North Carolina State of Technology 2025 Industry Report

North Carolina's *State of the Technology Industry Report* is in its eleventh year. First produced in January 2015, the report tracks and highlights trends in one of North Carolina's most important and growing industries. The report identifies results that provide cause to celebrate for NC Tech members, and also raises issues that affect the state's competitiveness, and should gain the attention of North Carolina's state and local policymakers. NC Tech has committed to conducting this research annually. This 2025 report shows the final statistics in the tech sector for 2023, including facts, trends, and insights into North Carolina's technology industry. Tech's performance in North Carolina is benchmarked against other states and national trends. This report provides information for companies considering headquarter relocation, operations establishment, or expansions. It is a source of data and trends for policymakers, and a resource for innovation sector organizations, the economic development community, and the media. First and foremost, the report highlights the vibrancy and immense economic impact of North Carolina's technology sector.

NC Tech was founded over thirty years ago, in 1993, with a mission to advance North Carolina's technology sector. NC Tech now has more than 700 members including the top technology companies, organizations, and institutions across the state. NC Tech brings its members together around the business of technology for peer interaction, educational programming, information sharing, relationship building and networking. NC Tech is the go-to organization for policymakers on issues affecting the tech sector and supports the development of world-class, well-educated students and workers to make North Carolina a favored home for globally competitive companies.

NC Tech contracted with Economic Leadership, a North Carolina-based firm, to again create and build the State of the Technology Industry Report. For this report, the technology industry is broken down into four sub-categories:

(1) Information Technology, Telecom, Hardware, and Software
(2) Energy Technology
(3) Environmental Technology, and
(4) Life Sciences.

This methodology was established for the inaugural report based on several definitions of the tech industry – primarily TechAmerica Foundation's 2013 Technology Industry Classification – and has remained consistent each year for all State of the Technology Industry reports. A full accounting of the categories is provided in the appendix. Keeping the methodology consistent and transparent over eleven years allows for meaningful trend analysis over time.

North Carolina Technology Industry Summary Statistics, 2023

Indicator	Technology Industry	State Total	State Total Percentage
Employees	323,199	4,830,118	6.7%
Establishments	34,342	374,302	9.2%
Earnings (millions)	$41,981	$350,146	12.0%
Sales (millions)	$130,272	$1,118,712	11.6%

Source: EL estimates based on Lightcast 2024.4

North Carolina's Technology Industry by Sub-Categories, 2023

Technology Categories	Employment, 2023	Employment Change, 2022-2023	Employment Change, 2018-2023	Establishments, 2023	Sales, 2023 (millions)	National Location Quotient
Energy Technology	14,705	3.8%	7.3%	663	$15,065	0.46
Environmental Technology	23,254	6.2%	-5.8%	2,058	$5,369	0.90
Life Sciences	110,356	3.4%	27.0%	7,577	$46,628	1.12
IT	174,884	3.3%	19.2%	24,045	$63,210	1.00
TOTAL TECH	**323,199**	**3.6%**	**18.8%**	**34,342**	**$130,272**	**0.98**

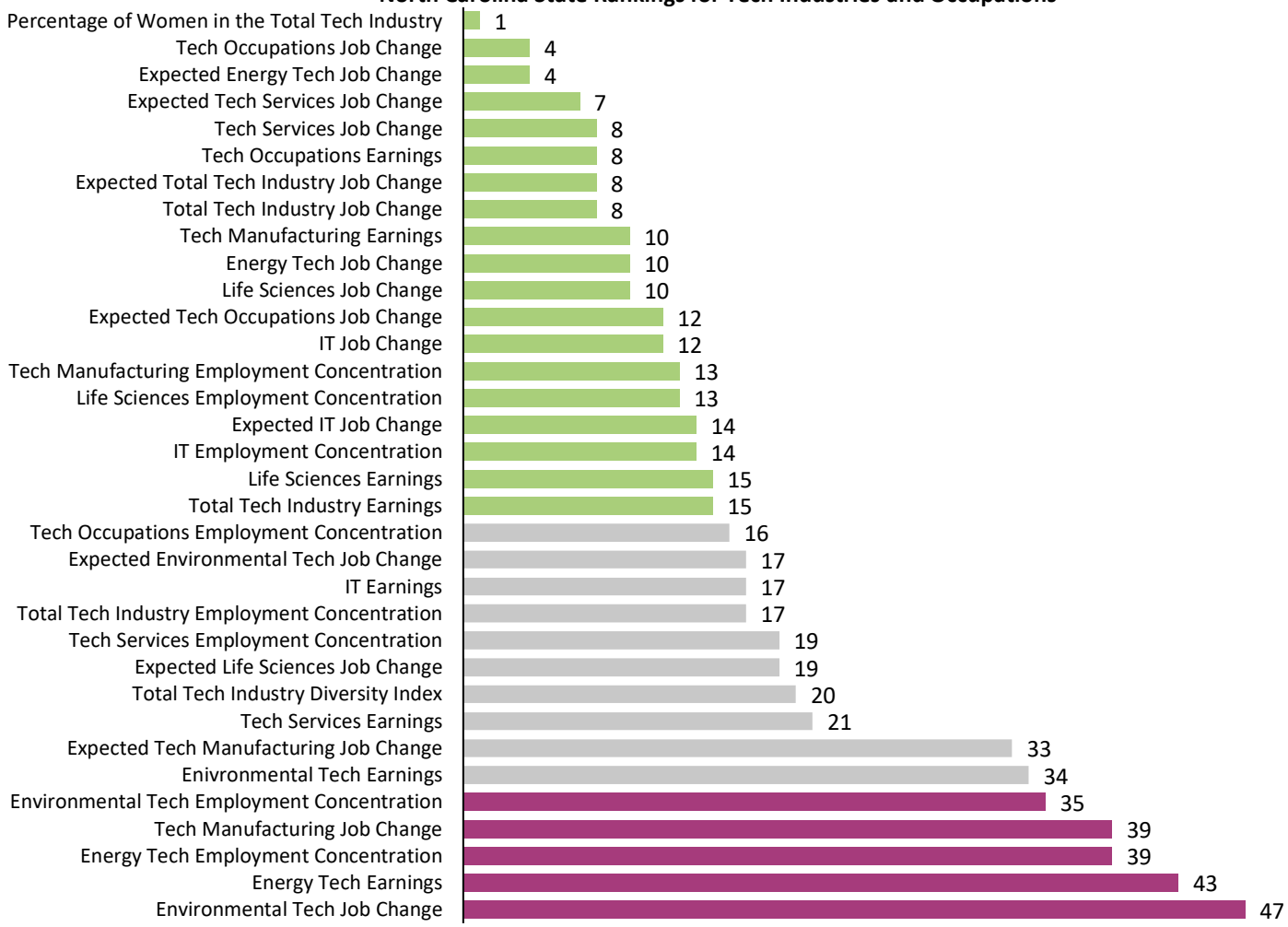
Source: EL calculations based on Lightcast 2024.4

This report looks beyond just the companies that are classified within the tech industry; data is also analyzed on tech occupations that are employed across all industries. In addition, North Carolina is compared to other states on metrics that evaluate the greater tech ecosystem, such as venture capital funding and research and development spending.

