



SCDEW & CCWD Updates

June 20th, 2024

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Agenda

- Agency updates
 - Introductions
 - Act 67 of 2023
 - Return-on-Investment Analysis & Data Sharing
 - BLS Wage Records Pilot
 - Standard Occupation Code and Hours Worked
 - ROI Spotlight
 - Nursing Analysis
 - Availability of one pagers
- Q&A

Agency Updates

Introductions

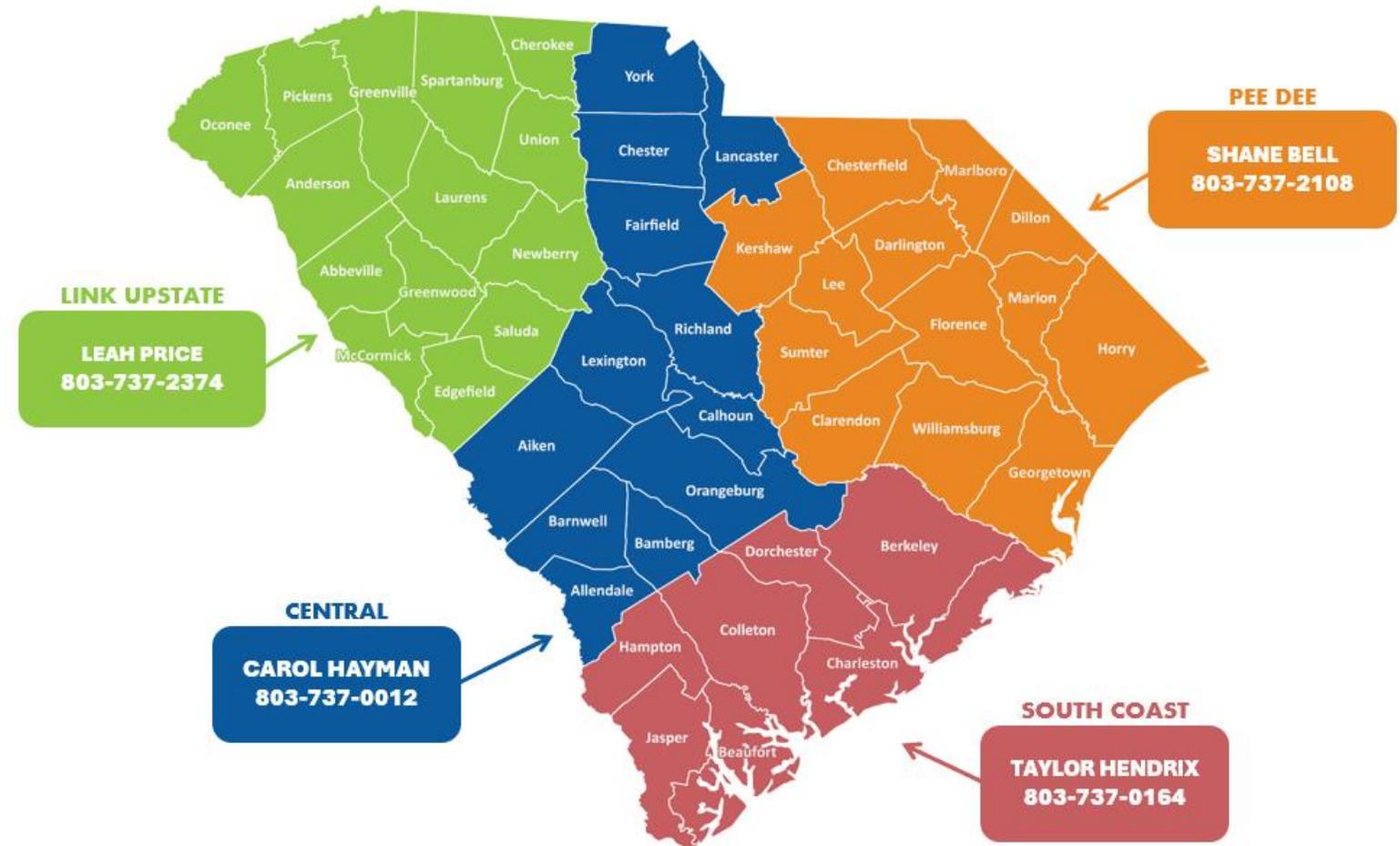
- DEW Presenters
 - **Erica Von Nessen, Ph.D.** – Research Economist
 - **Justin Williams, Ph.D.** – Analytics Coordinator-LMI
 - **Sophia Casler** – Longitudinal Analyst-LMI

