The Future of Work, Jobs and Skills

SOUTH CAROLINA DEPARTMENT OF

Employment and Workforce

"The Workforce Agency"

Labor Market Information Director Dr. Bryan Grady

February 3, 2023

EMPLOYMENT SITUATION

Month	Employed[1]	Unemployed [1]	Unemployment Rate
February 2020	2,249,353	67,120	2.9%
April 2020	2,042,032 (-207,321)	268,537 (+201,417)	11.6% (+8.7 percentage pts)
December 2022 (preliminary)	2,300,110	77,361	3.3%
NET CHANGE (November 2022 vs February 2020)	+50,757	+10,241	+0.4 percentage pts

Post Pandemic Employer Demand	
Jobs: +50,757	Postings: +31,559
	Feb 2020: 64,000[2] Jan 2023: 95,559
Total Change in Demand: +82,316	

Location	Unemployment Rate
United States	3.5%
Georgia	3.0%
North Carolina	3.9%

1. Household Survey: Nationally, there is a monthly Current Population Survey of about 60,000 households conducted by the Census Bureau for the Bureau of Labor Statistics (BLS) to determine employment status of the civilian population. This information, along with other inputs, are used by DEW to operate the Local Area Unemployment Statistics program, which estimates the number of individuals employed and those not employed, but actively seeking employment for statewide and a variety of substate geographies.
2. Approximation of daily jobs posted in SC Works Online Services Database.

WORKFORCE OF THE FUTURE

- Main Problems
  - Declining Population of Baby Boomers in Workforce
  - Low Labor Force Participation
  - Skill Needs: Supply Gap Analysis for Training Assessment

SOUTH CAROLINA'S CHANGING GENERATIONS

Decade-by-decade comparison of the percentage of the labor force in that generation and the current number in the labor force.						
Generation	Ages	1992	2002	2012	2022	2022 Number
Silent	76 and up	26%	13%	3%	1%	19,208
Baby Boomers	57 to 75	51%	46%	35%	18%	437,823
Gen Xers	41 to 56	23%	33%	35%	32%	758,791
Millennials	25 to 40	n/a	7%	27%	36%	848,086
Gen Z	Up to 24	n/a	n/a	n/a	13%	318,483

- Millennials became the largest generation in the labor force in 2016.
- This trend is continuing, and generations behind the Boomers are smaller in general, further heightening the labor shortage.
  - While the Millennial labor force is still growing, it is unlikely that it will reach the peak size of the Boomer labor force.
  - The Census Bureau projects that the Millennial Population will peak at 75 million, which would require a labor force participation rate of 88% to equal the number of Boomer jobs at the peak.
- The labor shortage is a long-term issue that the United States will be dealing with for years.

S.C. LABOR FORCE PARTICIPATION BY GENDER

	Total	Total %	Male	Male %	Female	Female %
South Carolina 2021*	2,350,000	57.1%	1,207,000	62.1%	1,142,000	52.5%
United States December 2022	164,966,000	62.3%	87,864,000	68.1%	77,102,000	56.8%

*State numbers are released annually

S.C. LABOR FORCE PARTICIPATION BY AGE, 2021

Age	U.S.	U.S. Labor Force Participation Rate	S.C.	S.C. Labor Force Participation Rate
16-24 for U.S./20-24 for S.C.	21,138,000	55.7%	213,000	68.6%
25-34	36,932,000	83.7%	541,000	81.6%
35-44	35,730,000	83.0%	501,000	80.8%
45-54	32,671,000	81.8%	481,000	77.2%
55-64	27,164,000	64.5%	378,000	58.7%
65+	10,860,000	19.1%	142,000	14.0%

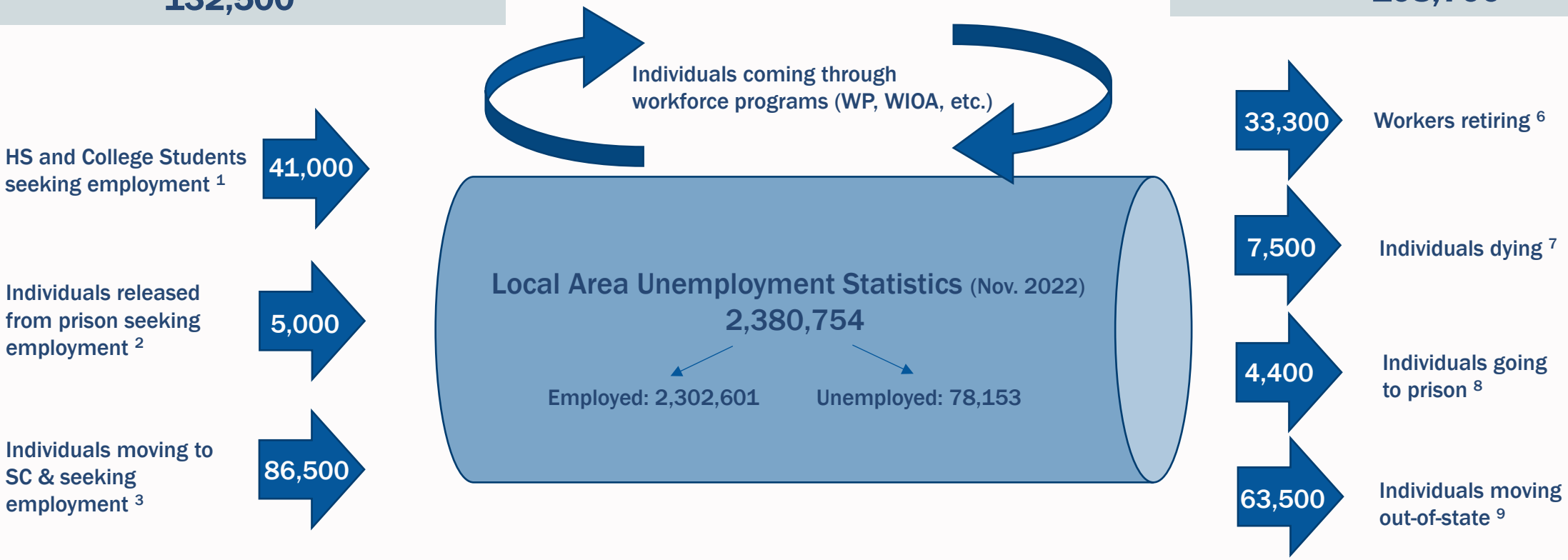
S.C. LABOR FORCE PARTICIPATION FOR MALES

