



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

A report for Pennsylvania's
State System of Higher Education

2016



CONTENTS

5	1. Introduction
6	1.1 Goal of Report of the Workforce Characteristics Report
7	1.2 Pennsylvania's State System of Higher Education Gap Analysis Project
9	2. Pennsylvania's State System of Higher Education
10	2.1 Universe of Postsecondary Degree Granting Institutions in Pennsylvania
10	2.2 The State System's Bachelor's Degree Output
12	3. Identifying the State System's Sub-regions
13	3.1 Pennsylvania's Sub-regions and State System Learner Origin
16	4. Overview of the Labor Market of Southeast Pennsylvania
17	4.1 About Employment Projections
19	5. Industries in Southeast Pennsylvania
20	5.1 Top Employers in Southeast Pennsylvania
22	6. Occupations in Southeast Pennsylvania
22	6.1 Skilled Occupations
23	6.2 Top Skilled Occupations in Southeast 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 Southeast Pennsylvania
32	6.5 Key Skilled High Demand Occupational Profiles

39	7. Demographic and Socio-economic Indicators in Southeast Pennsylvania
39	7.1 Southeast Pennsylvania’s Demographics
41	7.2 Southeast Pennsylvania’s Socio-economic Indicators
45	8. Next Steps
46	Data Sources Key
47	Appendix A: State System Sub-regions with PREP Regions and WIA Regions
48	Appendix B: Pennsylvania State and County Enrollment and Employment
50	Appendix C: Industry Projections 2014-2024 for Southeast Pennsylvania
60	Appendix D: Occupation Projections 2014-2024 for Southeast Pennsylvania
87	About The State System’s Gap Analysis Project

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.¹ 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.”² 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 effort 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 the characteristics of the economy and workforce it supports. This study and

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 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”.³ 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, Integrated Postsecondary Education Data System), IMPLAN (Input/Output

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

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 content of the supply/demand gap analysis reports.

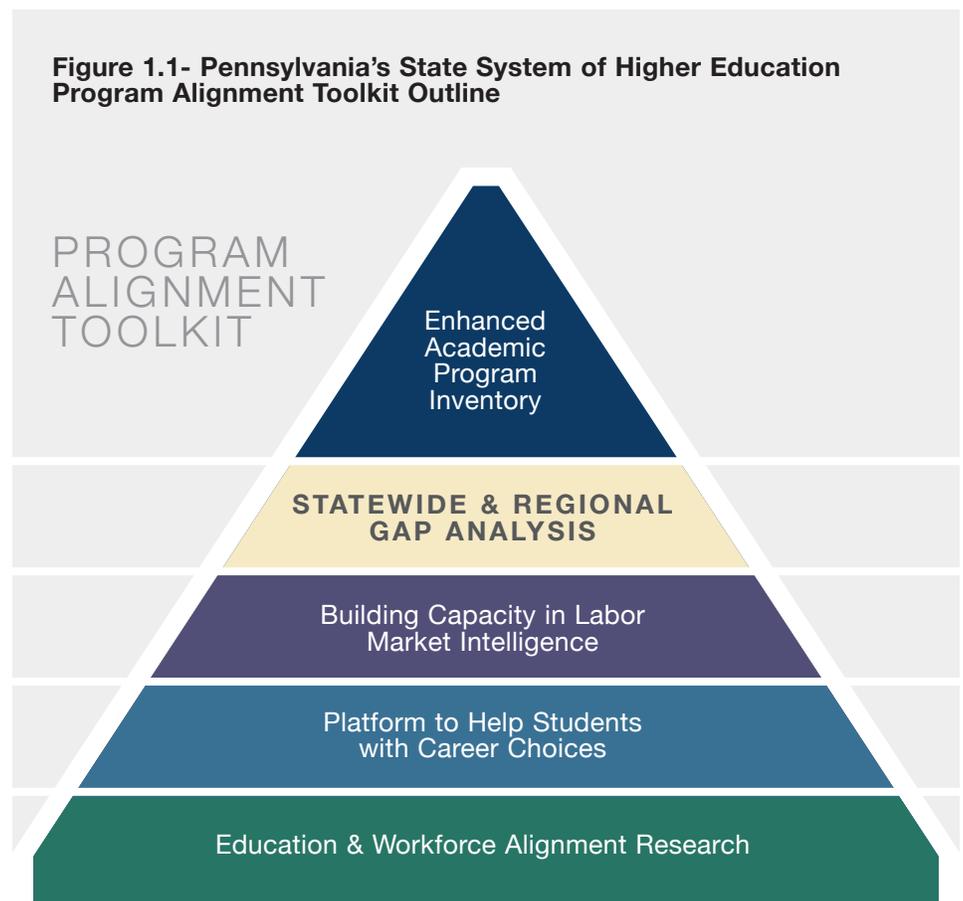
While the main body of this report provides a high-level summary, the Appendices provide an abundance of information for those seeking additional detail. Appendix A provides a map of the state sub-region boundaries along with PREP and WIA boundaries. Appendix B provides detail on the employment and enrollment 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.

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.

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 2.1 – 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

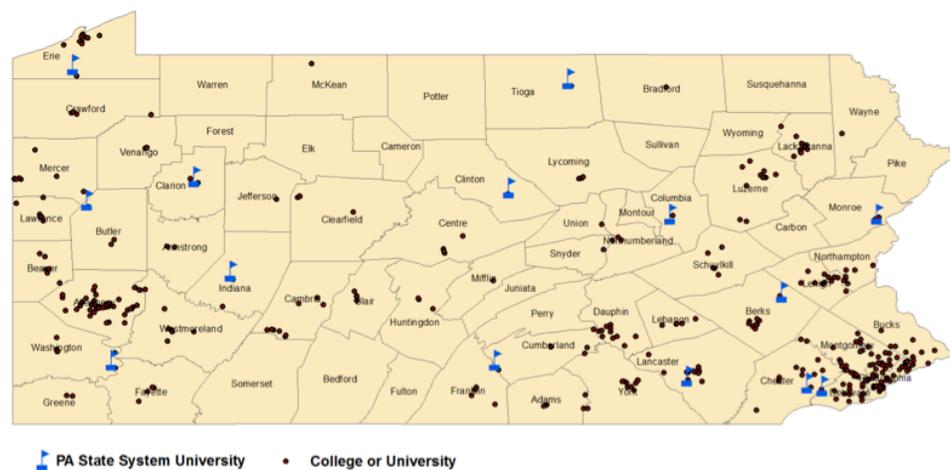
University	Fall 2013 Enrollment
Bloomsburg University of Pennsylvania	10,127
California University of Pennsylvania	8,243
Cheyney University of Pennsylvania	1,212
Clarion University of Pennsylvania	6,080
East Stroudsburg University of Pennsylvania	6,778
Edinboro University of Pennsylvania	7,098
Indiana 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)

2.1 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.⁴ 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.

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)

2.2 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

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

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:⁵

- 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.

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.

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

3. IDENTIFYING THE STATE SYSTEM'S SUB-REGIONS

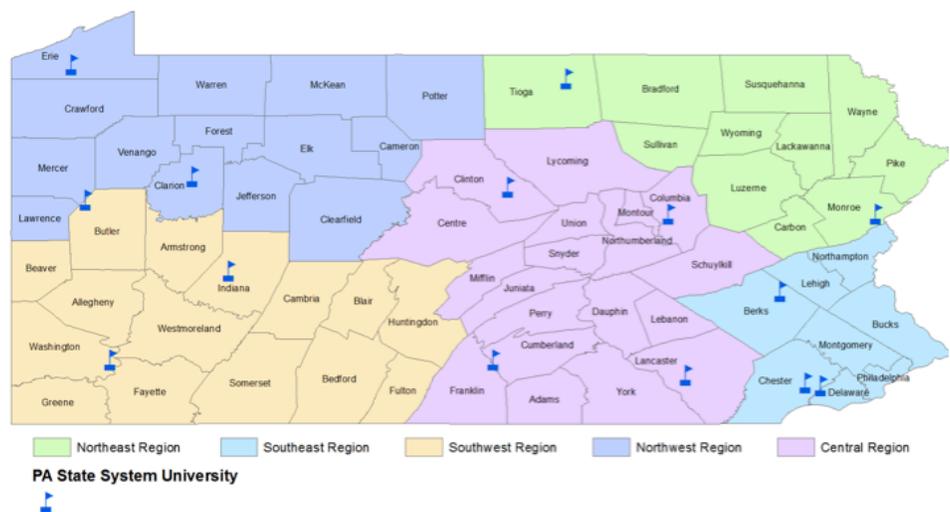
Pennsylvania's economically diverse geography supports the need for a more regionalized perspective of economic and workforce characteristics. The State System conducted original research to identify five broad sub-regions as well as fourteen university-specific workforce regions. It is important to 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 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 3.1 – Pennsylvania State System Sub-regions



Source: Oxford Economics mapping

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

Berks	Lehigh
Bucks	Montgomery
Chester	Northampton
Delaware	Philadelphia

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

Pennsylvania Region	Number of Counties	Regional Population	Regional Population Share	PA Resident State System Learners*	Regional State System Learner Share
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%
Pennsylvania Total	67	12,731,381	100.0%	98,200	100.0%

* Enrollment represents a three-year average from 2012-2014.

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

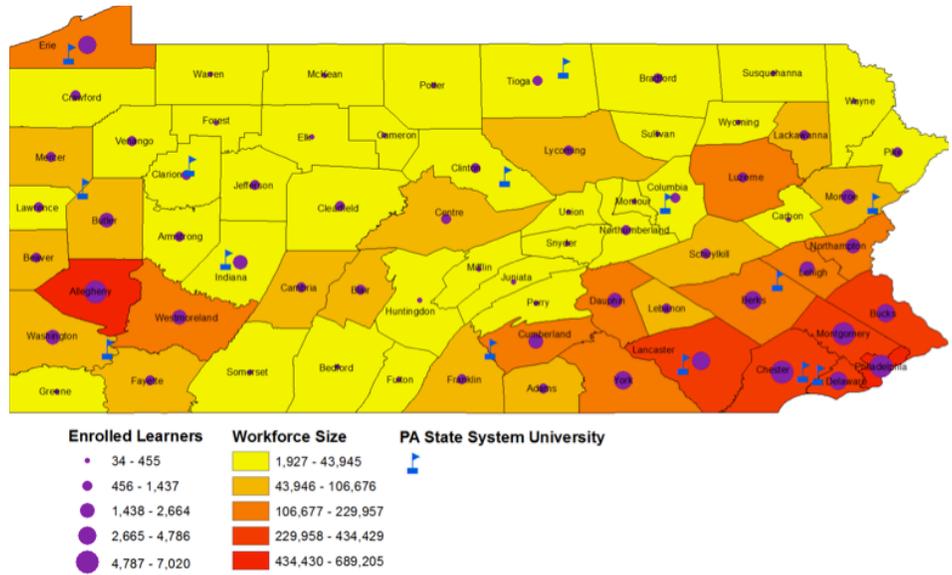
3.1 Pennsylvania's Sub-regions and State System Learner Origin

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.⁶ 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 below (Figure 3.2) illustrates workforce size and the origin of Pennsylvania resident learners enrolled in Pennsylvania's State System of Higher Education.

⁶ Based on Fall 2013 enrollment.

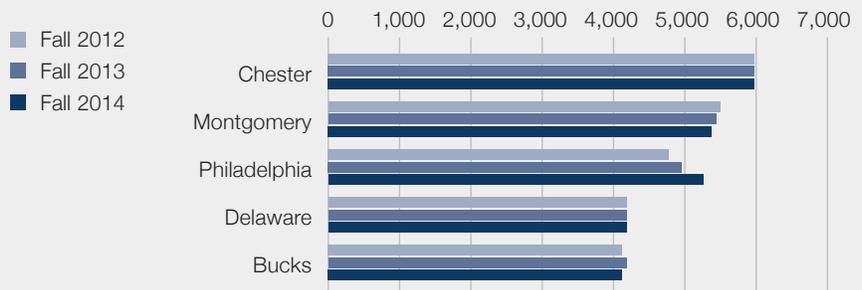
Figure 3.2 – State System Learner Origin and Workforce Size by County



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

State System learners, originally from Southeast Pennsylvania, come from every county in the region. State system learner enrollment from the region accounts for about 35% of total resident enrollment in the State System. The top counties in the region include Chester, Montgomery, Philadelphia, Delaware, and Bucks. Figure 3.3 highlights the Southeast Pennsylvania resident fall enrollment numbers between 2012 and 2014 for the top 5 counties. Table 3.2 provides enrollment detail for all counties in Southeast Pennsylvania.

Figure 3.3 – Southeast Pennsylvania State System Learner Enrollment by County



Source: Pennsylvania's State System of Higher Education

Table 3.2 – Southeast Pennsylvania State System Learner Enrollment by County

County	Fall 2012	Fall 2013	Fall 2014
Berks	3,950	3,872	3,759
Bucks	4,150	4,178	4,145
Chester	5,976	5,991	5,996
Delaware	4,204	4,220	4,206
Lehigh	2,688	2,685	2,664
Montgomery	5,536	5,440	5,401
Northampton	2,609	2,575	2,514
Philadelphia	4,799	4,998	5,263
Total	33,912	33,959	33,948

Source: Pennsylvania's State System of Higher Education

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

4. OVERVIEW OF THE LABOR MARKET OF SOUTHEAST 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 Southeast 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 Southeast Pennsylvania and the state.

Table 4.1 – Southeast Pennsylvania and Pennsylvania Workforce Characteristics and Source Data

Workforce Characteristic	Southeast Pennsylvania	Pennsylvania	Source
Population	5.1 million	12.7 million	2009-2013 American Community Survey 5-Year Estimates
Employed	2.3 million	5.6 million	2014 BLS Quarterly Census of Employment and Wages
Unemployed	152,000	370,000	2014 BLS Local Area Unemployment Statistics
Unemployment Rate	5.90%	5.80%	2014 BLS Local Area Unemployment Statistics
Poverty Rate	14.30%	13.70%	2013 Census Small Area Income and Poverty Estimates
Business Establishments	134,000	347,000	2014 BLS Quarterly Census of Employment and Wages
Educational Attainment (% of 25+ Population with Bachelor's or Higher)	32.70%	27.40%	2009-2013 American Community Survey 5-Year Estimates
Bachelor's or Higher Completions	31,500	137,000	Integrated Postsecondary Education Data System 3-Year Average AY2010-11 to AY2012-13
Projected Employment in 2024	2.6 million	6.2 million	Oxford Economics Projections 2014-2024

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 Southeast 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 Southeast Pennsylvania with a focus on the post-recession recovery period 2009 to 2014, as well as top employers in the region.

5. INDUSTRIES IN SOUTHEAST PENNSYLVANIA

Over the five years of 2009 to 2014, the Southeast Pennsylvania economy experienced significant growth in 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 81,100 new jobs between 2009 and 2014. Manufacturing declined modestly, while the largest job losses occurred within financial activities and government. Overall, the economy added about 67,200 jobs during the recovery 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.

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

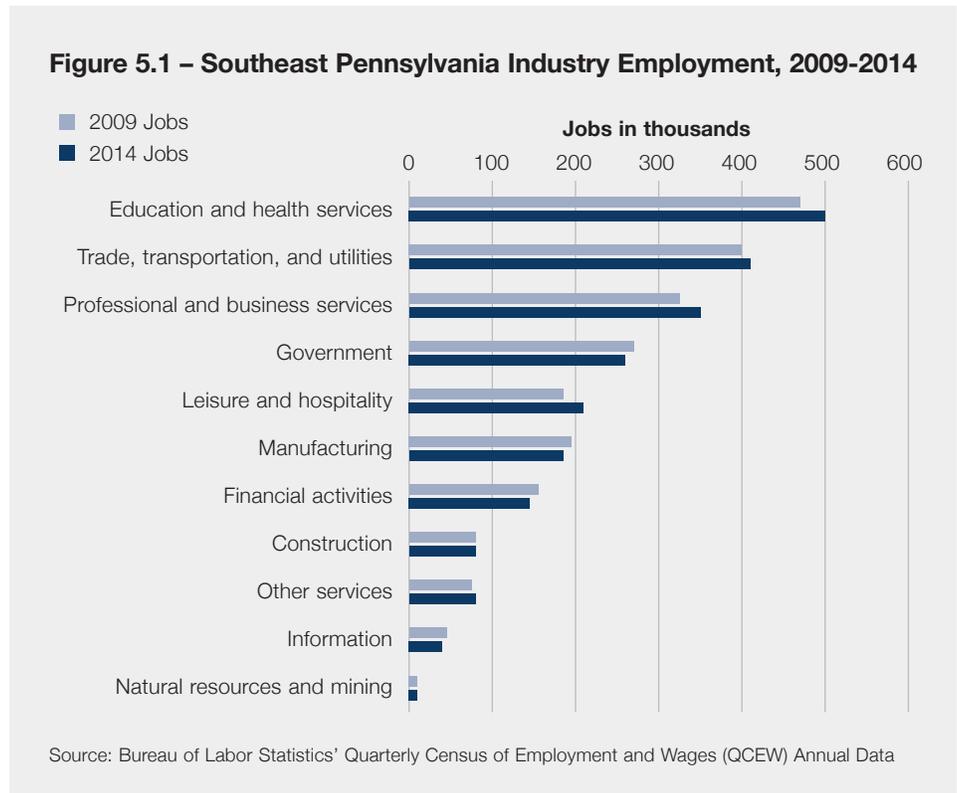


Table 5.1 – Southeast Pennsylvania Industry Employment, 2009-2014

Industry Employment	2009 Jobs	2014 Jobs	Absolute Change 09-14	% Change 09-14
Total, all industries	2,207,415	2,274,635	67,220	3.0%
Education and health services	469,701	499,359	29,658	6.3%
Trade, transportation, and utilities	397,520	411,748	14,228	3.6%
Professional and business services	323,523	350,410	26,887	8.3%
Government	269,021	257,782	-11,239	-4.2%
Leisure and hospitality	187,487	212,090	24,603	13.1%
Manufacturing	192,617	187,227	-5,390	-2.8%
Financial activities	154,880	146,054	-8,826	-5.7%
Construction	80,640	81,728	1,088	1.3%
Other services	75,036	78,771	3,735	5.0%
Information	45,836	38,365	-7,471	-16.3%
Natural resources and mining	11,146	11,103	-43	-0.4%

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

5.1 Top Employers in Southeast Pennsylvania

Amongst the top employers within Southeast 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 three manufacturing 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 Southeast Pennsylvania work, the next section builds a perspective of occupational employment. This perspective describes the types of jobs people have in Southeast Pennsylvania and identifies the skills and characteristics of those people.