Workforce Analyst Contacts in LMI

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WORKFORCE INSIGHTS ANALYSTS -AREA OF RESPONSIBILITY



Act 67 of 2023

- The Statewide Education and Workforce Development Act
 - Passed June 2023
 - Expanded CCWD membership
 - Outlines specific data-related deliverables including:
 - Return-on-Investment (ROI) analysis of the state's education and workforce programs
 - Supply Gap analysis
 - Collecting Standard Occupational Classification (SOC) codes and hours worked in quarterly wage records

ROI Analysis

- Currently working with Commission on Higher Education & State Technical College System to obtain data for analysis on:
 - **CHE** - Five bachelor's degree programs:
 - Business/Logistics
 - Computers/IT
 - Engineering
 - Nursing
 - Teaching
 - **State Tech** - Four programs:
 - Machine Tool & CNC
 - Mechatronics
 - Nursing
 - Welding

Shareable Wage Dashboard

- DEW LMI was given a grant from the BLS to build a shareable wage dashboard
 - Goal: To make a dashboard to visualize summary data of wages from participating States in the BLS Wage
 - Currently, we are identifying data sources and exploring how best to visualize this data
 - In the near future we will be talking to Stakeholders about how to show these data and what uses they anticipate for this project

SOC Codes: Background

- Due to new legislation (Act 67), we are now collecting SOC codes from every employer in South Carolina
- The Standard Occupational Classification (SOC) System was developed in response to a growing need for a universal occupational classification system. Such a classification system allows government agencies and private industry to produce comparable data
- There are 23 major groups (two digit) 96 minor groups (four digit), 449 broad occupations (five digit), and 821 detailed occupations (six digit)

SOC Codes: Examples

May 2023 Occupation Profiles

Major groups

- 00-0000 [All Occupations](#)
- 11-0000 [Management Occupations](#)
- 13-0000 [Business and Financial Operations Occupations](#)
- 15-0000 [Computer and Mathematical Occupations](#)
- 17-0000 [Architecture and Engineering Occupations](#)
- 19-0000 [Life, Physical, and Social Science Occupations](#)
- 21-0000 [Community and Social Service Occupations](#)
- 23-0000 [Legal Occupations](#)
- 25-0000 [Educational Instruction and Library Occupations](#)
- 27-0000 [Arts, Design, Entertainment, Sports, and Media Occupations](#)
- 29-0000 [Healthcare Practitioners and Technical Occupations](#)
- 31-0000 [Healthcare Support Occupations](#)
- 33-0000 [Protective Service Occupations](#)
- 35-0000 [Food Preparation and Serving Related Occupations](#)
- 37-0000 [Building and Grounds Cleaning and Maintenance Occupations](#)
- 39-0000 [Personal Care and Service Occupations](#)
- 41-0000 [Sales and Related Occupations](#)
- 43-0000 [Office and Administrative Support Occupations](#)
- 45-0000 [Farming, Fishing, and Forestry Occupations](#)
- 47-0000 [Construction and Extraction Occupations](#)
- 49-0000 [Installation, Maintenance, and Repair Occupations](#)
- 51-0000 [Production Occupations](#)
- 53-0000 [Transportation and Material Moving Occupations](#)

29-0000 Healthcare Practitioners and Technical Occupations

- 29-0000 [Healthcare Practitioners and Technical Occupations](#)
 - 29-1000 Healthcare Diagnosing or Treating Practitioners
 - 29-1010 Chiropractors
 - 29-1011 [Chiropractors](#)
 - 29-1020 Dentists
 - 29-1021 [Dentists, General](#)
 - 29-1022 [Oral and Maxillofacial Surgeons](#)
 - 29-1023 [Orthodontists](#)
 - 29-1024 [Prosthodontists](#)
 - 29-1029 [Dentists, All Other Specialists](#)
 - 29-1030 Dietitians and Nutritionists
 - 29-1031 [Dietitians and Nutritionists](#)

Images taken from:

https://www.bls.gov/OES/CURRENT/oes_stru.htm

SOC Codes: Data acquisition thus far...

- In total, we received 1,528,286 total SOC code input attempts from 80,118 different companies in the 2024 Q1 UI records as of May 21st. That is **66%** of the companies that submitted UI wage data.
- Compared to other states that are collecting SOC code this response rate in our first year is outstanding!
- We are also collecting hours worked

SOC Codes: The data cleaning process

- Currently, we are in the process of cleaning and validating the data. With a data set this immense, this has been a significant challenge.
- The first step is to validate that the SOC codes are accurate six-digit codes.
- The second step is to match the codes to Industry Standards.
 - The most challenging step here is to determine how much data manipulation is appropriate to do.

SOC Codes: The future

- It's a Long and Winding Road, but when the data set is ready, it should allow us to make more accurate statements than ever before about:
 - The Hours Worked
 - What exactly folks are doing in the workplace
- What these data may help you all do:
 - In a general sense, we will be better able to talk about the distribution of careers within a given industry.
 - Provide very accurate income wages for specific occupations to students
 - Provide very accurate information about which companies employ people from which of the 821 specific occupations.