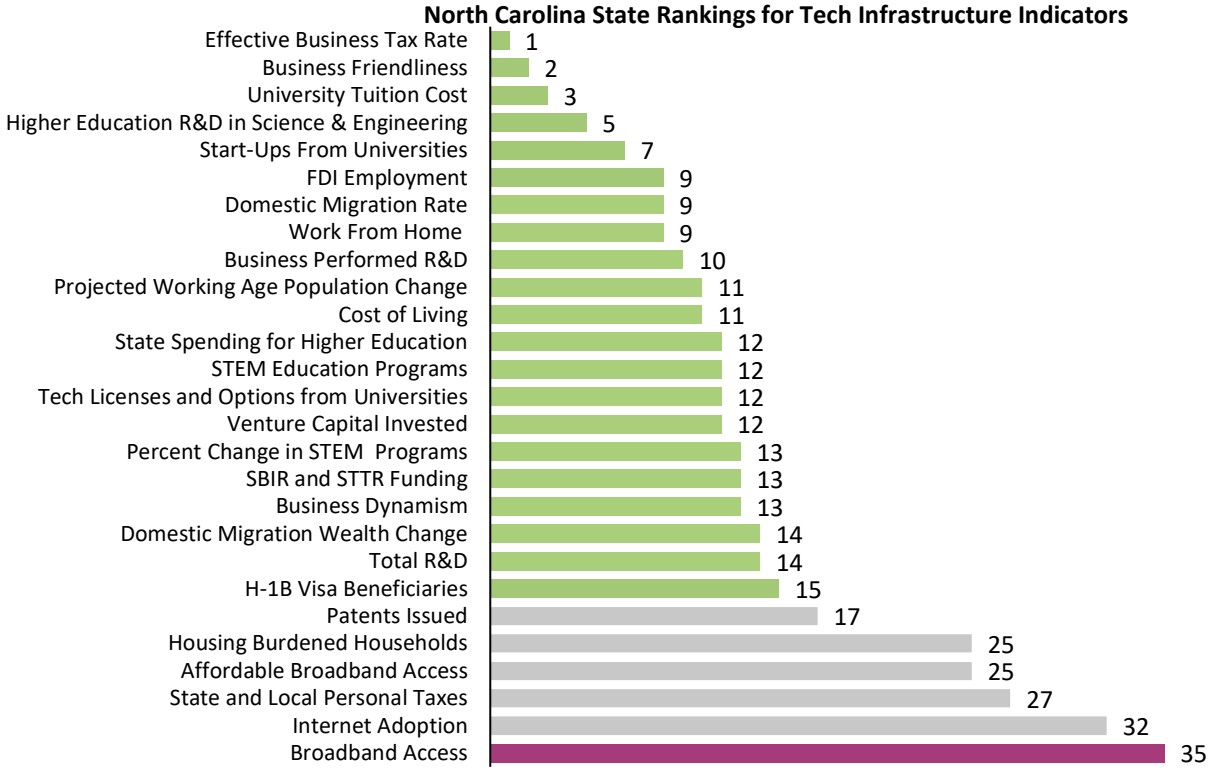
HIGHLIGHTS:

- North Carolina was the #8 state in total tech industry employment growth from 2018-2023.
- North Carolina remained the #1 state for Percentage of Women in the Technology Industry with women accounting for almost 38 percent of the workforce.
- The state saw an increase in tech occupations of almost 31 percent in the last five years, ranking as the 4th fastest in the country.
- The state ranked 1st in effective business tax rates and 2nd in overall business climate.
- North Carolina ranked 12th in venture capital funding per gross state product.
- The state had the 5th highest level of research and development (R&D) at universities in science and technology fields.
- North Carolina's tech economy is benefitting from strong levels of domestic migration, foreign direct investment, new business starts, and a lower cost of living. The state ranks in the top 15 states for each of these metrics.