Table 5.2 – Top Employers in Southeast Pennsylvania

Firm Name
Abington Memorial Hospital
Air Products and Chemicals
Carpenter Technology Corporation
Central Bucks School District
City of Philadelphia
Crozer-Chester Medical Center
Delaware County
East Penn Manufacturing
Federal Government
Giant Food Stores
Lehigh University
Lehigh Valley Hospital Center
Main Line Hospitals
Merck Sharp & Dohme Corporation
Northampton County
QVC Network
Saint Luke's Hospital
Sands Beth Works Gaming
School District of Philadelphia
Siemens Medical Solutions
St Mary Medical Center
The Boeing Company
The Reading Hospital & Medical Center
Trustees of the University of Pennsylvania
Vanguard Group

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

6. OCCUPATIONS IN SOUTHEAST 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 Southeast 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.⁷

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.⁸

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

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

⁸ <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 Southeast Pennsylvania

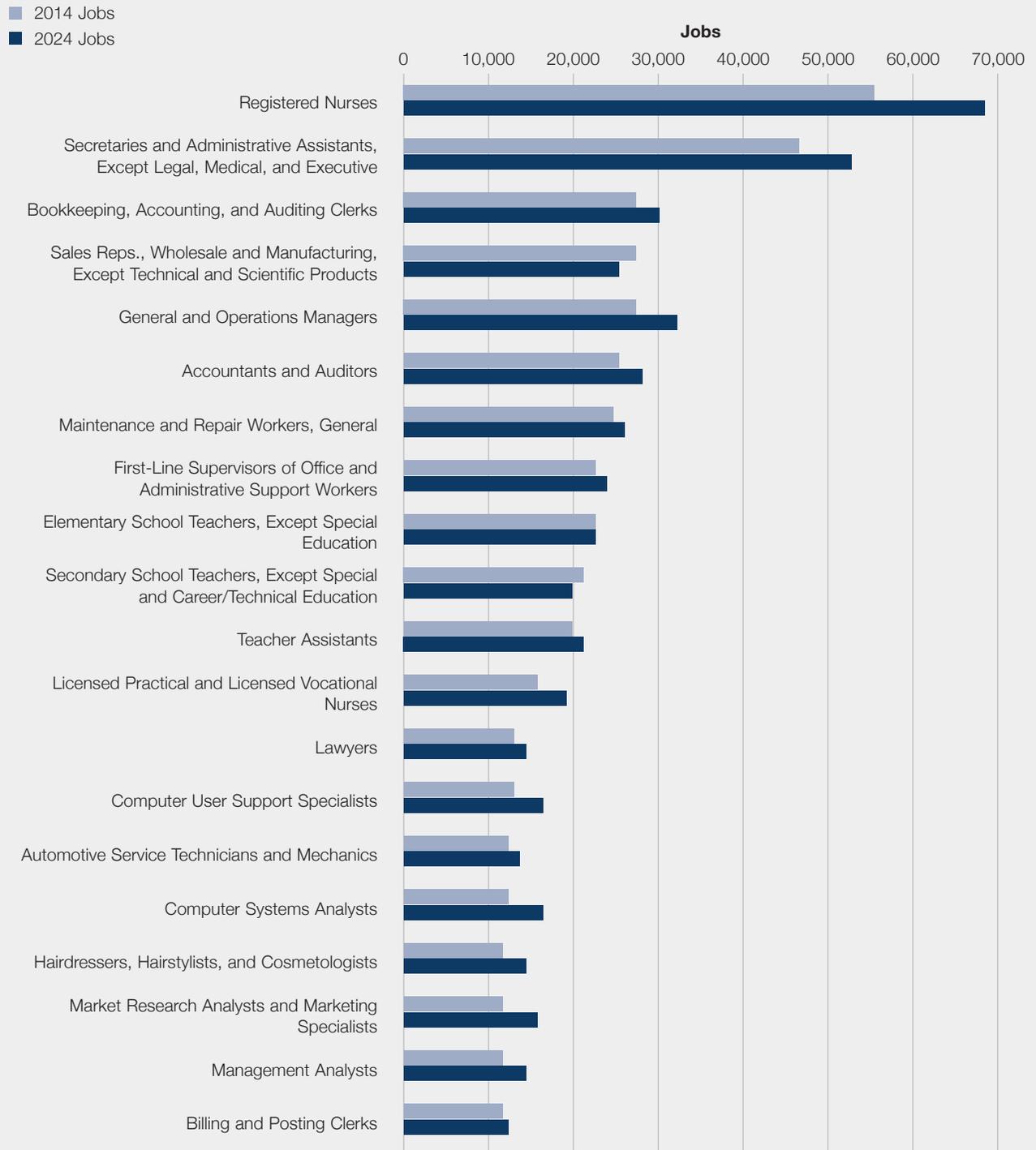
Top skilled occupations in the state are driven by industry composition. Medical centers employ a cadre of health professionals, while enterprise management companies employ a range of business professionals. Given the dominating presence of trade, transportation and utilities; healthcare and education services; and professional and business services establishments in Southeast Pennsylvania, top skilled occupations include: lawyers, market research analysts, secretaries and administrative assistants, registered nurses, and elementary school 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.⁹

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.

⁹ 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 Southeast 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 Southeast Pennsylvania and Projections, 2014-2024

SOC Code	Occupation Title	2014 Jobs	2024 Jobs	10-year New and Replacement Demand
29-1141	Registered Nurses	56,147	68,896	24,118
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	46,933	53,444	12,609
43-3031	Bookkeeping, Accounting, and Auditing Clerks	27,671	30,289	5,354
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	27,548	25,592	4,443
11-1021	General and Operations Managers	27,499	32,312	9,708
13-2011	Accountants and Auditors	25,453	28,254	11,274
49-9071	Maintenance and Repair Workers, General	24,686	26,246	6,999
43-1011	First-Line Supervisors of Office and Administrative Support Workers	23,033	24,345	6,828
25-2021	Elementary School Teachers, Except Special Education	23,000	22,617	5,403
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	21,186	20,074	6,104
25-9041	Teacher Assistants	19,824	21,223	6,326
29-2061	Licensed Practical and Licensed Vocational Nurses	15,526	19,662	8,236
23-1011	Lawyers	13,223	14,413	3,447
15-1151	Computer User Support Specialists	12,766	16,879	6,398
49-3023	Automotive Service Technicians and Mechanics	12,441	13,907	5,083
15-1121	Computer Systems Analysts	12,413	16,782	6,564
39-5012	Hairdressers, Hairstylists, and Cosmetologists	11,916	14,464	5,919
13-1161	Market Research Analysts and Marketing Specialists	11,847	15,780	5,829
13-1111	Management Analysts	11,634	14,427	4,728
43-3021	Billing and Posting Clerks	11,427	12,379	3,262

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.¹⁰

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 Southeast 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

¹⁰ 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.¹¹

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, general and operations managers, computer system analysts, and market research analysts and marketing specialists.¹²

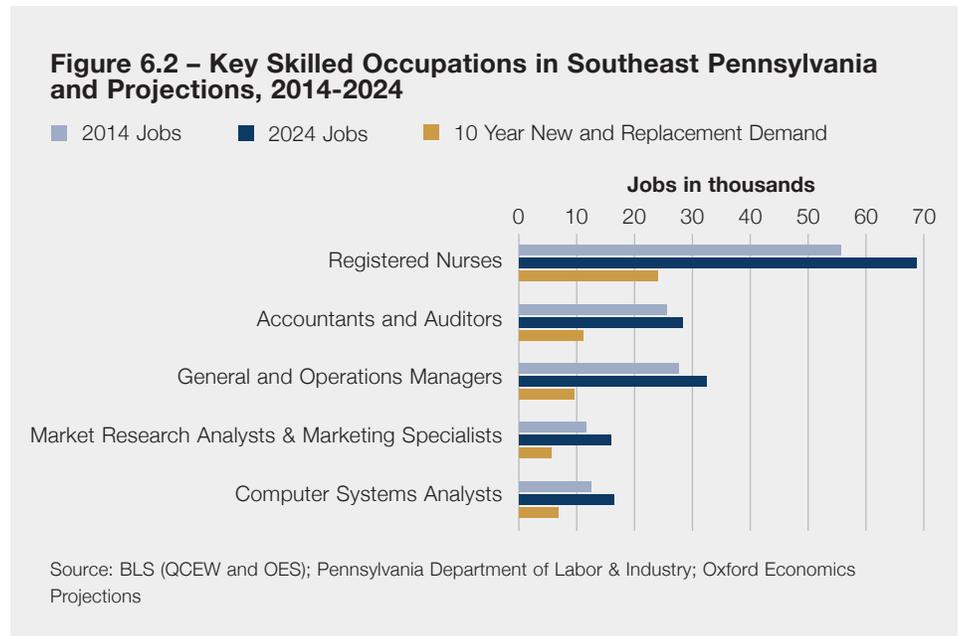


Table 6.2 – Key Skilled Occupations in Southeast Pennsylvania and Projections, 2014-2024

Code	Occupation Title	2014 Jobs	2024 Jobs	10 Year New and Replacement Demand
29-1141	Registered Nurses	56,147	68,896	24,118
13-2011	Accountants and Auditors	25,453	28,254	11,274
11-1021	General and Operations Managers	27,499	32,312	9,708
13-1161	Market Research Analysts and Marketing Specialists	11,847	15,780	5,829
15-1121	Computer Systems Analysts	12,413	16,782	6,564

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 9,000 unique (de-duplicated) job postings appeared in Southeast Pennsylvania for the top five key skilled high demand occupations (registered nurses, accountants and auditors, general and operations managers, computer system analysts, and market research analysts and marketing specialists). Sizable job postings include: registered nurses (4,005 unique postings per month) and accountants and auditors (1,830 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 Southeast Pennsylvania

Occupation	Average Monthly Postings (Jul 2014 - Jul 2015)	Average Monthly Hires (Jul 2014 - Jul 2015)	Ratio of Postings to Hires
Registered Nurses	4,005	2,115	1.9
Accountants and Auditors	1,830	1,136	1.6
Computer Systems Analysts	1,324	474	2.8
General and Operations Managers	1,207	1,491	0.8
Market Research Analysts and Marketing Specialists	657	557	1.2

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)

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)

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)

General and Operations Managers

Unique skills: inventory management, payroll, recruiting/staffing, budgeting, meetings/presentations

Certifications: Six Sigma, Project Management Professional (PMP)

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 Southeast 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 28,100 registered nurses);
- The percentage of the occupation's employment in the region that is employed in the industry (e.g. the 28,100 registered nurses employed in general medical and surgical hospitals represent 50% of the total registered nurse workforce in the region);
- The share of the industry sector's employment that is made up of the occupation (e.g. the 28,100 registered nurses make up about 27% of employment within general medical and surgical hospitals).

Staffing Patterns for Registered Nurses Employed in Southeast Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
General Medical and Surgical Hospitals	28,101	27.2%	50.0%
Specialty (except Psychiatric and Substance Abuse) Hospitals	4,902	27.6%	8.7%
Home Health Care Services	4,425	21.0%	7.9%
Offices of Physicians	4,366	9.4%	7.8%
Nursing Care Facilities (Skilled Nursing Facilities)	3,354	9.9%	6.0%

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

Staffing Patterns for Accountants and Auditors Employed in Southeast 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	6,624	38.6%	26.0%
Management of Companies and Enterprises	3,088	5.0%	12.1%
Other Financial Investment Activities	2,023	8.9%	7.9%
Insurance Carriers	890	2.4%	3.5%
Management, Scientific, and Technical Consulting Services	843	3.0%	3.3%

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

Staffing Patterns for Computer Systems Analysts Employed in Southeast Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Computer Systems Design and Related Services	5,090	12.8%	41.0%
Management of Companies and Enterprises	1,463	2.4%	11.8%
Insurance Carriers	1,047	2.8%	8.4%
Wholesale Electronic Markets and Agents and Brokers	704	2.7%	5.7%
Management, Scientific, and Technical Consulting Services	482	1.7%	3.9%

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

Staffing Patterns for General and Operations Managers Employed in Southeast Pennsylvania

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Management of Companies and Enterprises	1,642	2.7%	6.0%
Wholesale Electronic Markets and Agents and Brokers	898	3.5%	3.3%
Computer Systems Design and Related Services	667	1.7%	2.4%
Individual and Family Services	626	1.2%	2.3%
Other Financial Investment Activities	623	2.7%	2.3%

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

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

Industry	Occupation Jobs in Industry (2014)	% of Occupation in Industry (2014)	% of Total Jobs in Industry (2014)
Management, Scientific, and Technical Consulting Services	1,701	6.0%	14.4%
Management of Companies and Enterprises	1,234	2.0%	10.4%
Computer Systems Design and Related Services	778	2.0%	6.6%
Other Professional, Scientific, and Technical Services	649	4.8%	5.5%
Insurance Carriers	564	1.5%	4.8%

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

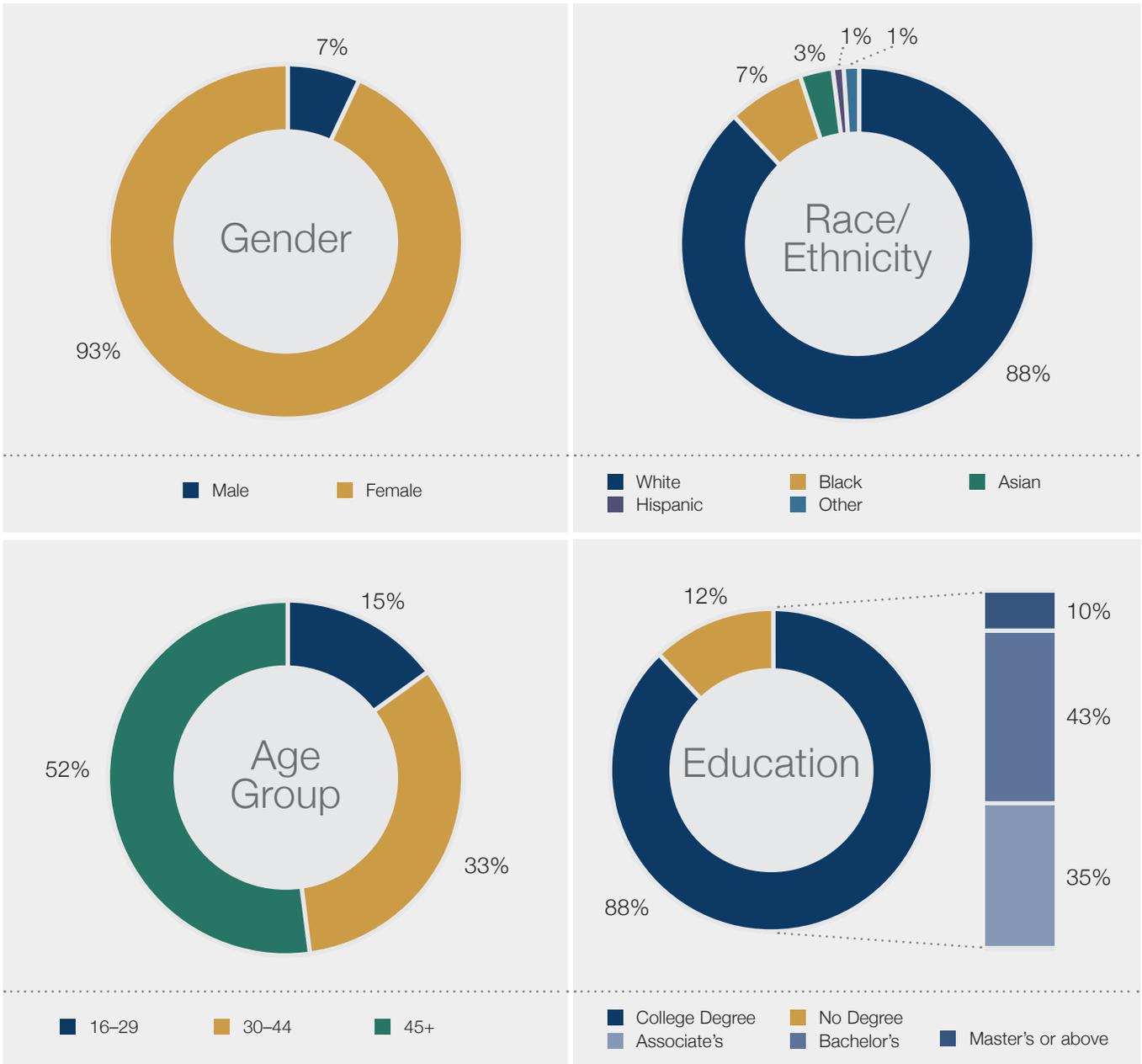
In addition to understanding the industries that employ key skilled high demand occupations, another lens focuses on the characteristics of those employed. The following section outlines the demographics for people from Pennsylvania who work in these key skilled occupations by showing each occupation's 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 Southeast Pennsylvania's entire population is further described in Section 7 of the report.

REGISTERED NURSES IN PENNSYLVANIA

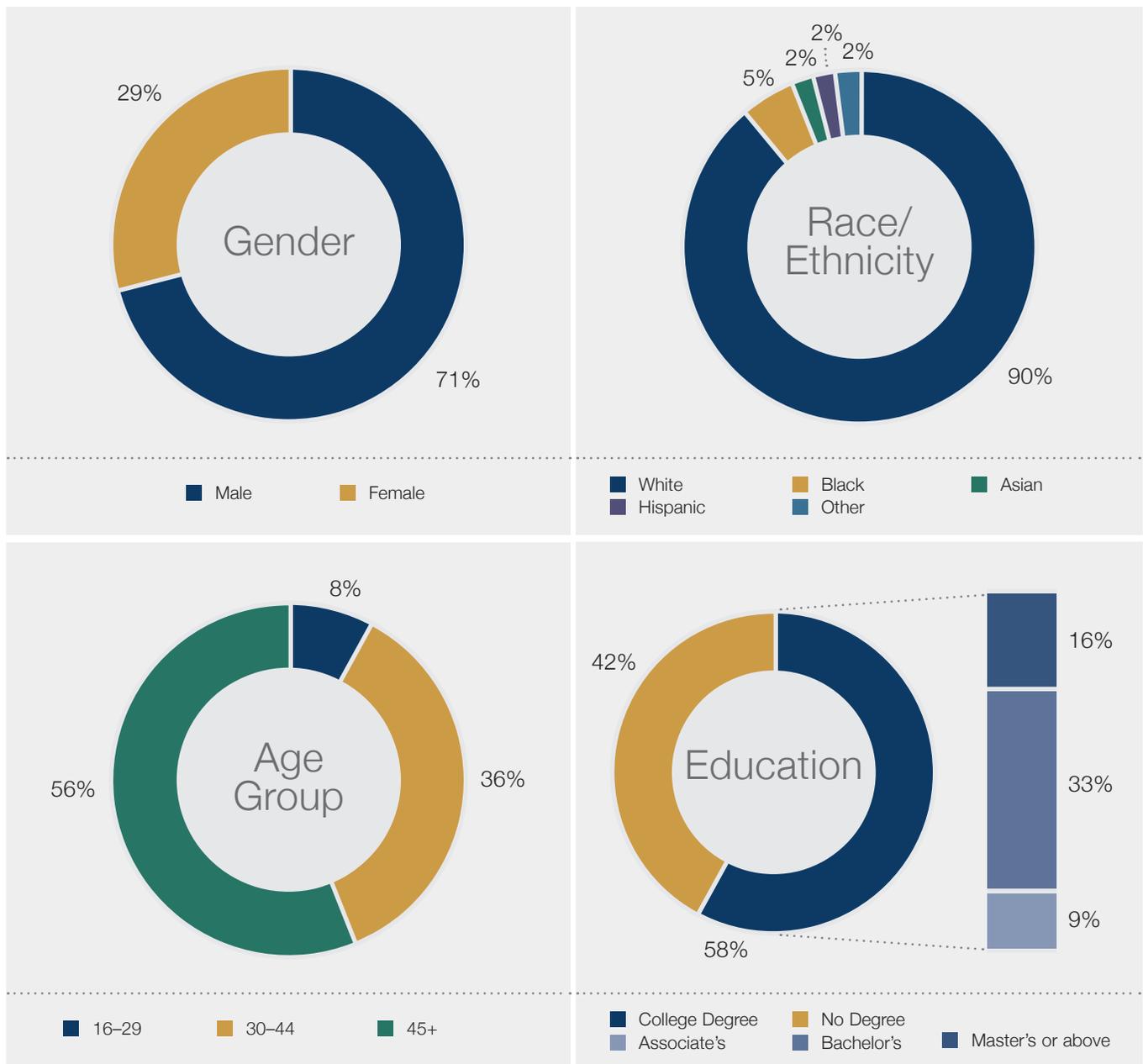
The demographic profile of registered nurses is dominated by white females. Age distribution indicates that registered nurses are a more mature cohort of workers (45 years and older), which can put increasing pressure on replacement jobs due to retirements over the next 10 years. Nearly 90% of registered 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