Return-on-Investment and Post-Secondary Outcomes Analysis

South Carolina Nursing Graduates



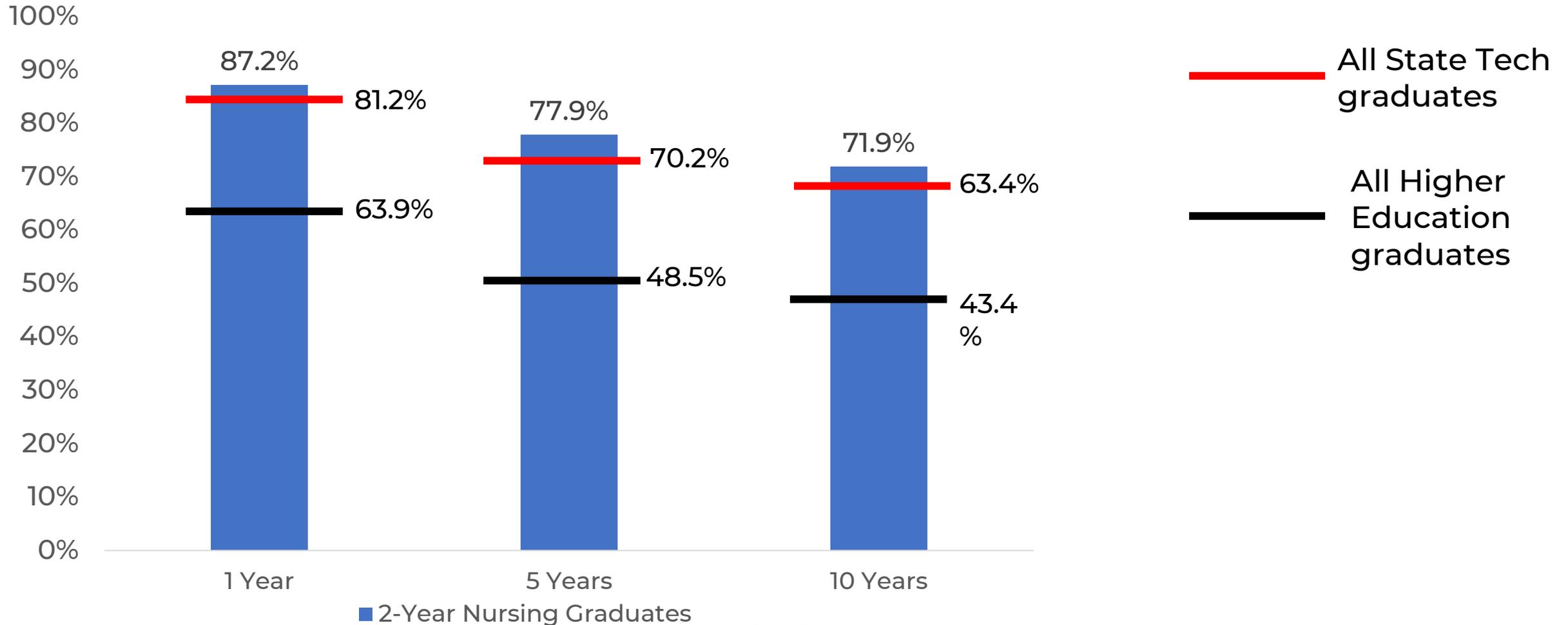
Data and Methodology

- 2-Year Graduates
 - 21,715 unique graduates
 - Calendar Years 2004-2021
- Matched with DEW UI Wage Records
 - Wages and industry of employment analyzed at select years post-graduation
 - One, Five, and Ten Years – 2-Year graduates

