

# LEAD Pipes

*Role of NC's Labor & Economic Analysis Division  
in Workforce & Education Pipelines*

Jeff DeBellis

Dir. of Economic & Policy Analysis, NC Commerce

Meihui Bodane

Dir. Of Data Analytics & Research, NC Commerce





# Agenda

- ▶ About Labor & Economic Analysis Division (LEAD)
- ▶ NC Economic Trends
- ▶ LEAD Products & Services Supporting Education and Workforce Pipeline
  - ▶ Career information
  - ▶ Educational and Employment Outcomes
  - ▶ Talent Supply and Demand





# Who is LEAD?

NC's primary source of economic & labor market data, information, & analysis

## LEAD Director

Jackie Keener,  
Asst. Commerce Secretary

## Funding

Multiple sources, including state \$  
Most significantly by US Dept. of Labor (BLS & ETA)





# LEAD's Products & Services

## Supporting the Workforce & Education Pipeline

### Key Information

- Economic Trends
- Occupation Info
- Market Demand  
(Employment & Wages)

Student  
Interest &  
Access

Clear & Supported  
Pathways for Student  
Progress & Success

Economic  
& Workforce  
Impact

Demonstrated  
Results  
(Measurement  
& Reporting)





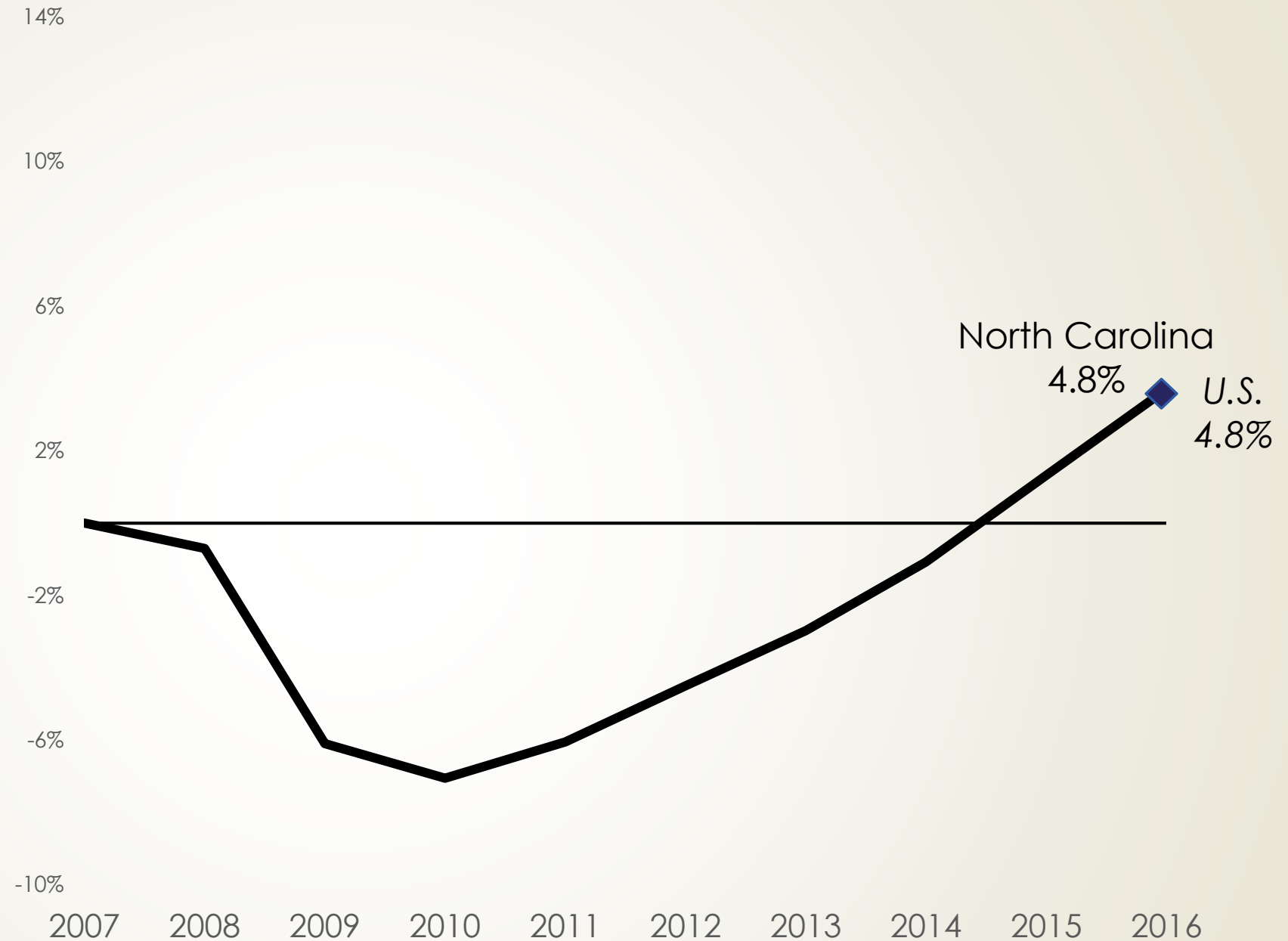
# Economic Trends

Context for Decision-Makers



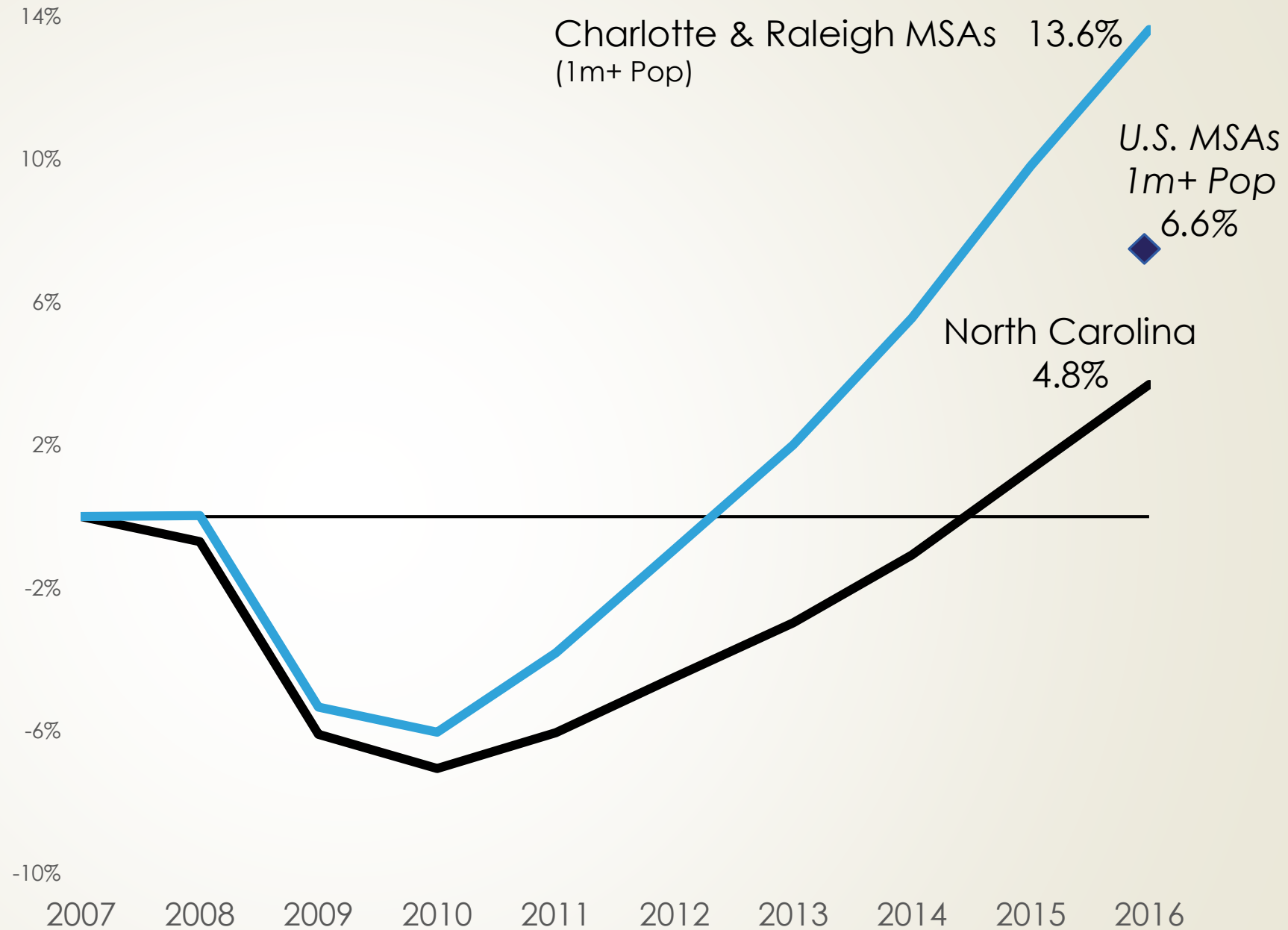


# Has NC Fully Recovered Jobs Lost from Great Recession?



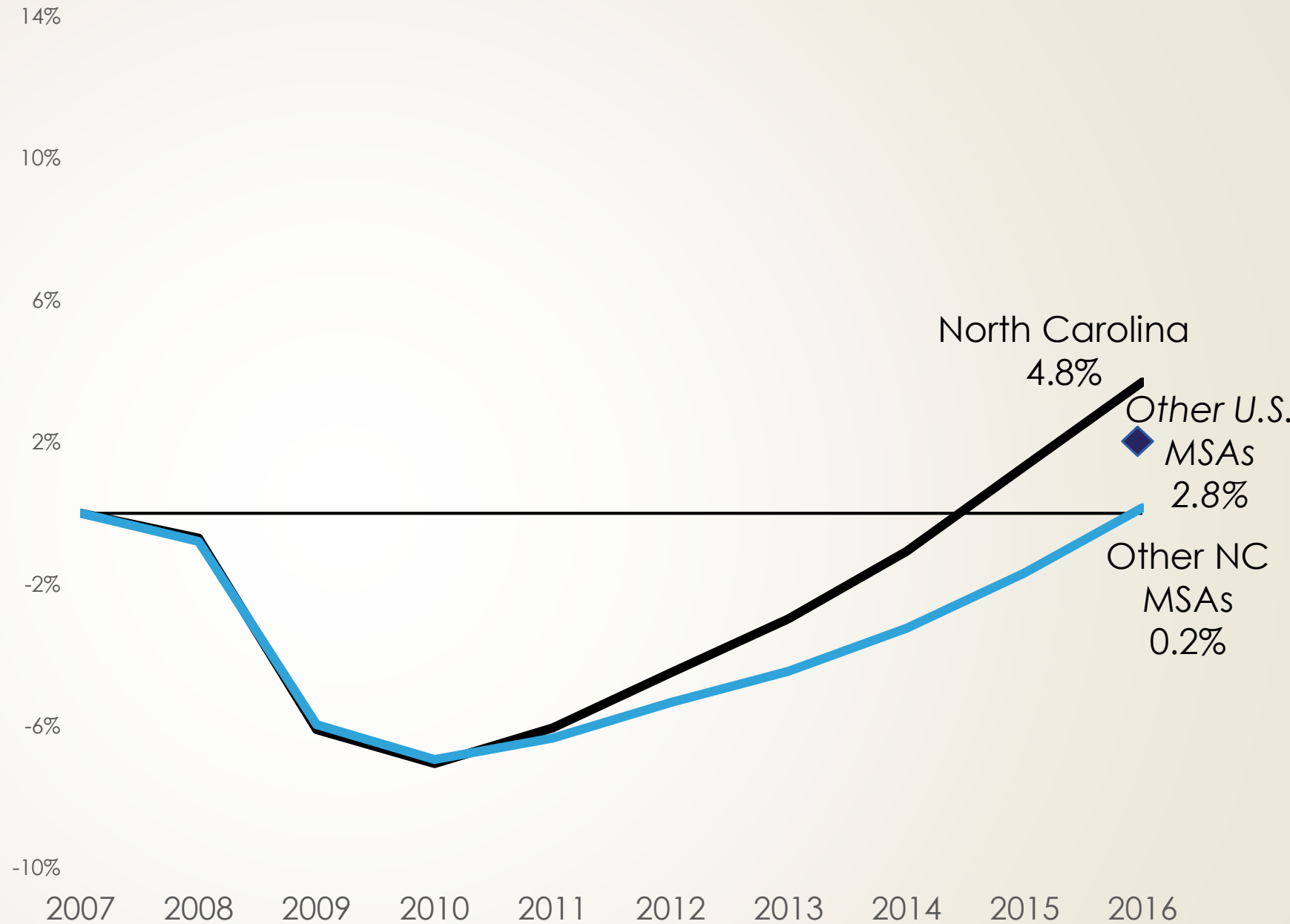


Has NC  
Fully Recovered  
Jobs Lost from  
Great Recession?



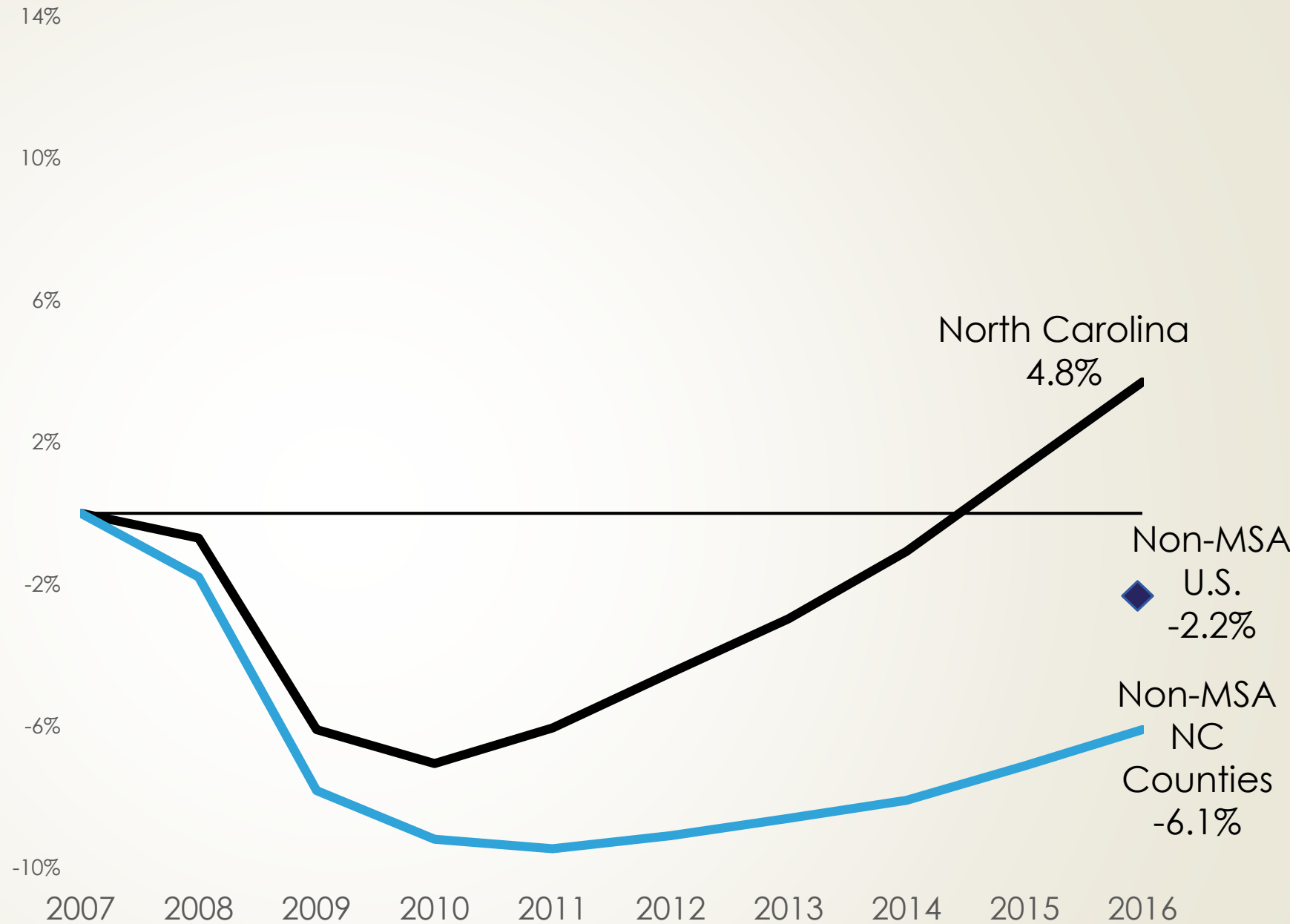


# Has NC Fully Recovered Jobs Lost from Great Recession?





# Has NC Fully Recovered Jobs Lost from Great Recession?





# Uneven Industry Employment Growth 2008-2016

Lower Wage Jobs = employment in industries  
paying in the bottom quartile in 2016