GENERAL AND OPERATIONS MANAGERS IN PENNSYLVANIA

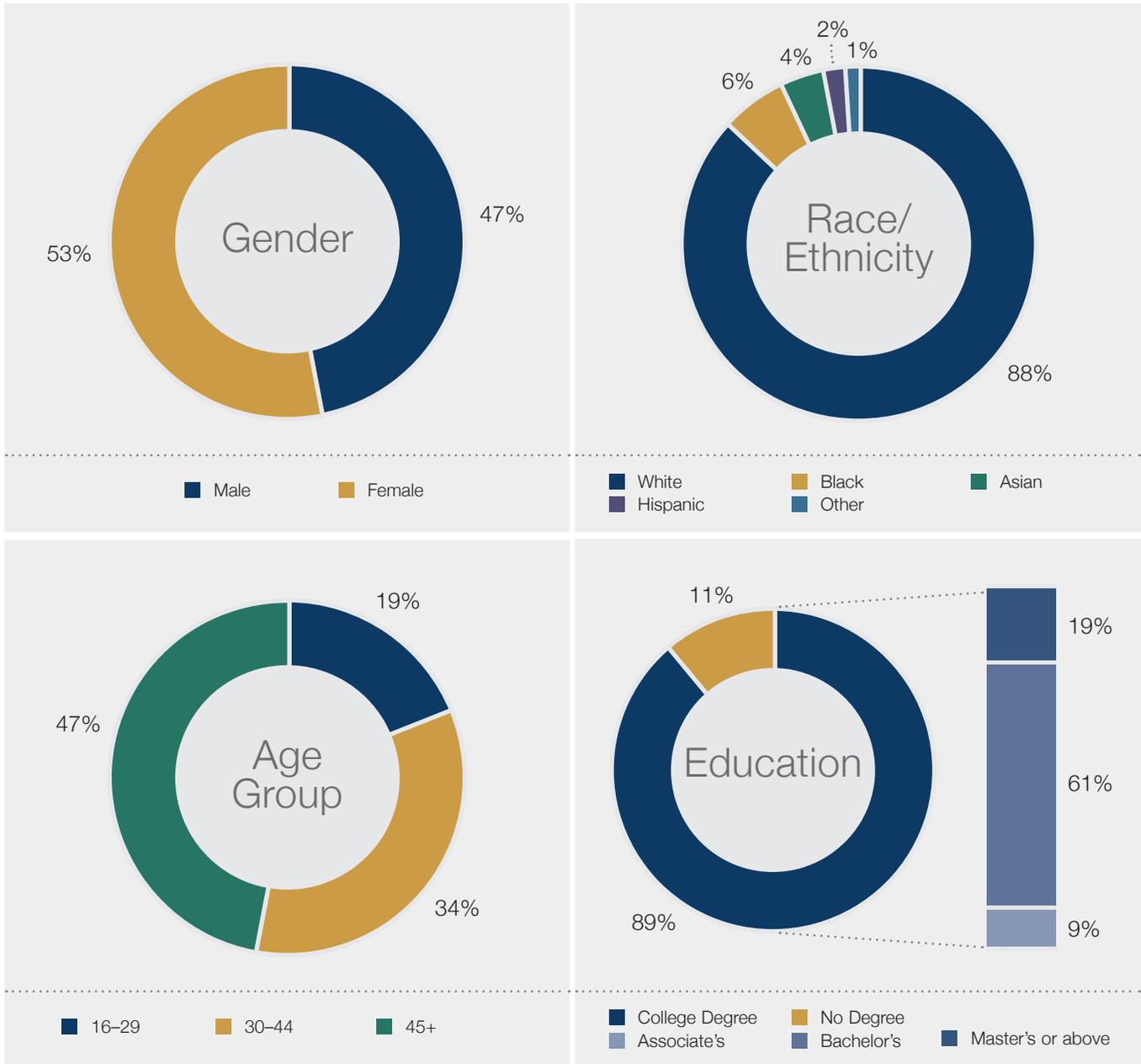
General and operations managers are typically male, though females occupy almost 30% of the employed population. The majority of those in this occupation are white. This occupation is represented by a more mature cohort of workers (45 years and older), though mid-career workers also occupy a significant proportion of the employment. Nearly 60% of general and operations managers have an associate's degree or higher.



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

ACCOUNTANTS AND AUDITORS IN PENNSYLVANIA

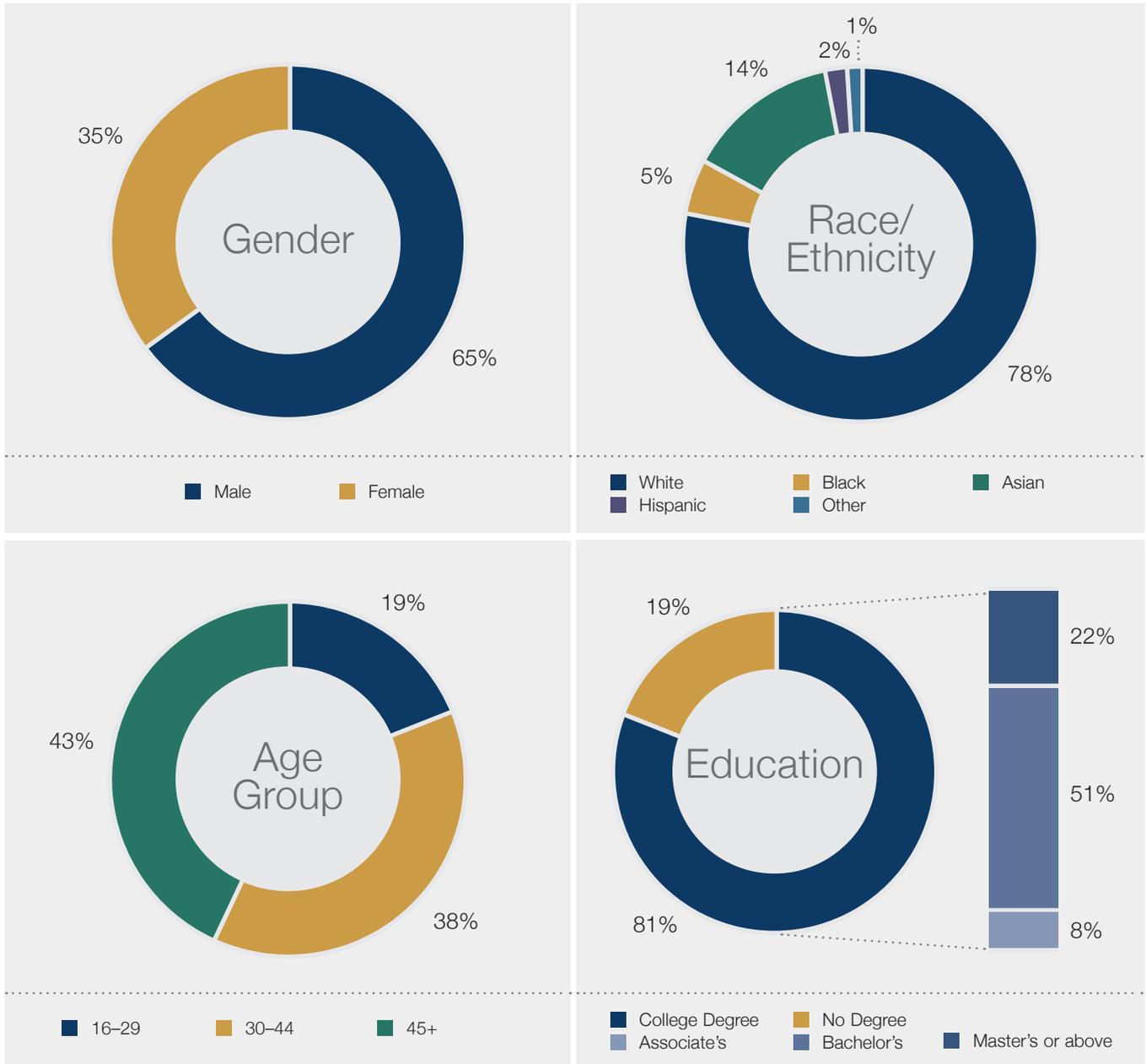
Accountants and auditors are fairly evenly split between male and female, though a slightly higher percent of employed accountants and auditors are female. A high proportion of white individuals are found in the occupation. Additionally, the age distribution is fairly even between entry-level and mature 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

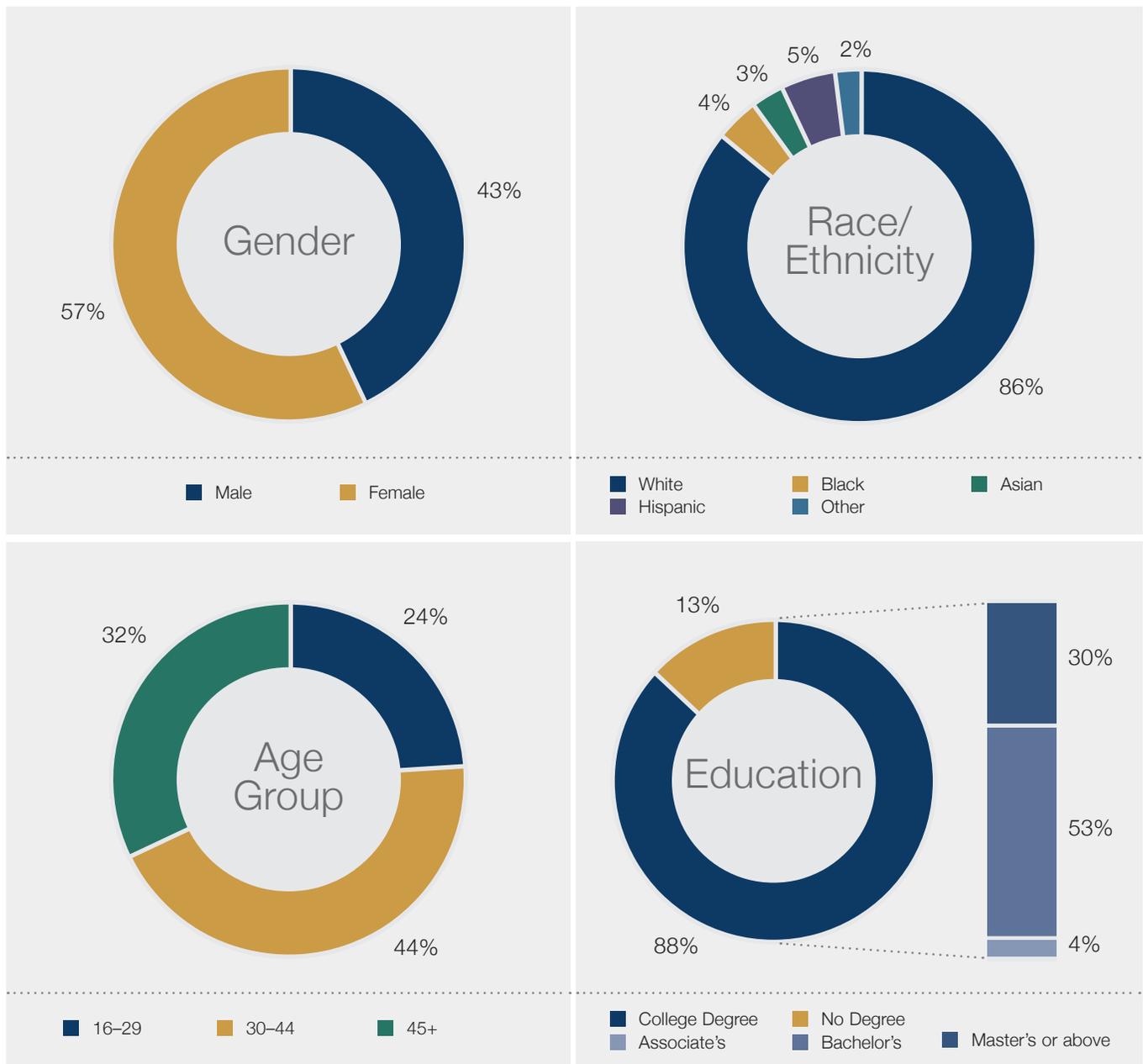
Computer systems analysts show a larger proportion of males in the occupation compared to females. While still represented by a larger share of white workers, a significant number of Asian workers are found in the occupation, making this occupation more diverse than the average Pennsylvania demographic 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

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

The final section of this report explores Southeast 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 SOUTHEAST PENNSYLVANIA

This section provides further information about the regional demographic and socio-economic composition of Southeast 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 Southeast Pennsylvania’s Demographics

The Southeast Pennsylvania region has a population of about 5.1 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 Hispanics.

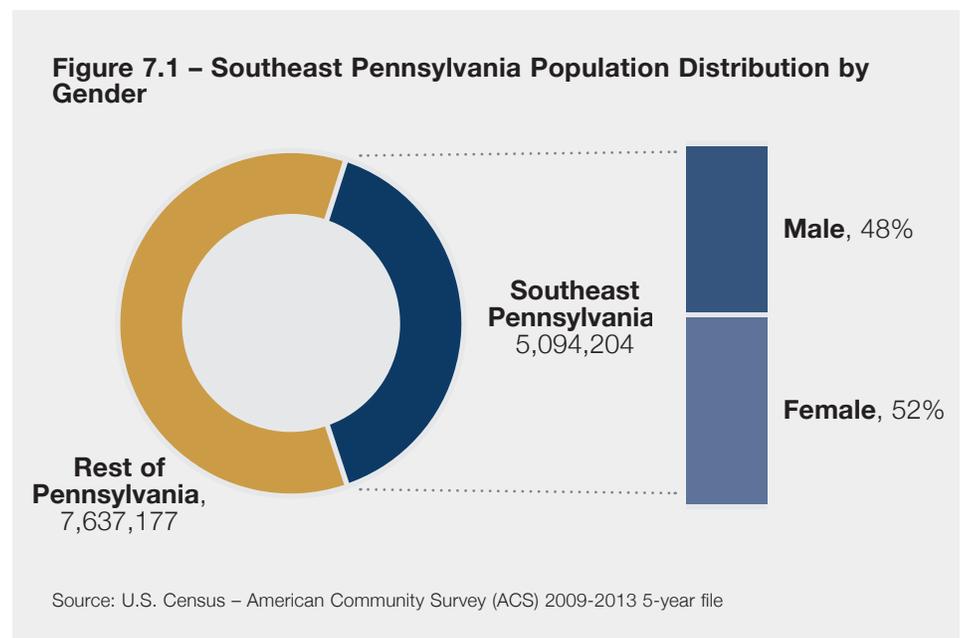
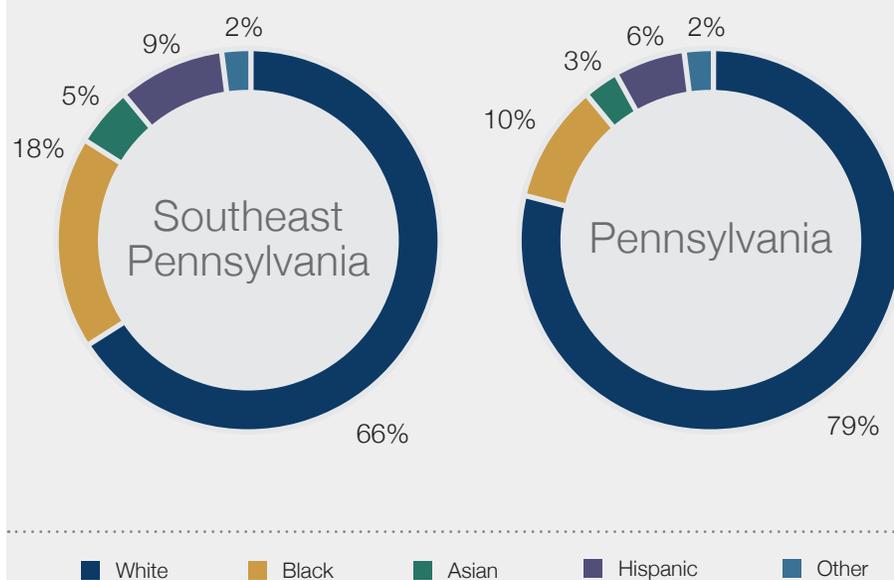


Figure 7.2 – Southeast Pennsylvania and Pennsylvania Race/Ethnicity Composition

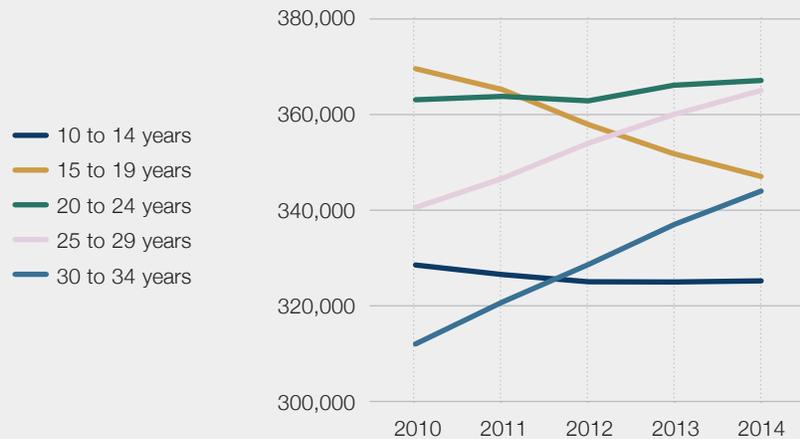


Source: U.S. Census - American Community Survey (ACS) 2009-2013 5-year file

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 demographic 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 26,000 people between 2010 and 2014—a 4% decline. Conversely, the 25-34 year old cohort increased over 8%, or 56,000 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 Southeast Pennsylvania by identifying three inter-related variables.

