialists	4	2,603	2,965	13.9%	878
13-1161	Market Research Analysts and Marketing Specialists	4	5,648	7,542	33.5%	2,799
13-1199	Business Operations Specialists, All Other	4	4,053	4,115	1.5%	542
13-2011	Accountants and Auditors	4	13,610	15,001	10.2%	5,922
13-2021	Appraisers and Assessors of Real Estate	4	314	290	-7.6%	23
13-2031	Budget Analysts	4	392	418	6.6%	191
13-2041	Credit Analysts	4	640	700	9.4%	251
13-2051	Financial Analysts	4	2,888	3,439	19.1%	1,307
13-2052	Personal Financial Advisors	4	1,652	2,313	40.0%	969
13-2053	Insurance Underwriters	4	1,141	1,246	9.2%	550
13-2061	Financial Examiners	4	381	421	10.5%	162
13-2071	Credit Counselors	4	464	555	19.6%	190
13-2072	Loan Officers	3	3,612	3,930	8.8%	1,318
13-2081	Tax Examiners and Collectors, and Revenue Agents	3	798	691	-13.4%	217
13-2082	Tax Preparers	3	550	493	-10.4%	110
13-2099	Financial Specialists, All Other	4	988	948	-4.0%	92
15-1111	Computer and Information Research Scientists	5	65	70	7.7%	14
15-1121	Computer Systems Analysts	4	5,589	7,885	41.1%	3,284
15-1122	Information Security Analysts	4	602	914	51.8%	405
15-1131	Computer Programmers	4	3,421	4,564	33.4%	2,263

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
15-1132	Software Developers, Applications	4	5,140	7,115	38.4%	2,708
15-1133	Software Developers, Systems Software	4	2,532	2,619	3.4%	394
15-1134	Web Developers	3	956	1,298	35.8%	498
15-1141	Database Administrators	4	1,291	1,656	28.3%	632
15-1142	Network and Computer Systems Administrators	4	3,550	3,427	-3.5%	487
15-1143	Computer Network Architects	4	916	1,079	17.8%	308
15-1151	Computer User Support Specialists	3	6,103	8,101	32.7%	3,090
15-1152	Computer Network Support Specialists	4	1,332	1,447	8.6%	369
15-1199	Computer Occupations, All Other	4	1,623	1,929	18.9%	593
15-2011	Actuaries	4	332	442	33.1%	218
15-2031	Operations Research Analysts	5	614	749	22.0%	280
15-2041	Statisticians	5	454	620	36.6%	323
17-1011	Architects, Except Landscape and Naval	4	1,098	1,299	18.3%	590
17-1012	Landscape Architects	4	289	381	31.8%	182
17-1021	Cartographers and Photogrammetrists	4	76	84	10.5%	23
17-1022	Surveyors	4	586	670	14.3%	238
17-2011	Aerospace Engineers	4	372	511	37.4%	236
17-2021	Agricultural Engineers	4	23	31	34.8%	15
17-2031	Biomedical Engineers	4	270	260	-3.7%	64
17-2041	Chemical Engineers	4	373	365	-2.1%	101
17-2051	Civil Engineers	4	4,301	4,971	15.6%	1,843
17-2061	Computer Hardware Engineers	4	293	268	-8.5%	43
17-2071	Electrical Engineers	4	2,122	2,426	14.3%	832
17-2072	Electronics Engineers, Except Computer	4	997	875	-12.2%	126
17-2081	Environmental Engineers	5	1,017	1,253	23.2%	530
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	4	340	360	5.9%	130
17-2112	Industrial Engineers	4	2,167	2,194	1.2%	762
17-2131	Materials Engineers	4	439	539	22.8%	267
17-2141	Mechanical Engineers	4	2,930	2,969	1.3%	1,145
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	4	130	107	-17.7%	27
17-2161	Nuclear Engineers	4	562	668	18.9%	298
17-2171	Petroleum Engineers	4	504	752	49.2%	428
17-2199	Engineers, All Other	4	866	1,123	29.7%	432
17-3011	Architectural and Civil Drafters	4	1,616	1,748	8.2%	522
17-3012	Electrical and Electronics Drafters	3	394	346	-12.2%	16
17-3013	Mechanical Drafters	3	987	878	-11.0%	106

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
17-3019	Drafters, All Other	3	89	109	22.5%	33
17-3021	Aerospace Engineering and Operations Technicians	4	6	7	16.7%	2
17-3022	Civil Engineering Technicians	3	849	988	16.4%	352
17-3023	Electrical and Electronics Engineering Technicians	3	1,257	1,054	-16.1%	109
17-3024	Electro-Mechanical Technicians	3	206	184	-10.7%	40
17-3025	Environmental Engineering Technicians	4	399	517	29.6%	222
17-3026	Industrial Engineering Technicians	3	405	408	0.7%	104
17-3027	Mechanical Engineering Technicians	3	529	612	15.7%	210
17-3029	Engineering Technicians, Except Drafters, All Other	3	672	869	29.3%	364
17-3031	Surveying and Mapping Technicians	3	563	707	25.6%	267
19-1012	Food Scientists and Technologists	4	48	53	10.4%	21
19-1013	Soil and Plant Scientists	5	43	55	27.9%	30
19-1021	Biochemists and Biophysicists	5	485	781	61.0%	444
19-1022	Microbiologists	5	303	431	42.2%	229
19-1023	Zoologists and Wildlife Biologists	5	62	55	-11.3%	11
19-1029	Biological Scientists, All Other	5	96	97	1.0%	32
19-1031	Conservation Scientists	4	118	133	12.7%	53
19-1032	Foresters	4	75	80	6.7%	27
19-1041	Epidemiologists	5	28	24	-14.3%	2
19-1042	Medical Scientists, Except Epidemiologists	5	1,200	1,608	34.0%	696
19-1099	Life Scientists, All Other	5	32	36	12.5%	11
19-2012	Physicists	5	46	37	-19.6%	1
19-2021	Atmospheric and Space Scientists	4	22	19	-13.6%	2
19-2031	Chemists	4	1,276	1,580	23.8%	716
19-2032	Materials Scientists	5	108	119	10.2%	43
19-2041	Environmental Scientists and Specialists, Including Health	4	920	1,169	27.1%	544
19-2042	Geoscientists, Except Hydrologists and Geographers	4	447	553	23.7%	264
19-2043	Hydrologists	4	44	41	-6.8%	11
19-2099	Physical Scientists, All Other	5	61	50	-18.0%	3
19-3011	Economists	5	131	152	16.0%	65
19-3022	Survey Researchers	5	553	545	-1.4%	170
19-3031	Clinical, Counseling, and School Psychologists	5	1,303	1,364	4.7%	455
19-3039	Psychologists, All Other	5	89	109	22.5%	46
19-3041	Sociologists	5	32	34	6.3%	20
19-3051	Urban and Regional Planners	5	389	421	8.2%	219