North Carolina State Rankings for Tech Industries and Occupations

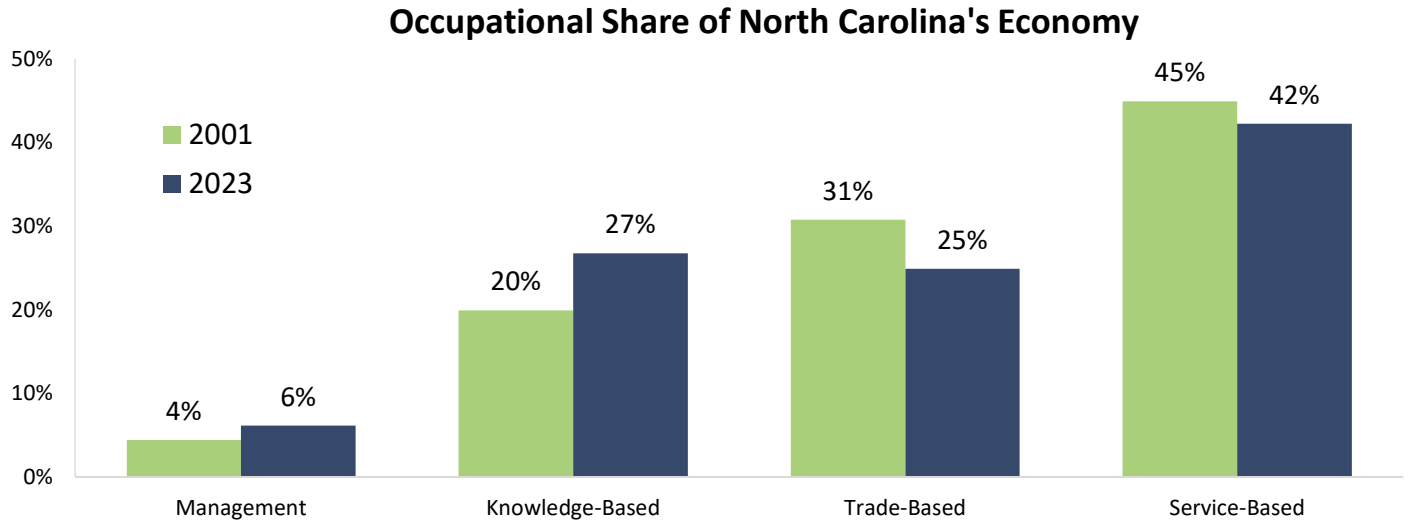


North Carolina State Rankings for Tech Infrastructure Indicators



SECTION 1. STATE OF THE INDUSTRY & REGIONAL TRENDS

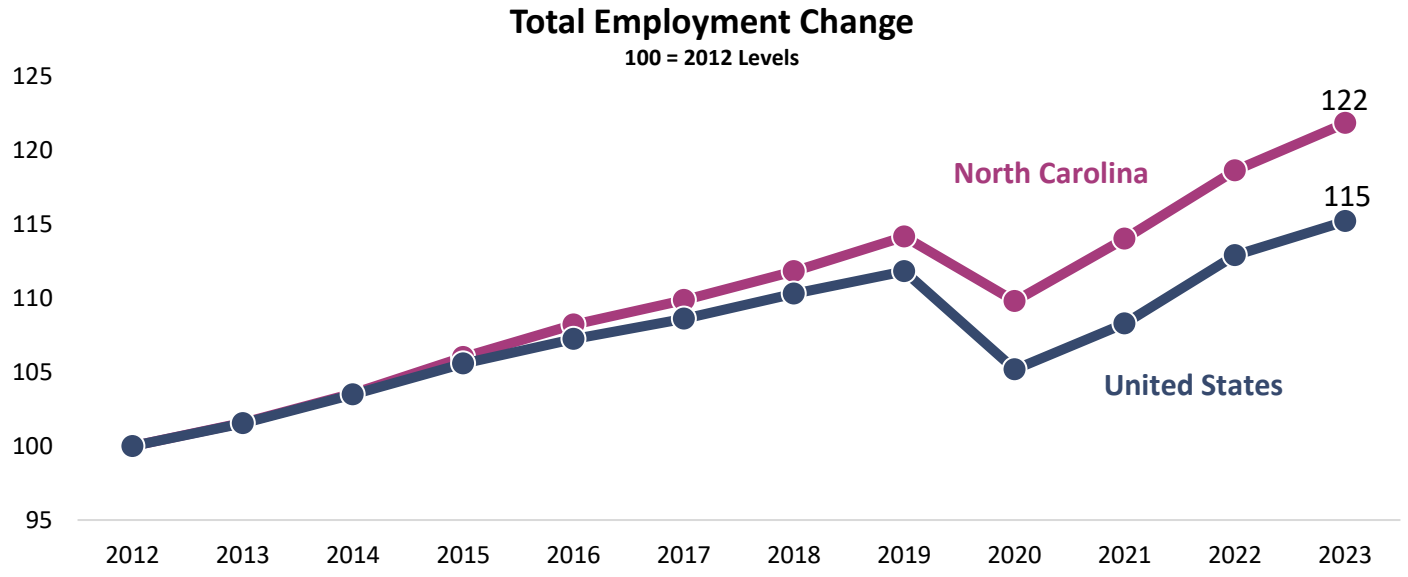
The technology industry has been one of the driving forces in North Carolina's shifting economy. In the last two decades the economy of North Carolina has evolved dramatically. Occupations that were once traditional leaders in the state, like trade-based jobs, now account for a lower percentage of the state's economy. Meanwhile, growth has increased the role of management and knowledge-based jobs in the economy.



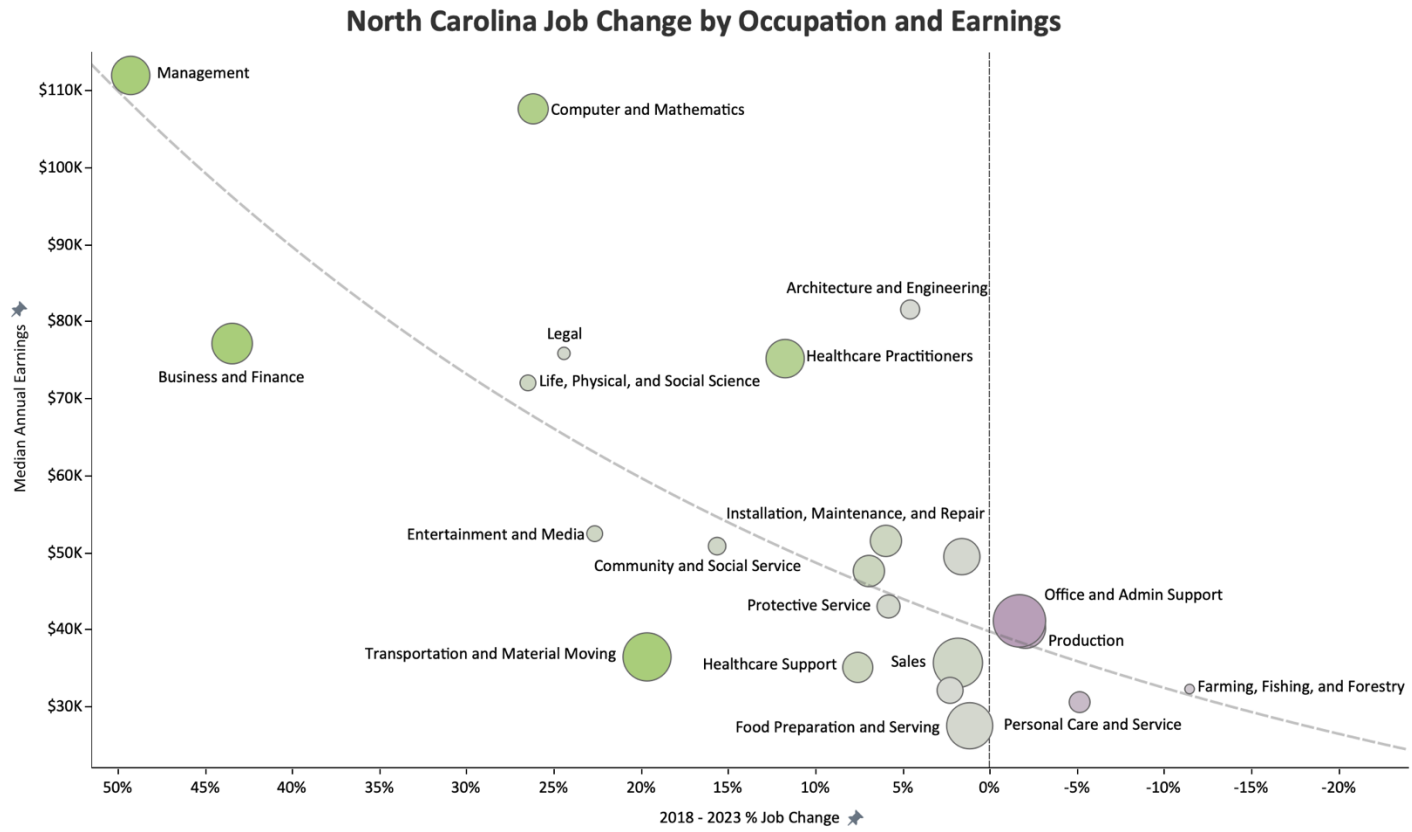
Source: EL calculations based on Lightcast 2024.4

North Carolina's Economic Performance

Overall, the economy in North Carolina has performed well in the last decade. Since 2015, total employment has grown at higher rates than the national average. In the last five years, growth has been even stronger than the national average. This growth has been driven by jobs in high wage fields like management, finance, and tech. Growth has not been spread across the entire economy as jobs in production, office administration, personal care, and farming have experienced net losses in employment during this time.