Data Limitations

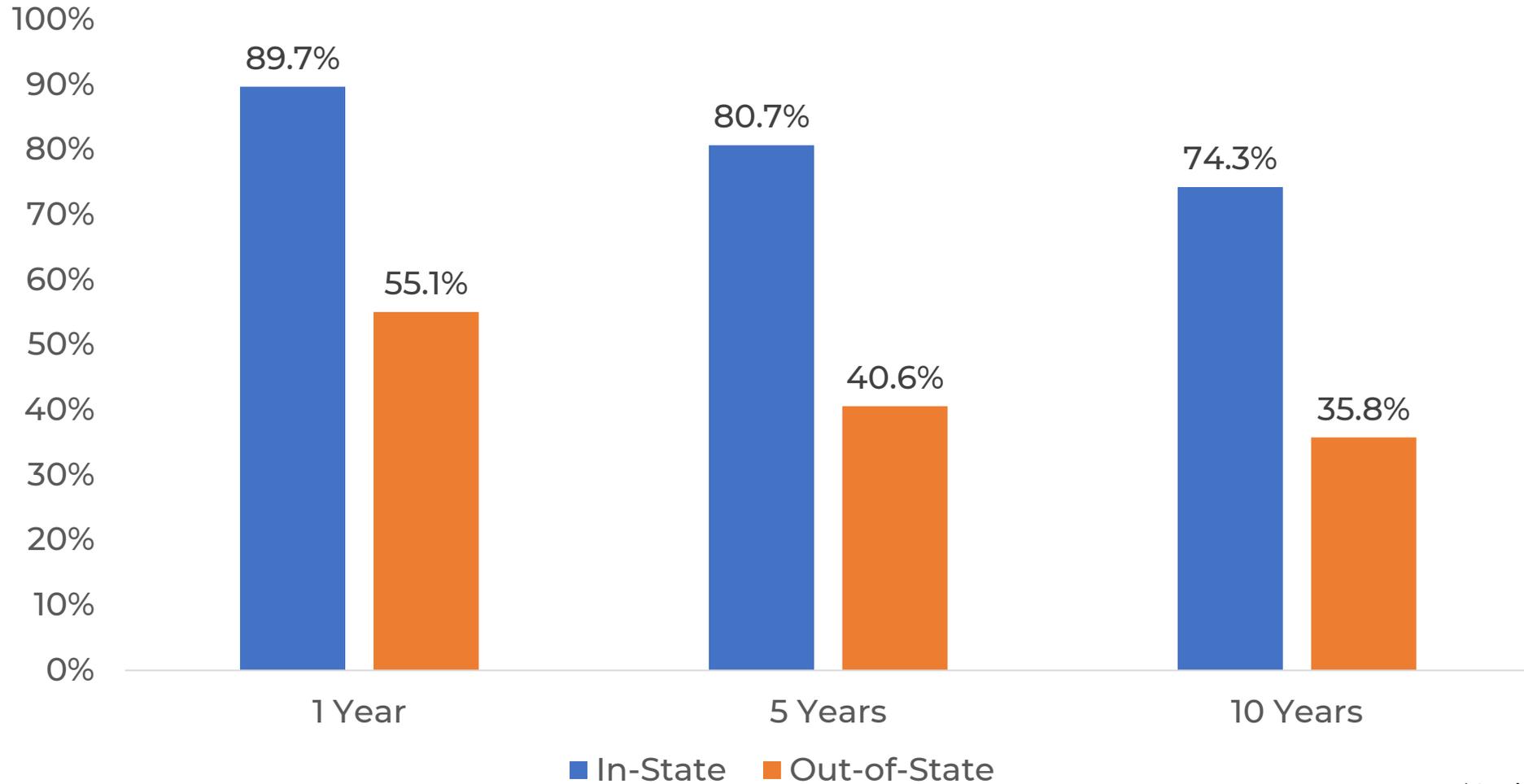
- The program and graduation data used within the 2-Year graduate data set were provided by the South Carolina Technical College System. Records were limited to students who completed an associate degree in nursing at a SC Technical College from CYs 2004-21
- Employment and earnings data are derived from the UI wage records in South Carolina provided by DEW
 - These do not include students who work outside of the state, are self-employed, work as independent contractors, or work for the federal government or military

Graduates found in Wage Records



Note: These do not include graduates who are self-employed, employed out-of-state, work as independent contractors, or who work for the federal government or military