Middle Wage Jobs = employment in industries  
paying in the middle two quartiles in 2016

Higher Wage Jobs = employment in industries  
paying in the upper quartile in 2016



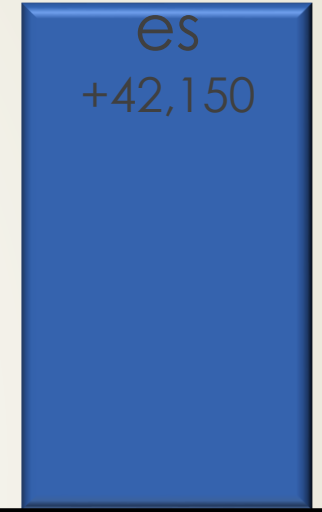
Lower Wage  
Industries  
+7,620



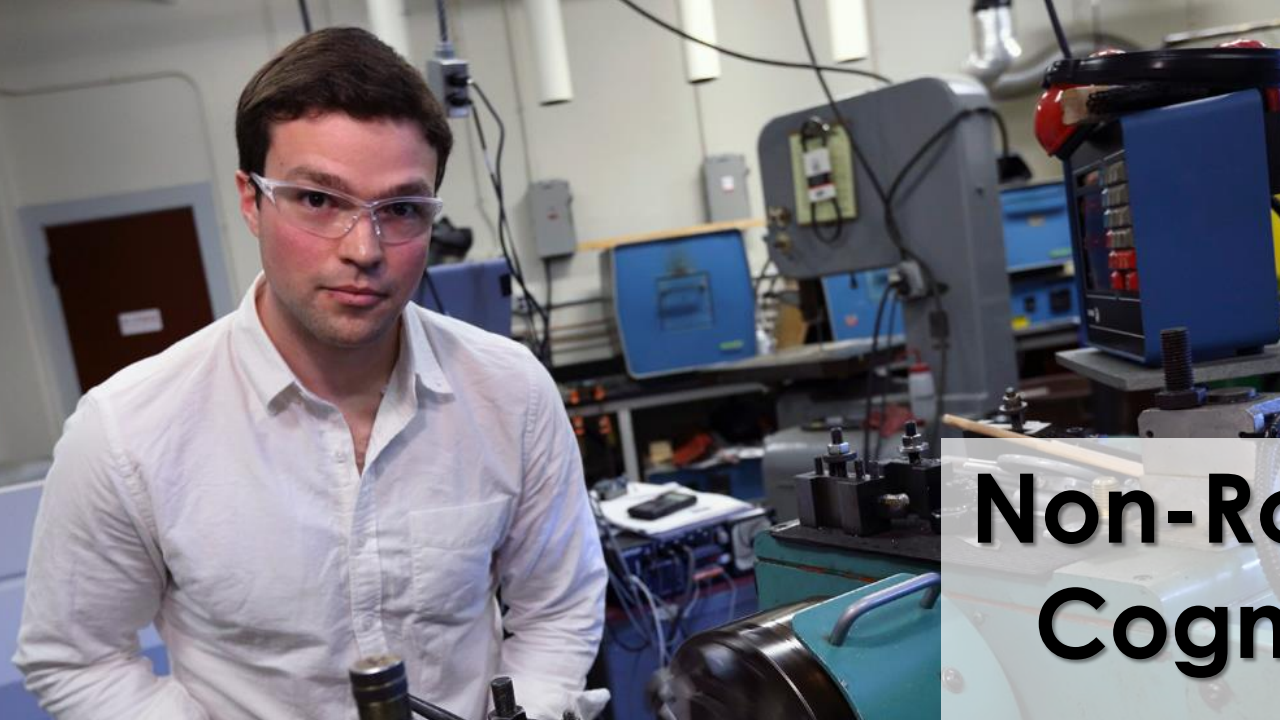
Middle Wage  
Industries  
-24,040



Higher  
Wage  
Industri  
es  
+42,150







**Non-Routine  
Cognitive**



*“Knowledge  
Jobs”*







**Routine  
Cognitive**



***“Office &  
Sales Jobs”***







**Routine  
Manual**

*“Blue Collar  
Jobs”*





# Non-Routine Manual

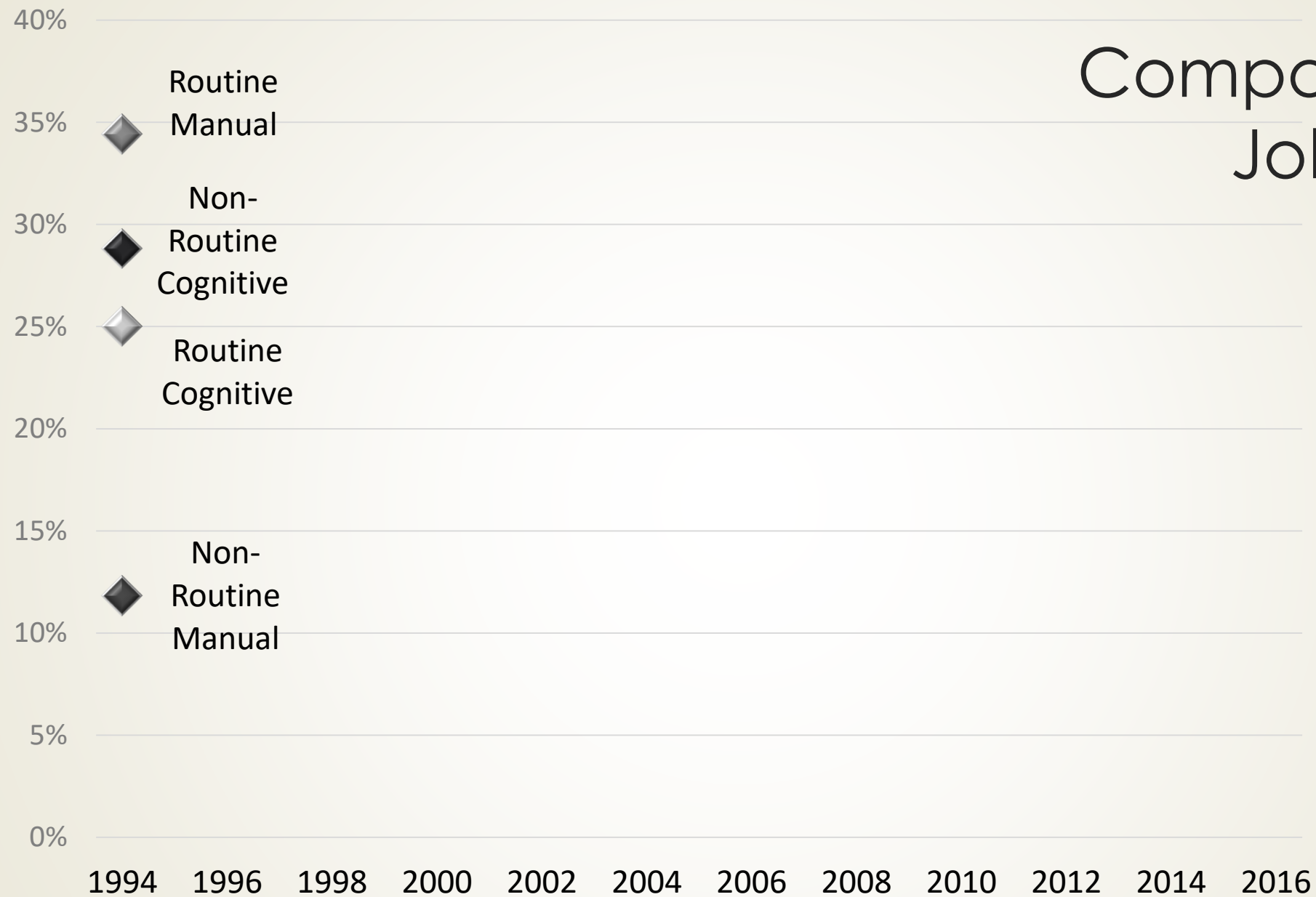