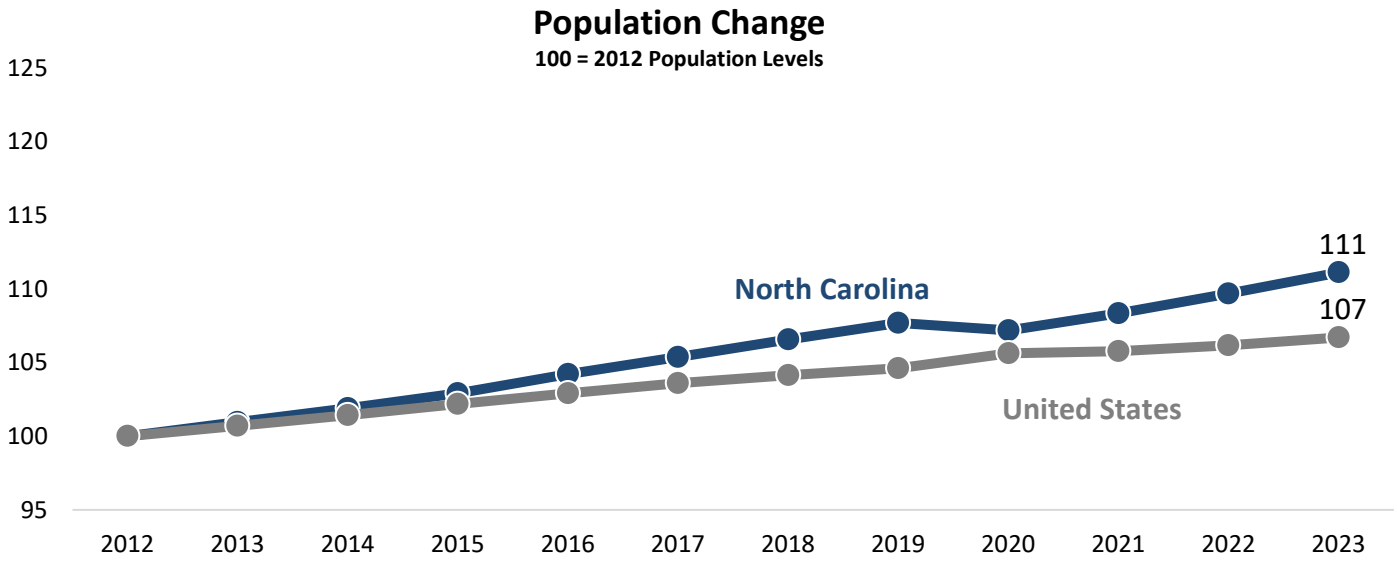


Source: EL calculations based on Lightcast 2024.4



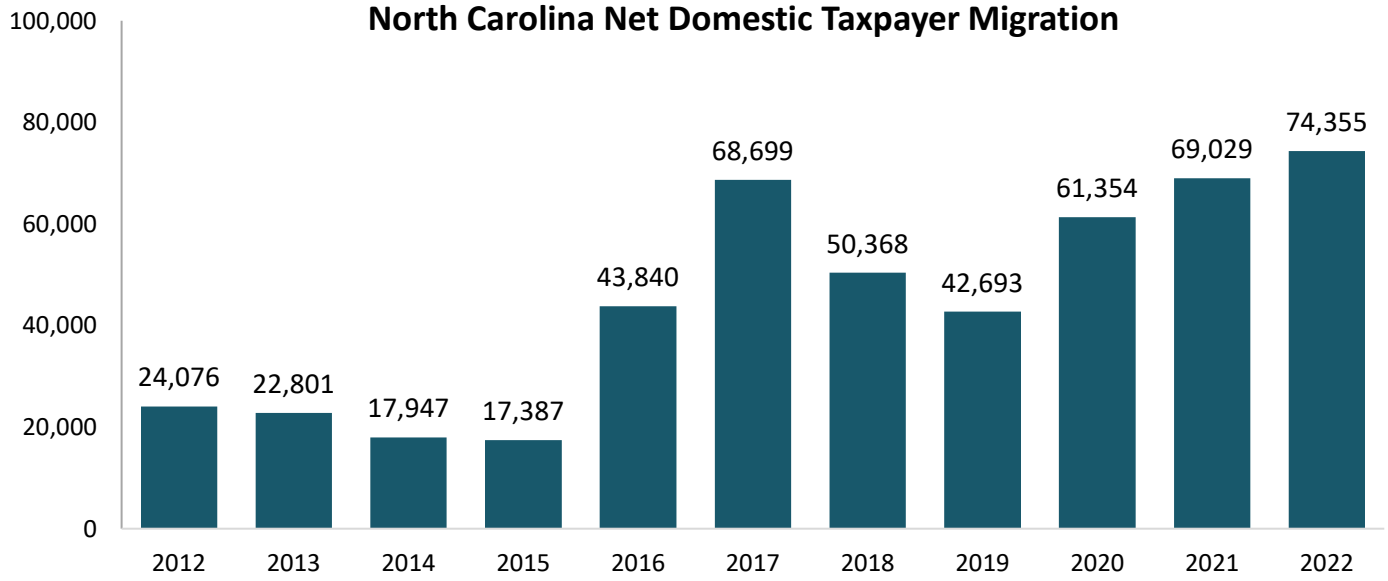
Source: EL calculations based on Lightcast 2024.4

A significant contributor to this job growth in the state has been population growth. Most of that growth has come from in-migration. The state added about 272,560 people aged 20 to 39 years old in the last ten years. This surge of young, working aged people has sparked the state's economy and added to its pool of workers. There has also been an increase in those age 65 and older and more people are choosing to retire in this state. This can add wealth to state and spur further economic activity.



Source: EL calculations based on Lightcast 2024.4

Data from IRS tax records demonstrate this sharp increase in domestic migration in recent years. From 2020 to 2022, the state saw net migration reach some of its highest levels in the last decade. Other research supports the notion that North Carolina was one of the states that people chose to relocate to during the COVID-19 pandemic and the proliferation of remote work. In 2022, the state not only recruited people from other Southern states, but also from New York and California. The net effect of the influx from these states has brought more wealth to North Carolina.



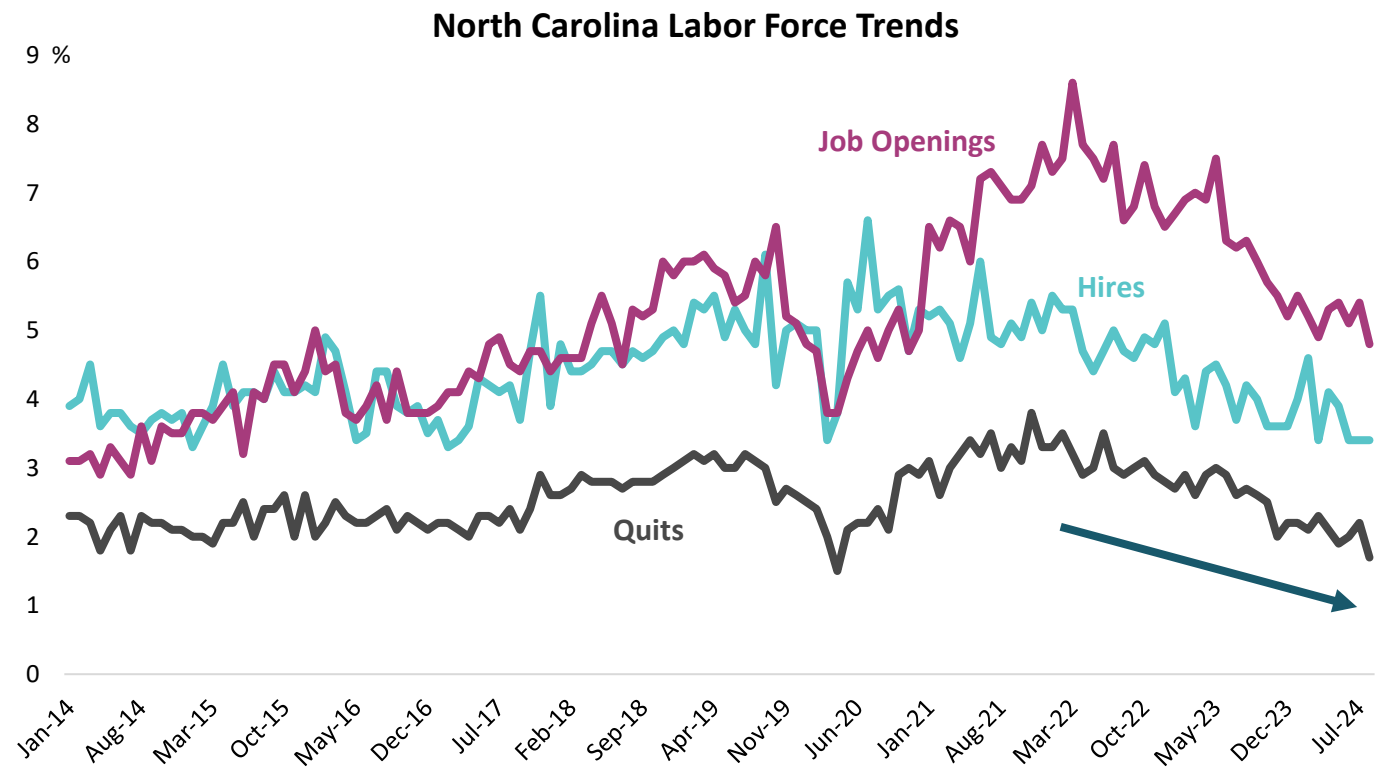
Source: Lightcast 2024.4
Note: Based on IRS data on individuals who file federal taxes.