Figure 7.3 – Southeast Pennsylvania Changes in Age Cohorts



Source: U.S. Census

7.2 Southeast 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 Southeast Pennsylvania

The levels of educational attainment of 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.^{13, 14}

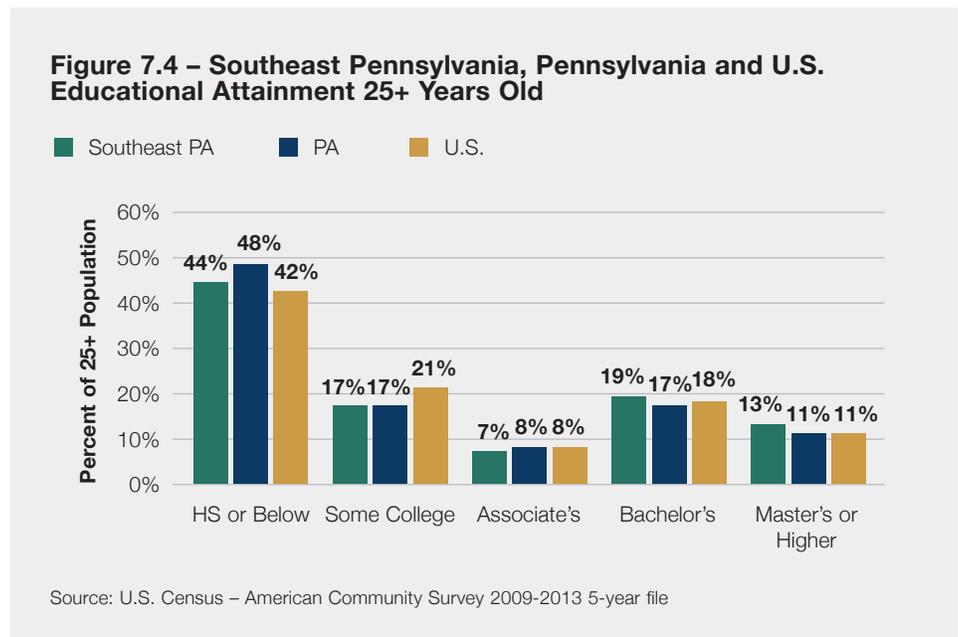
13 Feinstein et. al. (2006), “The effects of education on health: Concepts, evidence and policy implications: A review for the OECD Center for Educational Research and Innovation (CERI)”, unpublished manuscript, OECD, Paris.

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 Southeast Pennsylvania's educational attainment indicates that more than half (56%) 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, Southeast Pennsylvania is near the national average for the proportion of the population with an associate's degree and slightly above the national average for the proportion of the population with a 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 Southeast Pennsylvania.

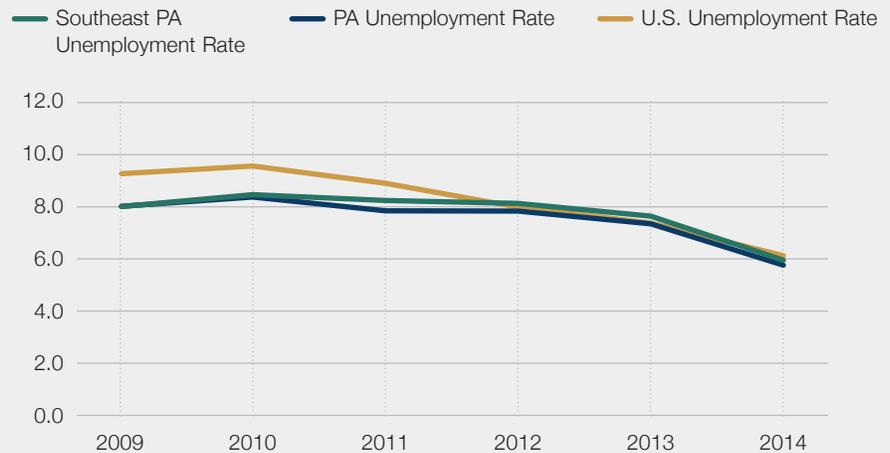


7.2.2 Unemployment and Poverty in Southeast Pennsylvania

Southeast Pennsylvania's unemployment rate—5.9% 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 Southeast Pennsylvania, Pennsylvania, and the U.S. from 2009 to 2014.

Figure 7.5 – Southeast Pennsylvania, Pennsylvania and U.S. Unemployment Rates



Source: Bureau of Labor Statistics – Local Area Unemployment Statistics

In Southeast Pennsylvania, the poverty rate has trended upward from 2009 to 2013. The region's poverty rate is above the state poverty rate; however, it has trended below the U.S. average.¹⁵ Given the lower poverty rate compared with the nation, there is an underlying assumption that the compensation associated with the jobs in Southeast Pennsylvania may be higher than the national average.

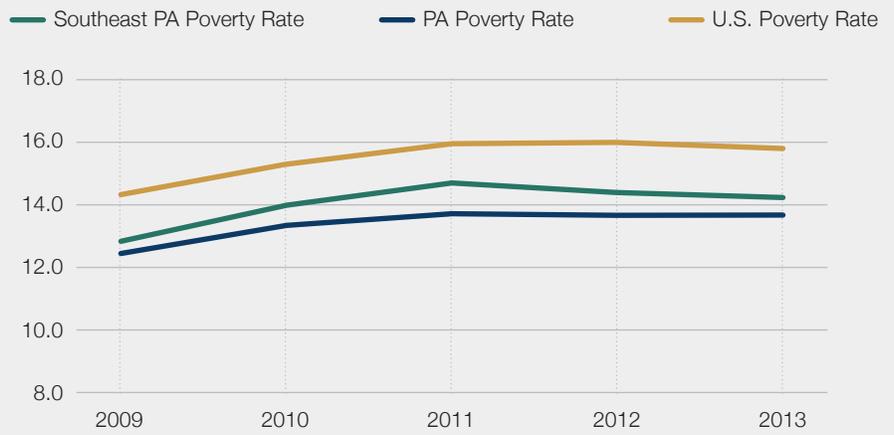
Figure 7.6 compares the poverty rates of Southeast Pennsylvania, Pennsylvania, and the U.S. from 2009 to 2013.

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.

¹⁵ 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 – Southeast 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

O*NET Resource Center (O*NET)

- Job Zones www.onetonline.org/help/online/zones

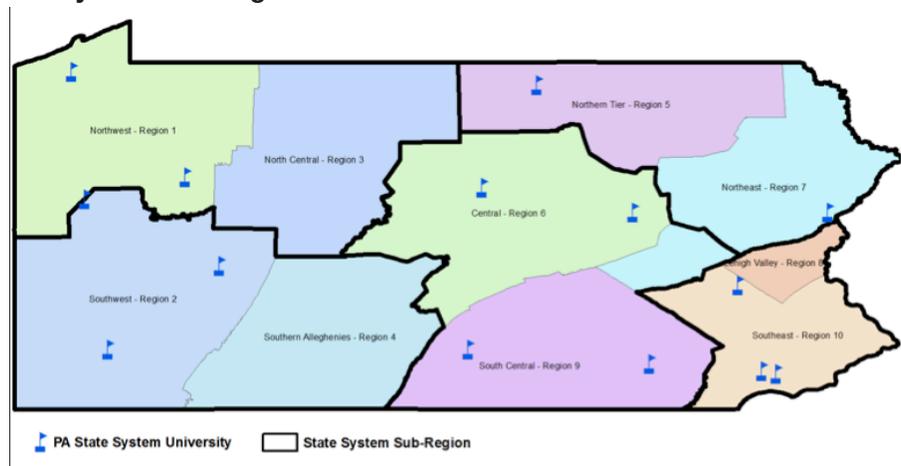
Economic Modeling Specialists International (EMSI)

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

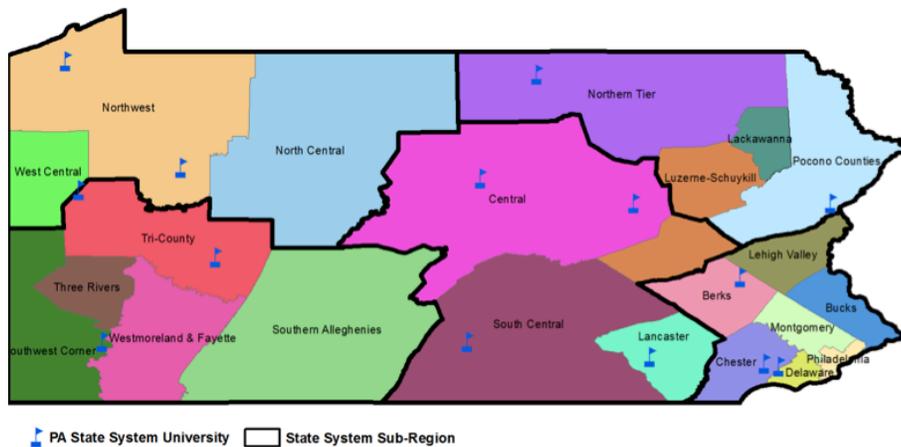
Partnerships for Regional Economic Performance (PREP) regions provide geographic context of how the Pennsylvania Department of Community & Economic Development divides resources and services to support business development, start-ups, investment and other economic development initiatives. To define sub-regions 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

County	Fall 2014 Enrollment in PA's State System	2014 QCEW Employment
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
Total Pennsylvania	96,074	5,643,676

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

APPENDIX C: INDUSTRY PROJECTIONS 2014-2024 FOR SOUTHEAST 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
Total	All Industries	2,344,298	2,590,963	10.5%	1.0
1111	Oilseed and Grain Farming	116	126	8.6%	0.1
1112	Vegetable and Melon Farming	171	173	1.2%	0.1
1113	Fruit and Tree Nut Farming	317	357	12.6%	0.1
1114	Greenhouse, Nursery, and Floriculture Production	6,913	7,022	1.6%	2.8
1119	Other Crop Farming	127	148	16.5%	0.1
1121	Cattle Ranching and Farming	434	476	9.7%	0.2
1122	Hog and Pig Farming	42	42	0.0%	0.1
1123	Poultry and Egg Production	318	328	3.1%	0.5
1124	Sheep and Goat Farming	9	10	11.1%	0.4
1125	Aquaculture	21	21	0.0%	0.2
1129	Other Animal Production	201	220	9.5%	0.6
1131	Timber Tract Operations	5	6	20.0%	0.0
1132	Forest Nurseries and Gathering of Forest Products	11	12	9.1%	0.3
1133	Logging	14	14	0.0%	0.0
1142	Hunting and Trapping	13	13	0.0%	0.4
1151	Support Activities for Crop Production	1,040	1,207	16.1%	0.2
1152	Support Activities for Animal Production	213	204	-4.2%	0.4
1153	Support Activities for Forestry	4	4	0.0%	0.0
2111	Oil and Gas Extraction	86	93	8.1%	0.0
2123	Nonmetallic Mineral Mining and Quarrying	977	952	-2.6%	0.6
2131	Support Activities for Mining	153	195	27.5%	0.0
2211	Electric Power Generation, Transmission and Distribution	4,980	4,817	-3.3%	0.6
2212	Natural Gas Distribution	1,785	1,839	3.0%	0.9
2213	Water, Sewage and Other Systems	3,253	3,330	2.4%	0.9
2361	Residential Building Construction	9,743	12,675	30.1%	0.9
2362	Nonresidential Building Construction	8,074	9,740	20.6%	0.7
2371	Utility System Construction	7,051	9,285	31.7%	0.9
2372	Land Subdivision	377	426	13.0%	0.5
2373	Highway, Street, and Bridge Construction	6,663	8,179	22.8%	1.0
2379	Other Heavy and Civil Engineering Construction	534	646	21.0%	0.3
2381	Foundation, Structure, and Building Exterior Contractors	9,548	11,470	20.1%	0.7
2382	Building Equipment Contractors	28,732	35,376	23.1%	0.9
2383	Building Finishing Contractors	9,760	11,139	14.1%	0.8
2389	Other Specialty Trade Contractors	9,262	11,772	27.1%	0.9
3111	Animal Food Manufacturing	591	600	1.5%	0.6
3112	Grain and Oilseed Milling	178	181	1.7%	0.2

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3113	Sugar and Confectionery Product Manufacturing	2,649	2,645	-0.2%	2.2
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	1,107	976	-11.8%	0.4
3115	Dairy Product Manufacturing	1,272	1,269	-0.2%	0.6
3116	Animal Slaughtering and Processing	5,876	6,580	12.0%	0.7
3117	Seafood Product Preparation and Packaging	86	98	14.0%	0.1
3118	Bakeries and Tortilla Manufacturing	5,714	5,462	-4.4%	1.1
3119	Other Food Manufacturing	2,616	2,876	9.9%	0.8
3121	Beverage Manufacturing	3,496	4,099	17.2%	1.0
3122	Tobacco Manufacturing	372	340	-8.6%	1.6
3131	Fiber, Yarn, and Thread Mills	145	111	-23.4%	0.3
3132	Fabric Mills	1,121	968	-13.6%	1.2
3133	Textile and Fabric Finishing and Fabric Coating Mills	444	301	-32.2%	0.8
3141	Textile Furnishings Mills	321	269	-16.2%	0.4
3149	Other Textile Product Mills	1,006	907	-9.8%	0.9
3151	Apparel Knitting Mills	112	95	-15.2%	0.5
3152	Cut and Sew Apparel Manufacturing	2,668	1,935	-27.5%	1.4
3159	Apparel Accessories and Other Apparel Manufacturing	86	86	0.0%	0.4
3161	Leather and Hide Tanning and Finishing	199	233	17.1%	2.6
3162	Footwear Manufacturing	15	18	20.0%	0.1
3169	Other Leather and Allied Product Manufacturing	28	32	14.3%	0.1
3211	Sawmills and Wood Preservation	93	117	25.8%	0.1
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	365	428	17.3%	0.3
3219	Other Wood Product Manufacturing	1,783	2,107	18.2%	0.5
3221	Pulp, Paper, and Paperboard Mills	1,176	1,222	3.9%	0.7
3222	Converted Paper Product Manufacturing	6,154	5,998	-2.5%	1.3
3231	Printing and Related Support Activities	8,579	7,849	-8.5%	1.1
3241	Petroleum and Coal Products Manufacturing	1,770	1,621	-8.4%	0.9
3251	Basic Chemical Manufacturing	2,882	2,827	-1.9%	1.2
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	1,440	1,487	3.3%	0.9
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing	293	295	0.7%	0.5
3254	Pharmaceutical and Medicine Manufacturing	13,702	12,474	-9.0%	2.9
3255	Paint, Coating, and Adhesive Manufacturing	960	981	2.2%	0.9
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	3,534	3,407	-3.6%	2.0
3259	Other Chemical Product and Preparation Manufacturing	1,868	1,953	4.6%	1.3
3261	Plastics Product Manufacturing	8,111	8,609	6.1%	0.9
3262	Rubber Product Manufacturing	710	775	9.2%	0.3

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3271	Clay Product and Refractory Manufacturing	126	130	3.2%	0.2
3272	Glass and Glass Product Manufacturing	763	842	10.4%	0.5
3273	Cement and Concrete Product Manufacturing	2,619	2,882	10.0%	0.9
3274	Lime and Gypsum Product Manufacturing	36	44	22.2%	0.1
3279	Other Nonmetallic Mineral Product Manufacturing	1,093	1,136	3.9%	0.9
3311	Iron and Steel Mills and Ferroalloy Manufacturing	3,219	3,364	4.5%	2.1
3312	Steel Product Manufacturing from Purchased Steel	2,426	2,604	7.3%	2.4
3313	Alumina and Aluminum Production and Processing	294	367	24.8%	0.3
3314	Nonferrous Metal (except Aluminum) Production and Processing	1,625	1,669	2.7%	1.5
3315	Foundries	1,482	1,497	1.0%	0.7
3321	Forging and Stamping	628	679	8.1%	0.4
3322	Cutlery and Handtool Manufacturing	500	545	9.0%	0.8
3323	Architectural and Structural Metals Manufacturing	5,034	5,938	18.0%	0.8
3324	Boiler, Tank, and Shipping Container Manufacturing	1,256	1,226	-2.4%	0.7
3325	Hardware Manufacturing	143	147	2.8%	0.4
3326	Spring and Wire Product Manufacturing	528	603	14.2%	0.7
3327	Machine Shops; Turned Product; and Screw, Nut, and Bolt Manufacturing	6,923	7,006	1.2%	1.1
3328	Coating, Engraving, Heat Treating, and Allied Activities	1,432	1,529	6.8%	0.6
3329	Other Fabricated Metal Product Manufacturing	3,790	4,097	8.1%	0.8
3331	Agriculture, Construction, and Mining Machinery Manufacturing	766	752	-1.8%	0.2
3332	Industrial Machinery Manufacturing	1,942	2,091	7.7%	1.0
3333	Commercial and Service Industry Machinery Manufacturing	1,276	1,146	-10.2%	0.9
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	1,208	1,261	4.4%	0.5
3335	Metalworking Machinery Manufacturing	1,179	1,080	-8.4%	0.4
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	489	532	8.8%	0.3
3339	Other General Purpose Machinery Manufacturing	3,863	3,766	-2.5%	0.9
3341	Computer and Peripheral Equipment Manufacturing	714	629	-11.9%	0.3
3342	Communications Equipment Manufacturing	1,438	1,341	-6.7%	0.9
3343	Audio and Video Equipment Manufacturing	179	138	-22.9%	0.5
3344	Semiconductor and Other Electronic Component Manufacturing	3,619	3,578	-1.1%	0.6
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	5,004	4,762	-4.8%	0.7
3346	Manufacturing and Reproducing Magnetic and Optical Media	677	686	1.3%	2.3
3351	Electric Lighting Equipment Manufacturing	1,348	1,394	3.4%	1.7
3352	Household Appliance Manufacturing	393	419	6.6%	0.4
3353	Electrical Equipment Manufacturing	2,322	2,272	-2.2%	0.9