# "Service Jobs"

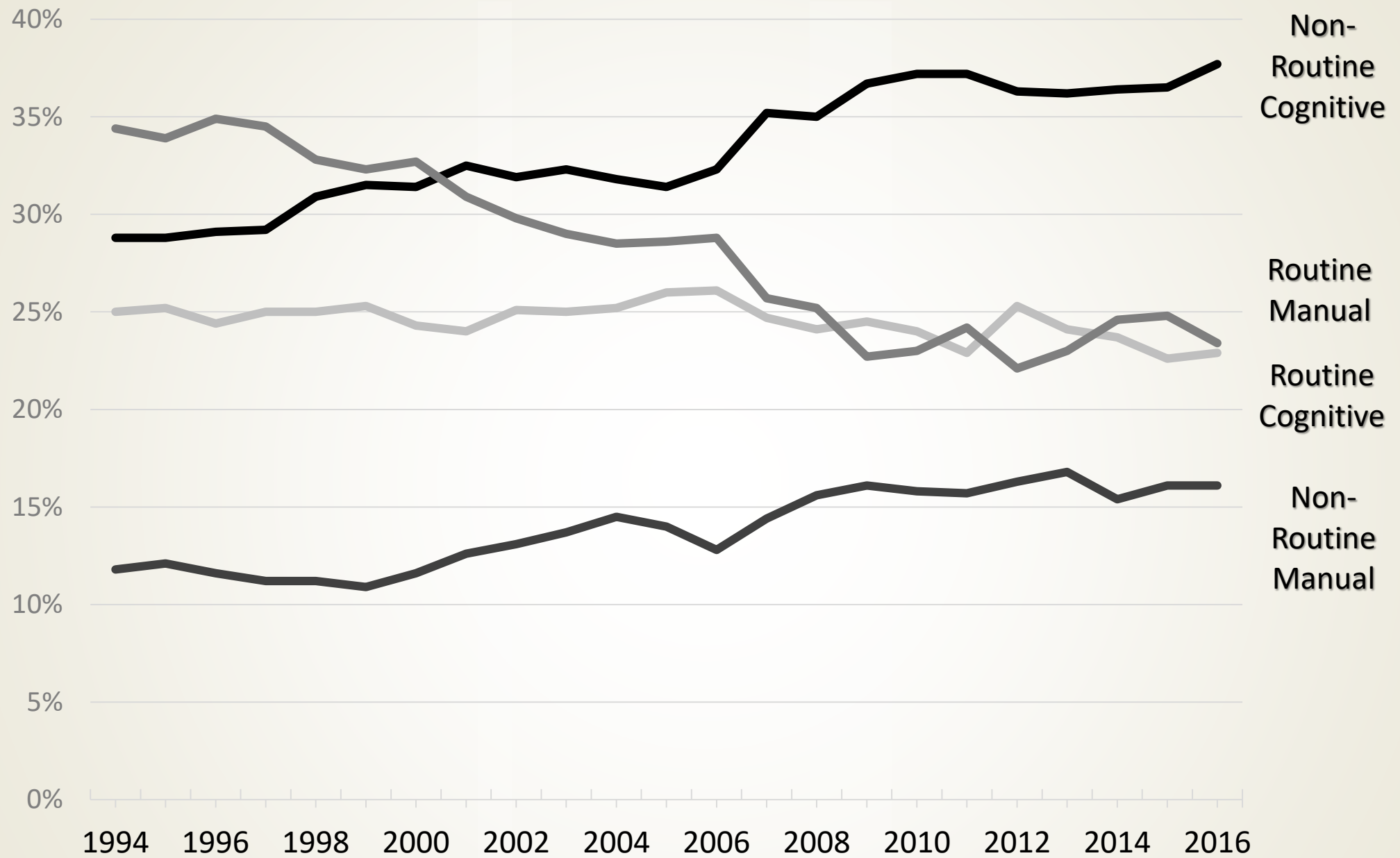




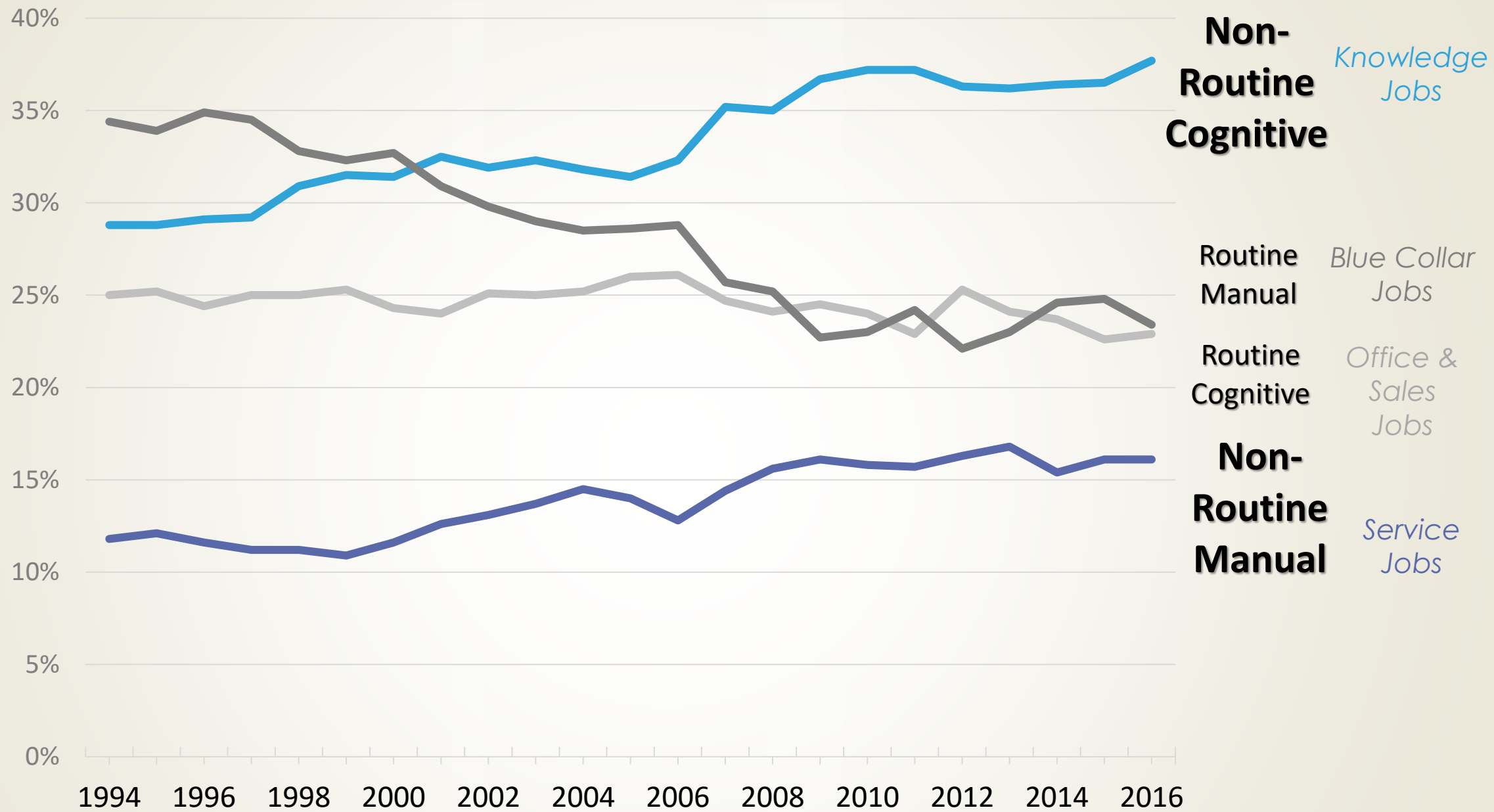
# Composition of Jobs in NC



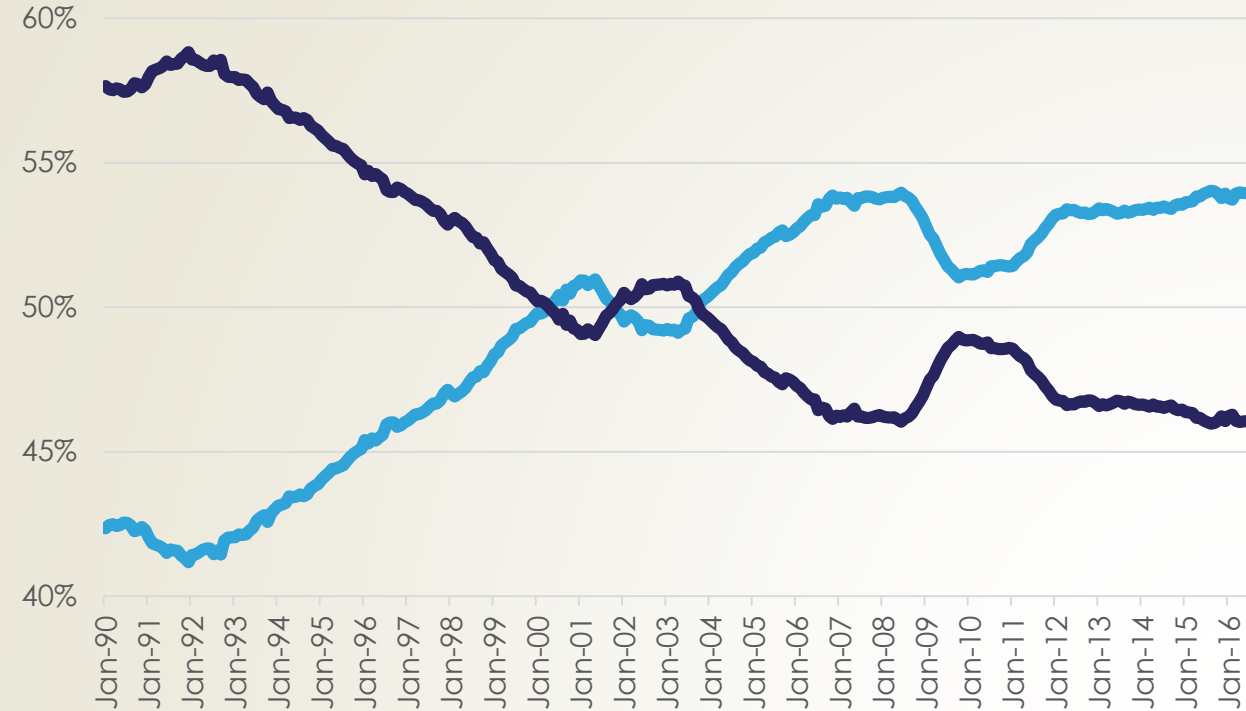












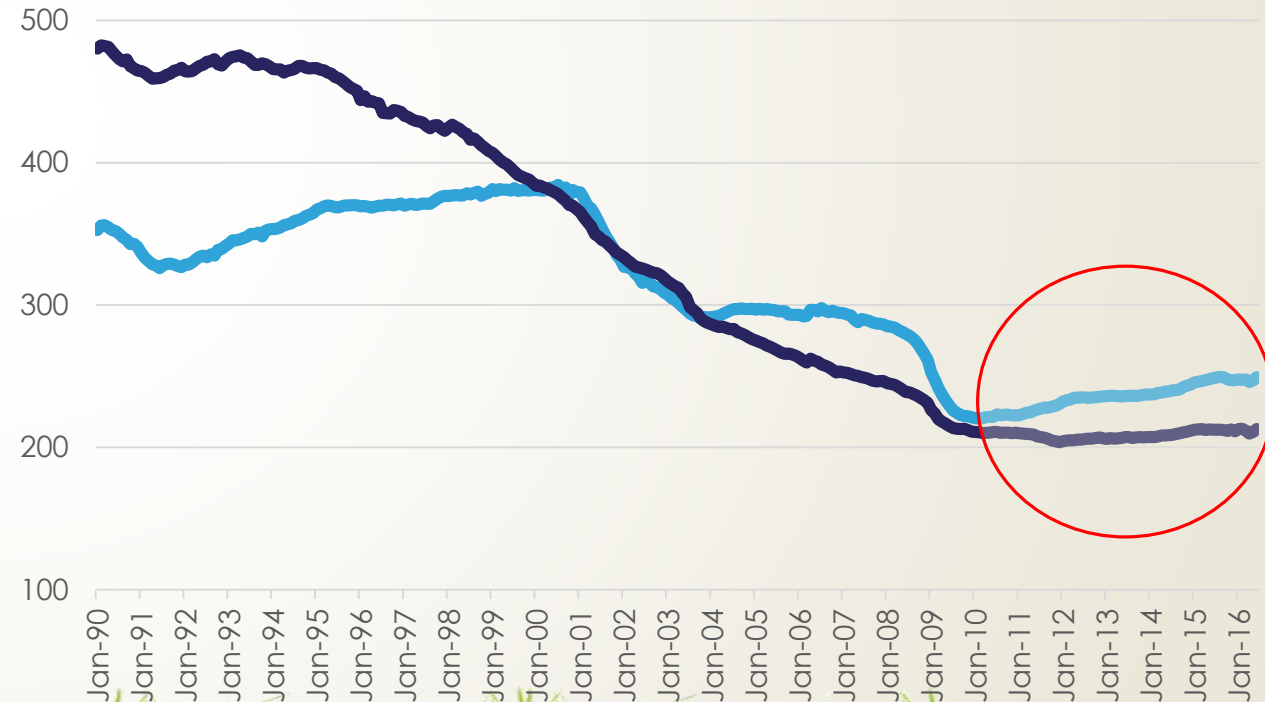
Jobs in both sectors  
have declined  
But at different rates



# What NC Manufacturers has changed

Share of employment by durable & non-durable industries

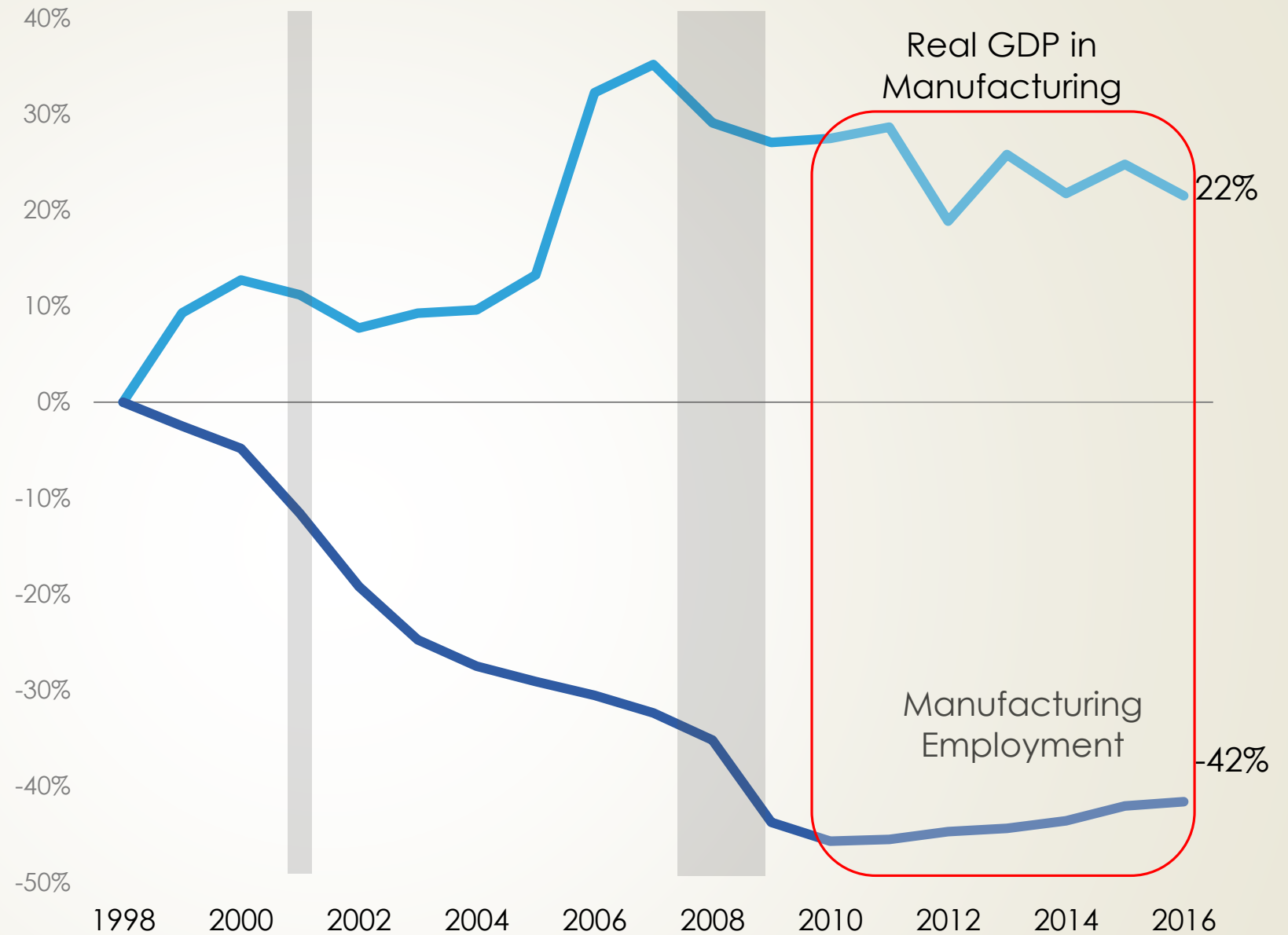
 Durable Goods  Non-Durable Goods





# Doing More with Less

NC Manufacturing GDP (\$ Real) vs Jobs,  
indexed to 1998





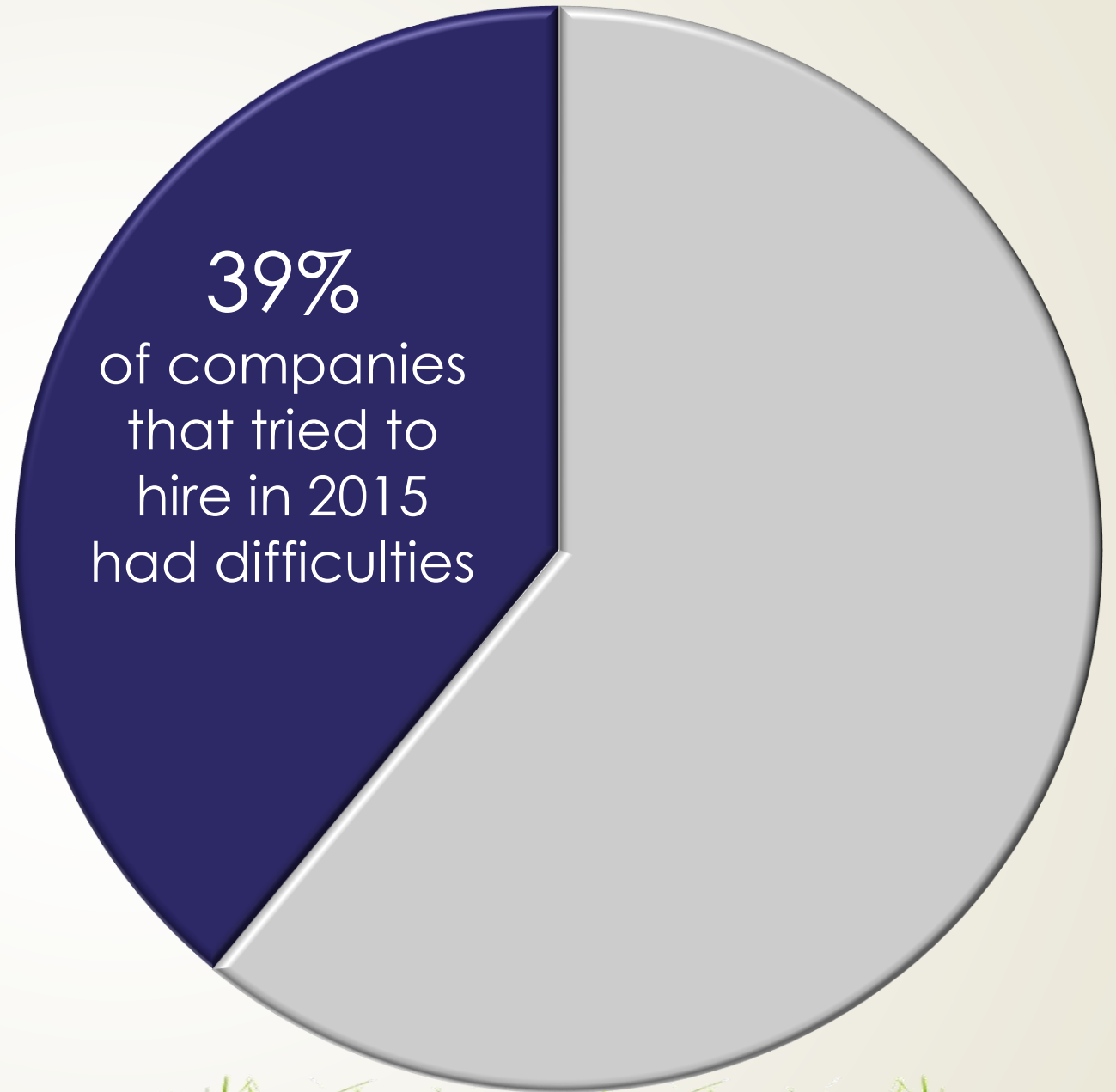
Full Report at  
<http://tinync.com/49.nc>