Top In-Bound and Out-Bound Migration States, 2022

Top Five In-Bound States		Top Five Outbound States	
Florida	+29,959	South Carolina	-29,606
Virginia	+24,993	Florida	-24,478
New York	+23,973	Virginia	-19,745
South Carolina	+22,583	Texas	-14,419
California	+19,782	Georgia	-13,629

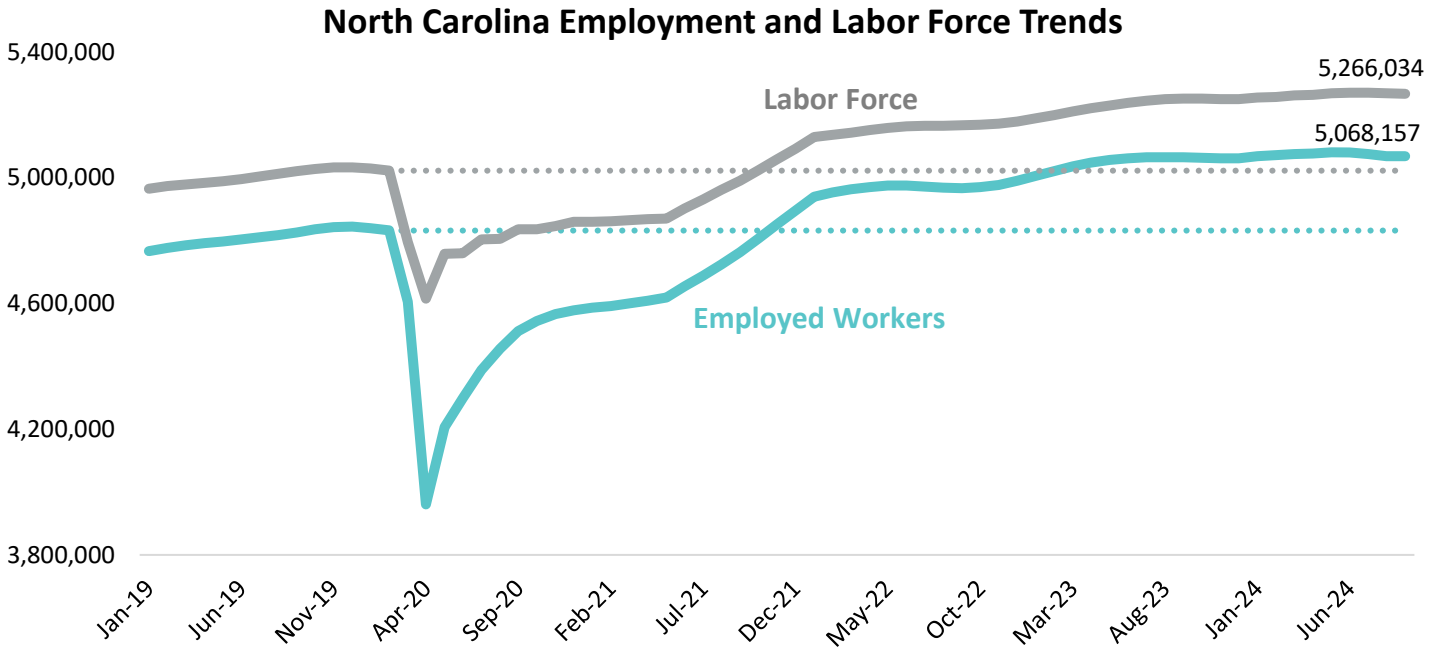
Source: EL calculations based Lightcast 2024.4
Note: Based on IRS data from individuals who file taxes.

Despite this recovery and population surge, employers in the state still struggle to fill open positions. Even as demand has reduced in the last year there are still a higher rate of job openings than hires. This pattern matches national and global labor shortages and indicates that there is potential for job growth that is being unmet. Workers in the state have settled into their jobs and quit rates have come down from their peak of the Great Resignation.



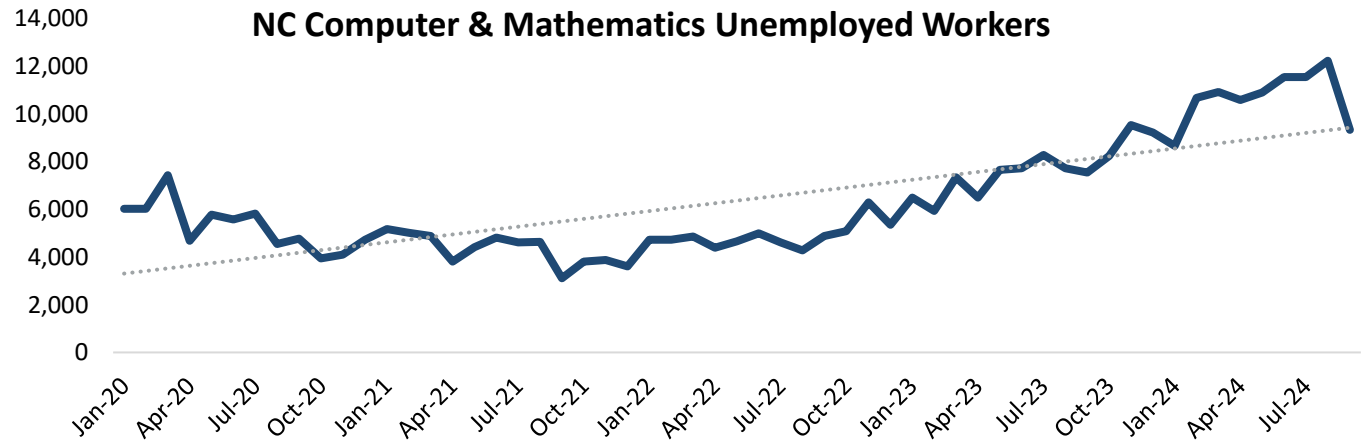
Source: BLS (2024)

North Carolina recovered quickly from the shock of the pandemic, but the impact of the Federal Reserve's measures to combat inflation have led to much slower growth in recent months. As of the writing of this report the Federal Reserve has lowered the federal fund rates twice in late 2024 to attempt to spur the economy after progress made on curtailing inflation. These expansionary measures could help generate future growth in the state.



Source: BLS (2024)

The tech sector was one of the first industries to “right size” their workforce around the end of 2022, after rapid expansion during the pandemic. The sector has remained in a state of contraction as unemployment levels in North Carolina are now above levels witnessed back in early 2020. The most recent data indicates this trend may be reversing towards expansion. Even as overall growth decelerates and future fiscal and monetary policy is uncertain, this report reveals North Carolina is well positioned to continue to be a top performer in the nation.



Source: Lightcast 2024.4

SECTION 2. METHODOLOGY

In this report, the state of North Carolina's technology industry is reviewed and compared to those of other states. The tech industry data reflects data from firms that operates in the tech space but might have employees that perform work that is not tech related (i.e. an accountant at Microsoft). Later in the report tech occupations are measured. Tech occupations are workers whose roles are tech-related and can be employed at tech focused or not tech focused companies (i.e. the IT manager for a furniture manufacturer). The term “tech sector” is used to refer to both the tech industries and tech occupations.