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
3359	Other Electrical Equipment and Component Manufacturing	8,011	9,282	15.9%	3.7
3361	Motor Vehicle Manufacturing	1,424	1,380	-3.1%	0.4
3362	Motor Vehicle Body and Trailer Manufacturing	1,668	1,614	-3.2%	0.7
3363	Motor Vehicle Parts Manufacturing	3,821	3,664	-4.1%	0.4
3364	Aerospace Product and Parts Manufacturing	6,554	5,603	-14.5%	0.8
3365	Railroad Rolling Stock Manufacturing	2,045	2,475	21.0%	4.4
3366	Ship and Boat Building	699	771	10.3%	0.2
3369	Other Transportation Equipment Manufacturing	987	1,187	20.3%	1.8
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	2,965	3,267	10.2%	0.7
3372	Office Furniture (including Fixtures) Manufacturing	2,787	3,119	11.9%	1.6
3379	Other Furniture Related Product Manufacturing	326	344	5.5%	0.6
3391	Medical Equipment and Supplies Manufacturing	6,411	6,386	-0.4%	1.2
3399	Other Miscellaneous Manufacturing	6,122	5,703	-6.8%	1.3
4231	Motor Vehicle and Motor Vehicle Parts and Supplies Merchant Wholesalers	6,745	7,202	6.8%	1.2
4232	Furniture and Home Furnishing Merchant Wholesalers	1,452	1,486	2.3%	0.8
4233	Lumber and Other Construction Materials Merchant Wholesalers	3,679	3,987	8.4%	1.1
4234	Professional and Commercial Equipment and Supplies Merchant Wholesalers	11,726	11,334	-3.3%	1.1
4235	Metal and Mineral (except Petroleum) Merchant Wholesalers	1,751	1,874	7.0%	0.8
4236	Household Appliances and Electrical and Electronic Goods Merchant Wholesalers	4,989	4,591	-8.0%	0.9
4237	Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	4,182	4,658	11.4%	1.0
4238	Machinery, Equipment, and Supplies Merchant Wholesalers	8,468	9,590	13.2%	0.7
4239	Miscellaneous Durable Goods Merchant Wholesalers	3,691	4,636	25.6%	0.7
4241	Paper and Paper Product Merchant Wholesalers	2,838	2,880	1.5%	1.3
4242	Drugs and Druggists' Sundries Merchant Wholesalers	5,615	5,382	-4.1%	1.7
4243	Apparel, Piece Goods, and Notions Merchant Wholesalers	2,448	2,519	2.9%	1.0
4244	Grocery and Related Product Merchant Wholesalers	11,611	12,642	8.9%	0.9
4245	Farm Product Raw Material Merchant Wholesalers	124	124	0.0%	0.1
4246	Chemical and Allied Products Merchant Wholesalers	2,016	2,191	8.7%	0.9
4247	Petroleum and Petroleum Products Merchant Wholesalers	887	970	9.4%	0.5
4248	Beer, Wine, and Distilled Alcoholic Beverage Merchant Wholesalers	1,685	1,864	10.6%	0.5
4249	Miscellaneous Nondurable Goods Merchant Wholesalers	3,261	3,156	-3.2%	0.6
4251	Wholesale Electronic Markets and Agents and Brokers	25,832	26,362	2.1%	1.7
4411	Automobile Dealers	20,084	22,897	14.0%	1.0
4412	Other Motor Vehicle Dealers	1,165	1,307	12.2%	0.5

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
4413	Automotive Parts, Accessories, and Tire Stores	5,432	5,891	8.4%	0.6
4421	Furniture Stores	3,211	3,239	0.9%	0.9
4422	Home Furnishings Stores	3,242	3,334	2.8%	0.8
4431	Electronics and Appliance Stores	7,341	7,290	-0.7%	0.9
4441	Building Material and Supplies Dealers	13,471	14,104	4.7%	0.7
4442	Lawn and Garden Equipment and Supplies Stores	1,863	1,828	-1.9%	0.7
4451	Grocery Stores	54,199	57,681	6.4%	1.2
4452	Specialty Food Stores	5,139	5,238	1.9%	1.3
4453	Beer, Wine, and Liquor Stores	2,193	2,521	15.0%	0.8
4461	Health and Personal Care Stores	19,468	20,254	4.0%	1.1
4471	Gasoline Stations	9,706	10,570	8.9%	0.6
4481	Clothing Stores	19,694	18,674	-5.2%	1.1
4482	Shoe Stores	3,987	4,024	0.9%	1.2
4483	Jewelry, Luggage, and Leather Goods Stores	2,497	2,425	-2.9%	1.1
4511	Sporting Goods, Hobby, and Musical Instrument Stores	8,365	8,660	3.5%	0.9
4512	Book Stores and News Dealers	1,637	1,524	-6.9%	1.1
4521	Department Stores	22,693	19,706	-13.2%	1.0
4529	Other General Merchandise Stores	15,249	18,152	19.0%	0.5
4531	Florists	1,383	1,022	-26.1%	1.3
4532	Office Supplies, Stationery, and Gift Stores	4,834	4,366	-9.7%	1.0
4533	Used Merchandise Stores	2,267	2,548	12.4%	0.8
4539	Other Miscellaneous Store Retailers	5,494	6,180	12.5%	1.1
4541	Electronic Shopping and Mail-Order Houses	8,142	9,737	19.6%	1.5
4542	Vending Machine Operators	592	481	-18.8%	0.9
4543	Direct Selling Establishments	3,641	3,797	4.3%	1.6
4811	Scheduled Air Transportation	8,955	9,574	6.9%	1.3
4812	Nonscheduled Air Transportation	234	265	13.2%	0.4
4831	Deep Sea, Coastal, and Great Lakes Water Transportation	224	204	-8.9%	0.3
4832	Inland Water Transportation	28	35	25.0%	0.1
4841	General Freight Trucking	10,609	13,550	27.7%	0.6
4842	Specialized Freight Trucking	4,400	5,642	28.2%	0.6
4851	Urban Transit Systems	2,049	2,206	7.7%	0.5
4852	Interurban and Rural Bus Transportation	283	294	3.9%	0.7
4853	Taxi and Limousine Service	1,445	1,502	3.9%	1.1
4854	School and Employee Bus Transportation	9,062	10,150	12.0%	2.1
4855	Charter Bus Industry	740	859	16.1%	1.4
4859	Other Transit and Ground Passenger Transportation	2,264	2,398	5.9%	1.4

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
4862	Pipeline Transportation of Natural Gas	182	221	21.4%	0.4
4869	Other Pipeline Transportation	528	631	19.5%	3.9
4871	Scenic and Sightseeing Transportation, Land	281	253	-10.0%	1.2
4872	Scenic and Sightseeing Transportation, Water	139	168	20.9%	0.5
4879	Scenic and Sightseeing Transportation, Other	2	1	-50.0%	0.0
4881	Support Activities for Air Transportation	2,353	2,938	24.9%	0.6
4882	Support Activities for Rail Transportation	388	449	15.7%	0.7
4883	Support Activities for Water Transportation	7,777	7,720	-0.7%	4.5
4884	Support Activities for Road Transportation	1,899	2,632	38.6%	1.0
4885	Freight Transportation Arrangement	2,087	2,293	9.9%	0.6
4889	Other Support Activities for Transportation	283	299	5.7%	0.5
4911	Postal Service	11,282	8,111	-28.1%	1.1
4921	Couriers and Express Delivery Services	11,076	12,498	12.8%	1.3
4922	Local Messengers and Local Delivery	632	698	10.4%	0.7
4931	Warehousing and Storage	18,048	21,561	19.5%	1.4
5111	Newspaper, Periodical, Book, and Directory Publishers	8,670	6,618	-23.7%	1.2
5112	Software Publishers	2,424	2,644	9.1%	0.5
5121	Motion Picture and Video Industries	3,157	3,266	3.5%	0.5
5122	Sound Recording Industries	160	151	-5.6%	0.6
5151	Radio and Television Broadcasting	3,379	3,374	-0.1%	0.9
5152	Cable and Other Subscription Programming	102	101	-1.0%	0.1
5171	Wired Telecommunications Carriers	11,730	10,350	-11.8%	1.1
5172	Wireless Telecommunications Carriers (except Satellite)	1,307	1,117	-14.5%	0.5
5174	Satellite Telecommunications	77	68	-11.7%	0.5
5179	Other Telecommunications	928	860	-7.3%	0.7
5182	Data Processing, Hosting, and Related Services	5,710	5,509	-3.5%	1.2
5191	Other Information Services	4,806	5,534	15.1%	0.8
5211	Monetary Authorities-Central Bank	96	77	-19.8%	0.3
5221	Depository Credit Intermediation	24,854	22,326	-10.2%	0.9
5222	Nondepository Credit Intermediation	7,031	6,890	-2.0%	0.7
5223	Activities Related to Credit Intermediation	2,686	2,963	10.3%	0.5
5231	Securities and Commodity Contracts Intermediation and Brokerage	5,928	7,165	20.9%	0.8
5232	Securities and Commodity Exchanges	142	179	26.1%	1.2
5239	Other Financial Investment Activities	22,674	30,586	34.9%	3.1
5241	Insurance Carriers	37,429	39,356	5.1%	1.8
5242	Agencies, Brokerages, and Other Insurance Related Activities	22,590	26,989	19.5%	1.3
5251	Insurance and Employee Benefit Funds	86	70	-18.6%	2.3

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
5259	Other Investment Pools and Funds	857	1,090	27.2%	14.2
5311	Lessors of Real Estate	9,480	10,230	7.9%	0.9
5312	Offices of Real Estate Agents and Brokers	3,954	4,204	6.3%	0.8
5313	Activities Related to Real Estate	7,755	9,074	17.0%	0.7
5321	Automotive Equipment Rental and Leasing	3,584	3,928	9.6%	1.1
5322	Consumer Goods Rental	1,706	1,983	16.2%	0.6
5323	General Rental Centers	485	552	13.8%	0.7
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	2,382	3,102	30.2%	1.0
5331	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	346	380	9.8%	0.8
5411	Legal Services	27,957	29,535	5.6%	1.5
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services	17,153	18,479	7.7%	1.0
5413	Architectural, Engineering, and Related Services	24,418	27,094	11.0%	1.0
5414	Specialized Design Services	2,843	3,765	32.4%	1.3
5415	Computer Systems Design and Related Services	39,636	52,336	32.0%	1.3
5416	Management, Scientific, and Technical Consulting Services	28,216	33,721	19.5%	1.3
5417	Scientific Research and Development Services	18,691	21,130	13.0%	1.7
5418	Advertising, Public Relations, and Related Services	9,494	10,674	12.4%	1.2
5419	Other Professional, Scientific, and Technical Services	13,496	16,666	23.5%	1.2
5511	Management of Companies and Enterprises	61,540	70,044	13.8%	1.7
5611	Office Administrative Services	1,503	1,515	0.8%	0.2
5612	Facilities Support Services	3,199	4,259	33.1%	1.4
5613	Employment Services	46,725	63,136	35.1%	0.8
5614	Business Support Services	11,928	11,409	-4.4%	0.8
5615	Travel Arrangement and Reservation Services	4,241	4,228	-0.3%	1.2
5616	Investigation and Security Services	17,967	21,303	18.6%	1.2
5617	Services to Buildings and Dwellings	39,156	43,074	10.0%	1.2
5619	Other Support Services	9,380	12,111	29.1%	1.8
5621	Waste Collection	3,537	4,133	16.9%	1.3
5622	Waste Treatment and Disposal	1,217	1,424	17.0%	0.6
5629	Remediation and Other Waste Management Services	2,233	2,809	25.8%	1.0
6111	Elementary and Secondary Schools	121,823	119,441	-2.0%	0.9
6112	Junior Colleges	8,053	8,210	1.9%	0.7
6113	Colleges, Universities, and Professional Schools	67,722	69,650	2.8%	1.4
6114	Business Schools and Computer and Management Training	842	872	3.6%	0.7
6115	Technical and Trade Schools	1,960	2,298	17.2%	0.8
6116	Other Schools and Instruction	6,879	7,821	13.7%	1.1

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
6117	Educational Support Services	3,545	4,039	13.9%	1.4
6211	Offices of Physicians	46,227	49,733	7.6%	1.1
6212	Offices of Dentists	14,927	16,420	10.0%	1.0
6213	Offices of Other Health Practitioners	14,199	18,419	29.7%	1.1
6214	Outpatient Care Centers	15,295	18,865	23.3%	1.2
6215	Medical and Diagnostic Laboratories	6,373	7,712	21.0%	1.5
6216	Home Health Care Services	21,107	33,458	58.5%	1.0
6219	Other Ambulatory Health Care Services	8,592	11,125	29.5%	1.7
6221	General Medical and Surgical Hospitals	103,334	113,136	9.5%	1.1
6222	Psychiatric and Substance Abuse Hospitals	6,423	7,535	17.3%	1.6
6223	Specialty (except Psychiatric and Substance Abuse) Hospitals	17,735	24,827	40.0%	4.2
6231	Nursing Care Facilities (Skilled Nursing Facilities)	33,799	38,534	14.0%	1.1
6232	Residential Intellectual and Developmental Disability, Mental Health, and Substance Abuse Facilities	22,958	27,129	18.2%	1.9
6233	Continuing Care Retirement Communities and Assisted Living Facilities for the Elderly	30,122	36,705	21.9%	2.1
6239	Other Residential Care Facilities	2,544	2,666	4.8%	0.9
6241	Individual and Family Services	50,740	69,122	36.2%	1.3
6242	Community Food and Housing, and Emergency and Other Relief Services	3,617	4,264	17.9%	1.4
6243	Vocational Rehabilitation Services	3,873	4,371	12.9%	0.6
6244	Child Day Care Services	20,378	24,369	19.6%	1.4
7111	Performing Arts Companies	1,908	2,071	8.5%	1.0
7112	Spectator Sports	2,897	3,327	14.8%	1.2
7113	Promoters of Performing Arts, Sports, and Similar Events	2,893	3,465	19.8%	1.3
7114	Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	81	88	8.6%	0.2
7115	Independent Artists, Writers, and Performers	635	718	13.1%	0.7
7121	Museums, Historical Sites, and Similar Institutions	4,045	4,479	10.7%	1.0
7131	Amusement Parks and Arcades	2,733	2,767	1.2%	0.8
7132	Gambling Industries	3,618	3,975	9.9%	0.8
7139	Other Amusement and Recreation Industries	21,542	24,050	11.6%	0.9
7211	Traveler Accommodation	18,998	21,287	12.0%	0.6
7212	RV (Recreational Vehicle) Parks and Recreational Camps	392	388	-1.0%	0.4
7213	Rooming and Boarding Houses	110	130	18.2%	0.5
7223	Special Food Services	18,867	20,072	6.4%	1.8
7224	Drinking Places (Alcoholic Beverages)	6,384	6,604	3.4%	1.0
7225	Restaurants and Other Eating Places	129,424	144,496	11.6%	0.8
8111	Automotive Repair and Maintenance	14,346	15,879	10.7%	1.0

NAICS	Industry Title	2014 Jobs	2024 Jobs	% Change 2014-2024	2014 LQ
8112	Electronic and Precision Equipment Repair and Maintenance	1,602	1,703	6.3%	0.9
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	2,095	2,275	8.6%	0.6
8114	Personal and Household Goods Repair and Maintenance	863	833	-3.5%	0.7
8121	Personal Care Services	17,926	21,606	20.5%	1.6
8122	Death Care Services	2,289	2,472	8.0%	1.0
8123	Drycleaning and Laundry Services	4,194	4,398	4.9%	0.8
8129	Other Personal Services	7,034	8,096	15.1%	1.4
8131	Religious Organizations	3,427	3,802	10.9%	1.1
8132	Grantmaking and Giving Services	3,022	3,353	11.0%	1.3
8133	Social Advocacy Organizations	3,750	4,264	13.7%	1.0
8134	Civic and Social Organizations	10,849	11,807	8.8%	1.6
8139	Business, Professional, Labor, Political, and Similar Organizations	7,231	7,972	10.2%	1.0
8141	Private Households	2,443	2,397	-1.9%	0.5
9211	Executive, Legislative, and Other General Government Support	38,916	37,373	-4.0%	0.8
9221	Justice, Public Order, and Safety Activities	25,520	24,137	-5.4%	0.8
9231	Administration of Human Resource Programs	7,706	7,322	-5.0%	0.6
9241	Administration of Environmental Quality Programs	2,522	2,406	-4.6%	0.5
9251	Administration of Housing Programs, Urban Planning, and Community Development	2,622	2,544	-3.0%	1.9
9261	Administration of Economic Programs	4,309	3,980	-7.6%	0.4
9281	National Security and International Affairs	7,135	6,579	-7.8%	0.7

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

APPENDIX D: OCCUPATION PROJECTIONS 2014-2024 FOR SOUTHEAST PENNSYLVANIA

For this analysis a “skilled” occupation is defined as an occupation in O*NET Job Zones¹⁶ 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.¹⁷

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.

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

¹⁷ <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
Total	All Occupations	NA	2,344,298	2,590,963	10.5%	896,844
11-1011	Chief Executives	5	4,753	4,746	-0.1%	1,121
11-1021	General and Operations Managers	4	27,499	32,312	17.5%	9,708
11-1031	Legislators	4	775	612	-21.0%	39
11-2011	Advertising and Promotions Managers	4	300	254	-15.3%	53
11-2021	Marketing Managers	4	2,761	2,998	8.6%	835
11-2022	Sales Managers	4	4,646	4,693	1.0%	1,051
11-2031	Public Relations and Fundraising Managers	4	804	798	-0.7%	165
11-3011	Administrative Services Managers	3	3,682	3,748	1.8%	630
11-3021	Computer and Information Systems Managers	4	5,501	7,202	30.9%	2,505
11-3031	Financial Managers	4	6,840	6,908	1.0%	1,333
11-3051	Industrial Production Managers	4	2,089	1,934	-7.4%	327
11-3061	Purchasing Managers	4	908	819	-9.8%	117
11-3071	Transportation, Storage, and Distribution Managers	4	1,438	1,643	14.3%	559
11-3111	Compensation and Benefits Managers	4	357	308	-13.7%	61
11-3121	Human Resources Managers	4	1,551	1,957	26.2%	809
11-3131	Training and Development Managers	4	435	544	25.1%	225
11-9021	Construction Managers	4	2,148	2,828	31.7%	992
11-9031	Education Administrators, Preschool and Childcare Center/Program	4	962	1,084	12.7%	381
11-9032	Education Administrators, Elementary and Secondary School	5	3,201	2,980	-6.9%	835
11-9033	Education Administrators, Postsecondary	5	2,366	2,284	-3.5%	590
11-9039	Education Administrators, All Other	5	335	409	22.1%	166
11-9041	Architectural and Engineering Managers	5	2,264	2,344	3.5%	667
11-9051	Food Service Managers	3	2,316	2,579	11.4%	732
11-9061	Funeral Service Managers	3	173	168	-2.9%	48
11-9071	Gaming Managers	3	61	68	11.5%	20
11-9081	Lodging Managers	3	350	429	22.6%	231
11-9111	Medical and Health Services Managers	5	5,732	6,301	9.9%	1,963
11-9121	Natural Sciences Managers	5	966	1,027	6.3%	300
11-9131	Postmasters and Mail Superintendents	3	437	287	-34.3%	48
11-9141	Property, Real Estate, and Community Association Managers	4	1,548	1,866	20.5%	716
11-9151	Social and Community Service Managers	4	2,562	3,058	19.4%	1,084
11-9161	Emergency Management Directors	4	153	126	-17.6%	0
11-9199	Managers, All Other	4	3,724	4,044	8.6%	1,131