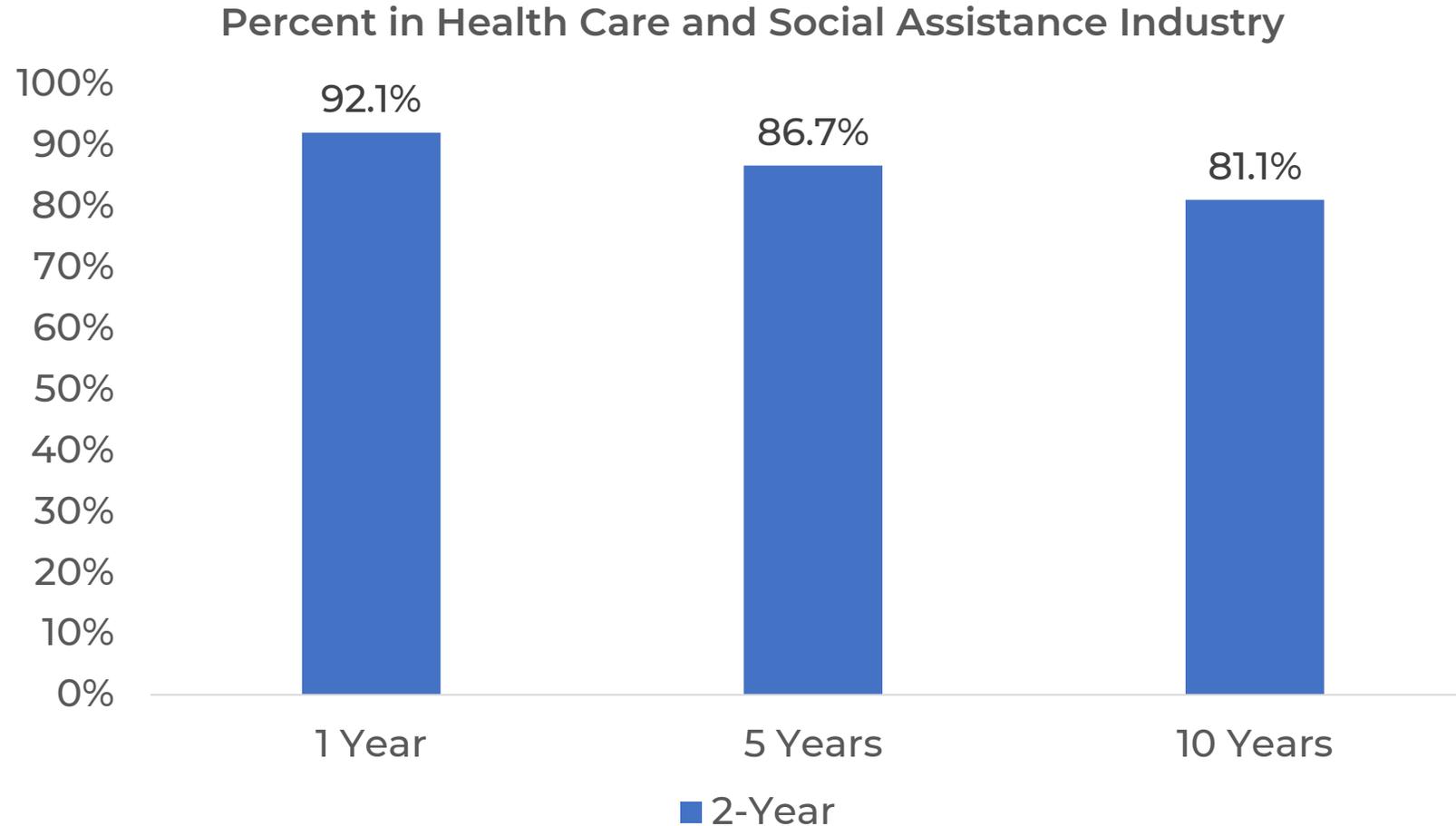
Residency* of Graduates in the Wage Records