In this report, North Carolina is also ranked on factors that influence the technology sector such as research & development funding and talent availability. These metrics are defined as the “tech infrastructure”. Reviewing these indicators can provide policy makers with an understanding of the industry’s current reality, as well as takeaways that may provide insight for the best course of action to further support growth in the industry. North Carolina has many strengths, including a deep pool of talent, outstanding quality of life, an affordable and competitive business climate, and the presence of great research universities.

To analyze North Carolina’s technology industry, 86 separate six-digit NAICS code industries were identified to characterize the Total Technology Industry for the state and for comparison of other US states. A full list of each six-digit industry is available in the appendix of this report.

The Total Technology Industry (hereby referred to as the ‘tech industry’) was further broken down into four sub-categories:

- Energy Technology
- Environmental Technology
- Life Sciences
- IT, Telecom, Hardware & Software (Tech Core)

These categories were chosen based on several definitions of the technology industry. The primary source for defining the technology industry is based on TechAmerica Foundation's 2013 Technology Industry Classification. Other state and city industry reports were evaluated, and this report maintains a definition that is comparable to those reports. The definitions remain consistent with the ten previous State of Technology reports, but are also updated to reflect the new NAICS classifications. There was an update to the NAICS classification system in 2022.

To calculate metrics and trends of the tech sector for employment, wages, and establishments, Economic Leadership LLC used data developed by Lightcast, which is largely based on the Bureau of Labor Statistics (BLS) Quarterly Census of Employment and Wages. Lightcast data fills in gaps from the BLS non-disclosure policy by amalgamating several economic data sources to provide the best estimates for the years 2001-2034. This allows for a more granular analysis of the tech sector.

Most of the data presented in this report are calculations based off Lightcast data for the year 2023. This is the most recent full year of data available. The federal government revises data several times over the first year of reporting and often the revisions are very impactful. Final 2024 estimates will not be available until mid-2025. Most trend data presented is for the 5-year period from 2018-2023. This approach is retrospective but allows for the most accurate assessment of the tech industry because it incorporates the finalized numbers from public sources. Some data such as unemployment and job postings offer more real-time analysis and are presented throughout the report.

To measure the total workers in tech occupations in North Carolina across all industries, we reviewed 85 separate five-digit SOC codes across computer and engineering occupations. Data for the tech infrastructure state comparisons comes directly from publicly available resources such as the National Science Foundation, Bureau of Economic Analysis, and the US Census Bureau. This ensures consistent and comparable data across all the states.

SECTION 3. THE NORTH CAROLINA TECH INDUSTRY

The review of North Carolina's technology industry found that in 2023 the industry employed 323,200 people, and workers earned about $42 billion in income. The tech industry accounted directly for almost seven percent of the total jobs in the state, but 12 percent of the state's total earnings and over 11 percent of sales. In 2023, there were over 34,340 technology establishments operating in North Carolina.

North Carolina Technology Industry Summary Statistics, 2023

Indicator	Technology Industry	State Total	State Total Percentage
Employees	323,199	4,830,118	6.7%
Establishments	34,342	374,302	9.2%
Wages (millions)	$41,981	$350,146	12.0%
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Source: EL estimates based on Lightcast 2024.4

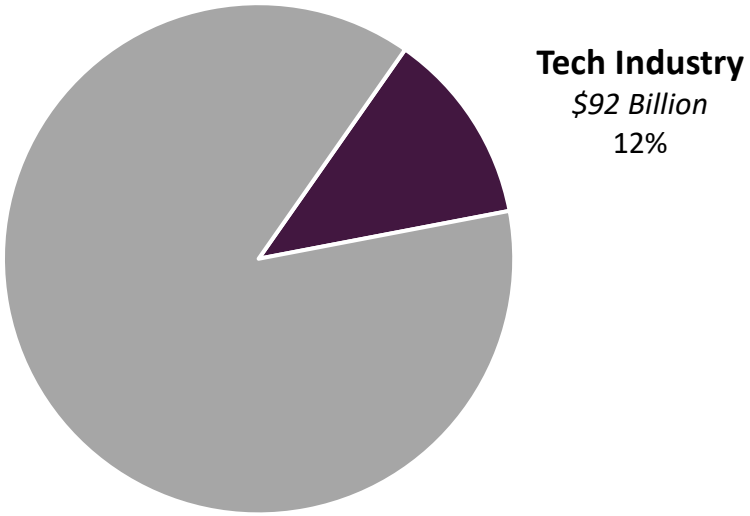
The industry also contributes heavily to North Carolina's tax revenue, exports, and gross domestic product (GDP). The tech industry accounts for about ten percent of taxes paid within the state. In 2023, the tech industry contributed over 12 percent, $92 billion, of GDP.

North Carolina Technology Industry Economic Contributions, 2023

Indicator	Technology Industry	State Total	State Total Percentage
Taxes Paid (millions)	$4,274	$43,752	9.8%
Exports (millions)	$52,786	$685,591	7.7%
GSP (millions)	$91,799	$747,985	12.3%

Source: EL estimates based on Lightcast 2024.4

Technology Industry Contribution to North Carolina's GDP, 2023



Source: EL calculations based on Lightcast 2024.4

The technology industry was broken down for further analysis into its four sub-industries, as well as manufacturing and service activities. The Information Technology (IT) group includes industries related to hardware manufacturing, software services, telecommunications, and other computer related services. Energy Technology includes industries related to fossil fuel and renewable power operations. Environmental Technology includes industries related to electrification, batteries, environmental consulting, and waste remediation services. Life Sciences includes industries related to pharmaceutical manufacturing and research and development in biotechnology.

North Carolina's Technology Industry by Sub-Categories, 2023

Technology Categories	Employment, 2023	Employment Change, 2022-2023	Employment Change, 2018-2023	Establishments, 2023	Sales, 2023 (millions)	National Location Quotient
Energy Tech	14,705	3.8%	7.3%	663	$15,065	0.46
Environmental Tech	23,254	6.2%	-5.8%	2,058	$5,369	0.90
Life Sciences	110,356	3.4%	27.0%	7,577	$46,628	1.12
IT	174,884	3.3%	19.2%	24,045	$63,210	1.00
TOTAL TECH	**323,199**	**3.6%**	**18.8%**	**34,342**	**$130,272**	**0.98**

Source: EL estimates based on Lightcast 2024.4
Note: Some values may not add to the exact total due to rounding.

The IT sub-category accounts for 54 percent of the jobs in the tech industry. Job growth has been strong in all subcategories except for environmental tech. The job decline in the environmental tech sector is heavily influenced by a reclassification of jobs rather than a true decline of workers. From 2021 to 2022, over 4,900 jobs in Durham County from the instruments for measuring, displaying, and controlling industrial processes industry were reclassified to the corporate offices industry (outside of the tech industry). The BLS reclassifies companies often to make sure their code is most in line with the activity of the business. The one-year growth in this subsector has been strong and overall, the tech industry has been adding jobs at high levels.