MEN	1999			2018 (Pre-pandemic)			2021		
AGES	Civilian Non-Institutional Population	Labor Force	Labor Force Participation Rate	Civilian Non-Institutional Population	Labor Force	Labor Force Participation Rate	Civilian Non-Institutional Population	Labor Force	Labor Force Participation Rate
20 to 24 years	115,000	233,000	77.5%	141,000	105,000	74.1%	147,000	106,000	72.2%
25 to 34 years	233,000	224,000	96.2%	312,000	272,000	87.4%	333,000	291,000	87.5%
35 to 44 years	309,000	285,000	92.3%	296,000	270,000	91.3%	285,000	248,000	86.9%
45 to 54 years	265,000	227,000	85.5%	287,000	239,000	83.4%	305,000	253,000	82.8%
55 to 64 years	171,000	110,000	65.2%	314,000	203,000	64.7%	303,000	187,000	61.5%

SOURCE OF EMPLOYEES

APPROXIMATE ANNUAL ENTRY POPULATION: 132,500

APPROXIMATE ANNUAL EXIT POPULATION: 108,700



Individuals re-entering the labor force
UNKNOWN

Assumed Static

Individuals residing elsewhere working in SC	Individuals residing in SC working elsewhere
121,700	181,100

October 2022

Individuals voluntarily leaving labor force
UNKNOWN

All footnotes available upon request.

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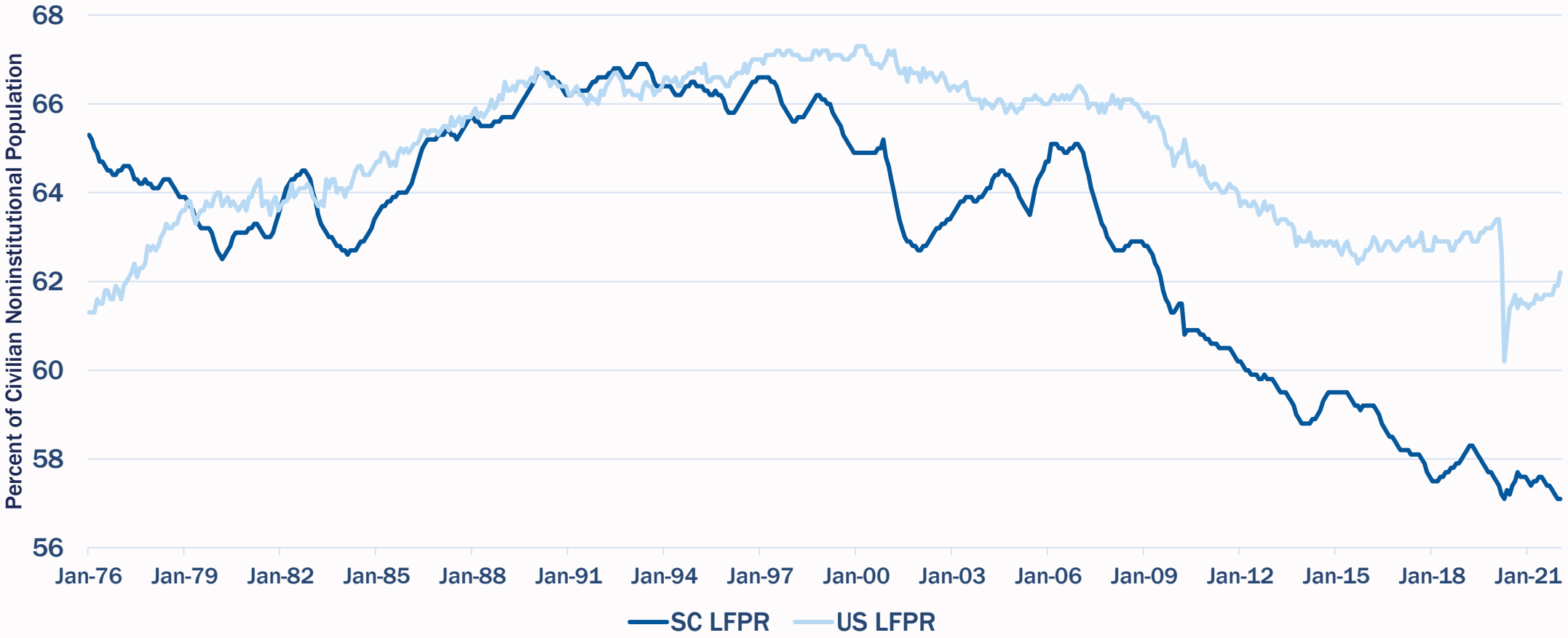
SOUTH CAROLINA LABOR FORCE PARTICIPATION TASK FORCE

SOUTH CAROLINA AND U.S. LFP RATES, 1976-2021



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STARTING THE PROCESS

- The task force was first convened on March 23.
  - Eleven people were asked to serve on the task force, which included leaders from across academia, government, and the private sector.
  - Erica and I also serve on the task force and developed an initial analysis and presented it to the group.