*At time of enrollment

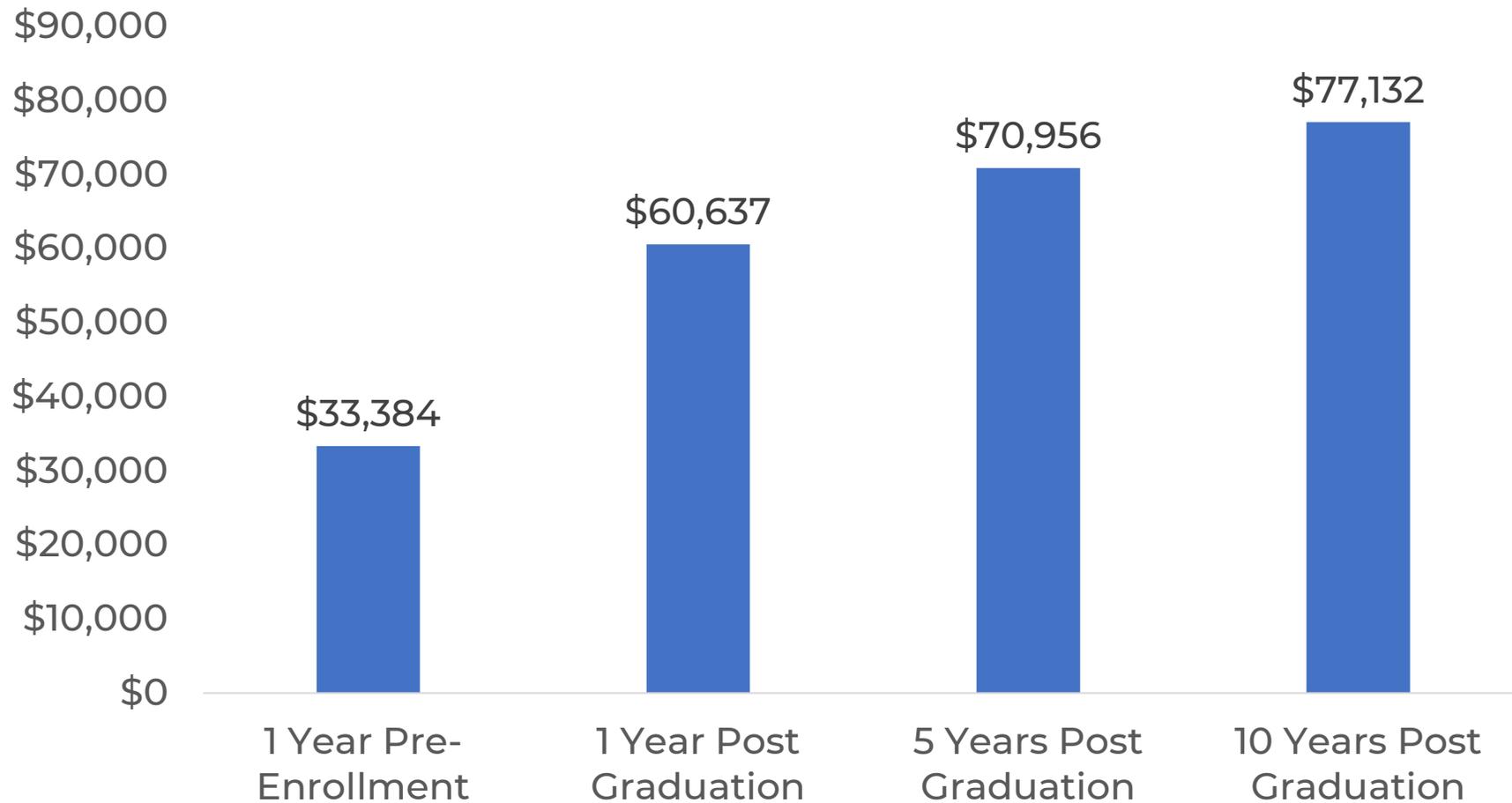
Note: Over 90% of graduates are in-state

Industry of Employment



- Graduates not found in Health Care and Social Assistance are most likely to be found in the Administrative and Support and Waste Management and Remediation Services* industry, Educational Services industry, and Finance and Insurance industry