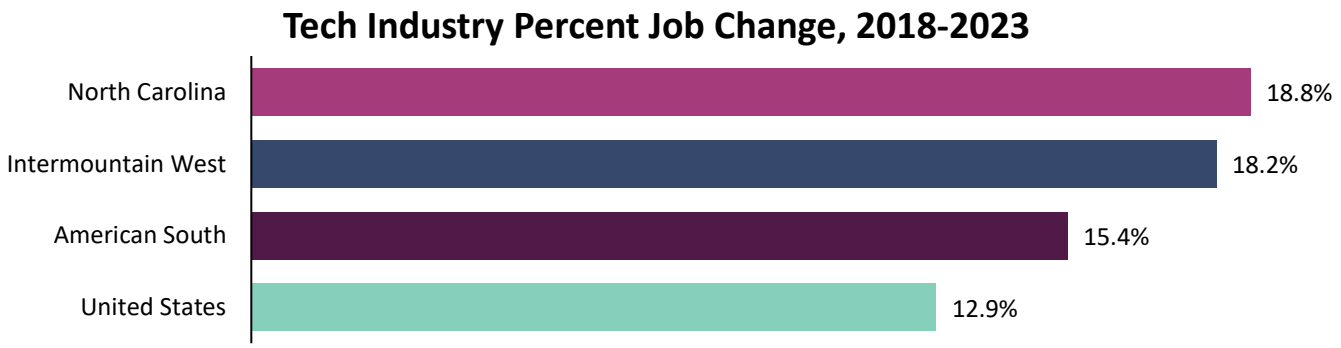
The tech industry can also be evaluated by the type of product produced, services or manufactured goods. In North Carolina, most of the tech industry was involved in providing tech services. Tech manufacturing is highly concentrated in the state. Concentration levels greater than 1.00 indicate that an industry's employment is higher than national levels and indicate that an industry is a significant part of a region's economic base. Growth in tech manufacturing has not been as strong as tech services, this is likely affected by the reclassification mentioned above.

North Carolina's Tech Industry by Output Categories, 2023

Technology Output Categories	Employment, 2023	Employment Change, 2022-2023	Employment Change, 2018-2023	Establishments, 2023	Sales, 2023 (millions)	Concentration
Tech Services	257,021	4.1%	24.4%	33,509	$94,942	0.94
Tech Manufacturing	66,178	1.6%	1.2%	833	$35,330	1.15
TOTAL TECH	**323,199**	**3.6%**	**18.8%**	**34,342**	**$130,272**	**0.98**

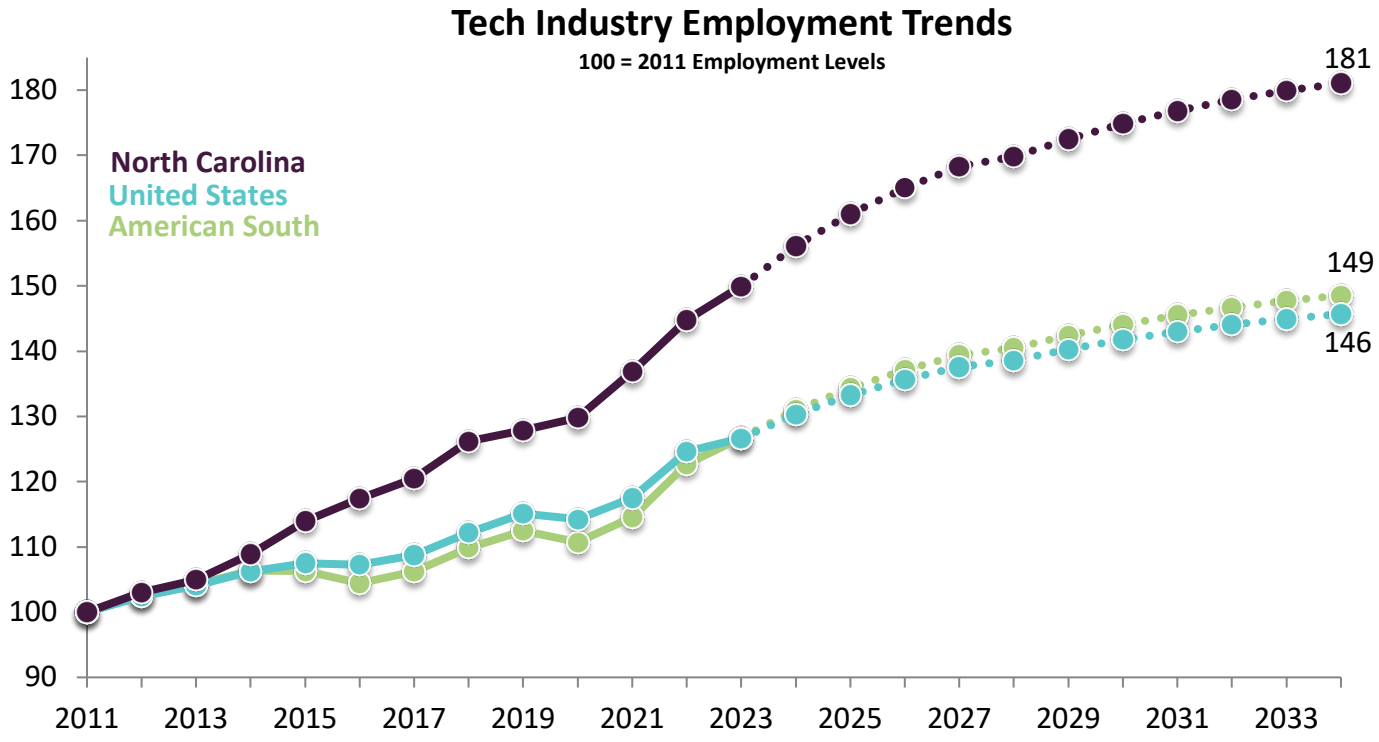
Source: EL estimates based on Lightcast 2024.4

North Carolina's tech industry growth in the past five years was higher than the national average by almost six percentage points, and greater than the regional averages for the South and Intermountain West. Later in this report, North Carolina's tech growth will be compared against all other states.



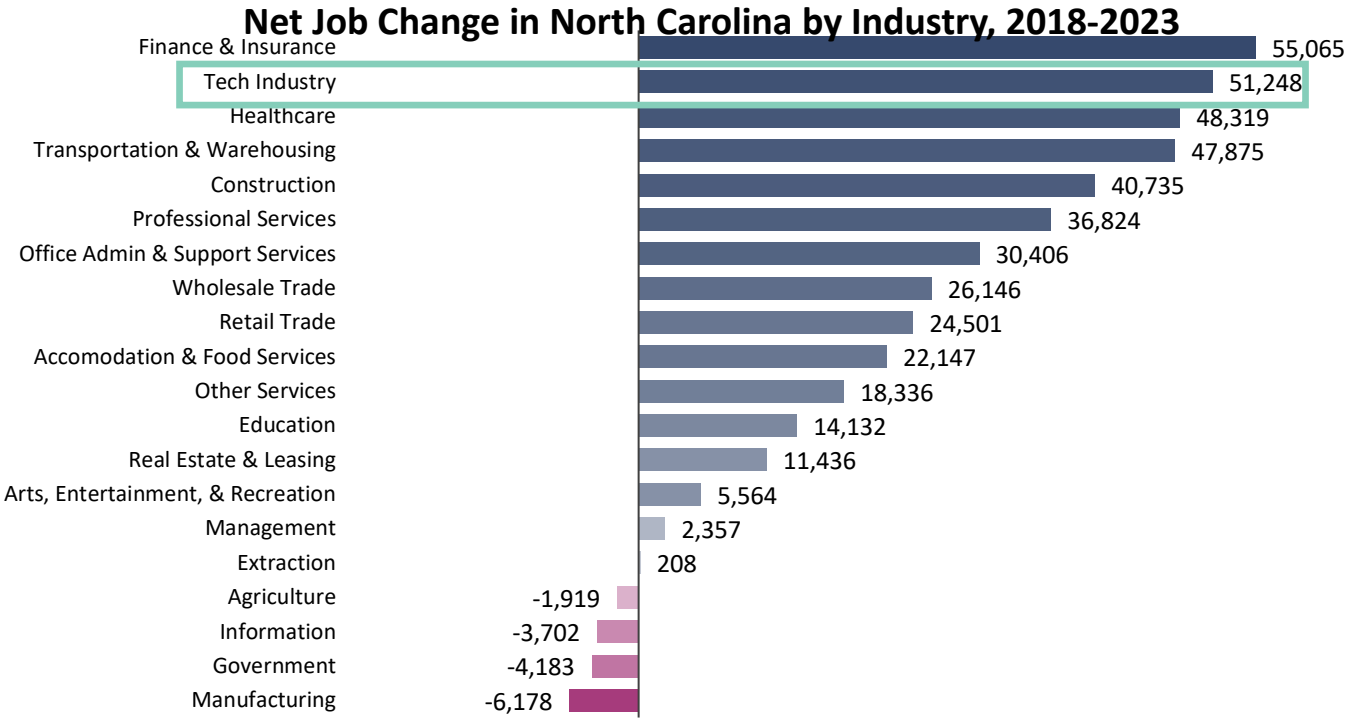
Source: EL calculations based on Lightcast 2024.4