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
19-3091	Anthropologists and Archeologists	5	14	18	28.6%	6
19-3093	Historians	5	18	14	-22.2%	0
19-3099	Social Scientists and Related Workers, All Other	4	95	94	-1.1%	18
19-4011	Agricultural and Food Science Technicians	3	40	32	-20.0%	7
19-4021	Biological Technicians	4	826	1,060	28.3%	506
19-4031	Chemical Technicians	3	1,126	1,387	23.2%	619
19-4041	Geological and Petroleum Technicians	4	362	499	37.8%	317
19-4051	Nuclear Technicians	3	355	403	13.5%	204
19-4061	Social Science Research Assistants	4	179	242	35.2%	146
19-4091	Environmental Science and Protection Technicians, Including Health	4	494	632	27.9%	360
19-4092	Forensic Science Technicians	4	30	30	0.0%	13
19-4093	Forest and Conservation Technicians	3	75	83	10.7%	44
19-4099	Life, Physical, and Social Science Technicians, All Other	3	449	472	5.1%	211
21-1011	Substance Abuse and Behavioral Disorder Counselors	5	1,800	1,793	-0.4%	505
21-1012	Educational, Guidance, School, and Vocational Counselors	5	2,546	2,543	-0.1%	595
21-1013	Marriage and Family Therapists	5	274	340	24.1%	127
21-1014	Mental Health Counselors	5	2,574	2,734	6.2%	863
21-1015	Rehabilitation Counselors	5	1,645	2,092	27.2%	909
21-1019	Counselors, All Other	5	205	204	-0.5%	44
21-1021	Child, Family, and School Social Workers	4	3,621	4,086	12.8%	1,312
21-1022	Healthcare Social Workers	5	1,842	2,282	23.9%	869
21-1023	Mental Health and Substance Abuse Social Workers	5	2,365	2,751	16.3%	1,050
21-1029	Social Workers, All Other	5	216	224	3.7%	57
21-1091	Health Educators	4	645	703	9.0%	234
21-1092	Probation Officers and Correctional Treatment Specialists	4	805	762	-5.3%	218
21-1093	Social and Human Service Assistants	4	5,290	5,746	8.6%	2,035
21-1094	Community Health Workers	4	268	276	3.0%	76
21-1099	Community and Social Service Specialists, All Other	4	326	342	4.9%	95
21-2011	Clergy	5	472	554	17.4%	196
21-2021	Directors, Religious Activities and Education	4	401	467	16.5%	245
21-2099	Religious Workers, All Other	4	107	83	-22.4%	12
23-1011	Lawyers	5	6,038	6,866	13.7%	1,859
23-1012	Judicial Law Clerks	5	231	243	5.2%	59

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	5	142	127	-10.6%	13
23-1022	Arbitrators, Mediators, and Conciliators	5	72	90	25.0%	30
23-1023	Judges, Magistrate Judges, and Magistrates	5	53	46	-13.2%	5
23-2011	Paralegals and Legal Assistants	3	2,467	3,153	27.8%	1,104
23-2091	Court Reporters	3	223	229	2.7%	65
23-2093	Title Examiners, Abstractors, and Searchers	3	657	727	10.7%	218
23-2099	Legal Support Workers, All Other	3	140	137	-2.1%	22
25-1011	Business Teachers, Postsecondary	5	1,186	1,365	15.1%	358
25-1021	Computer Science Teachers, Postsecondary	5	541	644	19.0%	185
25-1022	Mathematical Science Teachers, Postsecondary	5	748	794	6.1%	159
25-1031	Architecture Teachers, Postsecondary	5	127	156	22.8%	47
25-1032	Engineering Teachers, Postsecondary	5	687	829	20.7%	245
25-1041	Agricultural Sciences Teachers, Postsecondary	5	91	78	-14.3%	1
25-1042	Biological Science Teachers, Postsecondary	5	939	973	3.6%	180
25-1043	Forestry and Conservation Science Teachers, Postsecondary	5	33	28	-15.2%	0
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	5	207	231	11.6%	55
25-1052	Chemistry Teachers, Postsecondary	5	388	435	12.1%	106
25-1053	Environmental Science Teachers, Postsecondary	5	75	73	-2.7%	10
25-1054	Physics Teachers, Postsecondary	5	265	312	17.7%	87
25-1061	Anthropology and Archeology Teachers, Postsecondary	5	82	77	-6.1%	7
25-1062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	5	115	126	9.6%	29
25-1063	Economics Teachers, Postsecondary	5	283	324	14.5%	84
25-1064	Geography Teachers, Postsecondary	5	85	93	9.4%	21
25-1065	Political Science Teachers, Postsecondary	5	282	318	12.8%	80
25-1066	Psychology Teachers, Postsecondary	5	602	649	7.8%	139
25-1067	Sociology Teachers, Postsecondary	5	400	493	23.3%	153
25-1069	Social Sciences Teachers, Postsecondary, All Other	5	118	146	23.7%	46
25-1071	Health Specialties Teachers, Postsecondary	5	1,723	1,706	-1.0%	250
25-1072	Nursing Instructors and Teachers, Postsecondary	5	802	784	-2.2%	104
25-1081	Education Teachers, Postsecondary	5	894	883	-1.2%	129
25-1082	Library Science Teachers, Postsecondary	5	85	99	16.5%	27
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	5	142	137	-3.5%	18
25-1112	Law Teachers, Postsecondary	5	138	151	9.4%	34

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
25-1113	Social Work Teachers, Postsecondary	5	155	144	-7.1%	13
25-1121	Art, Drama, and Music Teachers, Postsecondary	5	1,237	1,513	22.3%	461
25-1122	Communications Teachers, Postsecondary	5	392	442	12.8%	110
25-1123	English Language and Literature Teachers, Postsecondary	5	1,147	1,138	-0.8%	169
25-1124	Foreign Language and Literature Teachers, Postsecondary	5	459	518	12.9%	128
25-1125	History Teachers, Postsecondary	5	375	400	6.7%	84
25-1126	Philosophy and Religion Teachers, Postsecondary	5	374	401	7.2%	86
25-1191	Graduate Teaching Assistants	5	370	429	15.9%	116
25-1192	Home Economics Teachers, Postsecondary	5	28	24	-14.3%	0
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	5	250	248	-0.8%	37
25-1194	Vocational Education Teachers, Postsecondary	3	1,189	1,058	-11.0%	54
25-1199	Postsecondary Teachers, All Other	5	1,078	1,296	20.2%	379
25-2011	Preschool Teachers, Except Special Education	3	2,970	3,651	22.9%	1,534
25-2012	Kindergarten Teachers, Except Special Education	4	1,291	1,204	-6.7%	310
25-2021	Elementary School Teachers, Except Special Education	4	12,188	11,602	-4.8%	2,480
25-2022	Middle School Teachers, Except Special and Career/Technical Education	4	5,245	5,681	8.3%	1,754
25-2023	Career/Technical Education Teachers, Middle School	4	138	160	15.9%	64
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	4	11,208	10,184	-9.1%	2,793
25-2032	Career/Technical Education Teachers, Secondary School	4	994	890	-10.5%	221
25-2051	Special Education Teachers, Preschool	4	145	171	17.9%	52
25-2052	Special Education Teachers, Kindergarten and Elementary School	4	2,360	2,384	1.0%	559
25-2053	Special Education Teachers, Middle School	4	825	811	-1.7%	175
25-2054	Special Education Teachers, Secondary School	4	1,749	1,757	0.5%	433
25-2059	Special Education Teachers, All Other	4	55	64	16.4%	16
25-3011	Adult Basic and Secondary Education and Literacy Teachers and Instructors	4	331	295	-10.9%	33
25-3021	Self-Enrichment Education Teachers	3	1,718	1,645	-4.2%	294
25-3097	Teachers and Instructors, All Other, Except Substitute Teachers	3	1,097	1,255	14.4%	345
25-3098	Substitute Teachers	3	3,490	2,976	-14.7%	215
25-4011	Archivists	5	86	101	17.4%	35
25-4012	Curators	5	138	167	21.0%	62