Median Earnings – Associate Degree Holders

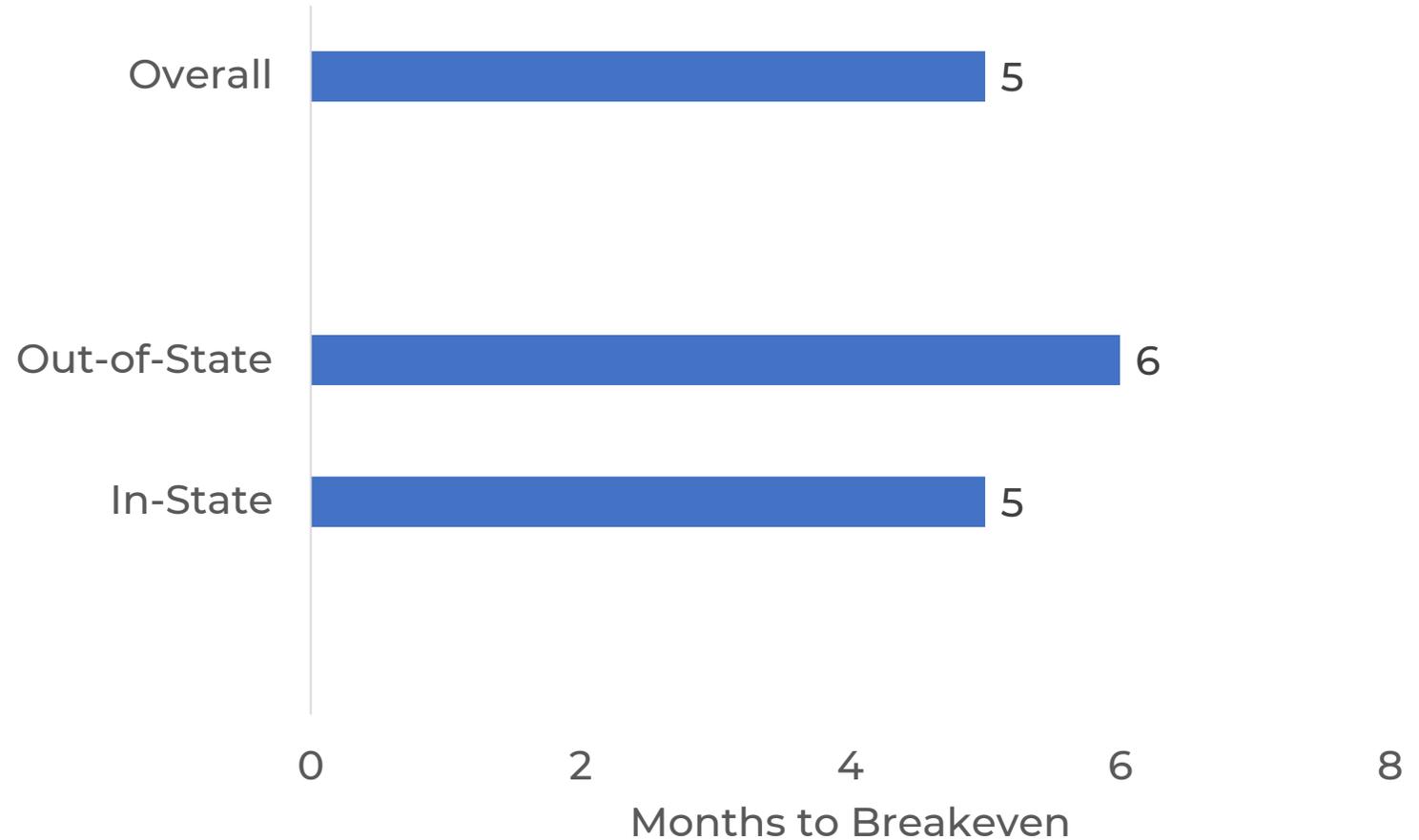


Considerations when Calculating ROI

- Caveats to ROI
 - Lack of information about specific financial aid (scholarships, loans, and grants)
 - Opportunity costs not known
 - Non-economic benefits of degree difficult to quantify (social capital etc.)

Cost of Degree and ROI – Associate* Degree

- **Cost** (2-Year) :**
\$10,000
- **Wage Premium*** :**
\$23,000/Year
- **Time to Breakeven (Post-Completion) :**
5 Months



*Includes all individuals who obtained an associate degree, regardless of if they receive further higher education

**Calculated by a weighted average of published in-state tuition costs for institutions by graduate frequency in the data

***Additional wages compared to those of a high school graduate (median)

Job Postings – Specific Occupations

- Past 12 Months: **92.5%** of the **33,500 job postings** open to bachelor's degree holders require only an associate degree
- Top 3 in-demand nursing occupations
 1. Registered Nurses (~71%)
 2. Licensed Practical and Licensed Vocational Nurses (~16%)
 3. Nurse Practitioners (~5%)
- Registered Nursing is the most in-demand occupation in the U.S., and the second* most in-demand occupation in South Carolina

*The most in-demand occupation in South Carolina is First-Line Supervisors of Retail Sales Workers
Note: These postings include all job openings for nurses across educational attainment levels

Glossary/Methodology

- Wage Premium: Additional wages compared to those of a high school graduate (median).
- Associate degree: Includes all individuals who obtained an associate degree, regardless of if they receive further higher education.
- Cost of degree: Calculated by a weighted average of published in-state tuition costs for institutions by graduate frequency in the data.
- Residency: Determined by the state of residency at the time of enrollment into the institution.

One Pager Examples

Mechatronics Credentials in South Carolina

Supply and Demand of Mechatronics Graduates

Year	Supply	Demand
2012	17	-
2013	68	-
2014	77	-
2015	85	-
2016	155	-
2017	163	-
2018	232	-
2019	289	396
2020	350	396
2021	350	350
2022	350	350

Over the past 12 months, there were 462 documented job openings in the state for Electro-Mechanical and Mechatronics Technicians.

There are projected to be 380 annual job openings for Electrical and Mechanical Engineering Technicians in the state each year through 2030.

Over the past 10 years, the Technical College System has produced between 20 and 400 graduates in mechatronics programs each year.

In total, there were 2,190 unique* graduates in these mechatronics programs between 2013 and 2022.

Note that there may be demand for these skills in occupations not currently identified.

Profile of a 2022 Mechatronics Graduate

Demographics

- The median age of mechatronics program graduates was 22.
- A majority of graduates in mechatronics programs were White (72.6%) while 13.4% reported being Black or African-American. Approximately 8.4% reported being Hispanic/Latino.
- A majority of mechatronics program graduates were male (83.7%).
- 14 of the 16 Technical Colleges had mechatronics program completions between 2013 and 2022. Technical College of the Lowcountry and Denmark Technical College did not produce any mechatronics graduates during this period.