# 2016 EMPLOYER NEEDS SURVEY





# Hiring Troubles





# Resources Used to Meet Skill Needs

On-the-Job Training

97%

Private Vendors

21%

Community Colleges

18%

Universities

14%

Apprenticeship  
Programs

10%





# Employer Difficulties

Work Experience

68%

Education,  
Certification, Training

62%

Technical Skills

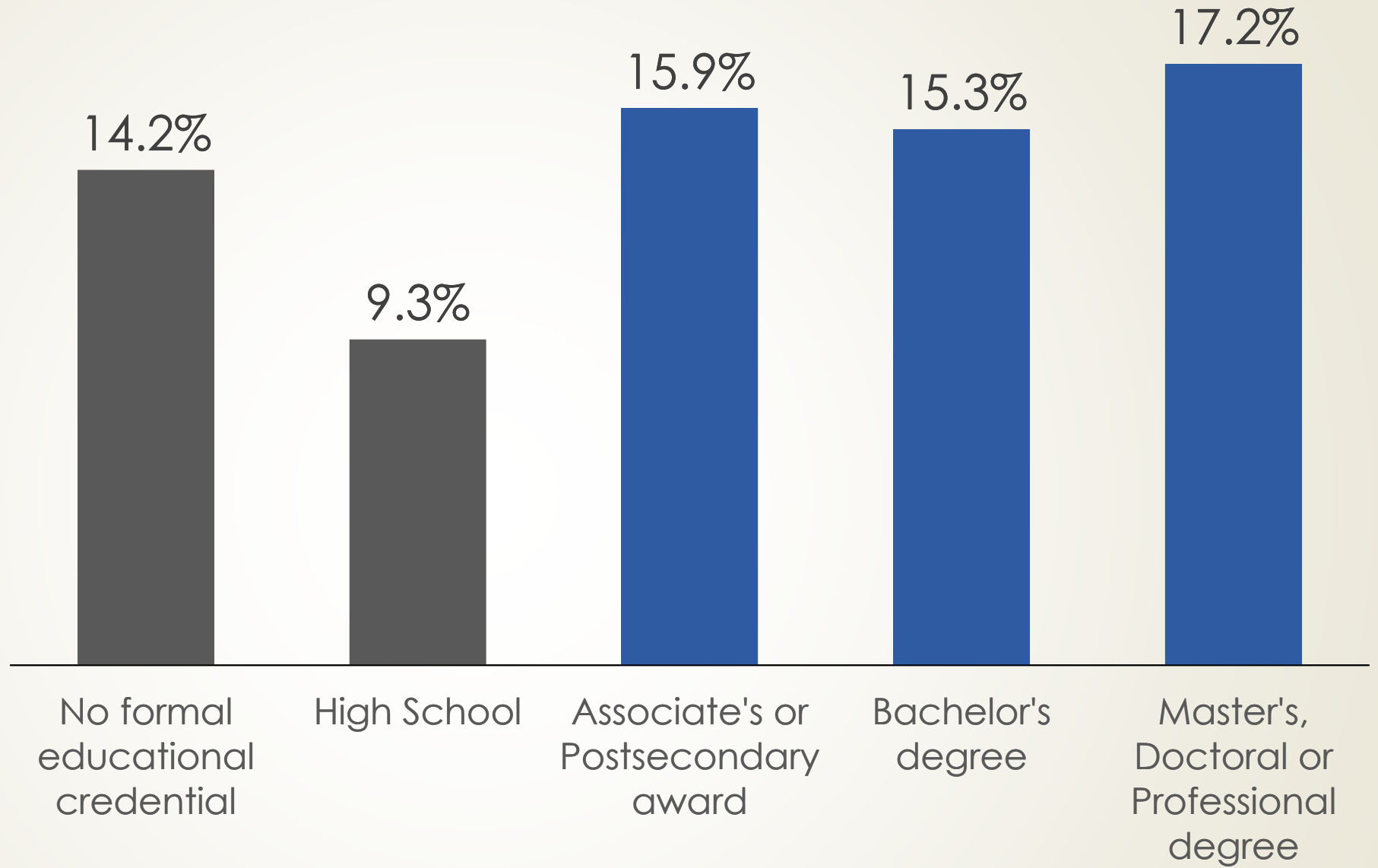
58%

Soft Skills

53%

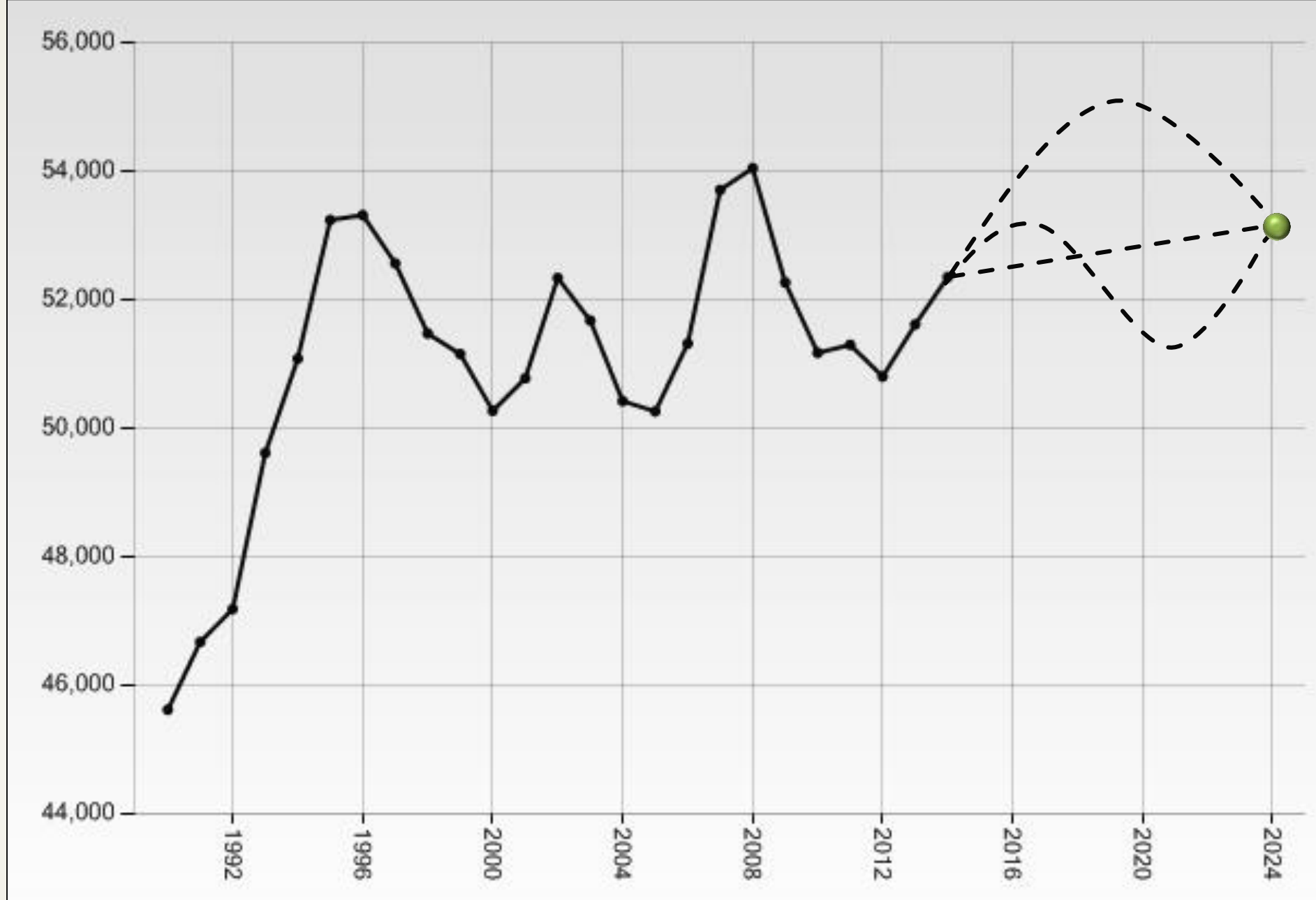


# Projected Occupation Growth 2014-2024



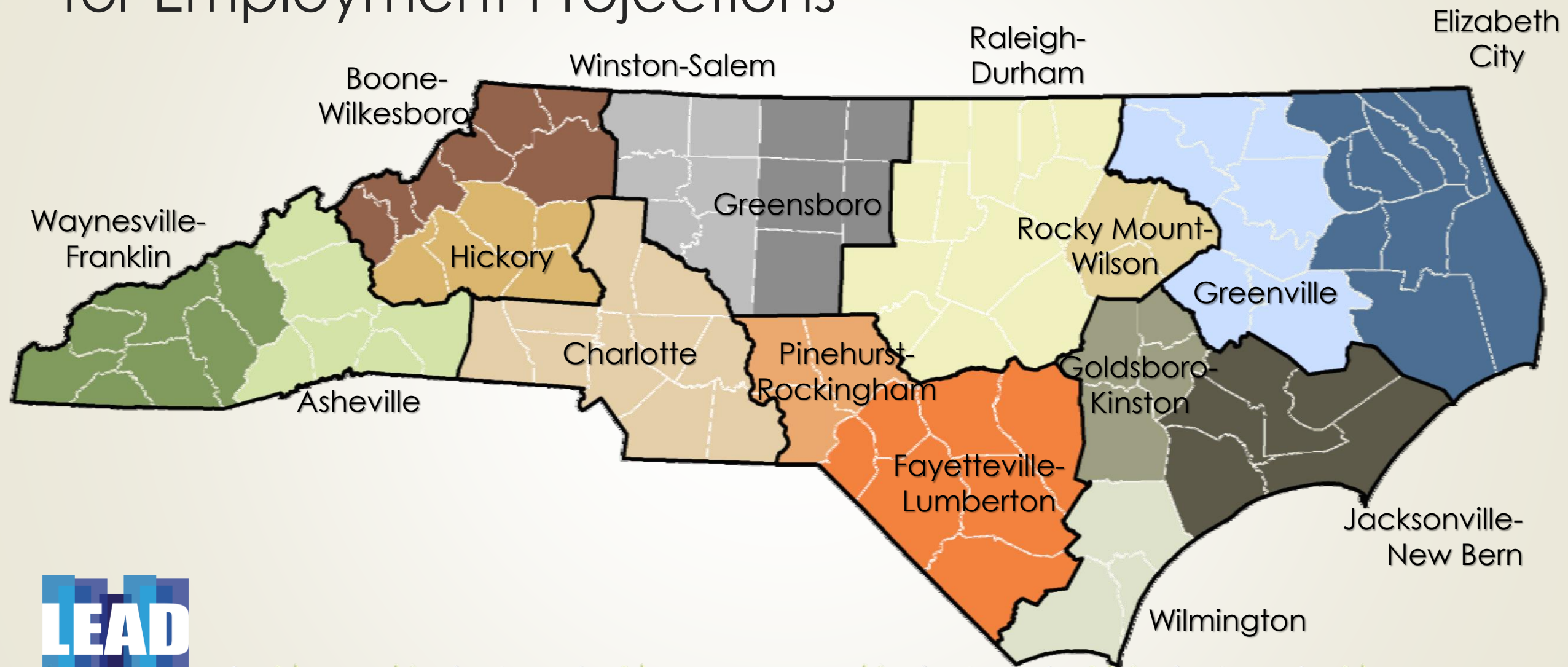


# 10-Year Industry & Occupation Projections





# Prosperity Zone Sub-Regions for Employment Projections





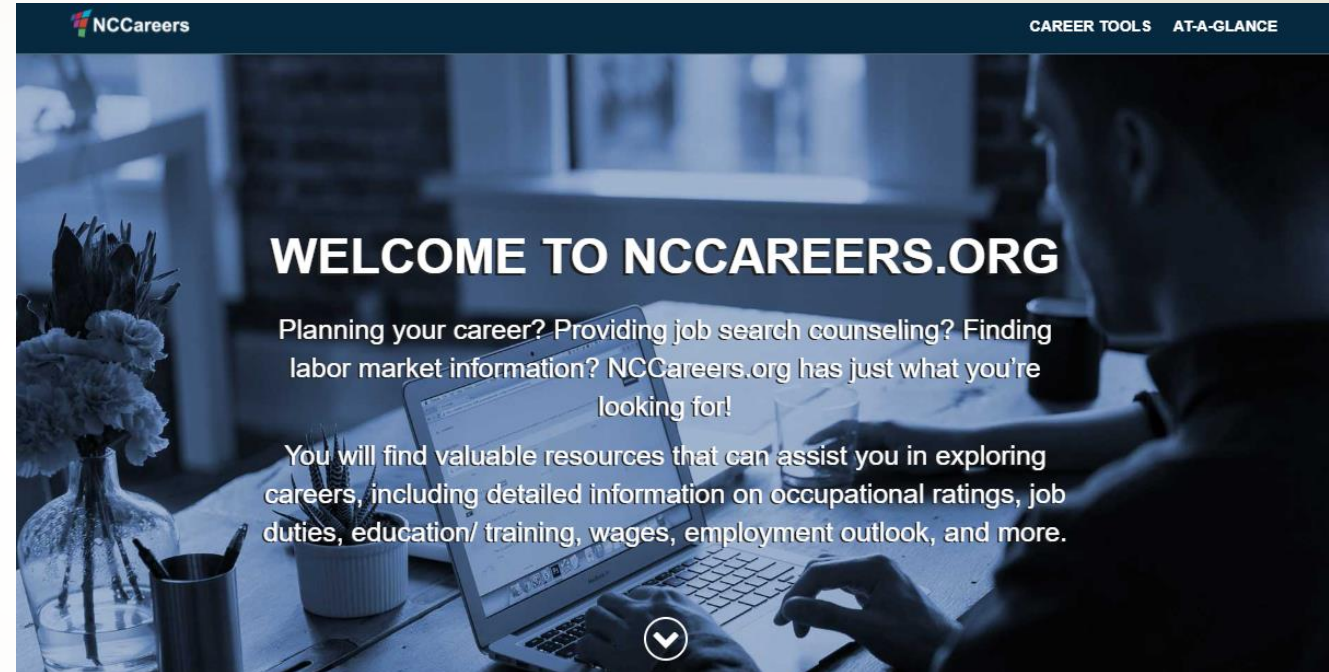
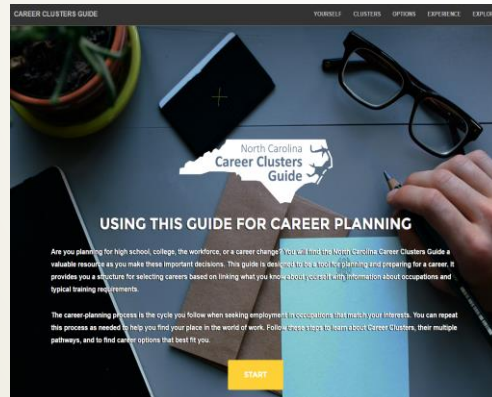
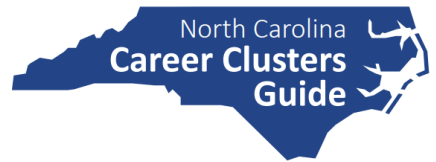
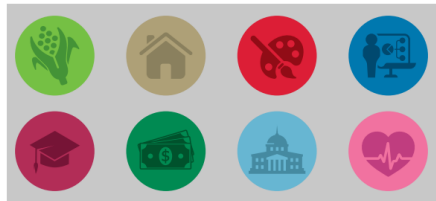
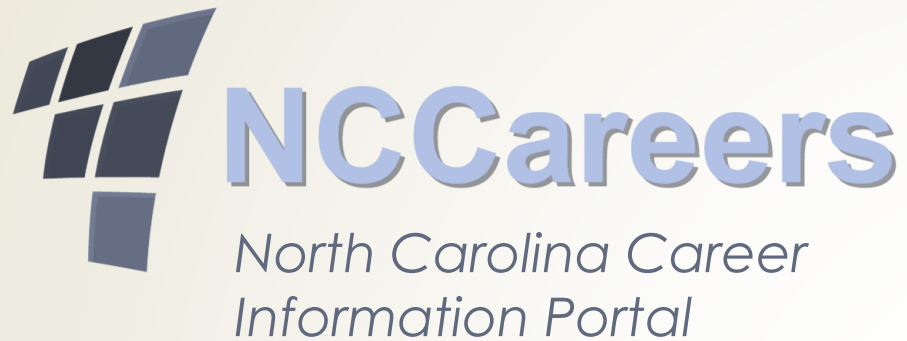
# Occupation & Career Information

insights on the job market





# Tools & Publications





# Careers.org Tools

  
REALITY  
CHECK

  
NORTH CAROLINA  
STAR JOBS

  
OCCUPATIONAL  
PROFILES

  
EMPLOYMENT  
PROJECTIONS

  
LIVING  
WAGES

  
North Carolina  
Career Clusters  
Guide

  
NC TOWER  
A Product of the NC  
Careerwork Partnership System

  
TALENT POOL  
DASHBOARD

Self-Assessment

✓

✓

Employment Projections

Industry

Occupation

Data Sources & Methodology

INDUSTRY PROJECTIONS

Area: Winston-Salem Region

See Map

Industry Group: NAICS 3-digit Industry

Search

Start Over

Excel

CSV

Search Industry Title or NAICS Code:

Industry			Employment			% Growth		Wage
Industry Code	Industry Group	Industry Title	2014	2024	Net Change	Annualized	Total	Average Weekly
722000	Sub-Sector	Food Services and Drinking Places	22,571	25,884	3,313	1.4%	14.7%	\$283.77
561000	Sub-Sector	Administrative and Support Services	20,105	22,931	2,826	1.3%	14.1%	\$467.06
622000	Sub-Sector	Hospitals	19,026	21,548	2,522	1.3%	13.3%	\$1,043.30
621000	Sub-Sector	Ambulatory Health Care Services	13,983	15,763	1,780	1.2%	12.7%	\$1,116.04
238000	Sub-Sector	Specialty Trade Contractors	7,422	8,477	1,055	1.3%	14.2%	\$776.70
541000	Sub-Sector	Professional, Scientific, and Technical Services	9,867	10,840	973	0.9%	9.9%	\$1,182.53





# Careers.org Tools

Self-Assessment

✓

✓

FILTER

Show/Hide Columns

Excel

CSV

Area: North Carolina

Search O

Stars	SOC	Occupation Title	2014	2024	Change (10 years)	Annual % Growth	Total Openings (10 years)	Median Annual Wage	In
★★★★★	13-2011	Accountants and Auditors +	32,986	38,969	5,983	1.7%	14,786	\$64,720	
Not Rated	27-2011	Actors +	174	208	34	1.8%	103	*	AE
Not Rated	15-2011	Actuaries +	346	435	89	2.3%	192	\$94,380	CIP
★★	51-9191	Adhesive Bonding Machine Operators and Tenders +	947	978	31	0.3%	279	\$26,190	RC

Map

North Carolina

All Star Jobs Ratings

Minimum Salary

Maximum Salary

Education Level

Career Clusters

CIP Program

Primary Interest



2nd Interest

3rd Interest









It pays to look ahead.