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
25-4013	Museum Technicians and Conservators	4	144	184	27.8%	78
25-4021	Librarians	5	1,315	1,339	1.8%	349
25-4031	Library Technicians	4	750	790	5.3%	463
25-9011	Audio-Visual and Multimedia Collections Specialists	4	53	54	1.9%	12
25-9021	Farm and Home Management Advisors	5	12	9	-25.0%	0
25-9031	Instructional Coordinators	5	936	949	1.4%	94
25-9041	Teacher Assistants	3	9,855	9,965	1.1%	2,560
25-9099	Education, Training, and Library Workers, All Other	4	198	189	-4.5%	10
27-1011	Art Directors	4	287	337	17.4%	133
27-1012	Craft Artists	2	22	18	-18.2%	1
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	3	48	53	10.4%	21
27-1014	Multimedia Artists and Animators	4	124	150	21.0%	57
27-1019	Artists and Related Workers, All Other	4	22	17	-22.7%	0
27-1021	Commercial and Industrial Designers	4	186	157	-15.6%	28
27-1022	Fashion Designers	3	29	31	6.9%	10
27-1023	Floral Designers	2	543	349	-35.7%	87
27-1024	Graphic Designers	4	1,906	2,170	13.9%	868
27-1025	Interior Designers	4	399	502	25.8%	263
27-1026	Merchandise Displayers and Window Trimmers	3	661	800	21.0%	332
27-1027	Set and Exhibit Designers	5	65	79	21.5%	32
27-1029	Designers, All Other	4	2	1	-50.0%	0
27-2011	Actors	2	344	299	-13.1%	87
27-2012	Producers and Directors	4	684	759	11.0%	374
27-2021	Athletes and Sports Competitors	2	264	304	15.2%	142
27-2022	Coaches and Scouts	4	1,730	1,546	-10.6%	364
27-2023	Umpires, Referees, and Other Sports Officials	3	87	79	-9.2%	18
27-2031	Dancers	3	33	27	-18.2%	5
27-2032	Choreographers	4	40	44	10.0%	17
27-2041	Music Directors and Composers	3	223	175	-21.5%	31
27-2042	Musicians and Singers	3	242	208	-14.0%	61
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	3	21	20	-4.8%	0
27-3011	Radio and Television Announcers	3	337	362	7.4%	183
27-3012	Public Address System and Other Announcers	2	25	34	36.0%	16
27-3022	Reporters and Correspondents	4	300	241	-19.7%	99
27-3031	Public Relations Specialists	4	2,276	2,212	-2.8%	285

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
27-3041	Editors	4	704	663	-5.8%	186
27-3042	Technical Writers	4	293	290	-1.0%	89
27-3043	Writers and Authors	4	344	351	2.0%	93
27-3091	Interpreters and Translators	4	202	191	-5.4%	17
27-3099	Media and Communication Workers, All Other	4	79	65	-17.7%	0
27-4011	Audio and Video Equipment Technicians	3	529	536	1.3%	122
27-4012	Broadcast Technicians	3	162	179	10.5%	61
27-4014	Sound Engineering Technicians	3	85	79	-7.1%	17
27-4021	Photographers	3	420	357	-15.0%	61
27-4031	Camera Operators, Television, Video, and Motion Picture	3	131	119	-9.2%	5
27-4032	Film and Video Editors	3	84	71	-15.5%	1
27-4099	Media and Communication Equipment Workers, All Other	3	46	35	-23.9%	0
29-1011	Chiropractors	5	425	586	37.9%	256
29-1021	Dentists, General	5	833	941	13.0%	317
29-1022	Oral and Maxillofacial Surgeons	5	30	32	6.7%	9
29-1023	Orthodontists	5	23	28	21.7%	11
29-1029	Dentists, All Other Specialists	5	22	20	-9.1%	5
29-1031	Dietitians and Nutritionists	5	746	769	3.1%	120
29-1041	Optometrists	5	413	536	29.8%	261
29-1051	Pharmacists	5	3,093	3,281	6.1%	1,005
29-1061	Anesthesiologists	5	403	425	5.5%	133
29-1062	Family and General Practitioners	5	1,693	1,823	7.7%	603
29-1063	Internists, General	5	260	247	-5.0%	51
29-1064	Obstetricians and Gynecologists	5	90	115	27.8%	46
29-1065	Pediatricians, General	5	97	124	27.8%	46
29-1066	Psychiatrists	5	225	211	-6.2%	50
29-1067	Surgeons	5	547	697	27.4%	296
29-1069	Physicians and Surgeons, All Other	5	3,845	4,154	8.0%	1,318
29-1071	Physician Assistants	5	1,271	1,414	11.3%	393
29-1081	Podiatrists	5	159	223	40.3%	129
29-1122	Occupational Therapists	5	1,635	2,204	34.8%	825
29-1123	Physical Therapists	5	2,911	3,874	33.1%	1,786
29-1124	Radiation Therapists	3	199	186	-6.5%	27
29-1125	Recreational Therapists	4	312	324	3.8%	88
29-1126	Respiratory Therapists	3	1,290	1,451	12.5%	347
29-1127	Speech-Language Pathologists	5	1,181	1,631	38.1%	625

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
29-1128	Exercise Physiologists	5	90	120	33.3%	41
29-1129	Therapists, All Other	4	106	155	46.2%	60
29-1131	Veterinarians	5	554	715	29.1%	359
29-1141	Registered Nurses	3	31,551	36,580	15.9%	11,418
29-1151	Nurse Anesthetists	5	537	582	8.4%	157
29-1161	Nurse Midwives	5	37	49	32.4%	18
29-1171	Nurse Practitioners	5	992	1,240	25.0%	428
29-1181	Audiologists	5	159	201	26.4%	78
29-1199	Health Diagnosing and Treating Practitioners, All Other	5	117	99	-15.4%	9
29-2011	Medical and Clinical Laboratory Technologists	4	2,062	2,162	4.8%	724
29-2012	Medical and Clinical Laboratory Technicians	3	2,326	2,585	11.1%	922
29-2021	Dental Hygienists	3	2,069	2,508	21.2%	1,000
29-2031	Cardiovascular Technologists and Technicians	3	756	939	24.2%	297
29-2032	Diagnostic Medical Sonographers	3	616	741	20.3%	211
29-2033	Nuclear Medicine Technologists	3	267	280	4.9%	53
29-2034	Radiologic Technologists	3	2,471	2,749	11.3%	660
29-2035	Magnetic Resonance Imaging Technologists	3	339	428	26.3%	143
29-2041	Emergency Medical Technicians and Paramedics	3	3,781	3,988	5.5%	1,453
29-2051	Dietetic Technicians	2	670	968	44.5%	377
29-2052	Pharmacy Technicians	3	3,656	3,935	7.6%	701
29-2053	Psychiatric Technicians	3	306	311	1.6%	67
29-2054	Respiratory Therapy Technicians	3	128	118	-7.8%	3
29-2055	Surgical Technologists	3	868	1,087	25.2%	302
29-2056	Veterinary Technologists and Technicians	3	865	1,091	26.1%	317
29-2057	Ophthalmic Medical Technicians	3	314	427	36.0%	152
29-2061	Licensed Practical and Licensed Vocational Nurses	3	8,681	10,777	24.1%	4,388
29-2071	Medical Records and Health Information Technicians	3	1,995	2,373	18.9%	916
29-2081	Opticians, Dispensing	3	906	1,258	38.9%	661
29-2091	Orthotists and Prosthetists	5	69	80	15.9%	18
29-2092	Hearing Aid Specialists	3	38	42	10.5%	7
29-2099	Health Technologists and Technicians, All Other	3	537	628	16.9%	134
29-9011	Occupational Health and Safety Specialists	4	662	703	6.2%	235
29-9012	Occupational Health and Safety Technicians	3	189	205	8.5%	69
29-9091	Athletic Trainers	5	347	460	32.6%	216
29-9099	Healthcare Practitioners and Technical Workers, All Other	4	220	185	-15.9%	21