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	58	53	-8.6%	15
13-1021	Buyers and Purchasing Agents, Farm Products	4	167	174	4.2%	51
13-1022	Wholesale and Retail Buyers, Except Farm Products	3	1,824	1,701	-6.7%	375
13-1023	Purchasing Agents, Except Wholesale, Retail, and Farm Products	4	5,790	5,844	0.9%	1,292
13-1031	Claims Adjusters, Examiners, and Investigators	4	6,931	7,412	6.9%	2,535
13-1032	Insurance Appraisers, Auto Damage	3	375	453	20.8%	213
13-1041	Compliance Officers	4	5,004	5,810	16.1%	1,844
13-1051	Cost Estimators	4	3,724	4,216	13.2%	1,758
13-1071	Human Resources Specialists	4	8,794	11,045	25.6%	4,129
13-1075	Labor Relations Specialists	4	2,144	1,811	-15.5%	317
13-1081	Logisticians	4	2,935	3,359	14.4%	815
13-1111	Management Analysts	4	11,634	14,427	24.0%	4,728
13-1121	Meeting, Convention, and Event Planners	4	1,404	1,901	35.4%	712
13-1131	Fundraisers	4	1,327	1,735	30.7%	707
13-1141	Compensation, Benefits, and Job Analysis Specialists	4	1,711	1,635	-4.4%	306
13-1151	Training and Development Specialists	4	4,971	5,779	16.3%	1,793
13-1161	Market Research Analysts and Marketing Specialists	4	11,847	15,780	33.2%	5,829
13-1199	Business Operations Specialists, All Other	4	7,381	7,394	0.2%	886
13-2011	Accountants and Auditors	4	25,453	28,254	11.0%	11,274
13-2021	Appraisers and Assessors of Real Estate	4	712	758	6.5%	154
13-2031	Budget Analysts	4	995	1,032	3.7%	456
13-2041	Credit Analysts	4	973	1,115	14.6%	433
13-2051	Financial Analysts	4	6,175	7,651	23.9%	3,092
13-2052	Personal Financial Advisors	4	5,160	7,484	45.0%	3,285
13-2053	Insurance Underwriters	4	2,683	2,844	6.0%	1,206
13-2061	Financial Examiners	4	727	826	13.6%	332
13-2071	Credit Counselors	4	802	1,055	31.5%	425
13-2072	Loan Officers	3	4,854	5,366	10.5%	1,855
13-2081	Tax Examiners and Collectors, and Revenue Agents	3	1,520	1,315	-13.5%	412
13-2082	Tax Preparers	3	1,059	921	-13.0%	184
13-2099	Financial Specialists, All Other	4	1,827	1,818	-0.5%	235
15-1111	Computer and Information Research Scientists	5	163	165	1.2%	23
15-1121	Computer Systems Analysts	4	12,413	16,782	35.2%	6,564
15-1122	Information Security Analysts	4	1,270	1,799	41.7%	725
15-1131	Computer Programmers	4	7,869	10,079	28.1%	4,787

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
15-1132	Software Developers, Applications	4	11,214	15,208	35.6%	5,592
15-1133	Software Developers, Systems Software	4	5,580	5,513	-1.2%	618
15-1134	Web Developers	3	2,014	2,604	29.3%	919
15-1141	Database Administrators	4	2,771	3,481	25.6%	1,283
15-1142	Network and Computer Systems Administrators	4	7,023	6,730	-4.2%	913
15-1143	Computer Network Architects	4	1,893	2,291	21.0%	700
15-1151	Computer User Support Specialists	3	12,766	16,879	32.2%	6,398
15-1152	Computer Network Support Specialists	4	2,725	2,829	3.8%	624
15-1199	Computer Occupations, All Other	4	3,206	3,817	19.1%	1,177
15-2011	Actuaries	4	810	1,038	28.1%	490
15-2031	Operations Research Analysts	5	1,407	1,762	25.2%	687
15-2041	Statisticians	5	1,097	1,554	41.7%	836
17-1011	Architects, Except Landscape and Naval	4	1,153	1,349	17.0%	605
17-1012	Landscape Architects	4	351	452	28.8%	211
17-1021	Cartographers and Photogrammetrists	4	93	101	8.6%	27
17-1022	Surveyors	4	612	689	12.6%	237
17-2011	Aerospace Engineers	4	746	929	24.5%	377
17-2021	Agricultural Engineers	4	59	65	10.2%	29
17-2031	Biomedical Engineers	4	520	553	6.3%	175
17-2041	Chemical Engineers	4	838	788	-6.0%	195
17-2051	Civil Engineers	4	4,889	5,555	13.6%	1,999
17-2061	Computer Hardware Engineers	4	651	575	-11.7%	60
17-2071	Electrical Engineers	4	2,613	3,016	15.4%	1,052
17-2072	Electronics Engineers, Except Computer	4	1,658	1,379	-16.8%	142
17-2081	Environmental Engineers	5	1,422	1,705	19.9%	694
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	4	526	518	-1.5%	163
17-2112	Industrial Engineers	4	3,689	3,619	-1.9%	1,181
17-2131	Materials Engineers	4	509	669	31.4%	353
17-2141	Mechanical Engineers	4	3,868	3,853	-0.4%	1,445
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	4	87	83	-4.6%	29
17-2161	Nuclear Engineers	4	596	724	21.5%	332
17-2171	Petroleum Engineers	4	15	19	26.7%	10
17-2199	Engineers, All Other	4	1,524	1,907	25.1%	692
17-3011	Architectural and Civil Drafters	4	1,819	1,947	7.0%	566
17-3012	Electrical and Electronics Drafters	3	523	450	-14.0%	14
17-3013	Mechanical Drafters	3	1,293	1,174	-9.2%	164

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
17-3019	Drafters, All Other	3	117	140	19.7%	39
17-3021	Aerospace Engineering and Operations Technicians	4	71	79	11.3%	22
17-3022	Civil Engineering Technicians	3	931	1,081	16.1%	383
17-3023	Electrical and Electronics Engineering Technicians	3	1,601	1,370	-14.4%	165
17-3024	Electro-Mechanical Technicians	3	224	199	-11.2%	41
17-3025	Environmental Engineering Technicians	4	524	615	17.4%	228
17-3026	Industrial Engineering Technicians	3	722	718	-0.6%	176
17-3027	Mechanical Engineering Technicians	3	718	843	17.4%	298
17-3029	Engineering Technicians, Except Drafters, All Other	3	1,103	1,452	31.6%	624
17-3031	Surveying and Mapping Technicians	3	578	712	23.2%	261
19-1012	Food Scientists and Technologists	4	106	131	23.6%	62
19-1013	Soil and Plant Scientists	5	70	90	28.6%	49
19-1021	Biochemists and Biophysicists	5	1,170	1,568	34.0%	755
19-1022	Microbiologists	5	618	820	32.7%	408
19-1023	Zoologists and Wildlife Biologists	5	110	96	-12.7%	17
19-1029	Biological Scientists, All Other	5	202	196	-3.0%	58
19-1031	Conservation Scientists	4	232	251	8.2%	94
19-1032	Foresters	4	68	62	-8.8%	14
19-1041	Epidemiologists	5	48	37	-22.9%	2
19-1042	Medical Scientists, Except Epidemiologists	5	3,718	4,616	24.2%	1,791
19-1099	Life Scientists, All Other	5	60	69	15.0%	21
19-2012	Physicists	5	84	70	-16.7%	4
19-2021	Atmospheric and Space Scientists	4	38	32	-15.8%	2
19-2031	Chemists	4	3,337	3,728	11.7%	1,467
19-2032	Materials Scientists	5	172	181	5.2%	61
19-2041	Environmental Scientists and Specialists, Including Health	4	1,294	1,689	30.5%	809
19-2042	Geoscientists, Except Hydrologists and Geographers	4	412	453	10.0%	188
19-2043	Hydrologists	4	80	81	1.3%	27
19-2099	Physical Scientists, All Other	5	117	94	-19.7%	3
19-3011	Economists	5	300	326	8.7%	127
19-3022	Survey Researchers	5	1,383	1,487	7.5%	547
19-3031	Clinical, Counseling, and School Psychologists	5	2,238	2,356	5.3%	795
19-3039	Psychologists, All Other	5	163	195	19.6%	81
19-3041	Sociologists	5	67	59	-11.9%	30
19-3051	Urban and Regional Planners	5	677	667	-1.5%	315

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
19-3091	Anthropologists and Archeologists	5	34	38	11.8%	10
19-3093	Historians	5	34	27	-20.6%	0
19-3099	Social Scientists and Related Workers, All Other	4	181	173	-4.4%	29
19-4011	Agricultural and Food Science Technicians	3	136	116	-14.7%	32
19-4021	Biological Technicians	4	2,580	2,986	15.7%	1,256
19-4031	Chemical Technicians	3	2,102	2,455	16.8%	1,021
19-4041	Geological and Petroleum Technicians	4	80	107	33.8%	66
19-4051	Nuclear Technicians	3	376	454	20.7%	244
19-4061	Social Science Research Assistants	4	378	478	26.5%	273
19-4091	Environmental Science and Protection Technicians, Including Health	4	784	999	27.4%	567
19-4092	Forensic Science Technicians	4	57	59	3.5%	26
19-4093	Forest and Conservation Technicians	3	144	157	9.0%	83
19-4099	Life, Physical, and Social Science Technicians, All Other	3	896	996	11.2%	473
21-1011	Substance Abuse and Behavioral Disorder Counselors	5	3,250	3,259	0.3%	933
21-1012	Educational, Guidance, School, and Vocational Counselors	5	4,673	4,862	4.0%	1,287
21-1013	Marriage and Family Therapists	5	499	608	21.8%	221
21-1014	Mental Health Counselors	5	4,639	4,855	4.7%	1,484
21-1015	Rehabilitation Counselors	5	2,811	3,548	26.2%	1,527
21-1019	Counselors, All Other	5	392	402	2.6%	96
21-1021	Child, Family, and School Social Workers	4	6,922	7,923	14.5%	2,619
21-1022	Healthcare Social Workers	5	3,479	4,515	29.8%	1,845
21-1023	Mental Health and Substance Abuse Social Workers	5	4,095	5,044	23.2%	2,099
21-1029	Social Workers, All Other	5	413	443	7.3%	124
21-1091	Health Educators	4	1,181	1,347	14.1%	487
21-1092	Probation Officers and Correctional Treatment Specialists	4	1,535	1,563	1.8%	526
21-1093	Social and Human Service Assistants	4	9,579	11,016	15.0%	4,295
21-1094	Community Health Workers	4	503	550	9.3%	175
21-1099	Community and Social Service Specialists, All Other	4	658	719	9.3%	219
21-2011	Clergy	5	793	973	22.7%	373
21-2021	Directors, Religious Activities and Education	4	640	785	22.7%	431
21-2099	Religious Workers, All Other	4	169	142	-16.0%	29
23-1011	Lawyers	5	13,223	14,413	9.0%	3,447
23-1012	Judicial Law Clerks	5	440	458	4.1%	109

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	271	245	-9.6%	29
23-1022	Arbitrators, Mediators, and Conciliators	5	153	189	23.5%	61
23-1023	Judges, Magistrate Judges, and Magistrates	5	102	84	-17.6%	4
23-2011	Paralegals and Legal Assistants	3	5,447	6,704	23.1%	2,180
23-2091	Court Reporters	3	346	362	4.6%	107
23-2093	Title Examiners, Abstractors, and Searchers	3	1,484	1,699	14.5%	550
23-2099	Legal Support Workers, All Other	3	267	257	-3.7%	37
25-1011	Business Teachers, Postsecondary	5	2,218	2,655	19.7%	769
25-1021	Computer Science Teachers, Postsecondary	5	976	1,160	18.9%	330
25-1022	Mathematical Science Teachers, Postsecondary	5	1,354	1,455	7.5%	304
25-1031	Architecture Teachers, Postsecondary	5	235	291	23.8%	91
25-1032	Engineering Teachers, Postsecondary	5	1,332	1,604	20.4%	472
25-1041	Agricultural Sciences Teachers, Postsecondary	5	173	141	-18.5%	1
25-1042	Biological Science Teachers, Postsecondary	5	1,785	1,886	5.7%	369
25-1043	Forestry and Conservation Science Teachers, Postsecondary	5	65	56	-13.8%	2
25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	5	406	457	12.6%	113
25-1052	Chemistry Teachers, Postsecondary	5	733	834	13.8%	211
25-1053	Environmental Science Teachers, Postsecondary	5	147	146	-0.7%	21
25-1054	Physics Teachers, Postsecondary	5	508	600	18.1%	168
25-1061	Anthropology and Archeology Teachers, Postsecondary	5	161	156	-3.1%	19
25-1062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	5	226	243	7.5%	52
25-1063	Economics Teachers, Postsecondary	5	538	639	18.8%	181
25-1064	Geography Teachers, Postsecondary	5	166	188	13.3%	47
25-1065	Political Science Teachers, Postsecondary	5	553	607	9.8%	137
25-1066	Psychology Teachers, Postsecondary	5	1,118	1,229	9.9%	279
25-1067	Sociology Teachers, Postsecondary	5	742	872	17.5%	241
25-1069	Social Sciences Teachers, Postsecondary, All Other	5	230	285	23.9%	89
25-1071	Health Specialties Teachers, Postsecondary	5	3,274	3,438	5.0%	660
25-1072	Nursing Instructors and Teachers, Postsecondary	5	1,423	1,473	3.5%	264
25-1081	Education Teachers, Postsecondary	5	1,703	1,742	2.3%	295
25-1082	Library Science Teachers, Postsecondary	5	166	198	19.3%	57
25-1111	Criminal Justice and Law Enforcement Teachers, Postsecondary	5	255	278	9.0%	61
25-1112	Law Teachers, Postsecondary	5	259	304	17.4%	83

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
25-1113	Social Work Teachers, Postsecondary	5	297	270	-9.1%	18
25-1121	Art, Drama, and Music Teachers, Postsecondary	5	2,433	3,014	23.9%	945
25-1122	Communications Teachers, Postsecondary	5	749	860	14.8%	223
25-1123	English Language and Literature Teachers, Postsecondary	5	2,069	2,118	2.4%	360
25-1124	Foreign Language and Literature Teachers, Postsecondary	5	857	970	13.2%	241
25-1125	History Teachers, Postsecondary	5	697	793	13.8%	200
25-1126	Philosophy and Religion Teachers, Postsecondary	5	726	794	9.4%	179
25-1191	Graduate Teaching Assistants	5	724	843	16.4%	228
25-1192	Home Economics Teachers, Postsecondary	5	55	47	-14.5%	0
25-1193	Recreation and Fitness Studies Teachers, Postsecondary	5	467	468	0.2%	71
25-1194	Vocational Education Teachers, Postsecondary	3	2,016	1,948	-3.4%	234
25-1199	Postsecondary Teachers, All Other	5	2,047	2,476	21.0%	736
25-2011	Preschool Teachers, Except Special Education	3	6,940	9,380	35.2%	4,433
25-2012	Kindergarten Teachers, Except Special Education	4	2,463	2,406	-2.3%	701
25-2021	Elementary School Teachers, Except Special Education	4	23,000	22,617	-1.7%	5,403
25-2022	Middle School Teachers, Except Special and Career/Technical Education	4	10,030	11,459	14.2%	3,948
25-2023	Career/Technical Education Teachers, Middle School	4	258	303	17.4%	123
25-2031	Secondary School Teachers, Except Special and Career/Technical Education	4	21,186	20,074	-5.2%	6,104
25-2032	Career/Technical Education Teachers, Secondary School	4	1,861	1,667	-10.4%	414
25-2051	Special Education Teachers, Preschool	4	267	316	18.4%	98
25-2052	Special Education Teachers, Kindergarten and Elementary School	4	4,421	4,559	3.1%	1,140
25-2053	Special Education Teachers, Middle School	4	1,545	1,526	-1.2%	334
25-2054	Special Education Teachers, Secondary School	4	3,238	3,334	3.0%	883
25-2059	Special Education Teachers, All Other	4	103	122	18.4%	32
25-3011	Adult Basic and Secondary Education and Literacy Teachers and Instructors	4	604	561	-7.1%	83
25-3021	Self-Enrichment Education Teachers	3	3,985	3,881	-2.6%	747
25-3097	Teachers and Instructors, All Other, Except Substitute Teachers	3	2,669	3,275	22.7%	1,063
25-3098	Substitute Teachers	3	6,654	6,153	-7.5%	885
25-4011	Archivists	5	155	177	14.2%	59
25-4012	Curators	5	241	300	24.5%	118

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
25-4013	Museum Technicians and Conservators	4	272	346	27.2%	147
25-4021	Librarians	5	2,413	2,375	-1.6%	559
25-4031	Library Technicians	4	1,371	1,375	0.3%	777
25-9011	Audio-Visual and Multimedia Collections Specialists	4	101	109	7.9%	28
25-9021	Farm and Home Management Advisors	5	23	19	-17.4%	1
25-9031	Instructional Coordinators	5	2,150	2,261	5.2%	296
25-9041	Teacher Assistants	3	19,824	21,223	7.1%	6,326
25-9099	Education, Training, and Library Workers, All Other	4	432	439	1.6%	46
27-1011	Art Directors	4	664	763	14.9%	291
27-1012	Craft Artists	2	23	19	-17.4%	2
27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	3	162	160	-1.2%	50
27-1014	Multimedia Artists and Animators	4	276	302	9.4%	98
27-1019	Artists and Related Workers, All Other	4	41	30	-26.8%	0
27-1021	Commercial and Industrial Designers	4	393	356	-9.4%	82
27-1022	Fashion Designers	3	104	84	-19.2%	15
27-1023	Floral Designers	2	875	572	-34.6%	149
27-1024	Graphic Designers	4	4,380	4,714	7.6%	1,721
27-1025	Interior Designers	4	795	1,038	30.6%	559
27-1026	Merchandise Displayers and Window Trimmers	3	1,227	1,472	20.0%	603
27-1027	Set and Exhibit Designers	5	133	161	21.1%	66
27-1029	Designers, All Other	4	3	3	0.0%	0
27-2011	Actors	2	725	702	-3.2%	257
27-2012	Producers and Directors	4	1,217	1,289	5.9%	605
27-2021	Athletes and Sports Competitors	2	435	515	18.4%	248
27-2022	Coaches and Scouts	4	3,363	3,208	-4.6%	910
27-2023	Umpires, Referees, and Other Sports Officials	3	154	141	-8.4%	33
27-2031	Dancers	3	60	52	-13.3%	13
27-2032	Choreographers	4	115	130	13.0%	55
27-2041	Music Directors and Composers	3	400	313	-21.8%	55
27-2042	Musicians and Singers	3	448	409	-8.7%	136
27-2099	Entertainers and Performers, Sports and Related Workers, All Other	3	41	40	-2.4%	0
27-3011	Radio and Television Announcers	3	579	569	-1.7%	262
27-3012	Public Address System and Other Announcers	2	128	147	14.8%	54
27-3022	Reporters and Correspondents	4	607	439	-27.7%	150
27-3031	Public Relations Specialists	4	4,586	4,526	-1.3%	643

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
27-3041	Editors	4	1,490	1,277	-14.3%	268
27-3042	Technical Writers	4	728	675	-7.3%	174
27-3043	Writers and Authors	4	784	768	-2.0%	180
27-3091	Interpreters and Translators	4	464	465	0.2%	64
27-3099	Media and Communication Workers, All Other	4	138	118	-14.5%	3
27-4011	Audio and Video Equipment Technicians	3	942	984	4.5%	248
27-4012	Broadcast Technicians	3	282	274	-2.8%	71
27-4014	Sound Engineering Technicians	3	136	122	-10.3%	22
27-4021	Photographers	3	992	883	-11.0%	182
27-4031	Camera Operators, Television, Video, and Motion Picture	3	213	193	-9.4%	15
27-4032	Film and Video Editors	3	135	119	-11.9%	5
27-4099	Media and Communication Equipment Workers, All Other	3	89	70	-21.3%	0
29-1011	Chiropractors	5	446	613	37.4%	267
29-1021	Dentists, General	5	1,614	1,819	12.7%	609
29-1022	Oral and Maxillofacial Surgeons	5	60	63	5.0%	18
29-1023	Orthodontists	5	44	55	25.0%	21
29-1029	Dentists, All Other Specialists	5	42	38	-9.5%	9
29-1031	Dietitians and Nutritionists	5	1,378	1,466	6.4%	268
29-1041	Optometrists	5	510	662	29.8%	324
29-1051	Pharmacists	5	5,490	6,070	10.6%	2,029
29-1061	Anesthesiologists	5	640	677	5.8%	214
29-1062	Family and General Practitioners	5	2,742	2,912	6.2%	935
29-1063	Internists, General	5	414	372	-10.1%	61
29-1064	Obstetricians and Gynecologists	5	142	180	26.8%	69
29-1065	Pediatricians, General	5	155	189	21.9%	65
29-1066	Psychiatrists	5	430	446	3.7%	137
29-1067	Surgeons	5	872	1,113	27.6%	474
29-1069	Physicians and Surgeons, All Other	5	6,409	6,856	7.0%	2,130
29-1071	Physician Assistants	5	2,091	2,339	11.9%	659
29-1081	Podiatrists	5	177	243	37.3%	138
29-1122	Occupational Therapists	5	2,699	3,721	37.9%	1,445
29-1123	Physical Therapists	5	4,426	6,171	39.4%	2,997
29-1124	Radiation Therapists	3	322	295	-8.4%	37
29-1125	Recreational Therapists	4	601	675	12.3%	220
29-1126	Respiratory Therapists	3	2,385	2,934	23.0%	893
29-1127	Speech-Language Pathologists	5	2,059	2,910	41.3%	1,156