GET STARTED!

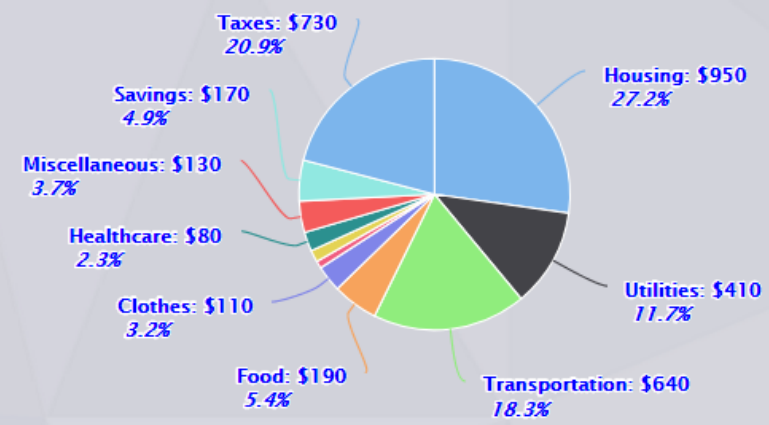
⌵

HOW MUCH WILL YOU NEED TO EARN IN THE FUTURE? REALITY CHECK IS HERE TO HELP!

Your Monthly Budget Report

Monthly spending		\$3,490.00
Housing Utilities	Own average home	\$950.00
	Water & Electricity	\$410.00
	Cell phone service	
	House phone	
Transportation	Premium car with payment	\$640.00
Food	I eat like the average person	\$190.00
Clothes	I like really nice clothes	\$110.00
Entertainment	I spend about the same as most people.	\$30.00
Personal	I'm thrifty	\$50.00
Healthcare	Health insurance	\$80.00
Education	I do not plan on having any student loan debt.	\$0.00
Miscellaneous	Travel Pets	\$130.00
Savings	5%	\$170.00
Taxes		\$730.00
Minimum household income		\$41,880.00

Monthly Spending by Category





# Careers.org Tools



Occupational Profiles

Menu

OCCUPATIONAL PROFILES

Looking to kick start your career or explore new options? The Occupational Profiles tool is your source for up-to-date information on hundreds of occupations in North Carolina. You'll find that the brief, plain language descriptions of each career's duties, work environment, wages, education, and other information make Occupational Profiles an especially useful resource.

Please select an Occupation

aerl

Aerospace Engineers

Fitness Trainers and Aerobics Instructors

OCCUPATIONAL PROFILES

AEROSPACE ENGINEERS

What do aerospace engineers do?

Aerospace engineers perform engineering duties involved in designing, building, and testing aircraft, missiles, and spacecraft. They may conduct basic and applied research to evaluate adaptability of materials and equipment to aircraft design and manufacture. They typically do the following:

- Direct or coordinate activities of engineering or technical personnel involved in designing, fabricating, modifying, or testing aircraft or aerospace products
- Design aeronautical or aerospace products or systems to meet customer requirements
- Plan or coordinate activities to investigate and resolve customers' reports of technical problems with aircraft or aerospace vehicles
- Plan or conduct experimental, environmental, operational, or stress tests on models or prototypes of aircraft or aerospace systems or equipment
- Analyze project requests, proposals, or engineering data to determine feasibility, cost, or production time of aerospace or aeronautical products
- Evaluate product data and design from inspections and reports for conformity to engineering principles, customer requirements, and quality standards
- Maintain records of performance reports for future reference
- Write technical reports or other documentation, such as handbooks or bulletins, for use by engineering staff, management, or customers

What's the work environment like?

Aerospace engineers almost always work indoors in comfortable air temperatures. They frequently use email and often participate in face-to-face discussions. They normally spend part of their workdays using the telephone. This job allows workers to have a fair amount of freedom for structuring their work. Producing accurate work and working well in a group or team is very important. Aerospace engineers have a moderate amount of freedom to make decisions. Many of them work full time.

Are my interests similar to those of aerospace engineers?

The interests of aerospace engineers typically match jobs that have the following characteristics:

Investigative	Realistic
Frequently require working with ideas and involve an extensive amount of thinking. May involve searching for facts and figuring out problems mentally.	Often involve work activities that include practical, hands-on problems and solutions. Usually include working with actual materials - many times in an outdoor setting.

You'll find additional information about interests in the introduction to these profiles. To learn more about your interests and how they may connect with careers, try the brief activity at [www.mynextmove.org/explore/ip](http://www.mynextmove.org/explore/ip).

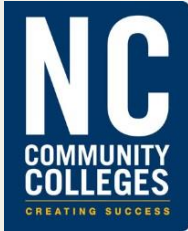
What are the most important types of knowledge, skills, and abilities to have in this field?



# Future Career System



Public Schools of North Carolina  
State Board of Education  
Department of Public Instruction



STUDENTS ▾

PROFESSIONALS ▾

≡ FULL MENU

👤 SIGN IN

## Seeing inside.

Radiology is a niche within the health professions projected to grow at 5 percent each year in North Carolina through 2024. It's great for those who like science and enjoy helping others. Typical education for Radiologic Technicians: Associate's (67%)

▶ [LEARN MORE\\*](#)





# Economic & Workforce Impact

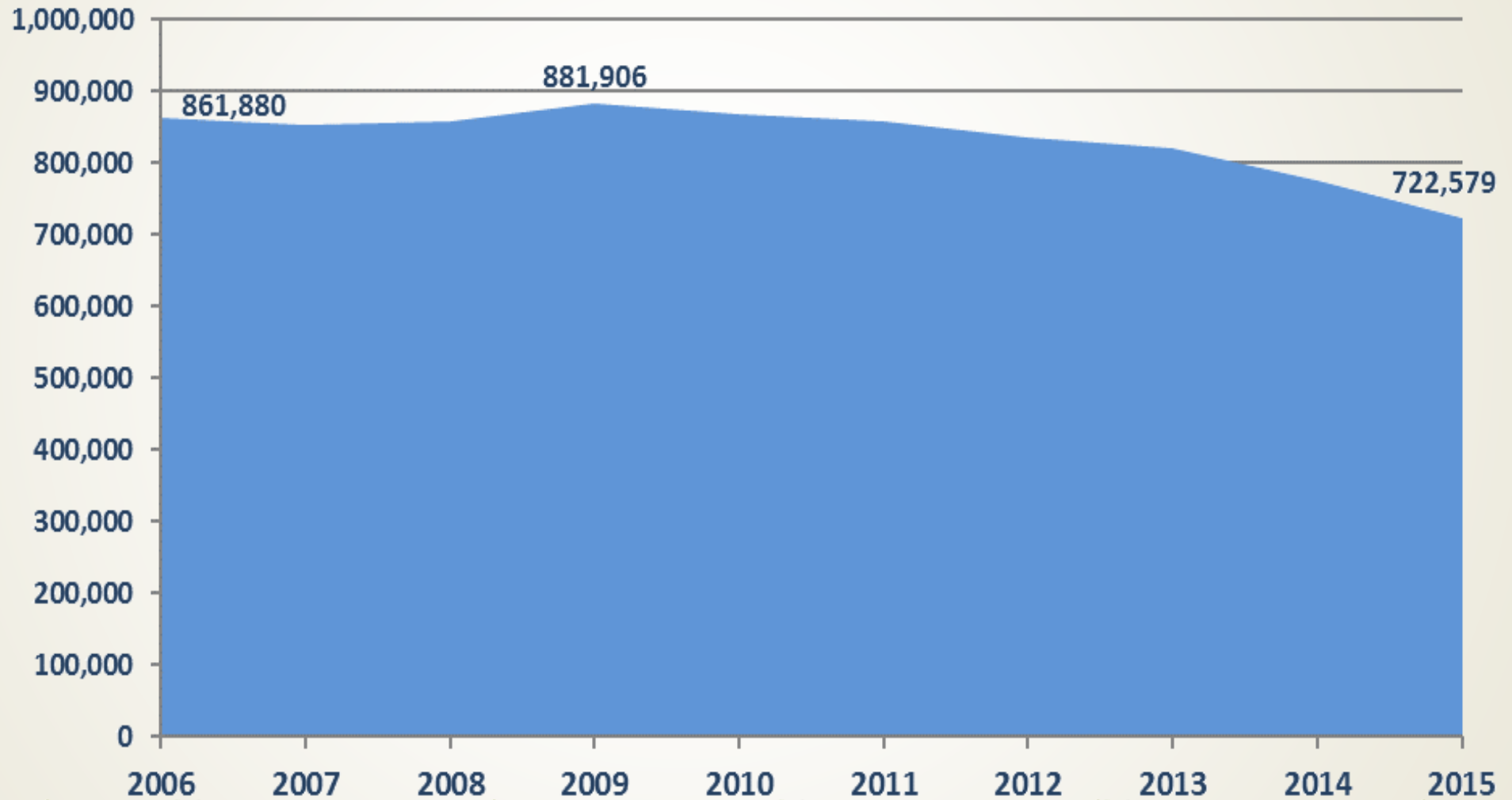
## NCCCS role in driving NC economy





North Carolina Community College System serves nearly 800,000 students annually.

ENROLLMENT





# Outcomes & Impacts of NC's 58 Community Colleges

10-Years of  
Outcomes

3.3  
Million

• Students (over the last 10 years)

Single-Year  
Impact  
(July 2015 - June 2016)

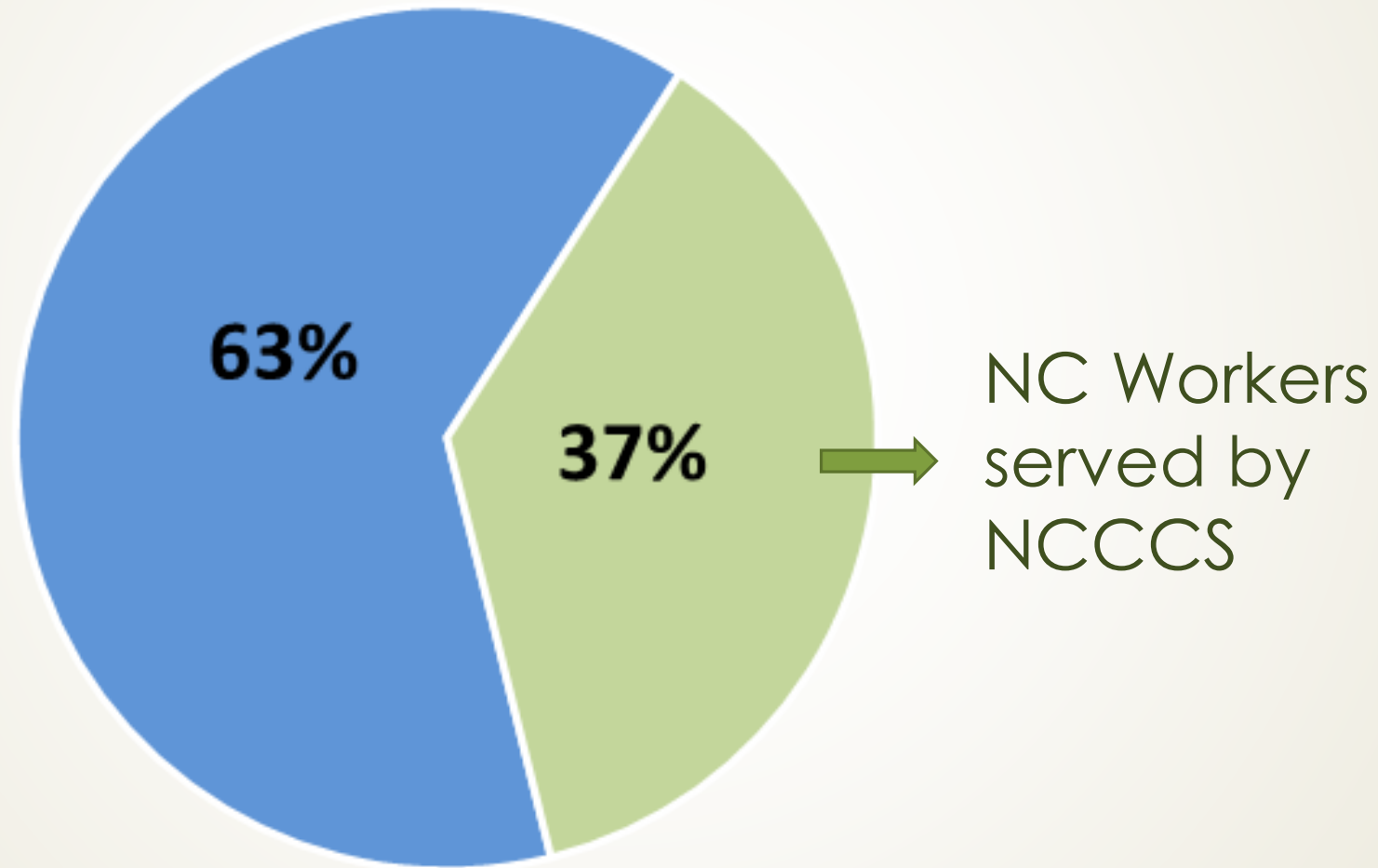
57.6  
Billion

• Total Wages Earned  
(by students served over last 10 years)



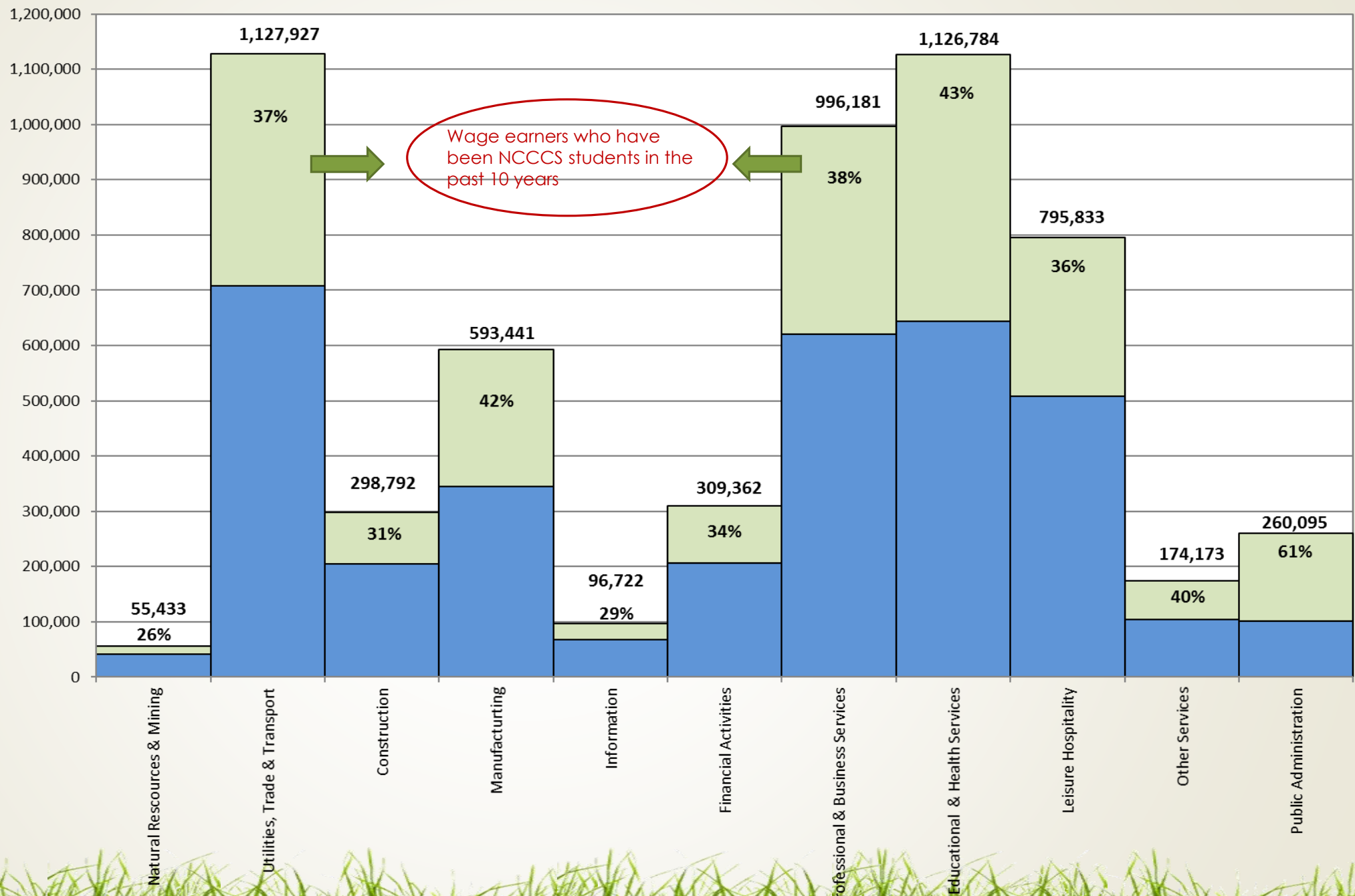


Between July 2015 and June 2016, four out of every 10 workers in covered employment have been students of the North Carolina Community College System in the last 10 years.