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
31-1011	Home Health Aides	2	12,597	16,345	29.8%	7,211
31-1013	Psychiatric Aides	2	359	357	-0.6%	89
31-1014	Nursing Assistants	2	17,760	20,186	13.7%	6,013
31-1015	Orderlies	2	587	628	7.0%	154
31-2011	Occupational Therapy Assistants	3	682	934	37.0%	463
31-2012	Occupational Therapy Aides	3	150	229	52.7%	121
31-2021	Physical Therapist Assistants	3	1,320	1,892	43.3%	929
31-2022	Physical Therapist Aides	2	636	878	38.1%	392
31-9011	Massage Therapists	3	604	831	37.6%	288
31-9091	Dental Assistants	3	2,843	3,145	10.6%	925
31-9092	Medical Assistants	3	6,255	7,577	21.1%	2,578
31-9093	Medical Equipment Preparers	2	474	559	17.9%	175
31-9094	Medical Transcriptionists	3	1,036	865	-16.5%	110
31-9095	Pharmacy Aides	2	368	312	-15.2%	32
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	3	515	508	-1.4%	101
31-9097	Phlebotomists	3	1,388	1,629	17.4%	563
31-9099	Healthcare Support Workers, All Other	3	328	284	-13.4%	15
33-1011	First-Line Supervisors of Correctional Officers	3	261	272	4.2%	111
33-1012	First-Line Supervisors of Police and Detectives	3	585	657	12.3%	266
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	3	156	175	12.2%	90
33-1099	First-Line Supervisors of Protective Service Workers, All Other	3	575	702	22.1%	305
33-2011	Firefighters	3	965	975	1.0%	301
33-2021	Fire Inspectors and Investigators	3	47	40	-14.9%	9
33-3011	Bailiffs	2	41	32	-22.0%	4
33-3012	Correctional Officers and Jailers	3	3,200	2,904	-9.3%	695
33-3021	Detectives and Criminal Investigators	3	533	533	0.0%	137
33-3041	Parking Enforcement Workers	2	91	101	11.0%	46
33-3051	Police and Sheriff's Patrol Officers	3	5,480	5,265	-3.9%	1,751
33-3052	Transit and Railroad Police	3	16	12	-25.0%	1
33-9011	Animal Control Workers	2	58	58	0.0%	15
33-9021	Private Detectives and Investigators	3	439	387	-11.8%	116
33-9031	Gaming Surveillance Officers and Gaming Investigators	2	100	84	-16.0%	30
33-9032	Security Guards	2	11,633	12,677	9.0%	4,302
33-9091	Crossing Guards	1	832	654	-21.4%	42

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
33-9092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	2	1,296	1,470	13.4%	1,113
33-9093	Transportation Security Screeners	2	251	225	-10.4%	42
33-9099	Protective Service Workers, All Other	2	736	873	18.6%	665
35-1011	Chefs and Head Cooks	3	1,151	1,231	7.0%	309
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	2	7,474	8,284	10.8%	3,106
35-2011	Cooks, Fast Food	1	2,241	1,962	-12.4%	210
35-2012	Cooks, Institution and Cafeteria	2	4,161	4,201	1.0%	904
35-2014	Cooks, Restaurant	2	10,412	13,311	27.8%	5,320
35-2015	Cooks, Short Order	1	1,894	2,299	21.4%	872
35-2021	Food Preparation Workers	1	8,271	7,406	-10.5%	1,751
35-3011	Bartenders	2	7,959	8,453	6.2%	3,850
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	1	33,935	38,575	13.7%	19,218
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	1	2,905	2,731	-6.0%	1,699
35-3031	Waiters and Waitresses	1	24,683	27,211	10.2%	15,591
35-3041	Food Servers, Nonrestaurant	1	2,902	3,183	9.7%	1,217
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	1	3,625	3,726	2.8%	1,854
35-9021	Dishwashers	1	5,327	4,994	-6.3%	2,252
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	1	3,782	3,971	5.0%	3,243
35-9099	Food Preparation and Serving Related Workers, All Other	1	290	370	27.6%	248
37-1011	First-Line Supervisors of Housekeeping and Janitorial Workers	2	1,342	1,384	3.1%	413
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	3	614	604	-1.6%	62
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2	19,276	19,263	-0.1%	4,407
37-2012	Maids and Housekeeping Cleaners	2	7,777	8,327	7.1%	2,534
37-2019	Building Cleaning Workers, All Other	2	76	66	-13.2%	5
37-2021	Pest Control Workers	2	353	412	16.7%	170
37-3011	Landscaping and Groundskeeping Workers	1	7,365	7,835	6.4%	2,616
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	2	104	90	-13.5%	14
37-3013	Tree Trimmers and Pruners	2	605	761	25.8%	364
37-3019	Grounds Maintenance Workers, All Other	2	22	19	-13.6%	1
39-1011	Gaming Supervisors	2	215	210	-2.3%	110
39-1012	Slot Supervisors	2	12	11	-8.3%	2