- Two further meetings followed to determine next steps.

- All materials are available online at https://dew.sc.gov/taskforce.

TWO-TRACK RESEARCH

- It was determined that, to better understand the labor market dynamics at play, two research products would be required.

- One would evaluate the question from a macro level, working to identify fundamental shifts in the state's demographic and economic characteristics correlated with trends in the LFPR.

- Another would evaluate the question from a micro level…

METHODOLOGY

- The massive surge of unemployment filings during the initial wave of the pandemic provided a unique research opportunity.

- DEW was able to use its UI records to identify individuals who:
  - Were present in our wage data in 2019
  - Filed a UI claim in 2020, thereby providing contact information to DEW
  - Were not present in our wage data in 2021

- We wanted to ascertain how many of these people had dropped out of the labor force, their reasons for doing so, and how they might be convinced to return.

DEPLOYMENT

- The survey was deployed online, with emails sent to 150,392 people who fit the population parameters.
  - Of those, 6,116 responded to the survey (about a 4% response rate).

- The survey included items on current work status, perceived barriers to employment, work history, and demographics.
  - Average time to complete was slightly less than 5 minutes.

- So, what did we find out?

THE TOP LINE

- Approximately 46% of respondents indicated they are currently working in some form.
  - Note that UI wage records do not include contractors or sole proprietors.

- An additional 26% are individuals who are not available to work (i.e., students, retirees, those with disability or health issues).

- **This leaves roughly 28% of respondents who are not working but could work.**

WHERE ARE THE 28 PERCENT?

- Certain groups were more likely to report that they were not working but available to work:

- Black/African American: 32 percent
- Aged 54 or younger: 33 percent
- Less than college degree: 31 percent
- Living in Tier IV counties: 37 percent

- *WDAs with highest share: Lower Savannah and Midlands*

BARRIERS TO ENTRY – OVERALL

Barrier	Percent
Low pay jobs	23%
Health	20%
Gaps in employment history	19%
Lack of transportation	18%
Optimal hours not available	16%
Disabilities	15%
Lack of child care	14%
Stay with child	13%
Age (too old)	12%
Criminal record	11%

BARRIERS TO ENTRY – BY SEX

Barrier	Females	Males
Low pay jobs	23%	27%
Health	20%	19%
Gaps in employment history	20%	20%
Optimal hours not available	20%	9%
Lack of Transportation	19%	18%
Lack of child care	19%	
Stay with child	18%	
Disabilities	15%	19%
Age (too old)	12%	15%
Low self-esteem	10%	9%
Criminal record		19%
Lack of information about jobs		8%

BARRIERS TO ENTRY – BY RACE

Barrier	Black/African American	White
Low pay jobs	22%	24%
Health	18%	25%
Gaps in employment history	17%	23%
Optimal hours not available	17%	17%
Lack of Transportation	21%	18%
Lack of child care	16%	13%
Stay with child	11%	16%
Disabilities	14%	17%
Age (too old)		19%
Low self-esteem		14%
Criminal record	13%	
Lack of information about jobs		
Lack of training	8%	