# Percentage of Wage Earners by Industry Sector between July 2015 - June 2016





# Evaluating Workforce Development Outcomes for North Carolina





## Common Follow-up System (CFS)

- ▶ Provide information on educational and employment outcomes of participants in publicly supported educational, employment and training programs
- ▶ Evaluation of Programmatic Outcomes
  - ▶ Are former participants of publicly supported education, employment and training programs employed in NC?
  - ▶ What are the wages of former participants and graduates?
  - ▶ In what industries are former participants and graduates employed?
  - ▶ What are the employment and wage outcomes for different academic majors and degree areas?





# CFS Outputs

- ▶ Reports to the North Carolina General Assembly
  - CFS Evaluation Report
  - CFS Operational Report
  - NCWorks Performance Report
- ▶ Development of Information Technology Delivery Systems
  - NC TOWER
  - Supply Demand Dashboard (in progress)
- ▶ Collaborating with Contributing Agencies
  - Reporting Initiatives
  - Analytical Capacity





## Program Outcome Evaluation

# NC Community Colleges

- ▶ Career and Technical Education Programs
- ▶ Workforce Continuing Education Programs
- ▶ Human Resources Development
- ▶ Basic Skills Programs

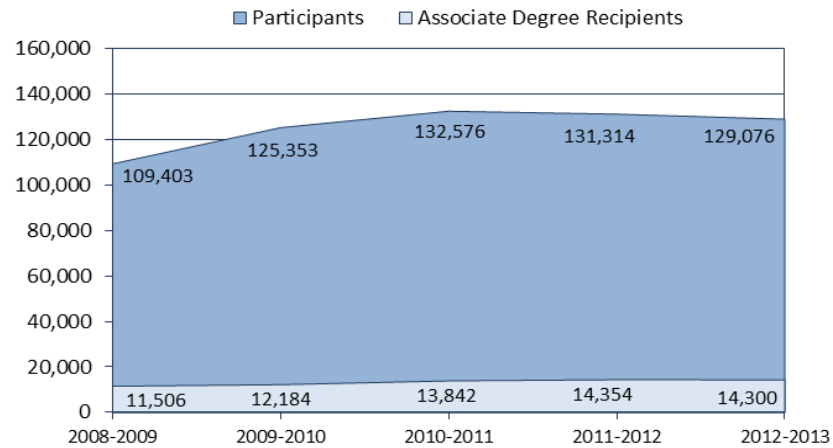




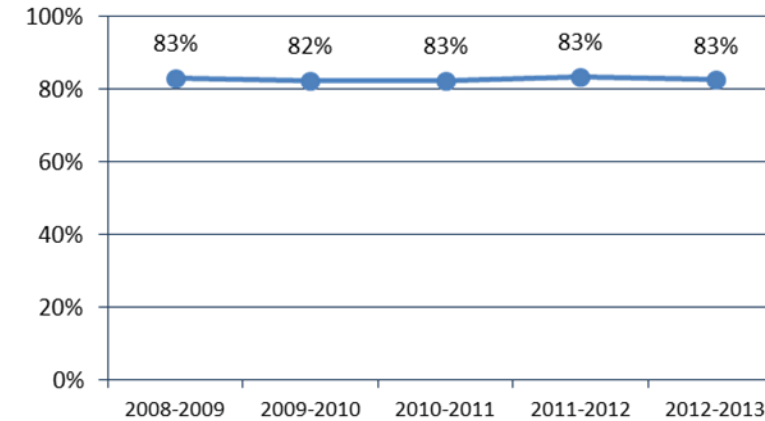
# Career and Technical Education

## Associate Degree Recipients, 1 Year Post Completion

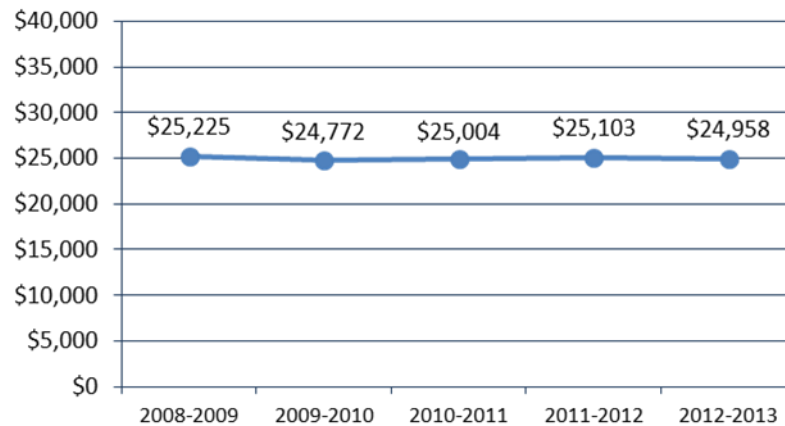
### PARTICIPANTS AND RECIPIENTS 2008-2009 - 2012-2013



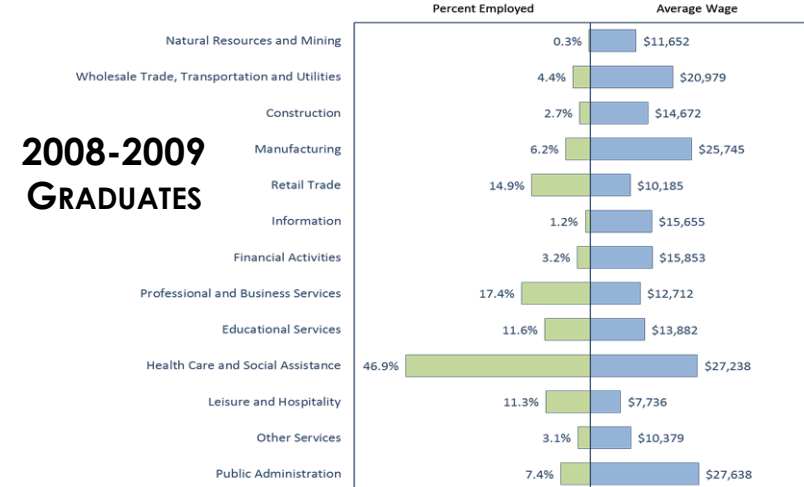
### 1 YEAR POST EMPLOYMENT IN NORTH CAROLINA



### AVERAGE 1 YEAR POST WAGE IN NORTH CAROLINA



### 1 YEAR POST EMPLOYMENT AND WAGE BY INDUSTRY



**2008-2009  
GRADUATES**

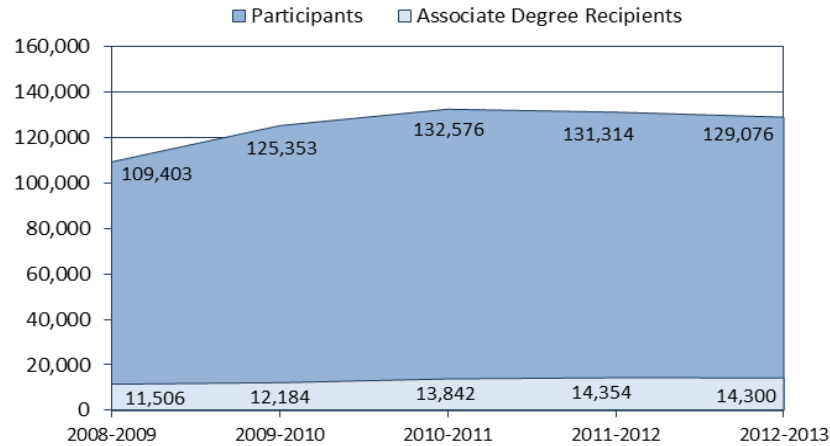


# Career and Technical Education

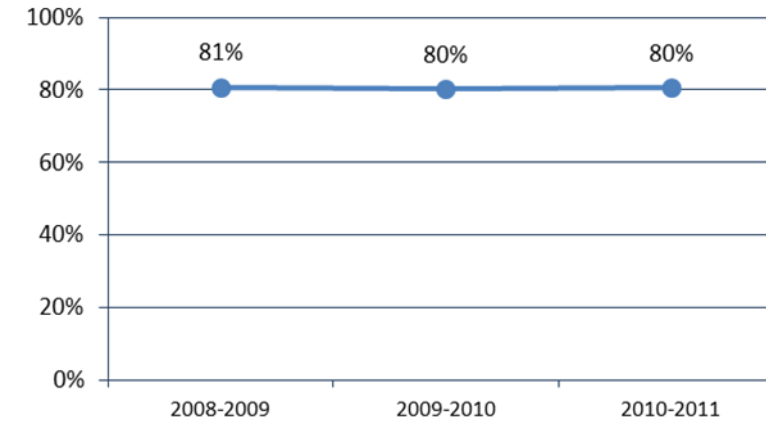
## Associate Degree Recipients, 3 Years Post Completion



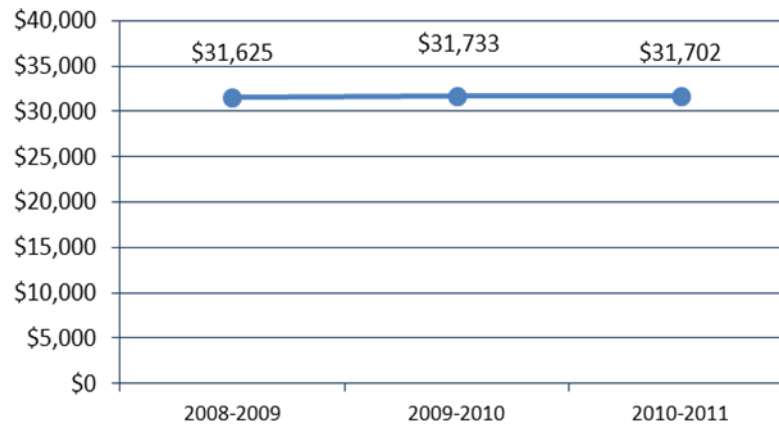
### PARTICIPANTS AND RECIPIENTS 2008-2009 - 2012-2013



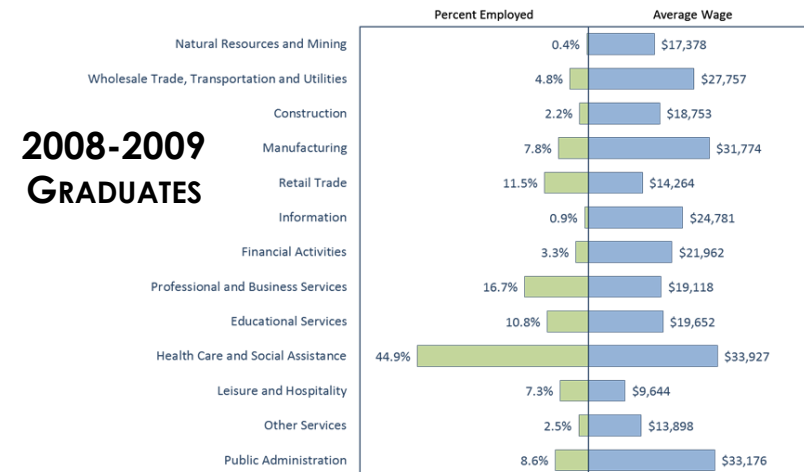
### 3 YEARS POST EMPLOYMENT IN NORTH CAROLINA



### AVERAGE 3 YEAR POST WAGE IN NORTH CAROLINA



### 3 YEARS POST EMPLOYMENT AND WAGE BY INDUSTRY





# Career and Technical Education

## Associate Degree Recipients by Program Area, 2008-2009



Program Area	Participants	Associate Degree Recipients	Employment and Wages in North Carolina							
			1 Year After Completion				2 Years After Completion			
			Number	%	Average Wage	Median Wage	Number	%	Average Wage	Median Wage
Agricultural and Natural Resources Technologies	1,753	218	143	66%	\$16,566	\$15,099	142	65%	\$20,770	\$20,342
Biological and Chemical Technologies	1,249	139	114	82%	\$19,422	\$17,624	120	86%	\$22,296	\$21,930
Business Technologies	40,139	3,168	2,473	78%	\$20,066	\$18,097	2,457	78%	\$22,835	\$21,210
Commercial & Artistic Production Technologies	3,253	323	238	74%	\$13,158	\$11,211	226	70%	\$18,512	\$14,980
Construction Technologies	3,125	283	220	78%	\$24,767	\$21,762	220	78%	\$28,605	\$27,343
Engineering Technologies	6,260	574	466	81%	\$22,499	\$18,967	452	79%	\$28,055	\$26,533
Health Sciences	20,981	4,234	3,858	91%	\$32,453	\$34,885	3,805	90%	\$38,316	\$41,002
Industrial Technologies	3,026	230	182	79%	\$28,601	\$27,251	183	80%	\$34,814	\$34,151
Public Service Technologies	28,029	2,040	1,628	80%	\$20,125	\$17,577	1,612	79%	\$21,931	\$19,443
Transport Systems Technologies	3,535	320	268	84%	\$19,970	\$18,434	255	80%	\$24,711	\$23,580
			3 Years After Completion				4 Years After Completion			
Agricultural and Natural Resources Technologies	1,753	218	138	63%	\$24,736	\$26,116	142	65%	\$25,500	\$27,399
Biological and Chemical Technologies	1,249	139	115	83%	\$25,692	\$25,680	110	79%	\$29,726	\$28,693
Business Technologies	40,139	3,168	2,445	77%	\$24,950	\$23,312	2,383	75%	\$27,068	\$25,065
Commercial & Artistic Production Technologies	3,253	323	222	69%	\$18,171	\$17,060	204	63%	\$20,746	\$20,681
Construction Technologies	3,125	283	216	76%	\$32,990	\$31,165	214	76%	\$35,614	\$32,985
Engineering Technologies	6,260	574	462	80%	\$31,643	\$31,458	462	80%	\$35,688	\$35,426
Health Sciences	20,981	4,234	3,716	88%	\$40,430	\$43,215	3,638	86%	\$41,924	\$44,110
Industrial Technologies	3,026	230	190	83%	\$37,052	\$35,707	190	83%	\$40,875	\$38,696
Public Service Technologies	28,029	2,040	1,562	77%	\$23,945	\$20,655	1,553	76%	\$24,918	\$21,619
Transport Systems Technologies	3,535	320	250	78%	\$27,278	\$27,509	247	77%	\$30,290	\$31,093