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
39-1021	First-Line Supervisors of Personal Service Workers	3	1,762	2,204	25.1%	793
39-2011	Animal Trainers	2	64	61	-4.7%	27
39-2021	Nonfarm Animal Caretakers	1	1,310	1,502	14.7%	395
39-3011	Gaming Dealers	2	954	901	-5.6%	427
39-3012	Gaming and Sports Book Writers and Runners	2	25	27	8.0%	11
39-3019	Gaming Service Workers, All Other	2	14	13	-7.1%	0
39-3021	Motion Picture Projectionists	2	82	76	-7.3%	42
39-3031	Ushers, Lobby Attendants, and Ticket Takers	2	1,400	1,522	8.7%	989
39-3091	Amusement and Recreation Attendants	1	3,521	4,134	17.4%	2,614
39-3092	Costume Attendants	2	30	27	-10.0%	14
39-3093	Locker Room, Coatroom, and Dressing Room Attendants	2	179	151	-15.6%	69
39-3099	Entertainment Attendants and Related Workers, All Other	2	158	156	-1.3%	93
39-4021	Funeral Attendants	2	636	713	12.1%	281
39-4031	Morticians, Undertakers, and Funeral Directors	3	385	475	23.4%	204
39-5011	Barbers	3	165	168	1.8%	54
39-5012	Hairdressers, Hairstylists, and Cosmetologists	3	5,810	6,425	10.6%	2,258
39-5092	Manicurists and Pedicurists	2	795	848	6.7%	135
39-5093	Shampooers	2	339	329	-2.9%	48
39-5094	Skincare Specialists	3	271	246	-9.2%	4
39-6011	Baggage Porters and Bellhops	2	297	307	3.4%	124
39-6012	Concierges	3	157	191	21.7%	76
39-7011	Tour Guides and Escorts	3	409	431	5.4%	240
39-7012	Travel Guides	3	13	11	-15.4%	6
39-9011	Childcare Workers	3	4,813	4,434	-7.9%	1,059
39-9021	Personal Care Aides	2	13,944	21,235	52.3%	9,153
39-9031	Fitness Trainers and Aerobics Instructors	3	2,478	2,862	15.5%	817
39-9032	Recreation Workers	4	2,756	3,431	24.5%	1,004
39-9041	Residential Advisors	3	1,816	2,282	25.7%	1,377
39-9099	Personal Care and Service Workers, All Other	3	282	256	-9.2%	52
41-1011	First-Line Supervisors of Retail Sales Workers	2	10,515	10,609	0.9%	2,462
41-1012	First-Line Supervisors of Non-Retail Sales Workers	4	2,140	1,983	-7.3%	162
41-2011	Cashiers	1	35,469	32,149	-9.4%	13,359
41-2012	Gaming Change Persons and Booth Cashiers	2	57	51	-10.5%	44
41-2021	Counter and Rental Clerks	1	3,732	3,958	6.1%	1,327
41-2022	Parts Salespersons	2	2,505	2,814	12.3%	1,058

<b>SOC Code</b>	<b>Occupation Title</b>	<b>Job Zone</b>	<b>2014</b>	<b>2024</b>	<b>% Change 2014-2024</b>	<b>New and Replacement Jobs</b>
41-2031	Retail Salespersons	2	48,147	51,030	6.0%	20,362
41-3011	Advertising Sales Agents	3	1,313	1,299	-1.1%	522
41-3021	Insurance Sales Agents	4	3,511	3,654	4.1%	1,207
41-3031	Securities, Commodities, and Financial Services Sales Agents	4	2,649	2,688	1.5%	777
41-3041	Travel Agents	3	375	317	-15.5%	138
41-3099	Sales Representatives, Services, All Other	4	7,488	9,412	25.7%	4,072
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	4	2,423	2,213	-8.7%	327
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	4	14,944	13,987	-6.4%	2,514
41-9011	Demonstrators and Product Promoters	2	399	396	-0.8%	119
41-9012	Models	1	28	33	17.9%	13
41-9021	Real Estate Brokers	4	248	212	-14.5%	14
41-9022	Real Estate Sales Agents	3	1,790	1,918	7.2%	427
41-9031	Sales Engineers	4	776	807	4.0%	198
41-9041	Telemarketers	2	2,061	1,506	-26.9%	430
41-9091	Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	2	22	19	-13.6%	2
41-9099	Sales and Related Workers, All Other	3	454	393	-13.4%	20
43-1011	First-Line Supervisors of Office and Administrative Support Workers	3	13,752	13,948	1.4%	3,490
43-2011	Switchboard Operators, Including Answering Service	2	1,356	1,055	-22.2%	180
43-2021	Telephone Operators	2	76	44	-42.1%	0
43-3011	Bill and Account Collectors	2	3,345	2,969	-11.2%	752
43-3021	Billing and Posting Clerks	2	6,691	7,195	7.5%	1,857
43-3031	Bookkeeping, Accounting, and Auditing Clerks	3	16,135	17,258	7.0%	2,718
43-3041	Gaming Cage Workers	2	100	107	7.0%	58
43-3051	Payroll and Timekeeping Clerks	2	1,903	1,847	-2.9%	402
43-3061	Procurement Clerks	3	617	552	-10.5%	175
43-3071	Tellers	2	8,422	6,936	-17.6%	3,454
43-3099	Financial Clerks, All Other	2	394	439	11.4%	182
43-4011	Brokerage Clerks	3	550	525	-4.5%	184
43-4021	Correspondence Clerks	2	159	163	2.5%	57
43-4031	Court, Municipal, and License Clerks	3	474	481	1.5%	88
43-4041	Credit Authorizers, Checkers, and Clerks	3	359	254	-29.2%	1
43-4051	Customer Service Representatives	2	26,166	28,304	8.2%	10,045
43-4061	Eligibility Interviewers, Government Programs	3	1,697	1,582	-6.8%	253

<b>SOC Code</b>	<b>Occupation Title</b>	<b>Job Zone</b>	<b>2014</b>	<b>2024</b>	<b>% Change 2014-2024</b>	<b>New and Replacement Jobs</b>
43-4071	File Clerks	2	1,327	1,081	-18.5%	142
43-4081	Hotel, Motel, and Resort Desk Clerks	2	1,652	1,639	-0.8%	990
43-4111	Interviewers, Except Eligibility and Loan	2	2,143	2,329	8.7%	656
43-4121	Library Assistants, Clerical	2	1,166	1,241	6.4%	612
43-4131	Loan Interviewers and Clerks	3	2,036	2,242	10.1%	504
43-4141	New Accounts Clerks	2	394	393	-0.3%	153
43-4151	Order Clerks	2	2,416	2,295	-5.0%	741
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	3	1,585	1,392	-12.2%	282
43-4171	Receptionists and Information Clerks	2	10,056	9,749	-3.1%	2,476
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	2	481	433	-10.0%	94
43-4199	Information and Record Clerks, All Other	2	777	594	-23.6%	49
43-5011	Cargo and Freight Agents	2	322	286	-11.2%	77
43-5021	Couriers and Messengers	2	700	590	-15.7%	53
43-5031	Police, Fire, and Ambulance Dispatchers	2	686	688	0.3%	221
43-5032	Dispatchers, Except Police, Fire, and Ambulance	2	1,683	1,940	15.3%	785
43-5041	Meter Readers, Utilities	2	492	418	-15.0%	129
43-5051	Postal Service Clerks	2	945	669	-29.2%	135
43-5052	Postal Service Mail Carriers	2	3,738	2,751	-26.4%	1,166
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	2	1,738	1,044	-39.9%	90
43-5061	Production, Planning, and Expediting Clerks	3	3,155	3,256	3.2%	988
43-5071	Shipping, Receiving, and Traffic Clerks	2	5,451	5,148	-5.6%	1,324
43-5081	Stock Clerks and Order Fillers	2	17,707	16,712	-5.6%	5,191
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	2	495	553	11.7%	185
43-6011	Executive Secretaries and Executive Administrative Assistants	3	5,461	5,009	-8.3%	431
43-6012	Legal Secretaries	3	2,922	3,385	15.8%	1,047
43-6013	Medical Secretaries	3	5,625	7,181	27.7%	2,213
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	3	25,780	28,784	11.7%	6,354
43-9011	Computer Operators	3	726	659	-9.2%	125
43-9021	Data Entry Keyers	2	2,325	1,906	-18.0%	393
43-9022	Word Processors and Typists	2	1,434	1,016	-29.1%	18
43-9031	Desktop Publishers	3	180	180	0.0%	50
43-9041	Insurance Claims and Policy Processing Clerks	3	2,581	2,715	5.2%	975
43-9051	Mail Clerks and Mail Machine Operators, Except Postal Service	2	1,409	1,169	-17.0%	302