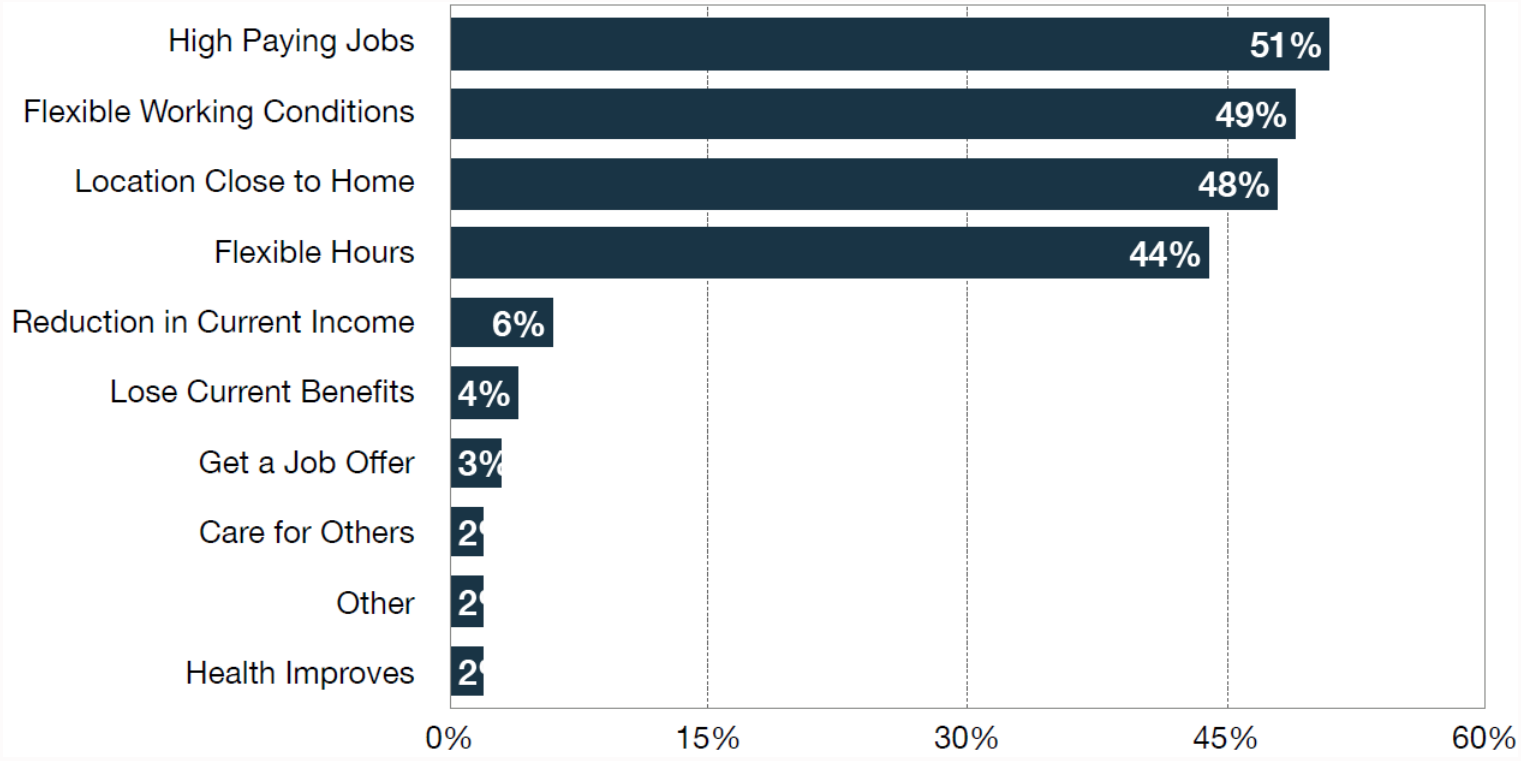
BARRIERS TO ENTRY – BY AGE

Barrier	24 years or younger	25-54 years	55 years or older
Low pay jobs	28%	24%	24%
Health		21%	27%
Gaps in employment history	20%	22%	14%
Optimal hours not available	14%	18%	14%
Lack of Transportation	23%	23%	7%
Lack of child care	23%	18%	
Stay with child	22%	18%	
Disabilities	11%	16%	17%
Age (too old)			36%
Low self-esteem	15%	10%	6%
Criminal record	11%	15%	
Lack of information about jobs			8%
Lack of training			
Family problems	12%		
Lack of computer skills			12%

BARRIERS TO ENTRY – BY TIER

Barrier	I	II	III	IV
Low pay jobs	22%	24%	25%	23%
Health	20%	22%	23%	17%
Gaps in employment history	19%	23%	18%	15%
Optimal hours not available	17%	17%	15%	12%
Disabilities	17%	13%	14%	19%
Lack of transportation	16%	18%	16%	27%
Lack of child care	14%	15%	11%	12%
Stay with child	14%	13%	13%	12%
Age (too old)	13%	11%	10%	11%
Criminal record	11%	12%	12%	11%

BRINGING PEOPLE BACK



When asked what would attract someone not currently in the labor force to look for work, the four clear responses largely corresponded with the barriers that people identified.

KEY TAKEAWAYS

- Results suggest that there may be several policy levers to improve the labor force participation rate:
  - Improved communication about relevant job opportunities
  - Increased availability of childcare and rural transportation
  - Enhanced accommodations for persons with health issues
  - Facilitating more flexible working conditions where possible

- It is concerning that, in a time of high wage growth, “sideliners” see low pay as an obstacle to employment. Do people have unrealistic expectations, or will businesses need to pay more? Further research (e.g., a focus group) may be necessary.

PIVOTING TO THE RESEARCH…

- The Chmura study covered several dimensions:
  - Literature Review
  - Decomposition Analysis
  - Regional and Industry Analysis
  - Policy and Strategy Implications

LITERATURE REVIEW

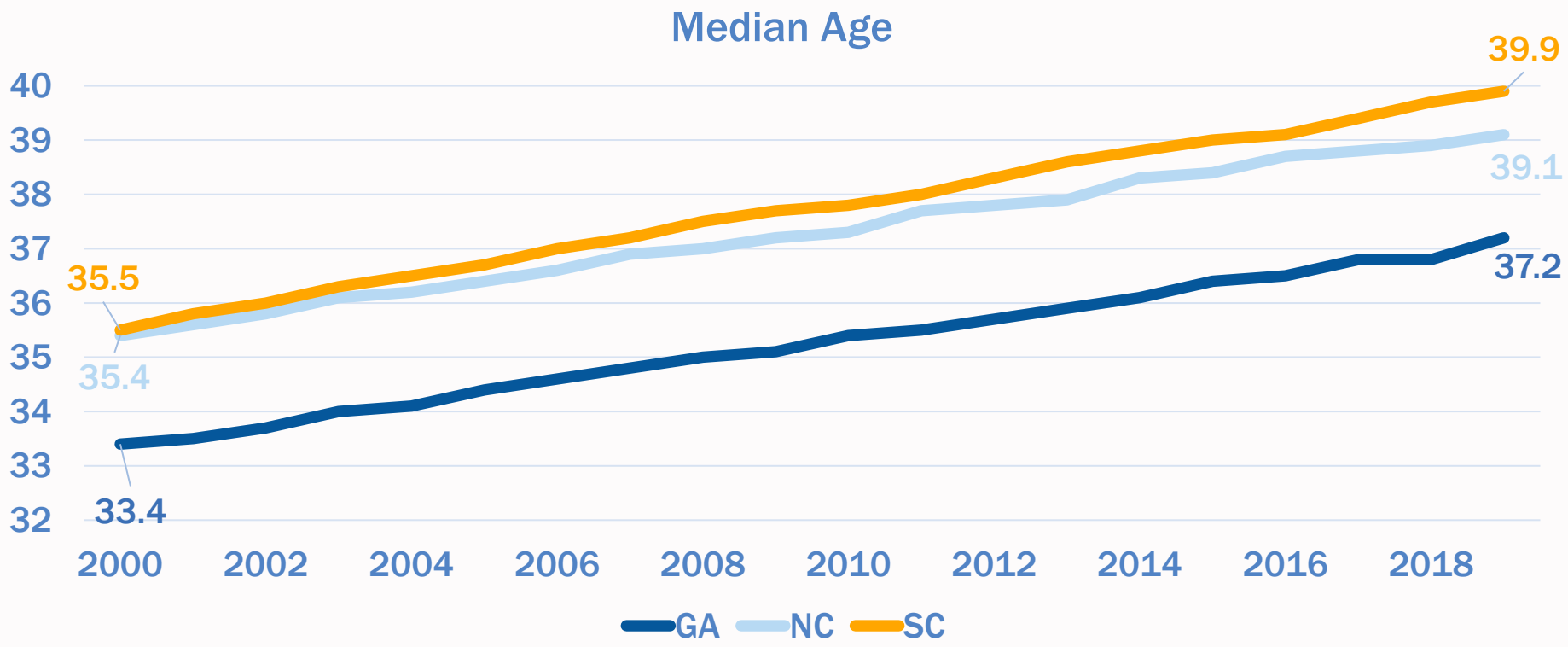
- Factors found to negatively impact labor force participation:
  - Aging population
  - Young adults spending more time on school and less time on non-school activities including work
  - Increased use of opioids and higher rates of disability
  - Increased globalization moving low-skilled manufacturing jobs overseas
  - Improvements in video game technology raising value of leisure over work