## Employment And Wage Outcomes

### **Associate Degree Recipients - ALL**

- 1 year Post Employment Rates 82% – 83% Average Wage \$24,772 - \$25,225
- 3 Year Post Employment Rates 80% – 81% Average Wage \$31,625 - \$31,733
- 5 Year Post Employment Rate 78% Average Wage \$34,903

### **Diploma Recipients - ALL**

- 1 year Post Employment Rates 76% – 82% Average Wage \$21,155 - \$22,481
- 3 Year Post Employment Rates 75% – 79% Average Wage \$26,427 - \$28,176
- 5 Year Post Employment Rate 74% Average Wage \$29,393

### **Certificate Recipients - ALL**

- 1 year Post Employment Rates 62% – 74% Average Wage \$18,698 - \$20,087
- 3 Year Post Employment Rates 63% – 70% Average Wage \$24,171 - \$26,014
- 5 Year Post Employment Rate 63% Average Wage \$26,950





## Employment And Wage Outcomes By Program Area

### Associate Degree Recipients

#### Health Sciences

- 1 year Post Employment Rates 89% - 91%
- 1 year Post Average Wage \$30,948 - \$32,453
- 3 year Post Employment Rates 86% - 88%
- 3 year Post Average Wage \$39,704 - \$40,340

#### Transport Systems Technologies

- 1 year Post Employment Rates 79% - 84%
- 1 year Post Average Wage \$19,970 - \$23,807
- 3 year Post Employment Rates 74% - 79%
- 3 year Post Average Wage \$27,278 - \$29,106

#### Industrial Technologies

- 1 year Post Employment Rates 79% - 85%
- 1 year Post Average Wage \$27,993 - \$32,913
- 3 year Post Employment Rates 81% - 83%
- 3 year Post Average Wage \$37,052 - \$42,484





# CFS Information Delivery Tools





# NC TOWER

- ▶ North Carolina's **T**ool for **O**nline **W**orkforce and **E**ducation **R**eporting
- ▶ A CFS information delivery tool can answer:
  - ▶ Top-Paying Degree Programs
  - ▶ Most Popular Degree Programs
  - ▶ Post-Graduation Enrollment
  - ▶ Post-Graduation Employment by Industry
  - ▶ Average Earned Wage by Industry
  - ▶ Program Comparison



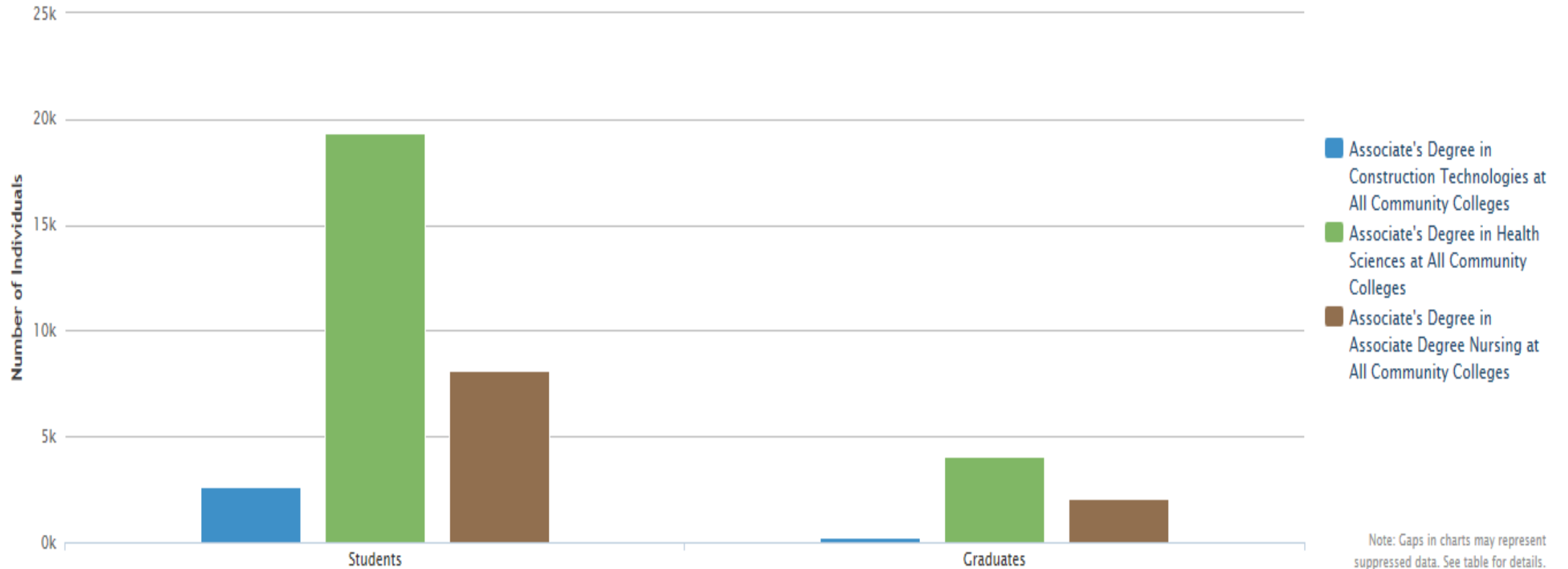


# NC TOWER

## STUDENTS AND GRADUATES

[VIEW CHART](#) [VIEW TABLE](#) [INFO](#)

Number of Students and Graduates  
(2007-2008 School Year)



Note: Gaps in charts may represent suppressed data. See table for details.  
Data Source: NC Common Follow-up System.

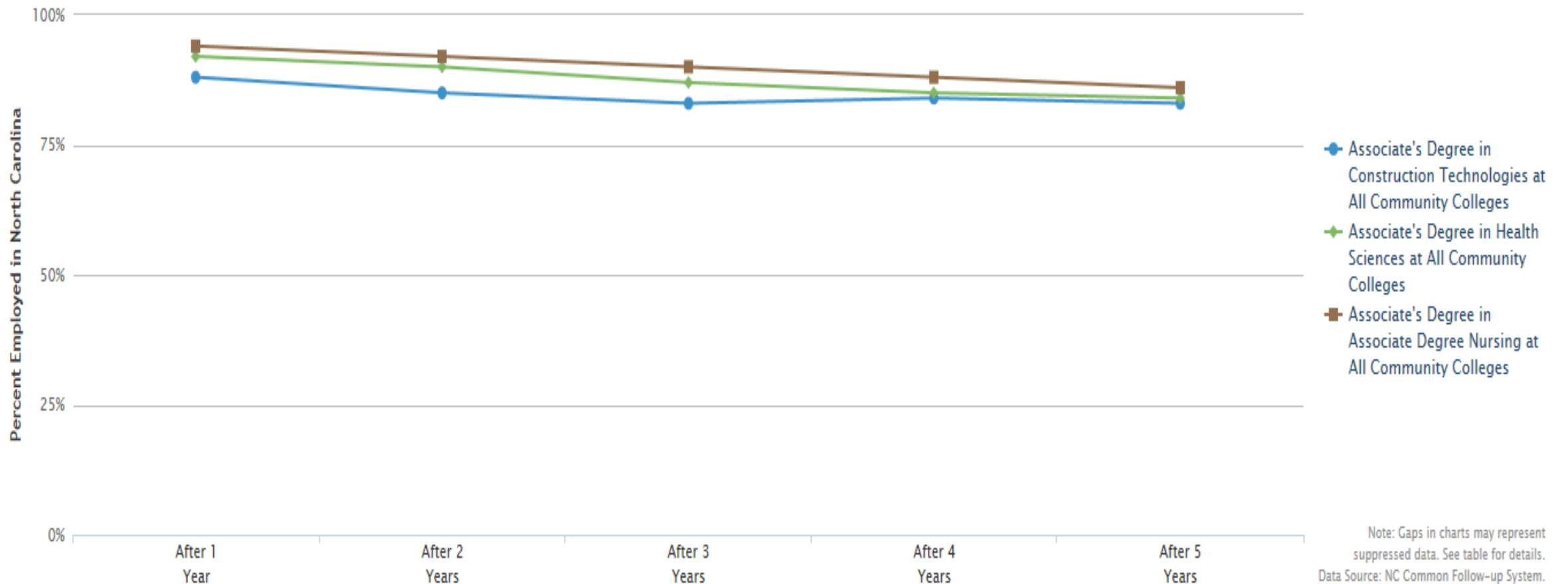


# NC TOWER

## EMPLOYMENT

[VIEW CHART](#)[VIEW TABLE](#)[INFO](#)

Post-Graduation Employment in North Carolina  
(2007-2008 Graduates)



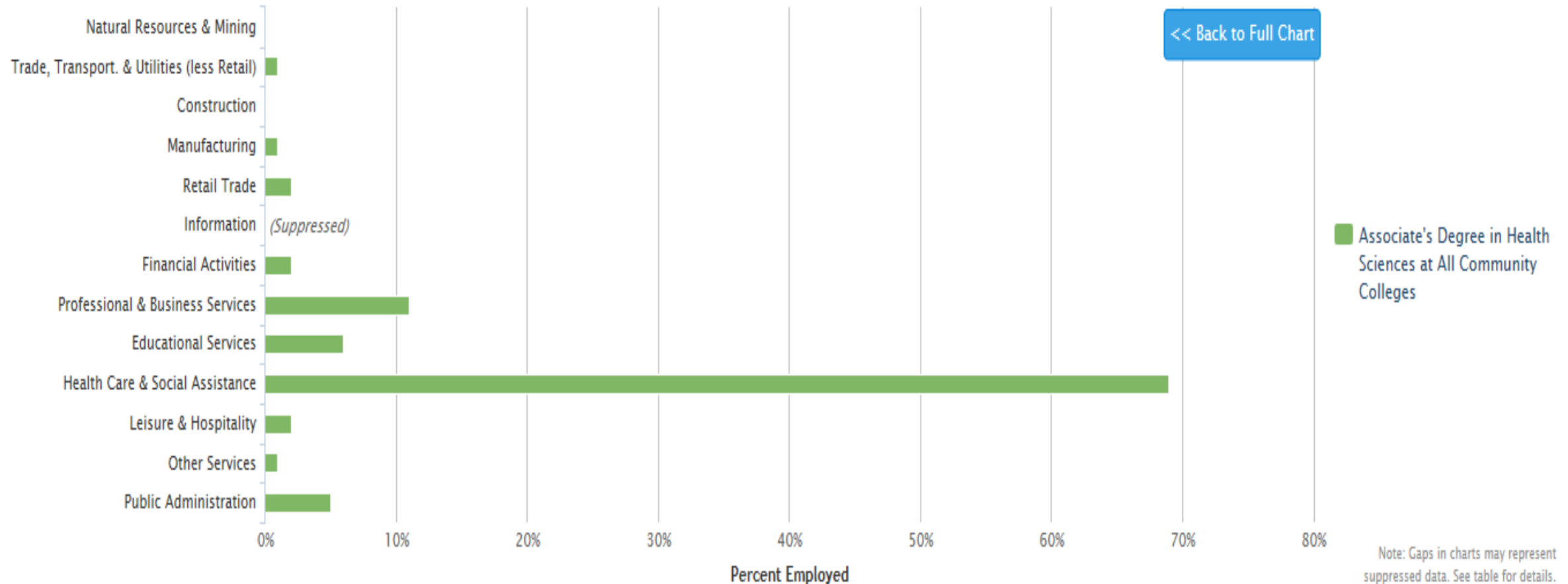


# NC TOWER

## EMPLOYMENT

[VIEW CHART](#) [VIEW TABLE](#) [INFO](#)

**Employment by Industry**  
(2007-2008 Graduates, After 5 Years)



Note: Gaps in charts may represent suppressed data. See table for details.  
Data Source: NC Common Follow-up System.

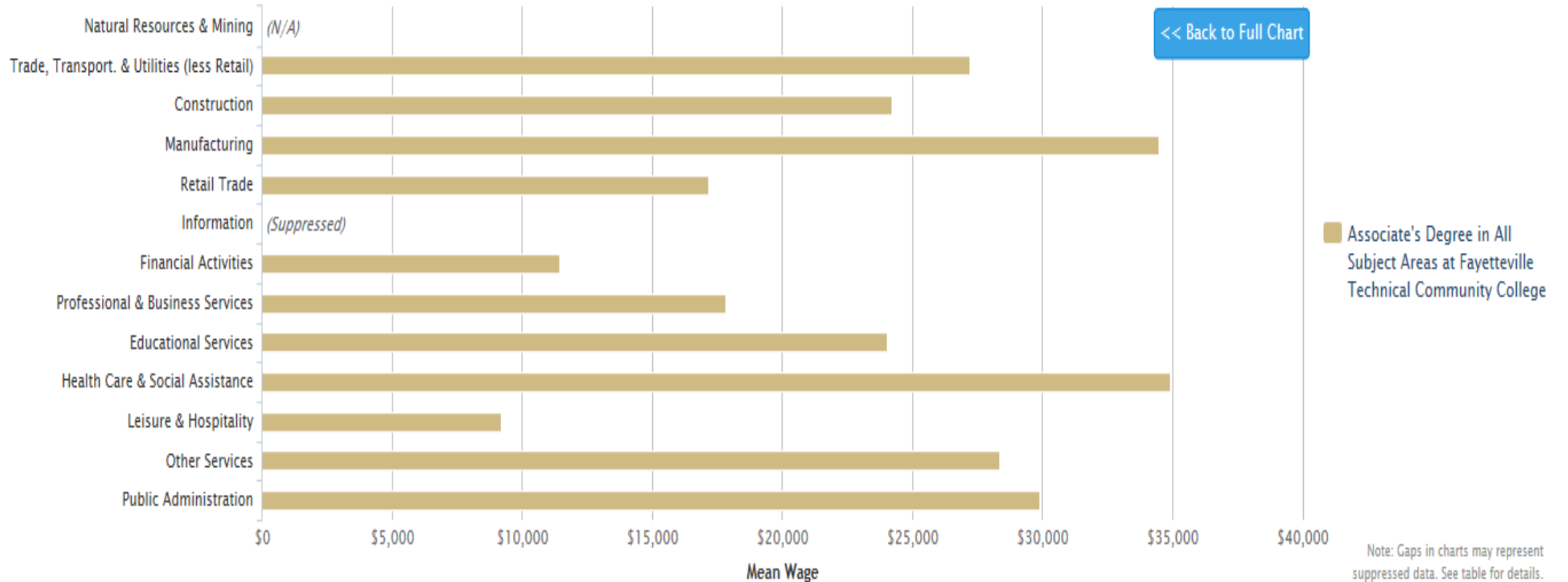


# NC TOWER

## MEAN WAGES

[VIEW CHART](#)[VIEW TABLE](#)[INFO](#)

Mean Wages by Industry  
(2007-2008 Graduates, After 5 Years)



Note: Gaps in charts may represent suppressed data. See table for details.  
Data Source: NC Common Follow-up System.