Percentage of Graduates by County of Residence

*Each graduate may earn more than one credential during their studies. For more information, contact UMCustomerService@dew.sc.gov

Mechatronics Credentials in South Carolina

Wage Comparison for Individuals Completing Mechatronics Credentials

Category	Wages
Wages Pre-Completion	\$37,054
Wages Post-Completion	\$61,490

- Mechatronics programs are offered at the certificate, diploma, and associate degree level and can require between 30 and 75 credit hours costing \$4,000-\$15,000.
- 82.7% of graduates found in the wage records both periods had a wage change of \$4,000 in the first year after obtaining the credential while 68.3% had a wage change of \$13,000 in the first year after obtaining the credential.
- Overall, 77.7% of graduates were found in the S.C. wage records one year post-program completion.
- Most students are likely able to recoup the cost of the program within one to two years of completion through higher wages.
- Wage information at right only includes individuals earning at least \$14,500 in the four quarters pre- and post-program completion.

Industry of Employment of the Individual Before and After Program

Industry	Pre-Completion	Post-Completion
Construction	4.5%	3.8%
Manufacturing	48.7%	70.3%
Trade, Trans, Utilities	20.9%	13.7%
Leisure & Hosp	5.1%	0.2%
All Other	20.8%	12.0%

- In the year immediately after completion of a mechatronics program, 70.3% of graduates were working in the Manufacturing Industry. This compares with 48.7% working in this industry prior to program completion.
- Compared to the year prior to program completion, there were fewer graduates working in the All Other; Trade, Transportation, and Utilities; or the Leisure and Hospitality Industries than after completing a mechatronics program.
- Current data about S.C. workers is based on industry of employment. SCDIEW will begin collecting occupation data on workers starting in April 2024. Future analysis may be able to specifically document which graduates of mechatronics programs obtain jobs in their field during this period.

Machine Tool & CNC Credentials in South Carolina

Supply and Demand of Machine Tool and CNC Graduates

Year	Supply	Demand
2013	210	169
2014	277	182
2015	182	155
2016	156	177
2017	142	135
2018	117	-
2019	-	-
2020	-	-
2021	-	-
2022	-	-

- Over the past 12 months, there were 1,540 documented job openings in the state for Machinists and CNC Op/Programmers.
- There are expected to be 1,700 annual job openings for Machinists and CNC Op/Programmers in the state each year through 2030.
- Over the past 10 years, the Technical College System has produced between 100 and 300 graduates in these programs each year.
- In total, there were 1,716 unique* graduates in these machine tool and CNC programs between 2013 and 2022.
- Note that there may be a supply of individuals with these skills obtained outside of the Technical College System.

Profile of a 2022 Machine Tool and CNC Graduate

Demographics

- The median age of machine tool and CNC program graduates was 23.
- A majority of graduates in machine tool and CNC programs were White (86.4%) while 12.8% reported being Black or African-American. Approximately 6.0% reported being Hispanic/Latino.
- A majority of machine tool and CNC program graduates were male (84.9%).
- 14 of the 16 Technical Colleges had machine tool or CNC program completions between 2013 and 2022. Technical College of the Lowcountry and Denmark Technical College did not produce any graduates in these fields during this period.

Percentage of Graduates by County of Residence

*Each graduate may earn more than one machine tool or CNC credential during their studies. For more information, contact UMCustomerService@dew.sc.gov

Machine Tool and CNC Credentials in South Carolina

Wage Comparison for Individuals Completing Machine Tool and CNC Credentials

Category	Wages
Wages Pre-Completion	\$32,770
Wages Post-Completion	\$50,420

- Machine tool and CNC programs are offered at the certificate, diploma, and associate degree level and can require between 13 and 75 credit hours costing \$2,000-\$15,000.
- 81.2% of graduates found both pre- and post-program had a wage change of \$2,000 in the first year after obtaining the credential while 58.2% had a wage change of \$15,000 in the first year after obtaining a credential.
- Overall, 85.4% of graduates were found in the S.C. wage records one year post-program completion.
- Most students are likely able to recoup the cost of the program within one to two years of completion through higher wages.
- Wage information at right only includes individuals earning at least \$14,500 in the four quarters pre- and post-program completion.

Industry of Employment of the Individual Before and After Program

Industry	Pre-Completion	Post-Completion
Construction	1.6%	0.5%
Manufacturing	64.7%	82.0%
Trade, Trans, Utilities	12.2%	8.6%
Leisure & Hosp	2.5%	0.8%
All Other	18.8%	8.1%

- In the year immediately after completion of a machine tool or CNC program, 82.0% of graduates were working in the Manufacturing Industry. This compares with 64.7% working in this industry prior to program completion.
- Compared to the year prior to program completion, there were fewer graduates working in the All Other; Trade, Transportation, and Utilities; or the Leisure and Hospitality Industries than after completing a machine tool or CNC program.
- Current data about S.C. workers is based on industry of employment. SCDIEW will begin collecting occupation data on workers starting in April 2024. Future analysis may be able to specifically document which graduates obtain jobs in their field of study.

Questions

Labor Market Information

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