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
43-9061	Office Clerks, General	2	30,531	28,935	-5.2%	5,434
43-9071	Office Machine Operators, Except Computer	2	717	545	-24.0%	114
43-9081	Proofreaders and Copy Markers	4	116	103	-11.2%	20
43-9111	Statistical Assistants	4	131	141	7.6%	49
43-9199	Office and Administrative Support Workers, All Other	3	1,184	1,419	19.8%	579
45-1011	First-Line Supervisors of Farming, Fishing, and Forestry Workers	3	44	42	-4.5%	10
45-2011	Agricultural Inspectors	2	70	61	-12.9%	19
45-2041	Graders and Sorters, Agricultural Products	1	45	53	17.8%	18
45-2091	Agricultural Equipment Operators	2	38	43	13.2%	19
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1	213	176	-17.4%	50
45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	1	135	131	-3.0%	51
45-2099	Agricultural Workers, All Other	1	2	2	0.0%	0
45-4011	Forest and Conservation Workers	3	34	36	5.9%	7
45-4021	Fallers	1	6	4	-33.3%	0
45-4022	Logging Equipment Operators	1	54	57	5.6%	25
45-4023	Log Graders and Scalers	3	21	22	4.8%	5
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	3	5,642	6,541	15.9%	1,591
47-2011	Boilermakers	3	198	238	20.2%	144
47-2021	Brickmasons and Blockmasons	2	732	821	12.2%	165
47-2022	Stonemasons	3	100	89	-11.0%	1
47-2031	Carpenters	2	8,968	10,273	14.6%	2,625
47-2041	Carpet Installers	2	473	557	17.8%	203
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	2	119	102	-14.3%	11
47-2044	Tile and Marble Setters	2	222	270	21.6%	87
47-2051	Cement Masons and Concrete Finishers	2	1,400	1,511	7.9%	278
47-2053	Terrazzo Workers and Finishers	2	25	21	-16.0%	0
47-2061	Construction Laborers	2	9,570	11,986	25.2%	4,731
47-2071	Paving, Surfacing, and Tamping Equipment Operators	2	648	723	11.6%	211
47-2072	Pile-Driver Operators	2	13	13	0.0%	2
47-2073	Operating Engineers and Other Construction Equipment Operators	2	5,938	6,236	5.0%	2,017
47-2081	Drywall and Ceiling Tile Installers	2	466	410	-12.0%	40
47-2082	Tapers	2	141	156	10.6%	38
47-2111	Electricians	3	5,560	6,391	14.9%	2,345

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
47-2121	Glaziers	2	356	385	8.1%	147
47-2131	Insulation Workers, Floor, Ceiling, and Wall	2	172	198	15.1%	61
47-2132	Insulation Workers, Mechanical	2	104	153	47.1%	64
47-2141	Painters, Construction and Maintenance	2	1,473	1,588	7.8%	425
47-2142	Paperhangers	2	41	37	-9.8%	2
47-2151	Pipelayers	2	361	351	-2.8%	82
47-2152	Plumbers, Pipefitters, and Steamfitters	3	4,149	4,305	3.8%	912
47-2161	Plasterers and Stucco Masons	1	108	124	14.8%	17
47-2171	Reinforcing Iron and Rebar Workers	2	76	76	0.0%	14
47-2181	Roofers	2	1,013	957	-5.5%	334
47-2211	Sheet Metal Workers	2	1,090	1,067	-2.1%	211
47-2221	Structural Iron and Steel Workers	2	462	478	3.5%	192
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	2	245	222	-9.4%	8
47-3012	Helpers--Carpenters	2	258	327	26.7%	104
47-3013	Helpers--Electricians	2	372	498	33.9%	198
47-3014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	1	53	49	-7.5%	7
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	2	298	290	-2.7%	39
47-3016	Helpers--Roofers	2	95	121	27.4%	49
47-3019	Helpers, Construction Trades, All Other	2	82	86	4.9%	11
47-4011	Construction and Building Inspectors	3	1,769	2,225	25.8%	944
47-4021	Elevator Installers and Repairers	3	97	84	-13.4%	20
47-4031	Fence Erectors	2	263	264	0.4%	75
47-4041	Hazardous Materials Removal Workers	3	438	483	10.3%	200
47-4051	Highway Maintenance Workers	2	2,306	2,308	0.1%	447
47-4061	Rail-Track Laying and Maintenance Equipment Operators	2	288	322	11.8%	90
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	1	305	321	5.2%	113
47-4099	Construction and Related Workers, All Other	3	126	111	-11.9%	2
47-5011	Derrick Operators, Oil and Gas	1	338	314	-7.1%	162
47-5012	Rotary Drill Operators, Oil and Gas	2	1,304	1,440	10.4%	1,101
47-5013	Service Unit Operators, Oil, Gas, and Mining	2	738	803	8.8%	540
47-5021	Earth Drillers, Except Oil and Gas	2	396	427	7.8%	208
47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	2	46	49	6.5%	15
47-5041	Continuous Mining Machine Operators	1	441	374	-15.2%	136
47-5042	Mine Cutting and Channeling Machine Operators	2	351	244	-30.5%	38
47-5049	Mining Machine Operators, All Other	2	120	126	5.0%	41

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
47-5051	Rock Splitters, Quarry	1	138	135	-2.2%	50
47-5061	Roof Bolters, Mining	2	526	428	-18.6%	166
47-5071	Roustabouts, Oil and Gas	1	961	1,111	15.6%	601
47-5081	Helpers--Extraction Workers	2	912	905	-0.8%	450
47-5099	Extraction Workers, All Other	2	113	98	-13.3%	17
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	3	3,939	4,317	9.6%	1,498
49-2011	Computer, Automated Teller, and Office Machine Repairers	3	1,084	1,179	8.8%	438
49-2021	Radio, Cellular, and Tower Equipment Installers and Repairers	3	64	55	-14.1%	3
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	3	1,262	1,249	-1.0%	310
49-2091	Avionics Technicians	3	76	87	14.5%	36
49-2092	Electric Motor, Power Tool, and Related Repairers	3	210	213	1.4%	63
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	3	35	33	-5.7%	6
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	3	849	738	-13.1%	127
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	3	285	302	6.0%	98
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	3	33	37	12.1%	11
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	3	147	119	-19.0%	44
49-2098	Security and Fire Alarm Systems Installers	3	845	825	-2.4%	188
49-3011	Aircraft Mechanics and Service Technicians	3	586	506	-13.7%	169
49-3021	Automotive Body and Related Repairers	2	1,659	1,899	14.5%	675
49-3022	Automotive Glass Installers and Repairers	2	221	248	12.2%	98
49-3023	Automotive Service Technicians and Mechanics	3	8,374	9,014	7.6%	3,076
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	3	2,955	3,639	23.1%	1,435
49-3041	Farm Equipment Mechanics and Service Technicians	3	178	150	-15.7%	41
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	3	1,280	1,318	3.0%	480
49-3043	Rail Car Repairers	2	256	274	7.0%	127
49-3051	Motorboat Mechanics and Service Technicians	3	52	35	-32.7%	6
49-3052	Motorcycle Mechanics	3	211	261	23.7%	124
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	2	296	330	11.5%	111
49-3091	Bicycle Repairers	2	110	91	-17.3%	31
49-3092	Recreational Vehicle Service Technicians	2	73	78	6.8%	35