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
29-1128	Exercise Physiologists	5	133	178	33.8%	61
29-1129	Therapists, All Other	4	146	209	43.2%	79
29-1131	Veterinarians	5	1,369	1,854	35.4%	973
29-1141	Registered Nurses	3	56,147	68,896	22.7%	24,118
29-1151	Nurse Anesthetists	5	855	943	10.3%	267
29-1161	Nurse Midwives	5	61	95	55.7%	44
29-1171	Nurse Practitioners	5	1,694	2,262	33.5%	876
29-1181	Audiologists	5	216	267	23.6%	100
29-1199	Health Diagnosing and Treating Practitioners, All Other	5	208	173	-16.8%	13
29-2011	Medical and Clinical Laboratory Technologists	4	4,016	4,515	12.4%	1,715
29-2012	Medical and Clinical Laboratory Technicians	3	4,349	5,019	15.4%	1,911
29-2021	Dental Hygienists	3	4,066	4,969	22.2%	2,004
29-2031	Cardiovascular Technologists and Technicians	3	1,251	1,608	28.5%	545
29-2032	Diagnostic Medical Sonographers	3	1,053	1,280	21.6%	375
29-2033	Nuclear Medicine Technologists	3	425	450	5.9%	86
29-2034	Radiologic Technologists	3	4,258	4,931	15.8%	1,333
29-2035	Magnetic Resonance Imaging Technologists	3	613	832	35.7%	317
29-2041	Emergency Medical Technicians and Paramedics	3	5,407	6,747	24.8%	3,122
29-2051	Dietetic Technicians	2	1,230	1,672	35.9%	587
29-2052	Pharmacy Technicians	3	6,467	7,320	13.2%	1,600
29-2053	Psychiatric Technicians	3	734	846	15.3%	261
29-2054	Respiratory Therapy Technicians	3	204	188	-7.8%	5
29-2055	Surgical Technologists	3	1,454	1,860	27.9%	546
29-2056	Veterinary Technologists and Technicians	3	2,140	2,920	36.4%	1,006
29-2057	Ophthalmic Medical Technicians	3	443	575	29.8%	187
29-2061	Licensed Practical and Licensed Vocational Nurses	3	15,526	19,662	26.6%	8,236
29-2071	Medical Records and Health Information Technicians	3	3,483	4,444	27.6%	1,899
29-2081	Opticians, Dispensing	3	1,211	1,617	33.5%	820
29-2091	Orthotists and Prosthetists	5	135	162	20.0%	40
29-2092	Hearing Aid Specialists	3	63	71	12.7%	15
29-2099	Health Technologists and Technicians, All Other	3	909	1,058	16.4%	221
29-9011	Occupational Health and Safety Specialists	4	954	1,061	11.2%	387
29-9012	Occupational Health and Safety Technicians	3	161	187	16.1%	72
29-9091	Athletic Trainers	5	525	700	33.3%	330
29-9099	Healthcare Practitioners and Technical Workers, All Other	4	402	368	-8.5%	67

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
31-1011	Home Health Aides	2	23,989	33,660	40.3%	16,267
31-1013	Psychiatric Aides	2	898	869	-3.2%	199
31-1014	Nursing Assistants	2	31,667	37,731	19.1%	12,459
31-1015	Orderlies	2	1,025	1,177	14.8%	350
31-2011	Occupational Therapy Assistants	3	1,001	1,397	39.6%	706
31-2012	Occupational Therapy Aides	3	274	419	52.9%	223
31-2021	Physical Therapist Assistants	3	1,845	2,662	44.3%	1,315
31-2022	Physical Therapist Aides	2	887	1,161	30.9%	483
31-9011	Massage Therapists	3	989	1,359	37.4%	469
31-9091	Dental Assistants	3	5,534	6,111	10.4%	1,790
31-9092	Medical Assistants	3	9,887	11,718	18.5%	3,816
31-9093	Medical Equipment Preparers	2	816	990	21.3%	329
31-9094	Medical Transcriptionists	3	1,631	1,332	-18.3%	143
31-9095	Pharmacy Aides	2	647	569	-12.1%	77
31-9096	Veterinary Assistants and Laboratory Animal Caretakers	3	1,249	1,373	9.9%	386
31-9097	Phlebotomists	3	2,354	2,970	26.2%	1,162
31-9099	Healthcare Support Workers, All Other	3	673	650	-3.4%	79
33-1011	First-Line Supervisors of Correctional Officers	3	497	511	2.8%	205
33-1012	First-Line Supervisors of Police and Detectives	3	1,118	1,255	12.3%	509
33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	3	297	332	11.8%	171
33-1099	First-Line Supervisors of Protective Service Workers, All Other	3	1,037	1,313	26.6%	597
33-2011	Firefighters	3	1,840	1,829	-0.6%	546
33-2021	Fire Inspectors and Investigators	3	90	74	-17.8%	16
33-3011	Bailiffs	2	79	60	-24.1%	6
33-3012	Correctional Officers and Jailers	3	6,098	5,468	-10.3%	1,259
33-3021	Detectives and Criminal Investigators	3	1,016	1,000	-1.6%	245
33-3041	Parking Enforcement Workers	2	173	189	9.2%	82
33-3051	Police and Sheriff's Patrol Officers	3	10,448	9,849	-5.7%	3,149
33-3052	Transit and Railroad Police	3	30	23	-23.3%	2
33-9011	Animal Control Workers	2	117	123	5.1%	37
33-9021	Private Detectives and Investigators	3	739	655	-11.4%	199
33-9031	Gaming Surveillance Officers and Gaming Investigators	2	194	212	9.3%	107
33-9032	Security Guards	2	20,656	24,981	20.9%	10,110
33-9091	Crossing Guards	1	1,800	1,533	-14.8%	176

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	2,041	2,311	13.2%	1,749
33-9093	Transportation Security Screeners	2	478	433	-9.4%	86
33-9099	Protective Service Workers, All Other	2	1,272	1,510	18.7%	1,151
35-1011	Chefs and Head Cooks	3	1,908	2,050	7.4%	521
35-1012	First-Line Supervisors of Food Preparation and Serving Workers	2	11,773	13,447	14.2%	5,290
35-2011	Cooks, Fast Food	1	3,378	3,145	-6.9%	505
35-2012	Cooks, Institution and Cafeteria	2	8,280	8,363	1.0%	1,802
35-2014	Cooks, Restaurant	2	15,699	20,409	30.0%	8,360
35-2015	Cooks, Short Order	1	2,875	3,446	19.9%	1,281
35-2021	Food Preparation Workers	1	14,546	13,714	-5.7%	3,768
35-3011	Bartenders	2	11,808	12,892	9.2%	6,063
35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	1	53,072	61,498	15.9%	31,224
35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	1	5,028	4,750	-5.5%	2,963
35-3031	Waiters and Waitresses	1	37,983	43,400	14.3%	25,519
35-3041	Food Servers, Nonrestaurant	1	5,711	6,454	13.0%	2,586
35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	1	5,857	6,125	4.6%	3,101
35-9021	Dishwashers	1	8,789	8,567	-2.5%	4,043
35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	1	5,668	6,184	9.1%	5,093
35-9099	Food Preparation and Serving Related Workers, All Other	1	463	592	27.9%	397
37-1011	First-Line Supervisors of Housekeeping and Janitorial Workers	2	2,827	3,062	8.3%	1,019
37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	3	1,334	1,360	1.9%	182
37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2	39,576	41,683	5.3%	11,182
37-2012	Maids and Housekeeping Cleaners	2	14,851	16,812	13.2%	5,750
37-2019	Building Cleaning Workers, All Other	2	188	170	-9.6%	20
37-2021	Pest Control Workers	2	870	1,088	25.1%	492
37-3011	Landscaping and Groundskeeping Workers	1	15,779	17,619	11.7%	6,438
37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	2	252	227	-9.9%	43
37-3013	Tree Trimmers and Pruners	2	1,492	1,959	31.3%	980
37-3019	Grounds Maintenance Workers, All Other	2	35	30	-14.3%	1
39-1011	Gaming Supervisors	2	418	479	14.6%	286
39-1012	Slot Supervisors	2	23	26	13.0%	8

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	3,324	4,287	29.0%	1,624
39-2011	Animal Trainers	2	158	149	-5.7%	67
39-2021	Nonfarm Animal Caretakers	1	3,163	3,726	17.8%	1,055
39-3011	Gaming Dealers	2	1,842	2,098	13.9%	1,183
39-3012	Gaming and Sports Book Writers and Runners	2	46	54	17.4%	26
39-3019	Gaming Service Workers, All Other	2	27	30	11.1%	6
39-3021	Motion Picture Projectionists	2	126	123	-2.4%	71
39-3031	Ushers, Lobby Attendants, and Ticket Takers	2	2,194	2,504	14.1%	1,670
39-3091	Amusement and Recreation Attendants	1	5,528	6,133	10.9%	3,746
39-3092	Costume Attendants	2	62	64	3.2%	36
39-3093	Locker Room, Coatroom, and Dressing Room Attendants	2	332	296	-10.8%	143
39-3099	Entertainment Attendants and Related Workers, All Other	2	309	317	2.6%	192
39-4021	Funeral Attendants	2	641	758	18.3%	324
39-4031	Morticians, Undertakers, and Funeral Directors	3	388	495	27.6%	222
39-5011	Barbers	3	339	379	11.8%	146
39-5012	Hairdressers, Hairstylists, and Cosmetologists	3	11,916	14,464	21.4%	5,919
39-5092	Manicurists and Pedicurists	2	1,637	1,886	15.2%	417
39-5093	Shampooers	2	698	747	7.0%	168
39-5094	Skincare Specialists	3	534	530	-0.7%	33
39-6011	Baggage Porters and Bellhops	2	552	676	22.5%	334
39-6012	Concierges	3	308	393	27.6%	166
39-7011	Tour Guides and Escorts	3	640	627	-2.0%	328
39-7012	Travel Guides	3	51	42	-17.6%	23
39-9011	Childcare Workers	3	10,228	9,751	-4.7%	2,578
39-9021	Personal Care Aides	2	26,392	39,195	48.5%	16,326
39-9031	Fitness Trainers and Aerobics Instructors	3	4,622	5,425	17.4%	1,612
39-9032	Recreation Workers	4	4,908	6,152	25.3%	1,832
39-9041	Residential Advisors	3	3,140	4,187	33.3%	2,623
39-9099	Personal Care and Service Workers, All Other	3	540	476	-11.9%	87
41-1011	First-Line Supervisors of Retail Sales Workers	2	16,313	17,080	4.7%	4,441
41-1012	First-Line Supervisors of Non-Retail Sales Workers	4	4,149	3,837	-7.5%	306
41-2011	Cashiers	1	54,687	54,009	-1.2%	25,039
41-2012	Gaming Change Persons and Booth Cashiers	2	110	121	10.0%	108
41-2021	Counter and Rental Clerks	1	6,076	6,408	5.5%	2,123
41-2022	Parts Salespersons	2	3,357	3,880	15.6%	1,527

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
41-2031	Retail Salespersons	2	78,103	82,014	5.0%	32,266
41-3011	Advertising Sales Agents	3	2,841	2,605	-8.3%	925
41-3021	Insurance Sales Agents	4	8,319	8,781	5.6%	2,983
41-3031	Securities, Commodities, and Financial Services Sales Agents	4	6,088	6,880	13.0%	2,489
41-3041	Travel Agents	3	1,460	1,294	-11.4%	595
41-3099	Sales Representatives, Services, All Other	4	14,626	18,575	27.0%	8,145
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	4	5,638	4,815	-14.6%	448
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	4	27,548	25,592	-7.1%	4,443
41-9011	Demonstrators and Product Promoters	2	871	872	0.1%	267
41-9012	Models	1	55	66	20.0%	28
41-9021	Real Estate Brokers	4	524	436	-16.8%	3
41-9022	Real Estate Sales Agents	3	3,388	3,681	8.6%	860
41-9031	Sales Engineers	4	1,434	1,499	4.5%	373
41-9041	Telemarketers	2	3,243	2,573	-20.7%	881
41-9091	Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	2	46	36	-21.7%	1
41-9099	Sales and Related Workers, All Other	3	812	775	-4.6%	107
43-1011	First-Line Supervisors of Office and Administrative Support Workers	3	23,033	24,345	5.7%	6,828
43-2011	Switchboard Operators, Including Answering Service	2	2,232	1,884	-15.6%	443
43-2021	Telephone Operators	2	145	89	-38.6%	4
43-3011	Bill and Account Collectors	2	5,372	4,846	-9.8%	1,284
43-3021	Billing and Posting Clerks	2	11,427	12,379	8.3%	3,262
43-3031	Bookkeeping, Accounting, and Auditing Clerks	3	27,671	30,289	9.5%	5,354
43-3041	Gaming Cage Workers	2	174	206	18.4%	121
43-3051	Payroll and Timekeeping Clerks	2	3,238	3,293	1.7%	835
43-3061	Procurement Clerks	3	1,074	917	-14.6%	261
43-3071	Tellers	2	7,675	6,169	-19.6%	2,996
43-3099	Financial Clerks, All Other	2	556	633	13.8%	269
43-4011	Brokerage Clerks	3	1,242	1,390	11.9%	621
43-4021	Correspondence Clerks	2	306	330	7.8%	127
43-4031	Court, Municipal, and License Clerks	3	903	925	2.4%	175
43-4041	Credit Authorizers, Checkers, and Clerks	3	544	415	-23.7%	5
43-4051	Customer Service Representatives	2	47,706	53,733	12.6%	20,442
43-4061	Eligibility Interviewers, Government Programs	3	3,236	3,002	-7.2%	469

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
43-4071	File Clerks	2	2,447	2,080	-15.0%	348
43-4081	Hotel, Motel, and Resort Desk Clerks	2	2,826	3,100	9.7%	1,989
43-4111	Interviewers, Except Eligibility and Loan	2	4,041	4,713	16.6%	1,557
43-4121	Library Assistants, Clerical	2	2,098	2,094	-0.2%	963
43-4131	Loan Interviewers and Clerks	3	2,998	3,401	13.4%	841
43-4141	New Accounts Clerks	2	351	334	-4.8%	121
43-4151	Order Clerks	2	4,389	4,145	-5.6%	1,322
43-4161	Human Resources Assistants, Except Payroll and Timekeeping	3	2,811	2,547	-9.4%	578
43-4171	Receptionists and Information Clerks	2	18,252	18,154	-0.5%	4,953
43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	2	1,844	1,784	-3.3%	486
43-4199	Information and Record Clerks, All Other	2	1,758	1,431	-18.6%	178
43-5011	Cargo and Freight Agents	2	1,049	937	-10.7%	258
43-5021	Couriers and Messengers	2	1,332	1,109	-16.7%	87
43-5031	Police, Fire, and Ambulance Dispatchers	2	1,222	1,242	1.6%	410
43-5032	Dispatchers, Except Police, Fire, and Ambulance	2	2,816	3,285	16.7%	1,352
43-5041	Meter Readers, Utilities	2	457	389	-14.9%	121
43-5051	Postal Service Clerks	2	1,405	994	-29.3%	206
43-5052	Postal Service Mail Carriers	2	5,553	4,054	-27.0%	1,700
43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	2	2,582	1,632	-36.8%	69
43-5061	Production, Planning, and Expediting Clerks	3	5,668	5,944	4.9%	1,869
43-5071	Shipping, Receiving, and Traffic Clerks	2	10,222	9,913	-3.0%	2,741
43-5081	Stock Clerks and Order Fillers	2	31,507	32,238	2.3%	11,739
43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	2	1,126	1,285	14.1%	448
43-6011	Executive Secretaries and Executive Administrative Assistants	3	11,097	10,564	-4.8%	1,260
43-6012	Legal Secretaries	3	6,629	7,203	8.7%	1,899
43-6013	Medical Secretaries	3	9,006	11,490	27.6%	3,535
43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	3	46,933	53,444	13.9%	12,609
43-9011	Computer Operators	3	1,528	1,395	-8.7%	272
43-9021	Data Entry Keyers	2	4,747	4,024	-15.2%	935
43-9022	Word Processors and Typists	2	2,695	1,969	-26.9%	70
43-9031	Desktop Publishers	3	375	349	-6.9%	81
43-9041	Insurance Claims and Policy Processing Clerks	3	5,973	6,217	4.1%	2,190
43-9051	Mail Clerks and Mail Machine Operators, Except Postal Service	2	2,948	2,495	-15.4%	682

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
43-9061	Office Clerks, General	2	54,774	54,019	-1.4%	11,858
43-9071	Office Machine Operators, Except Computer	2	1,305	1,041	-20.2%	256
43-9081	Proofreaders and Copy Markers	4	204	165	-19.1%	21
43-9111	Statistical Assistants	4	287	299	4.2%	98
43-9199	Office and Administrative Support Workers, All Other	3	2,254	2,619	16.2%	1,019
45-1011	First-Line Supervisors of Farming, Fishing, and Forestry Workers	3	172	168	-2.3%	45
45-2011	Agricultural Inspectors	2	133	113	-15.0%	34
45-2041	Graders and Sorters, Agricultural Products	1	83	98	18.1%	34
45-2091	Agricultural Equipment Operators	2	181	207	14.4%	92
45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	1	850	678	-20.2%	177
45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	1	471	451	-4.2%	173
45-2099	Agricultural Workers, All Other	1	5	3	-40.0%	1
45-4011	Forest and Conservation Workers	3	64	69	7.8%	15
45-4021	Fallers	1	22	16	-27.3%	0
45-4022	Logging Equipment Operators	1	185	198	7.0%	90
45-4023	Log Graders and Scalers	3	2	2	0.0%	1
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	3	5,992	7,476	24.8%	2,219
47-2011	Boilermakers	3	281	377	34.2%	245
47-2021	Brickmasons and Blockmasons	2	1,112	1,461	31.4%	465
47-2022	Stonemasons	3	154	154	0.0%	11
47-2031	Carpenters	2	12,199	14,528	19.1%	4,124
47-2041	Carpet Installers	2	772	962	24.6%	384
47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	2	194	180	-7.2%	31
47-2044	Tile and Marble Setters	2	373	475	27.3%	167
47-2051	Cement Masons and Concrete Finishers	2	1,958	2,307	17.8%	583
47-2053	Terrazzo Workers and Finishers	2	41	37	-9.8%	2
47-2061	Construction Laborers	2	11,387	14,776	29.8%	6,145
47-2071	Paving, Surfacing, and Tamping Equipment Operators	2	780	872	11.8%	255
47-2072	Pile-Driver Operators	2	16	17	6.3%	4
47-2073	Operating Engineers and Other Construction Equipment Operators	2	6,032	6,565	8.8%	2,279
47-2081	Drywall and Ceiling Tile Installers	2	746	702	-5.9%	114
47-2082	Tapers	2	230	276	20.0%	83
47-2111	Electricians	3	8,976	11,522	28.4%	4,991