MACROECONOMIC FACTORS: AGING

- The primary cause of the state's labor force decline between 1994 and 2019 is attributable to an aging population
  - Share of the population 65+ nearly doubled from 11.9% to 23.3%.

- The increasing share of the population over the age of 65 accounted for 72.8% of the reduction in the state's LFPR.
  - By contrast, aging contributed less to similar but less severe declines in both Georgia (58.8%) and North Carolina (54.2%).

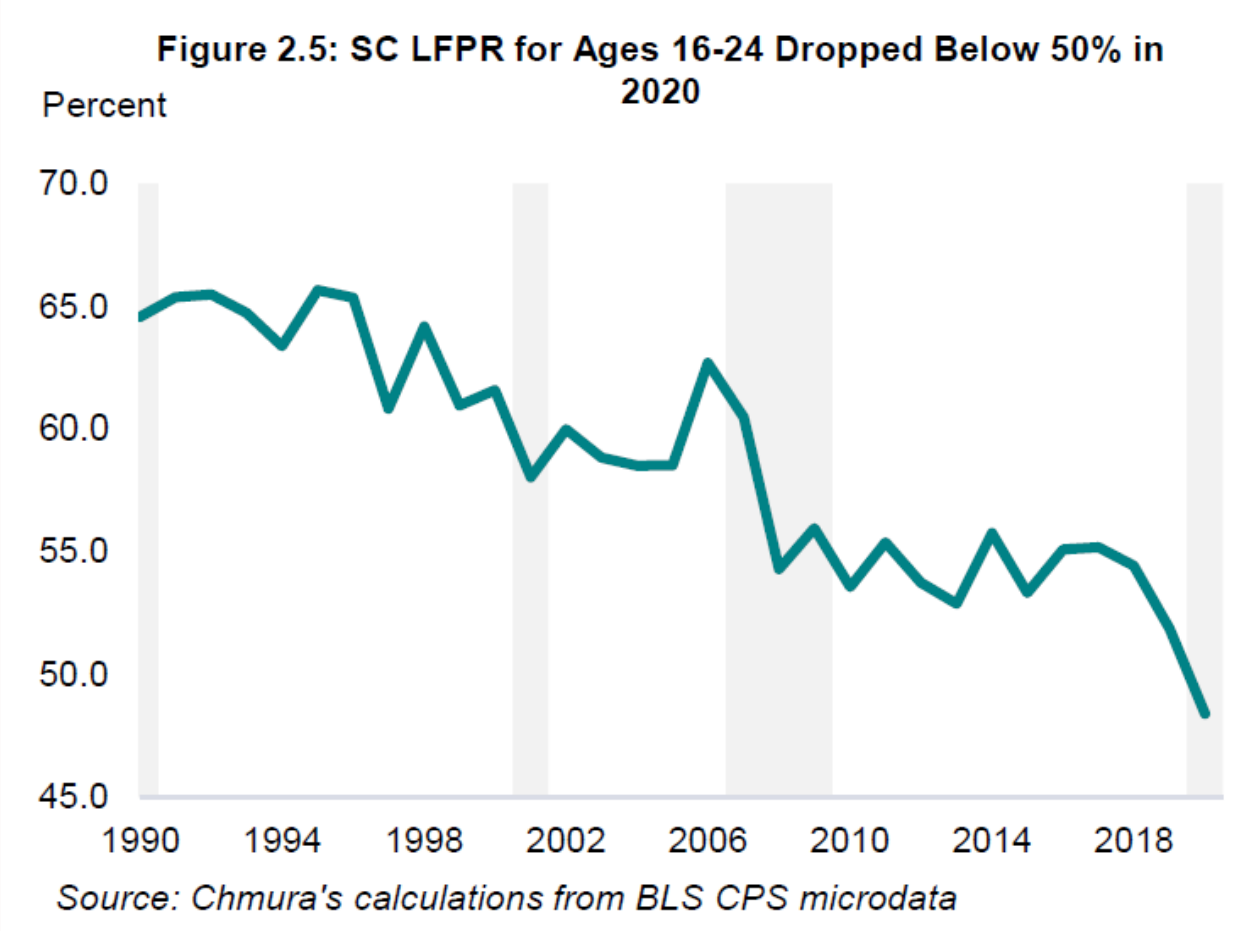
MACROECONOMIC FACTORS: AGING



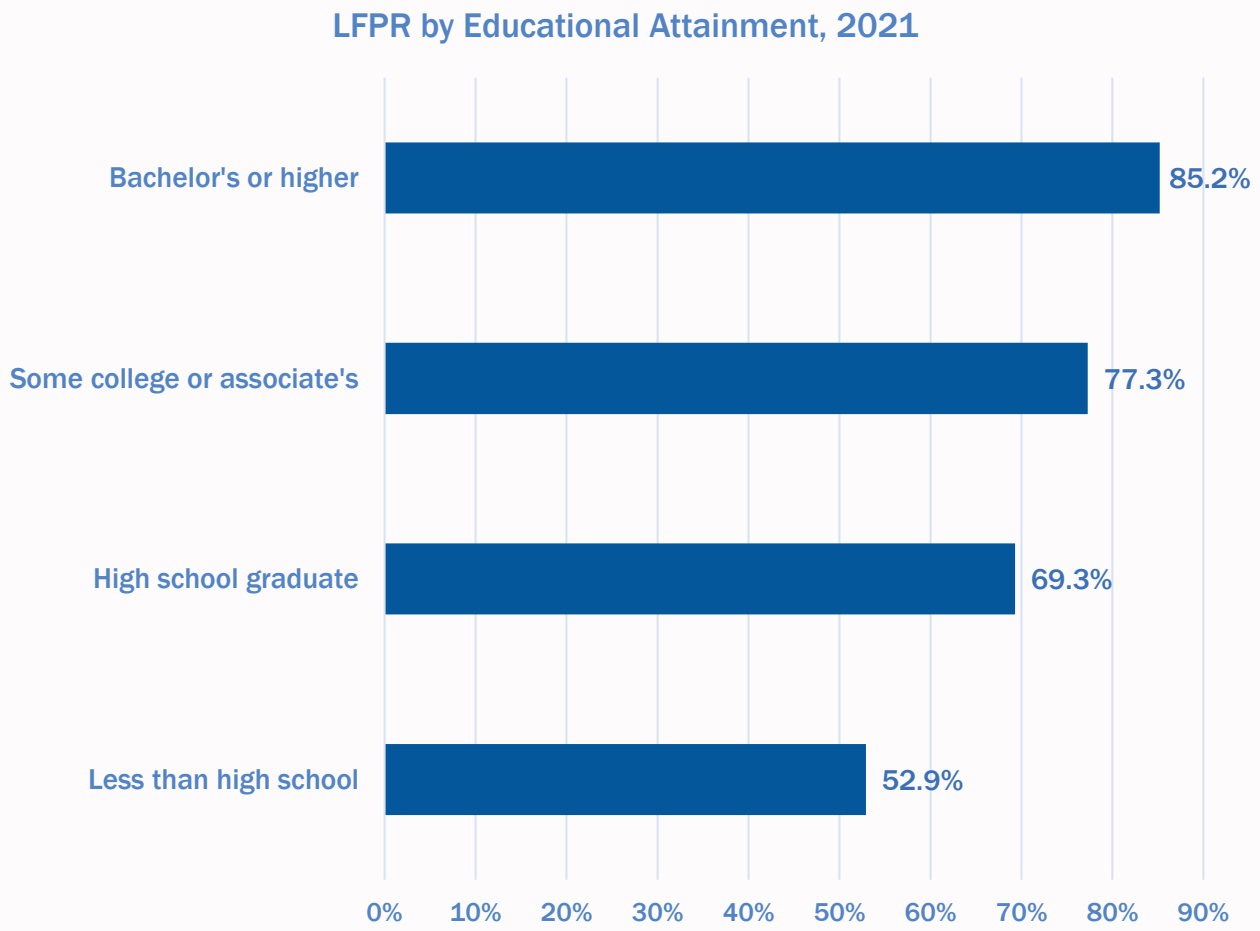
- South Carolina's median age is older than surrounding states and has increased faster over the past two decades.

MACROECONOMIC FACTORS: EDUCATION FOCUS

- Participation rates for youth (16-19) have fallen dramatically as more people focus on education rather than employment.
  - Encouraging labor force participation within this age group should not come at the expense of additional educational attainment.