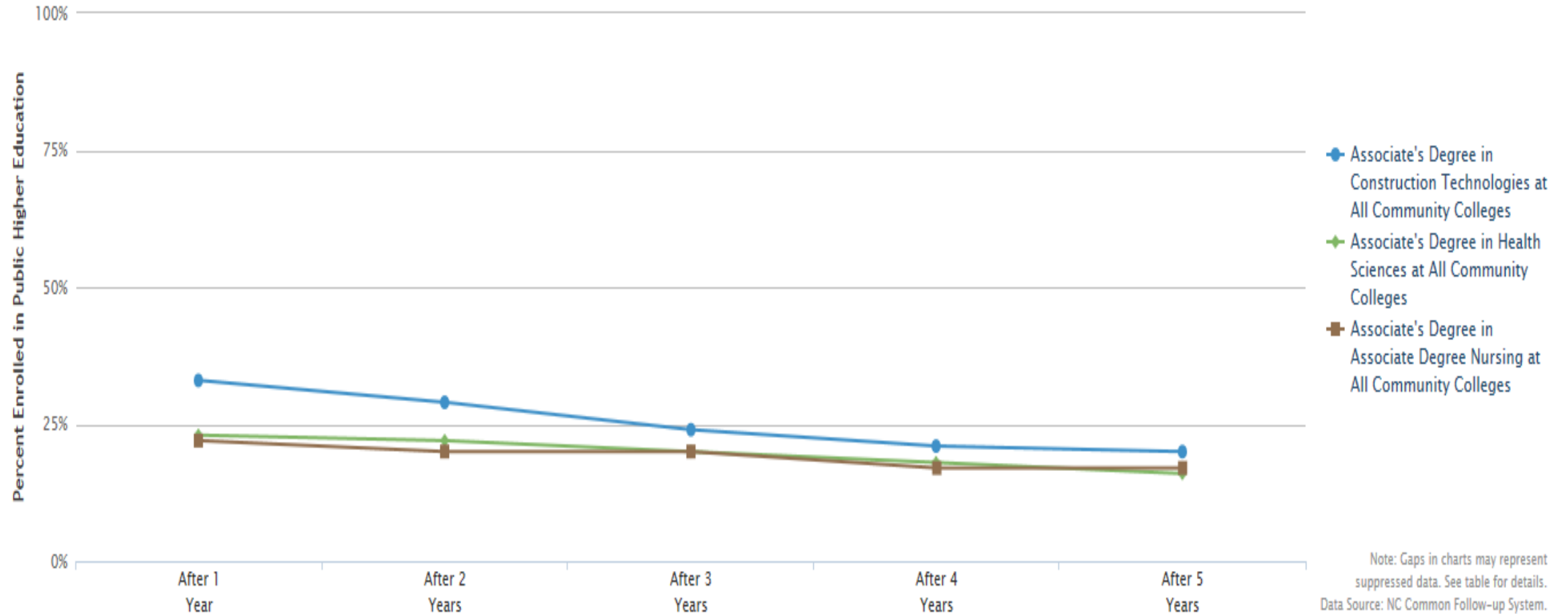


# NC TOWER

## ENROLLMENT

[VIEW CHART](#)[VIEW TABLE](#)[INFO](#)

Post-Graduation Enrollment in North Carolina Public Higher Education  
(2007-2008 Graduates)





# *How well are we matching workforce supply to demand?*

## NC Talent Pool Dashboard

- ▶ Information supplied by NCCCS and UNC System
- ▶ To assess the alignment of North Carolina's educational pipeline and occupational demand and to help measure the state's ability to develop and sustain a quality workforce





# NC Talent Pool Dashboard

## Occupational Summary

### Healthcare Practitioners and Technical Support Occupations SOC 29

NC Occupational Star Rating

Related Annual Average Completions  
(NCCCS & UNC only) 9,767

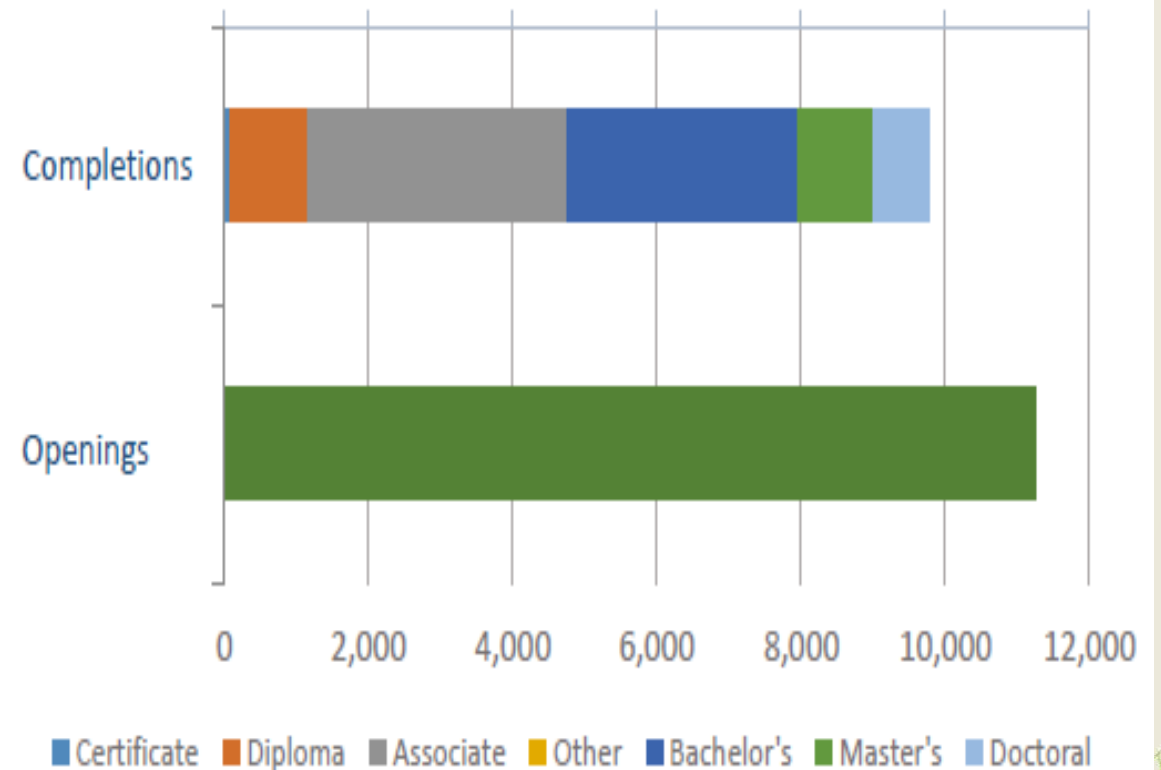
Projected Annual Job Openings in NC 11,262

Occupational Employment in NC 256,650

Occupational Annual Wage in NC 57,260

Total Related Completions (5-Year Total Unique) 46,801

Projected Job Openings and Related Annual Average Completions



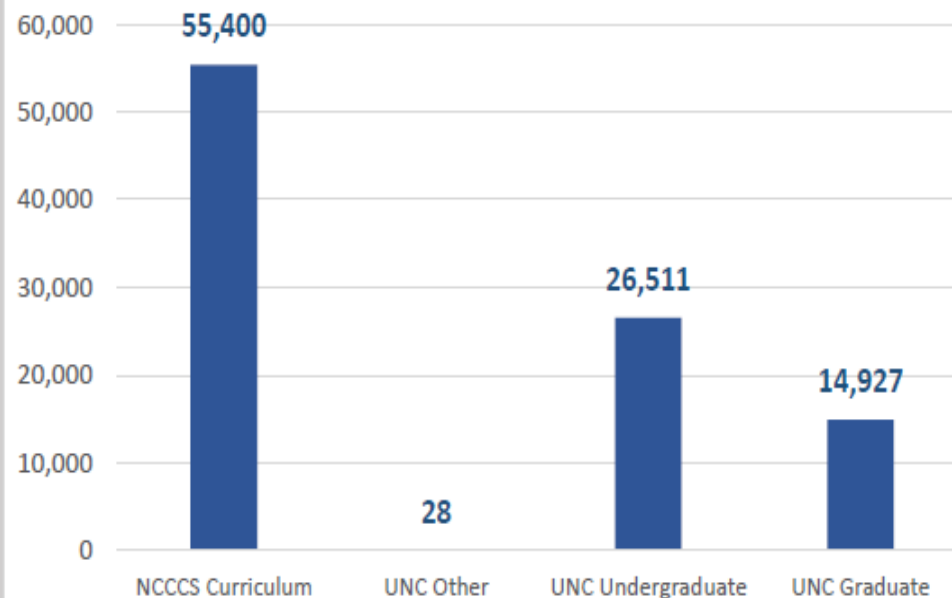


# NC Talent Pool Dashboard



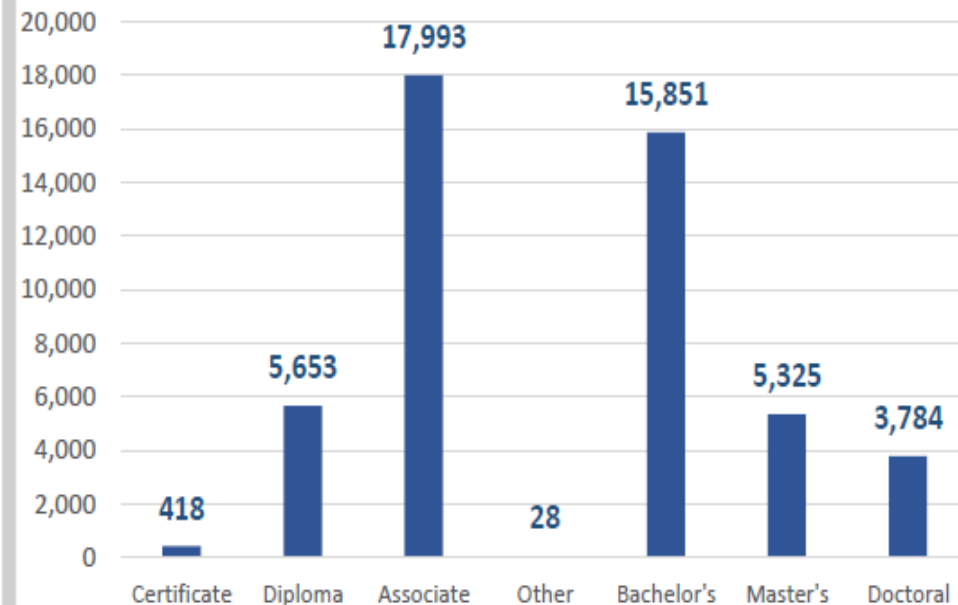
## Related Public Postsecondary Enrollment

5 Year

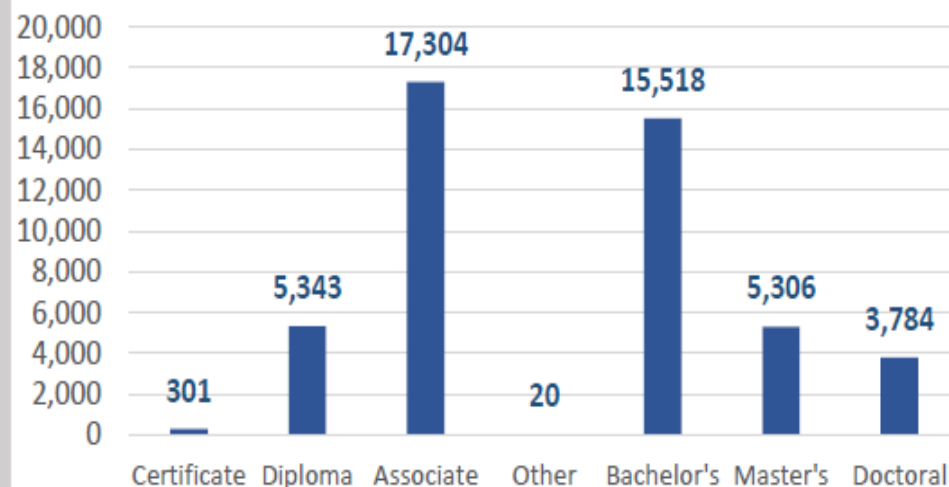


## Related Public Postsecondary Completions

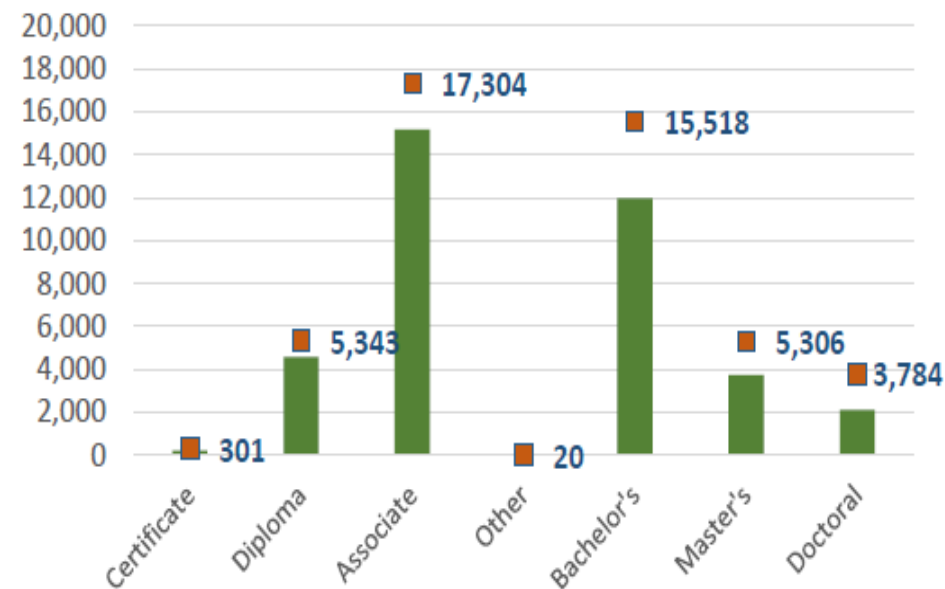
5 Year



## Related Public Postsecondary Completions (Highest Degree Achieved)

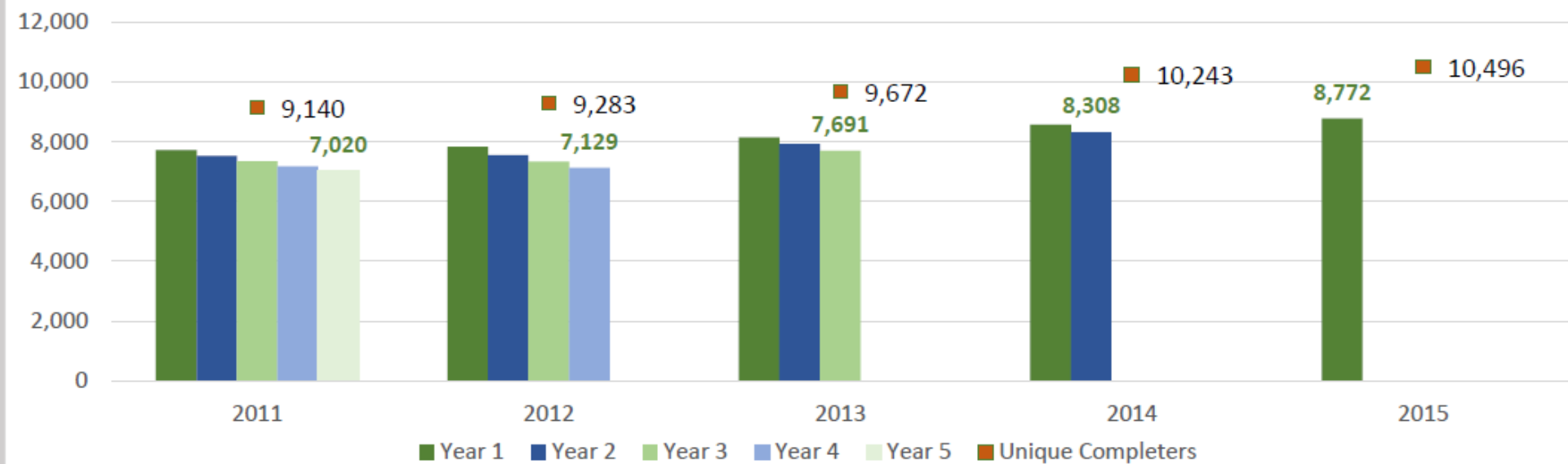


## Post-Completion Employment in North Carolina





# LEAD





# Useful Links

NCCareers.org

<http://nccareers.org/>

2016 Employer Needs Survey

<https://www.nccommerce.com/Portals/47/Publications/Industry%20Reports/2016-Employer-Needs-Survey.pdf>

Common Follow-up System

[www.nccommerce.com/lead/research-publications/common-follow-up-system](http://www.nccommerce.com/lead/research-publications/common-follow-up-system)

NC TOWER

<http://nctower.com/>

Talent Pool Supply & Demand Dashboard

<https://accessnc.opendatasoft.com/pages/supply-demand2/>





# Questions?

Jeff DeBellis

919.707.1570

[jeff.debellis@nccommerce.com](mailto:jeff.debellis@nccommerce.com)

Meihui Bodane

919-707-1564

[mbodane@nccommerce.com](mailto:mbodane@nccommerce.com)