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
49-3093	Tire Repairers and Changers	2	675	604	-10.5%	199
49-9011	Mechanical Door Repairers	2	140	134	-4.3%	48
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	3	338	394	16.6%	179
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	3	2,840	3,222	13.5%	1,249
49-9031	Home Appliance Repairers	3	381	376	-1.3%	161
49-9041	Industrial Machinery Mechanics	3	3,920	4,300	9.7%	1,660
49-9043	Maintenance Workers, Machinery	3	1,185	1,272	7.3%	299
49-9044	Millwrights	3	370	474	28.1%	195
49-9045	Refractory Materials Repairers, Except Brickmasons	2	81	68	-16.0%	20
49-9051	Electrical Power-Line Installers and Repairers	3	1,093	1,214	11.1%	592
49-9052	Telecommunications Line Installers and Repairers	2	1,860	1,904	2.4%	786
49-9062	Medical Equipment Repairers	3	678	865	27.6%	424
49-9063	Musical Instrument Repairers and Tuners	3	122	119	-2.5%	47
49-9064	Watch Repairers	3	20	19	-5.0%	4
49-9069	Precision Instrument and Equipment Repairers, All Other	3	62	51	-17.7%	9
49-9071	Maintenance and Repair Workers, General	3	14,567	14,800	1.6%	3,443
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	2	439	403	-8.2%	84
49-9092	Commercial Divers	3	107	102	-4.7%	40
49-9094	Locksmiths and Safe Repairers	2	100	96	-4.0%	26
49-9095	Manufactured Building and Mobile Home Installers	2	42	49	16.7%	26
49-9096	Riggers	2	80	101	26.3%	42
49-9098	Helpers--Installation, Maintenance, and Repair Workers	2	1,126	1,180	4.8%	412
49-9099	Installation, Maintenance, and Repair Workers, All Other	2	679	837	23.3%	265
51-1011	First-Line Supervisors of Production and Operating Workers	2	5,912	5,949	0.6%	1,226
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	2	71	61	-14.1%	13
51-2021	Coil Winders, Tapers, and Finishers	2	179	170	-5.0%	31
51-2022	Electrical and Electronic Equipment Assemblers	2	2,498	2,254	-9.8%	359
51-2023	Electromechanical Equipment Assemblers	2	773	629	-18.6%	52
51-2031	Engine and Other Machine Assemblers	2	442	407	-7.9%	131
51-2041	Structural Metal Fabricators and Fitters	3	1,123	1,181	5.2%	613
51-2091	Fiberglass Laminators and Fabricators	2	62	62	0.0%	19
51-2092	Team Assemblers	2	6,381	6,202	-2.8%	1,301
51-2099	Assemblers and Fabricators, All Other	2	906	1,133	25.1%	394

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-3011	Bakers	2	1,845	1,734	-6.0%	476
51-3021	Butchers and Meat Cutters	2	1,120	907	-19.0%	118
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	1	273	221	-19.0%	28
51-3023	Slaughterers and Meat Packers	1	146	148	1.4%	57
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	2	58	63	8.6%	25
51-3092	Food Batchmakers	2	807	822	1.9%	356
51-3093	Food Cooking Machine Operators and Tenders	2	242	268	10.7%	105
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	3	1,956	2,402	22.8%	1,127
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	3	223	212	-4.9%	59
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	2	1,152	1,120	-2.8%	384
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	2	323	298	-7.7%	90
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	2	976	788	-19.3%	130
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	2	1,934	1,820	-5.9%	260
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	312	210	-32.7%	21
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	1,300	1,328	2.2%	535
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	647	594	-8.2%	182
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	3	364	355	-2.5%	119
51-4041	Machinists	3	4,944	5,231	5.8%	1,743
51-4051	Metal-Refining Furnace Operators and Tenders	2	579	512	-11.6%	107
51-4052	Pourers and Casters, Metal	2	395	395	0.0%	153
51-4061	Model Makers, Metal and Plastic	3	89	69	-22.5%	3
51-4062	Patternmakers, Metal and Plastic	3	83	95	14.5%	45
51-4071	Foundry Mold and Coremakers	2	171	158	-7.6%	40
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	2	1,126	1,067	-5.2%	227
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	1,614	1,743	8.0%	698
51-4111	Tool and Die Makers	3	1,103	1,096	-0.6%	199
51-4121	Welders, Cutters, Solderers, and Brazers	3	4,183	4,827	15.4%	2,005
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	2	459	472	2.8%	193

<b>SOC Code</b>	<b>Occupation Title</b>	<b>Job Zone</b>	<b>2014</b>	<b>2024</b>	<b>% Change 2014-2024</b>	<b>New and Replacement Jobs</b>
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	2	386	328	-15.0%	60
51-4192	Layout Workers, Metal and Plastic	2	43	43	0.0%	11
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	2	491	466	-5.1%	146
51-4194	Tool Grinders, Filers, and Sharpeners	2	144	114	-20.8%	13
51-4199	Metal Workers and Plastic Workers, All Other	2	226	247	9.3%	72
51-5111	Prepress Technicians and Workers	3	343	211	-38.5%	21
51-5112	Printing Press Operators	3	1,669	1,343	-19.5%	220
51-5113	Print Binding and Finishing Workers	2	530	447	-15.7%	101
51-6011	Laundry and Dry-Cleaning Workers	1	1,849	1,962	6.1%	774
51-6021	Pressers, Textile, Garment, and Related Materials	1	323	326	0.9%	73
51-6031	Sewing Machine Operators	1	605	617	2.0%	301
51-6041	Shoe and Leather Workers and Repairers	2	26	32	23.1%	28
51-6042	Shoe Machine Operators and Tenders	2	184	151	-17.9%	161
51-6051	Sewers, Hand	2	572	680	18.9%	168
51-6052	Tailors, Dressmakers, and Custom Sewers	3	223	261	17.0%	95
51-6061	Textile Bleaching and Dyeing Machine Operators and Tenders	2	32	35	9.4%	28
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	2	143	152	6.3%	96
51-6063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	2	93	88	-5.4%	62
51-6064	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders	2	64	60	-6.3%	35
51-6091	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	2	70	54	-22.9%	10
51-6092	Fabric and Apparel Patternmakers	3	17	18	5.9%	5
51-6093	Upholsterers	2	160	175	9.4%	95
51-6099	Textile, Apparel, and Furnishings Workers, All Other	2	67	75	11.9%	20
51-7011	Cabinetmakers and Bench Carpenters	2	404	432	6.9%	196
51-7021	Furniture Finishers	1	98	122	24.5%	80
51-7031	Model Makers, Wood	3	11	11	0.0%	2
51-7032	Patternmakers, Wood	3	20	25	25.0%	8
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	2	431	667	54.8%	431
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	2	503	715	42.1%	327
51-7099	Woodworkers, All Other	2	9	8	-11.1%	0
51-8011	Nuclear Power Reactor Operators	3	109	117	7.3%	52
51-8012	Power Distributors and Dispatchers	3	220	241	9.5%	107