MACROECONOMIC FACTORS: EDUCATIONAL ATTAINMENT



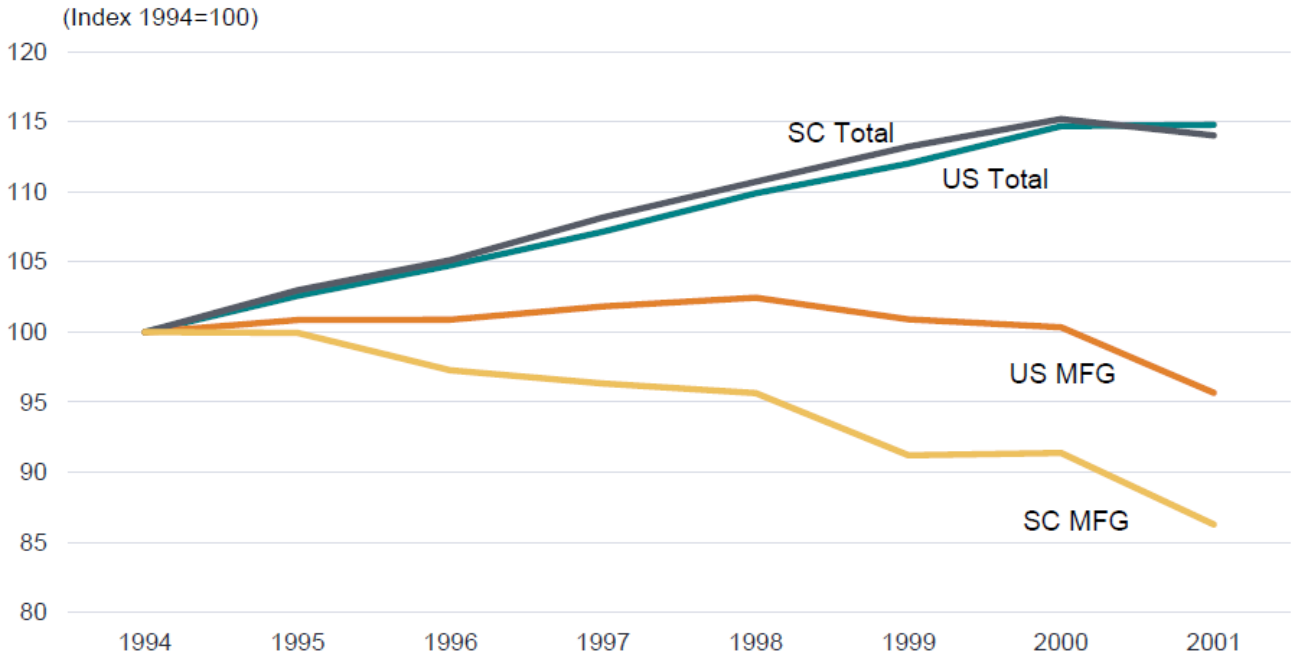
Source: American Community Survey 2021 1-Year Estimates

- South Carolina's labor force participation rate would have fallen more than it did if there had not been gains in educational attainment between 1994 and 2019.
  - If educational attainment had stayed constant, 2019 LFPR would have been just 53.7% instead of 58.8%.

MACROECONOMIC FACTORS: INDUSTRY MIX

- South Carolina lost nearly 104,000 jobs between 1990 and 2010 in Textile Mills and Apparel Manufacturing.
  - These workers likely couldn't transfer skills to other industries due to limited job availability and skill mismatch.

Figure 4.2: Manufacturing Employment Dropped 14% in South Carolina From 1994-2001



Source:BEA and Chmura

POSSIBLE POLICY RECOMMENDATIONS

- Providing higher paying jobs will likely improve labor force participation across regions and demographic groups.

- Older Workers:
  - Develop job placement programs design for this population
  - Dedicate staff at workforce centers to assist these workers
  - Encourage self-employment and update skills to transfer to new jobs

- Workers with Disabilities:
  - Adopt framework of employment as first and preferred option
  - Incentivize private sector employment for businesses employing or owned by workers with disabilities

POSSIBLE POLICY RECOMMENDATIONS

- Young Adults:
  - Strengthen career-related content in middle and high school
  - Encourage employers to offer quality paid internships and job shadowing and support summer youth employment programs

- Formerly Incarcerated:
  - Remove overly restrictive policies on hiring and occupational licensing
  - Assist jobseekers with explaining gaps in employment history

- Rural Workers:
  - Encourage programs such as organized carpooling and study feasibility of establishing additional public transit

POSSIBLE POLICY RECOMMENDATIONS

- Workers in Declining Industries:
  - Build programs to help workers transfer skills to growing industries
  - Attract employers to an area based on skill availability of residents

- Caregivers:
  - Encourage private sector employers to offer more family friendly policies:
    - Flexible work schedules
    - Paid family leave
    - Childcare vouchers

EXAMPLES OF FUTURE OCCUPATIONAL CHALLENGES

- Cybersecurity
- Electric Vehicle

CYBERSECURITY OCCUPATIONS IN SOUTH CAROLINA, 2021

Occupation	Jobs	Wages	LQ: SC to US ratio	Typical Certifications Requested
Computer and Information Systems Managers	3,410	$132,010	48%	ITIL, CISA, CISSP
Computer Systems Analysts	8,300	$84,600	112%	Security Clearance, CompTIA Security+
Information Security Analysts	1,800	$96,310	78%	CISSP, SANS/GIAC, CompTIA Security+
Computer and Information Research Scientists	430	$106,440	94%	Security Clearance, CISSP, CISA
Computer Network Support Specialists	1,840	$64,820	71%	Security Clearance, CompTIA Security+, CCNA
Computer User Support Specialists	8,490	$51,080	88%	CompTIA Security+, Security Clearance, CompTIA Network+
Computer Network Architects	940	$105,470	38%	CCNP, CCNA, Security Clearance
Database Administrators	610	$83,180	49%	Security Clearance, CompTIA Security+, CCNA
Database Architects	380	$101,170	51%	CISSP, CISA, CompTIA Security+
Network and Computer Systems Administrators	3,900	$83,810	84%	CCNA, CCNP, CISSP
Software Developers	7,160	$102,630	36%	CompTIA Security+, CompTIA Network+, MCTS
Software Quality Assurance Analysts and Testers	570	$93,640	21%	Security Clearance, CompTIA Security+, ABET
Computer Occupations, All Other	2,240	$96,190	41%	Security Clearance, CISSP, CompTIA Security+
Computer Hardware Engineers	390	$102,100	36%	Security Clearance, CISSP, Info. Sys. Cert.
Computer Science Teachers, Postsecondary	330	$76,590	59%	ABET, CISSP, CISM
TOTAL JOBS	40,790	–	–	–

Source: Occupational Employment & Wage Statistics (BLS/DEW), EMSI Burning Glass.
Notes: Wage is average annual, LQ = location quotient.