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
47-2121	Glaziers	2	526	626	19.0%	273
47-2131	Insulation Workers, Floor, Ceiling, and Wall	2	282	353	25.2%	128
47-2132	Insulation Workers, Mechanical	2	180	248	37.8%	93
47-2141	Painters, Construction and Maintenance	2	2,420	2,809	16.1%	897
47-2142	Paperhangers	2	80	68	-15.0%	5
47-2151	Pipelayers	2	402	393	-2.2%	93
47-2152	Plumbers, Pipefitters, and Steamfitters	3	5,952	6,768	13.7%	1,900
47-2161	Plasterers and Stucco Masons	1	178	222	24.7%	45
47-2171	Reinforcing Iron and Rebar Workers	2	102	107	4.9%	23
47-2181	Roofers	2	1,551	1,742	12.3%	789
47-2211	Sheet Metal Workers	2	1,721	1,916	11.3%	564
47-2221	Structural Iron and Steel Workers	2	610	706	15.7%	329
47-3011	Helpers--Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	2	382	409	7.1%	72
47-3012	Helpers--Carpenters	2	362	492	35.9%	180
47-3013	Helpers--Electricians	2	629	939	49.3%	431
47-3014	Helpers--Painters, Paperhangers, Plasterers, and Stucco Masons	1	86	87	1.2%	19
47-3015	Helpers--Pipelayers, Plumbers, Pipefitters, and Steamfitters	2	471	470	-0.2%	73
47-3016	Helpers--Roofers	2	146	196	34.2%	84
47-3019	Helpers, Construction Trades, All Other	2	103	111	7.8%	18
47-4011	Construction and Building Inspectors	3	2,331	2,887	23.9%	1,198
47-4021	Elevator Installers and Repairers	3	167	159	-4.8%	48
47-4031	Fence Erectors	2	299	314	5.0%	99
47-4041	Hazardous Materials Removal Workers	3	713	914	28.2%	453
47-4051	Highway Maintenance Workers	2	4,138	3,977	-3.9%	637
47-4061	Rail-Track Laying and Maintenance Equipment Operators	2	70	83	18.6%	27
47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	1	494	599	21.3%	263
47-4099	Construction and Related Workers, All Other	3	172	151	-12.2%	6
47-5011	Derrick Operators, Oil and Gas	1	5	7	40.0%	4
47-5012	Rotary Drill Operators, Oil and Gas	2	22	27	22.7%	21
47-5013	Service Unit Operators, Oil, Gas, and Mining	2	60	79	31.7%	58
47-5021	Earth Drillers, Except Oil and Gas	2	288	360	25.0%	201
47-5031	Explosives Workers, Ordnance Handling Experts, and Blasters	2	45	53	17.8%	20
47-5041	Continuous Mining Machine Operators	1	17	18	5.9%	9
47-5042	Mine Cutting and Channeling Machine Operators	2	27	24	-11.1%	8
47-5051	Rock Splitters, Quarry	1	98	99	1.0%	39

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
47-5071	Roustabouts, Oil and Gas	1	130	168	29.2%	99
47-5081	Helpers--Extraction Workers	2	88	117	33.0%	73
47-5099	Extraction Workers, All Other	2	2	2	0.0%	1
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	3	6,374	7,334	15.1%	2,772
49-2011	Computer, Automated Teller, and Office Machine Repairers	3	2,103	2,276	8.2%	838
49-2021	Radio, Cellular, and Tower Equipment Installers and Repairers	3	106	94	-11.3%	5
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	3	2,415	2,372	-1.8%	575
49-2091	Avionics Technicians	3	263	306	16.3%	128
49-2092	Electric Motor, Power Tool, and Related Repairers	3	277	271	-2.2%	74
49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	3	76	70	-7.9%	10
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	3	1,355	1,225	-9.6%	249
49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	3	293	296	1.0%	86
49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	3	59	69	16.9%	23
49-2097	Electronic Home Entertainment Equipment Installers and Repairers	3	242	199	-17.8%	75
49-2098	Security and Fire Alarm Systems Installers	3	1,423	1,561	9.7%	489
49-3011	Aircraft Mechanics and Service Technicians	3	1,912	1,585	-17.1%	485
49-3021	Automotive Body and Related Repairers	2	2,658	3,139	18.1%	1,178
49-3022	Automotive Glass Installers and Repairers	2	376	439	16.8%	184
49-3023	Automotive Service Technicians and Mechanics	3	12,441	13,907	11.8%	5,083
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	3	3,813	4,804	26.0%	1,959
49-3041	Farm Equipment Mechanics and Service Technicians	3	314	266	-15.3%	73
49-3042	Mobile Heavy Equipment Mechanics, Except Engines	3	1,604	1,717	7.0%	667
49-3043	Rail Car Repairers	2	145	164	13.1%	80
49-3051	Motorboat Mechanics and Service Technicians	3	82	82	0.0%	17
49-3052	Motorcycle Mechanics	3	252	338	34.1%	176
49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	2	464	498	7.3%	154
49-3091	Bicycle Repairers	2	162	136	-16.0%	48
49-3092	Recreational Vehicle Service Technicians	2	87	85	-2.3%	33
49-3093	Tire Repairers and Changers	2	805	759	-5.7%	275
49-9011	Mechanical Door Repairers	2	231	239	3.5%	97

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	3	297	340	14.5%	152
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	3	5,109	6,277	22.9%	2,729
49-9031	Home Appliance Repairers	3	658	597	-9.3%	226
49-9041	Industrial Machinery Mechanics	3	4,701	5,288	12.5%	2,122
49-9043	Maintenance Workers, Machinery	3	1,313	1,515	15.4%	437
49-9044	Millwrights	3	463	598	29.2%	248
49-9045	Refractory Materials Repairers, Except Brickmasons	2	26	24	-7.7%	9
49-9051	Electrical Power-Line Installers and Repairers	3	1,333	1,590	19.3%	831
49-9052	Telecommunications Line Installers and Repairers	2	3,323	3,391	2.0%	1,393
49-9062	Medical Equipment Repairers	3	1,115	1,425	27.8%	700
49-9063	Musical Instrument Repairers and Tuners	3	181	167	-7.7%	60
49-9064	Watch Repairers	3	30	20	-33.3%	3
49-9069	Precision Instrument and Equipment Repairers, All Other	3	113	92	-18.6%	15
49-9071	Maintenance and Repair Workers, General	3	24,686	26,246	6.3%	6,999
49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	2	583	493	-15.4%	73
49-9092	Commercial Divers	3	121	115	-5.0%	44
49-9094	Locksmiths and Safe Repairers	2	181	181	0.0%	55
49-9095	Manufactured Building and Mobile Home Installers	2	73	93	27.4%	52
49-9096	Riggers	2	139	180	29.5%	78
49-9098	Helpers--Installation, Maintenance, and Repair Workers	2	1,630	1,781	9.3%	669
49-9099	Installation, Maintenance, and Repair Workers, All Other	2	1,197	1,478	23.5%	471
51-1011	First-Line Supervisors of Production and Operating Workers	2	8,810	8,886	0.9%	1,848
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	2	861	717	-16.7%	135
51-2021	Coil Winders, Tapers, and Finishers	2	210	185	-11.9%	25
51-2022	Electrical and Electronic Equipment Assemblers	2	3,812	3,444	-9.7%	542
51-2023	Electromechanical Equipment Assemblers	2	993	811	-18.3%	68
51-2031	Engine and Other Machine Assemblers	2	650	561	-13.7%	155
51-2041	Structural Metal Fabricators and Fitters	3	1,379	1,478	7.2%	781
51-2091	Fiberglass Laminators and Fabricators	2	110	118	7.3%	41
51-2092	Team Assemblers	2	12,266	11,808	-3.7%	2,387
51-2099	Assemblers and Fabricators, All Other	2	2,044	2,772	35.6%	1,103
51-3011	Bakers	2	3,838	3,817	-0.5%	1,201
51-3021	Butchers and Meat Cutters	2	2,838	2,615	-7.9%	615

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-3022	Meat, Poultry, and Fish Cutters and Trimmers	1	901	766	-15.0%	127
51-3023	Slaughterers and Meat Packers	1	1,080	1,150	6.5%	473
51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	2	131	137	4.6%	52
51-3092	Food Batchmakers	2	1,820	1,900	4.4%	848
51-3093	Food Cooking Machine Operators and Tenders	2	450	484	7.6%	181
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	3	2,625	3,305	25.9%	1,594
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	3	224	212	-5.4%	59
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	2	1,681	1,831	8.9%	757
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	2	225	235	4.4%	89
51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	2	647	588	-9.1%	152
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	2	2,618	2,775	6.0%	662
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	240	175	-27.1%	36
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	1,424	1,482	4.1%	612
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	687	652	-5.1%	215
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	3	371	405	9.2%	165
51-4041	Machinists	3	6,034	6,675	10.6%	2,419
51-4051	Metal-Refining Furnace Operators and Tenders	2	364	343	-5.8%	88
51-4052	Pourers and Casters, Metal	2	222	231	4.1%	95
51-4061	Model Makers, Metal and Plastic	3	27	21	-22.2%	2
51-4062	Patternmakers, Metal and Plastic	3	74	82	10.8%	38
51-4071	Foundry Mold and Coremakers	2	109	96	-11.9%	21
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	2	1,813	1,813	0.0%	462
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2	3,277	3,652	11.4%	1,530
51-4111	Tool and Die Makers	3	931	986	5.9%	229
51-4121	Welders, Cutters, Solderers, and Brazers	3	5,539	6,456	16.6%	2,718
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	2	503	587	16.7%	281
51-4191	Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	2	347	305	-12.1%	64
51-4192	Layout Workers, Metal and Plastic	2	39	42	7.7%	13

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	2	526	541	2.9%	198
51-4194	Tool Grinders, Filers, and Sharpeners	2	97	79	-18.6%	11
51-4199	Metal Workers and Plastic Workers, All Other	2	423	577	36.4%	247
51-5111	Prepress Technicians and Workers	3	727	506	-30.4%	101
51-5112	Printing Press Operators	3	3,558	3,059	-14.0%	664
51-5113	Print Binding and Finishing Workers	2	1,092	970	-11.2%	264
51-6011	Laundry and Dry-Cleaning Workers	1	3,200	3,594	12.3%	1,538
51-6021	Pressers, Textile, Garment, and Related Materials	1	528	576	9.1%	165
51-6031	Sewing Machine Operators	1	1,949	1,567	-19.6%	556
51-6041	Shoe and Leather Workers and Repairers	2	17	22	29.4%	19
51-6042	Shoe Machine Operators and Tenders	2	15	18	20.0%	19
51-6051	Sewers, Hand	2	2,277	2,216	-2.7%	311
51-6052	Tailors, Dressmakers, and Custom Sewers	3	500	512	2.4%	144
51-6061	Textile Bleaching and Dyeing Machine Operators and Tenders	2	173	113	-34.7%	76
51-6062	Textile Cutting Machine Setters, Operators, and Tenders	2	307	285	-7.2%	162
51-6063	Textile Knitting and Weaving Machine Setters, Operators, and Tenders	2	380	295	-22.4%	188
51-6064	Textile Winding, Twisting, and Drawing Out Machine Setters, Operators, and Tenders	2	229	170	-25.8%	80
51-6091	Extruding and Forming Machine Setters, Operators, and Tenders, Synthetic and Glass Fibers	2	168	126	-25.0%	24
51-6092	Fabric and Apparel Patternmakers	3	65	46	-29.2%	5
51-6093	Upholsterers	2	323	359	11.1%	199
51-6099	Textile, Apparel, and Furnishings Workers, All Other	2	246	204	-17.1%	9
51-7011	Cabinetmakers and Bench Carpenters	2	1,637	1,875	14.5%	920
51-7021	Furniture Finishers	1	327	414	26.6%	275
51-7031	Model Makers, Wood	3	12	11	-8.3%	1
51-7032	Patternmakers, Wood	3	30	38	26.7%	12
51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	2	388	539	38.9%	326
51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	2	881	1,150	30.5%	470
51-7099	Woodworkers, All Other	2	14	11	-21.4%	0
51-8011	Nuclear Power Reactor Operators	3	115	129	12.2%	60
51-8012	Power Distributors and Dispatchers	3	243	277	14.0%	129
51-8013	Power Plant Operators	2	695	696	0.1%	326
51-8021	Stationary Engineers and Boiler Operators	3	1,067	1,218	14.2%	612

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-8031	Water and Wastewater Treatment Plant and System Operators	3	1,854	1,822	-1.7%	749
51-8091	Chemical Plant and System Operators	2	660	622	-5.8%	364
51-8092	Gas Plant Operators	3	317	331	4.4%	190
51-8093	Petroleum Pump System Operators, Refinery Operators, and Gaugers	2	655	768	17.3%	460
51-8099	Plant and System Operators, All Other	2	154	145	-5.8%	58
51-9011	Chemical Equipment Operators and Tenders	2	2,468	2,483	0.6%	1,346
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	2	981	1,004	2.3%	475
51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	2	313	350	11.8%	164
51-9022	Grinding and Polishing Workers, Hand	1	259	268	3.5%	104
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	2	2,198	2,392	8.8%	1,048
51-9031	Cutters and Trimmers, Hand	2	96	75	-21.9%	8
51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	2	810	690	-14.8%	107
51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	2	816	711	-12.9%	217
51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	2	103	92	-10.7%	33
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	2	6,986	7,048	0.9%	1,875
51-9071	Jewelers and Precious Stone and Metal Workers	3	244	191	-21.7%	14
51-9081	Dental Laboratory Technicians	2	597	687	15.1%	413
51-9082	Medical Appliance Technicians	3	552	512	-7.2%	238
51-9083	Ophthalmic Laboratory Technicians	2	507	478	-5.7%	196
51-9111	Packaging and Filling Machine Operators and Tenders	2	6,339	5,638	-11.1%	1,238
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	2	1,029	1,172	13.9%	412
51-9122	Painters, Transportation Equipment	2	752	732	-2.7%	199
51-9123	Painting, Coating, and Decorating Workers	2	260	246	-5.4%	61
51-9141	Semiconductor Processors	2	162	148	-8.6%	59
51-9151	Photographic Process Workers and Processing Machine Operators	2	516	371	-28.1%	62
51-9191	Adhesive Bonding Machine Operators and Tenders	2	156	165	5.8%	59
51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	2	213	229	7.5%	77
51-9193	Cooling and Freezing Equipment Operators and Tenders	2	109	106	-2.8%	36
51-9194	Etchers and Engravers	2	163	181	11.0%	72

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	2	469	457	-2.6%	201
51-9196	Paper Goods Machine Setters, Operators, and Tenders	2	2,438	2,447	0.4%	576
51-9197	Tire Builders	2	67	77	14.9%	37
51-9198	Helpers--Production Workers	2	7,826	8,269	5.7%	2,440
51-9199	Production Workers, All Other	2	1,358	1,484	9.3%	468
53-1011	Aircraft Cargo Handling Supervisors	2	107	113	5.6%	35
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	2	2,829	3,129	10.6%	1,189
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	2	2,770	3,211	15.9%	1,267
53-2012	Commercial Pilots	3	574	706	23.0%	355
53-2021	Air Traffic Controllers	3	162	147	-9.3%	67
53-2022	Airfield Operations Specialists	3	246	252	2.4%	142
53-3011	Ambulance Drivers and Attendants, Except Emergency Medical Technicians	2	777	1,037	33.5%	425
53-3021	Bus Drivers, Transit and Intercity	2	2,051	2,208	7.7%	727
53-3022	Bus Drivers, School or Special Client	2	10,698	12,123	13.3%	4,129
53-3031	Driver/Sales Workers	2	7,044	7,410	5.2%	1,713
53-3032	Heavy and Tractor-Trailer Truck Drivers	2	21,500	26,448	23.0%	9,474
53-3033	Light Truck or Delivery Services Drivers	2	14,469	14,262	-1.4%	2,539
53-3041	Taxi Drivers and Chauffeurs	1	3,825	4,052	5.9%	998
53-3099	Motor Vehicle Operators, All Other	2	411	500	21.7%	195
53-4013	Rail Yard Engineers, Dinkey Operators, and Hostlers	2	43	47	9.3%	17
53-5011	Sailors and Marine Oilers	2	30	38	26.7%	27
53-5021	Captains, Mates, and Pilots of Water Vessels	3	297	295	-0.7%	183
53-5031	Ship Engineers	3	66	77	16.7%	42
53-6011	Bridge and Lock Tenders	1	45	36	-20.0%	11
53-6021	Parking Lot Attendants	2	3,190	3,932	23.3%	2,601
53-6031	Automotive and Watercraft Service Attendants	1	809	918	13.5%	368
53-6041	Traffic Technicians	3	23	25	8.7%	11
53-6051	Transportation Inspectors	3	274	256	-6.6%	82
53-6061	Transportation Attendants, Except Flight Attendants	2	463	412	-11.0%	67
53-6099	Transportation Workers, All Other	2	102	111	8.8%	54
53-7011	Conveyor Operators and Tenders	2	205	198	-3.4%	69
53-7021	Crane and Tower Operators	3	805	922	14.5%	435
53-7032	Excavating and Loading Machine and Dragline Operators	2	266	318	19.5%	94
53-7051	Industrial Truck and Tractor Operators	2	9,515	11,109	16.8%	4,716

SOC Code	Occupation Title	Job Zone	2014	2024	% Change 2014-2024	New and Replacement Jobs
53-7061	Cleaners of Vehicles and Equipment	2	4,204	4,710	12.0%	1,872
53-7062	Laborers and Freight, Stock, and Material Movers, Hand	2	45,278	54,277	19.9%	25,315
53-7063	Machine Feeders and Offbearers	2	1,266	1,186	-6.3%	244
53-7064	Packers and Packagers, Hand	2	13,208	14,960	13.3%	5,915
53-7071	Gas Compressor and Gas Pumping Station Operators	2	70	81	15.7%	53
53-7072	Pump Operators, Except Wellhead Pumpers	2	127	136	7.1%	82
53-7073	Wellhead Pumpers	2	16	16	0.0%	12
53-7081	Refuse and Recyclable Material Collectors	2	1,982	2,035	2.7%	692
53-7121	Tank Car, Truck, and Ship Loaders	2	161	143	-11.2%	44
53-7199	Material Moving Workers, All Other	2	93	137	47.3%	73

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