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-8013	Power Plant Operators	2	640	583	-8.9%	243
51-8021	Stationary Engineers and Boiler Operators	3	1,522	1,696	11.4%	832
51-8031	Water and Wastewater Treatment Plant and System Operators	3	1,833	1,915	4.5%	854
51-8091	Chemical Plant and System Operators	2	405	363	-10.4%	204
51-8092	Gas Plant Operators	3	487	562	15.4%	344
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	2	468	543	16.0%	323
51-8099	Plant and System Operators, All Other	2	109	104	-4.6%	42
51-9011	Chemical Equipment Operators and Tenders	2	877	877	0.0%	473
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	2	296	314	6.1%	154
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	2	357	365	2.2%	154
51-9022	Grinding and Polishing Workers, Hand	1	214	226	5.6%	91
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	2	1,236	1,309	5.9%	553
51-9031	Cutters and Trimmers, Hand	2	50	44	-12.0%	8
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	2	417	332	-20.4%	35
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	2	749	717	-4.3%	264
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	2	250	194	-22.4%	51
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2	4,133	4,136	0.1%	1,075
51-9071	Jewelers and Precious Stone and Metal Workers	3	115	89	-22.6%	6
51-9081	Dental Laboratory Technicians	2	274	299	9.1%	173
51-9082	Medical Appliance Technicians	3	254	217	-14.6%	91
51-9083	Ophthalmic Laboratory Technicians	2	301	283	-6.0%	116
51-9111	Packaging and Filling Machine Operators and Tenders	2	2,466	2,381	-3.4%	669
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	2	803	961	19.7%	369
51-9122	Painters, Transportation Equipment	2	438	431	-1.6%	121
51-9123	Painting, Coating, and Decorating Workers	2	143	140	-2.1%	38
51-9141	Semiconductor Processors	2	106	95	-10.4%	37
51-9151	Photographic Process Workers and Processing Machine Operators	2	276	204	-26.1%	38
51-9191	Adhesive Bonding Machine Operators and Tenders	2	60	58	-3.3%	17
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	2	99	112	13.1%	42

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-9193	Cooling and Freezing Equipment Operators and Tenders	2	61	59	-3.3%	20
51-9194	Etchers and Engravers	2	77	78	1.3%	27
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	2	575	571	-0.7%	258
51-9196	Paper Goods Machine Setters, Operators, and Tenders	2	1,016	984	-3.1%	205
51-9197	Tire Builders	2	105	103	-1.9%	41
51-9198	Helpers--Production Workers	2	4,231	4,256	0.6%	1,105
51-9199	Production Workers, All Other	2	525	545	3.8%	152
53-1011	Aircraft Cargo Handling Supervisors	2	56	59	5.4%	18
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	2	1,388	1,529	10.2%	578
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	2	1,903	2,160	13.5%	824
53-2012	Commercial Pilots	3	424	495	16.7%	236
53-2021	Air Traffic Controllers	3	85	81	-4.7%	39
53-2022	Airfield Operations Specialists	3	63	58	-7.9%	30
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	2	544	705	29.6%	277
53-3021	Bus Drivers, Transit and Intercity	2	2,470	2,699	9.3%	916
53-3022	Bus Drivers, School or Special Client	2	8,539	9,542	11.7%	3,161
53-3031	Driver/Sales Workers	2	4,150	4,371	5.3%	1,015
53-3032	Heavy and Tractor-Trailer Truck Drivers	2	16,122	19,163	18.9%	6,435
53-3033	Light Truck or Delivery Services Drivers	2	8,278	8,055	-2.7%	1,348
53-3041	Taxi Drivers and Chauffeurs	1	1,841	1,995	8.4%	525
53-3099	Motor Vehicle Operators, All Other	2	212	256	20.8%	99
53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	2	123	105	-14.6%	21
53-5011	Sailors and Marine Oilers	2	274	259	-5.5%	160
53-5021	Captains, Mates, and Pilots of Water Vessels	3	82	71	-13.4%	40
53-6011	Bridge and Lock Tenders	1	24	20	-16.7%	7
53-6021	Parking Lot Attendants	2	1,318	1,672	26.9%	1,122
53-6031	Automotive and Watercraft Service Attendants	1	608	673	10.7%	259
53-6041	Traffic Technicians	3	12	13	8.3%	6
53-6051	Transportation Inspectors	3	90	82	-8.9%	25
53-6061	Transportation Attendants, Except Flight Attendants	2	244	224	-8.2%	43
53-6099	Transportation Workers, All Other	2	53	59	11.3%	29
53-7011	Conveyor Operators and Tenders	2	366	307	-16.1%	77
53-7021	Crane and Tower Operators	3	553	614	11.0%	279

<b>SOC Code</b>	<b>Occupation Title</b>	<b>Job Zone</b>	<b>2014</b>	<b>2024</b>	<b>% Change 2014-2024</b>	<b>New and Replacement Jobs</b>
53-7032	Excavating and Loading Machine and Dragline Operators	2	842	792	-5.9%	94
53-7033	Loading Machine Operators, Underground Mining	2	143	116	-18.9%	7
53-7051	Industrial Truck and Tractor Operators	2	4,347	4,927	13.3%	2,006
53-7061	Cleaners of Vehicles and Equipment	2	2,786	3,038	9.0%	1,157
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	2	22,181	25,996	17.2%	11,808
53-7063	Machine Feeders and Offbearers	2	809	728	-10.0%	126
53-7064	Packers and Packagers, Hand	2	5,385	5,763	7.0%	2,075
53-7071	Gas Compressor and Gas Pumping Station Operators	2	402	467	16.2%	305
53-7072	Pump Operators, Except Wellhead Pumps	2	585	627	7.2%	378
53-7073	Wellhead Pumpers	2	536	612	14.2%	476
53-7081	Refuse and Recyclable Material Collectors	2	1,199	1,437	19.8%	624
53-7111	Mine Shuttle Car Operators	2	239	232	-2.9%	106
53-7121	Tank Car, Truck, and Ship Loaders	2	154	144	-6.5%	50
53-7199	Material Moving Workers, All Other	2	40	50	25.0%	22

Source: Bureau of Labor Statistics, Occupational Employment Statistics (OES), O\*NET OnLine, Pennsylvania Department of Labor & Industry, Oxford Economics Projections

---

# ABOUT THE STATE SYSTEM'S GAP ANALYSIS PROJECT

The Workforce Characteristics Report was produced through a multi-organization collaboration that consisted of Pennsylvania's State System of Higher Education Office of the Chancellor, Oxford Economics USA Inc., and Georgetown University's Center on Education and the Workforce. Oxford Economics completed the analysis and research work for this report, under the guidance of The State System's Office of the Chancellor, the team sought feedback and insight from senior administration and representatives from each of the 14 State System Universities. The team also drew on insight and feedback from subject matter experts involved in labor market intelligence and education program alignment.

This report is confidential to clients of Pennsylvania's State System of Higher Education and may not be published or distributed without their prior written permission.

The modeling and results presented here are based on information provided by third parties, upon which Oxford Economics has relied in producing its report and forecasts in good faith. Any subsequent revision or update of those data will affect the assessments and projections shown.

Oxford Economics is a key adviser to corporate, financial, government and education decision-makers and thought leaders. Oxford Economics' worldwide client base now comprises over 1000 international organizations, including leading multinational companies and financial institutions; key government bodies and trade associations; and top universities, consultancies, and think tanks.

This report is confidential to clients of Pennsylvania's State System of Higher Education and may not be published or distributed without their prior written permission. Contact information for such request is provided below:

**Dr. Sue Mukherjee**

*Executive Director for Program Alignment and Policy Development*

Phone: (717) 720-4201

Email: SMukherjee@passhe.edu