PROJECTED DEMAND FOR CYBERSECURITY WORKERS, 2030

Occupation	2020 Jobs	2030 Jobs (projected)	Annual Openings
Computer and Information Systems Managers	3,770	4,338	353
Computer Systems Analysts	8,823	9,901	752
Information Security Analysts	1,591	2,197	195
Computer and Information Research Scientists	508	582	45
Computer Network Support Specialists	1,594	1,834	147
Computer User Support Specialists	9,738	11,244	903
Computer Network Architects	899	1,003	66
Database Administrators and Architects	1,117	1,248	98
Network and Computer Systems Administrators	5,905	6,539	461
Software Developers and Software Quality Assurance Analysts and Testers	9,340	12,224	1,067
Computer Occupations, All Other	2,535	2,909	234
Computer Hardware Engineers	496	505	35
Computer Science Teachers, Postsecondary	285	310	29
TOTAL JOBS	46,601	54,834	4,385

- That's an 18 percent increase in jobs with 9 percent annual churn.
- But South Carolina has already blown through some of these projections…

Source: Occupational Employment & Wage Statistics (BLS/DEW), Employment Projections Program (DEW)

STATE RESPONSE TO CHALLENGES

- Cybersecurity
  - S.C. Department of Commerce Cybersecurity Plan
    - 2021: Governor McMaster partnered with Commerce and USC to explore and improve South Carolina's cybersecurity ecosystem.
    - USC let an analysis of state's cybersecurity.
    - Results are documented in *South Carolina Cybersecurity Ecosystem Study*, released September 2022.
    - 10 pillars identified.
      - Workforce Development was one.
      - Education was another.

DEW CYBERSECURITY PROGRAMS

- Cyber Security Internship Program
  - Part-time paid internship provides candidates with on-the-job cybersecurity training while they are actively working as a security analyst for the agency.
- Incumbent Worker Training: SC Works
  - Training resources for businesses.
  - Supports changing skills caused by:
    - New technology
    - Re-tooling
    - New product lines
    - New org structure
- CompTIA Scholarship Program
  - Free Training and Certification for South Carolina businesses who are current on UI Taxes.

Electric Vehicle Workforce

Occupation	SOC*	Entry Education	Current SC Employment	Median Wage (Hourly)	Projected Annual Job Openings	2020 Completions
Design and Development						
Chemical Engineers	17-2041	Bachelor's Degree	400	$42.22	44	148
Computer Occupations, All Other	15-1299	Bachelor's Degree	2,240	$47.62	234	1,297
Electrical Engineers	17-2071	Bachelor's Degree	2,100	$43.09	166	179
Engineering Technicians, Ex. Drafters, All Other	17-3029	Associate's Degree	920	$35.78	Not available	101
Industrial Engineers	17-2112	Bachelor's Degree	6,560	$40.27	640	508
Materials Engineers	17-2131	Bachelor's Degree	730	$38.41	62	50
Mechanical Drafters	17-3013	Associate's Degree	610	$28.42	70	202
Mechanical Engineers	17-2141	Bachelor's Degree	5,490	$38.04	482	589
Software Developers	15-1252	Bachelor's Degree	7,160	$47.36	1,067	273
Electric Vehicle Maintenance						
Automotive Service Technicians & Mechanics	49-3023	Postsec. Non-Degree	10,280	$18.07	1,407	305
Infrastructure Development						
Electrical Power-Line Installers and Repairers	49-9051	High School Diploma	2,990	$29.31	2,433	110
Electricians	47-2111	High School Diploma	9,560	$22.88	1,303	39
Urban and Regional Planners	19-3051	Master's Degree	320	$29.09	372	43
Manufacturing						
Computer-Controlled Machine Tool Operators	51-9161	High School Diploma	1,830	$23.24	181	34
Electrical & Electronic Equipment Assemblers / Electromechanical Equipment Assemblers	51-2022/ 51-2023	High School Diploma	4,290	$18.05	538	No CIP Identified
Engine and Other Machine Assemblers	51-2031	High School Diploma	820	$19.48	56	0
Industrial Production Managers	11-3051	Bachelor's Degree	2,910	$51.22	217	589
Inspectors, Testers, Sorters, Samplers, Weighers	51-9061	High School Diploma	11,650	$19.05	1,418	21
Laborers and Freight, Stock, & Material Movers	53-7062	No Formal Education	68,970	$15.43	9,850	No CIP Identified
Logisticians (supply chain analysts)	13-1081	Bachelor's Degree	3,270	$33.56	427	3,801
Machinists	51-4041	High School Diploma	10,510	$18.21	1,560	384
Maintenance and Repair Workers, General	49-9071	High School Diploma	26,030	$18.07	2,843	0
Structural Metal Fabricators and Fitters	51-2041	High School Diploma	990	$18.01	98	5
Team Assemblers	51-2092	High School Diploma	37,330	$17.12	4,776	No CIP Identified
Transportation Inspectors	53-6051	High School Diploma	120	$34.69	20	No CIP Identified
Scientific Research						
Chemists	19-2031	Bachelor's Degree	1,500	$29.86	213	272
Materials Scientists	19-2032	Bachelor's Degree	Not available	Not available	Not available	0

Note: Some SOC Codes may have changed with latest revisions. For example, 51-2022 and 51-2023 are now combined as 51-2028. Information was matched using best available information.

STATE RESPONSE TO CHALLENGES

- Electric Vehicle
  - EV Summit: October 13, 2022
  - Executive Order No. 2022-31: DEW will evaluate:
    1. Existing workforce capacity
    2. Complete a supply-gap analysis
    3. Make recommendations to the governor and the General Assembly.

Thank You

Any Questions?