The future also looks strong for the industry, as Lightcast models predict that the growth over the next 10 years for the state will continue at a higher rate than the nation and the average for the southern states. The chart also demonstrates how tech has cooled off in the last year nationally but growth in North Carolina is still expanding dramatically.



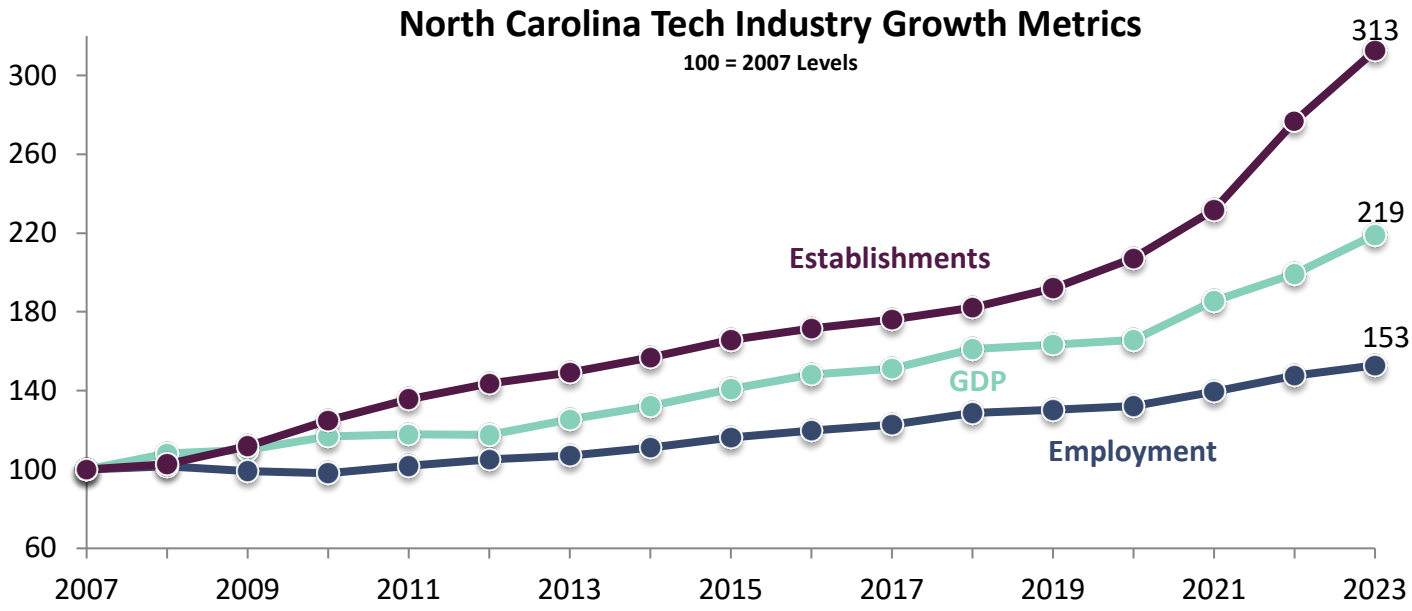
Source: EL calculations based on Lightcast 2024.4

Tech was the second fastest growing industry group in the state, more than health care, manufacturing, transportation and warehousing, or construction. The only industry that grew faster during this time was finance and insurance. The state's economy is benefiting by having several high-wage industries like tech driving job growth.

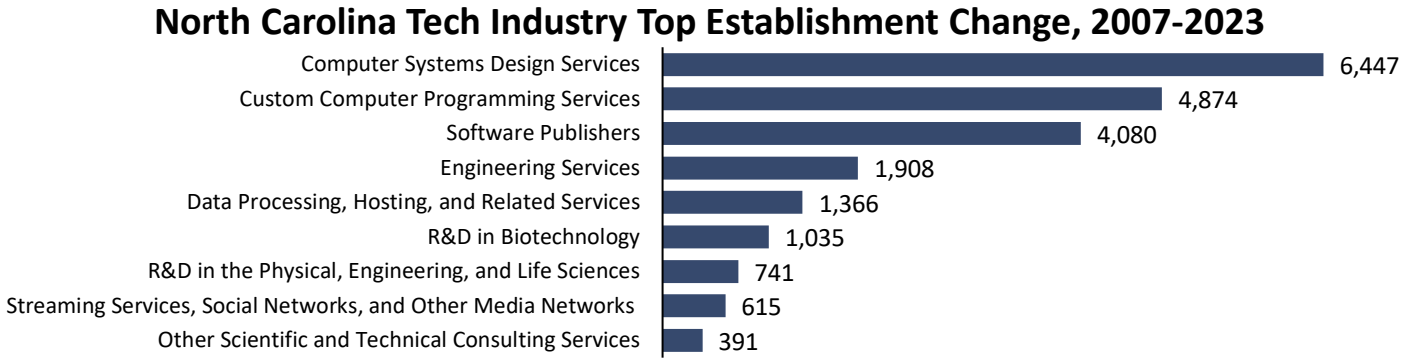


Source: EL calculations based on Lightcast 2024.4

Not only is the tech industry growing in terms of jobs, but in recent years the number of tech establishments has risen dramatically. An establishment is defined as any company that has a location with a payroll. One company can have multiple establishments in a region. The growth in establishments has been primarily in computer systems, programming, and software service companies.



Source: EL calculations based on Lightcast 2024.4



Source: EL calculations based on Lightcast 2024.4

Employees within technology companies in North Carolina earn high incomes, on average. The average earnings per worker in the tech industry was $140,700 in 2023. The average earnings for workers across all industries in the state is about $78,300. This metric of earnings includes all the wages, salaries, and supplements received by a worker. Supplements, including employee benefits, on average accounted for about $21,100 of a tech industry worker's earnings in North Carolina.

Tech industry wages in North Carolina are lower when compared to the national averages, meaning that the state still offers cost advantages to technology companies in terms of labor. Wages can be hard to compare across the country due to the varying cost of living. When purchasing power is accounted for, North Carolina's wages are more comparable with the national average. A worker in the tech industry in California may make a higher salary than a tech industry worker in North Carolina, but the wages may be comparable due to the lower cost of living in NC. The highest tech industry wages are found in energy technology, IT, and tech manufacturing.

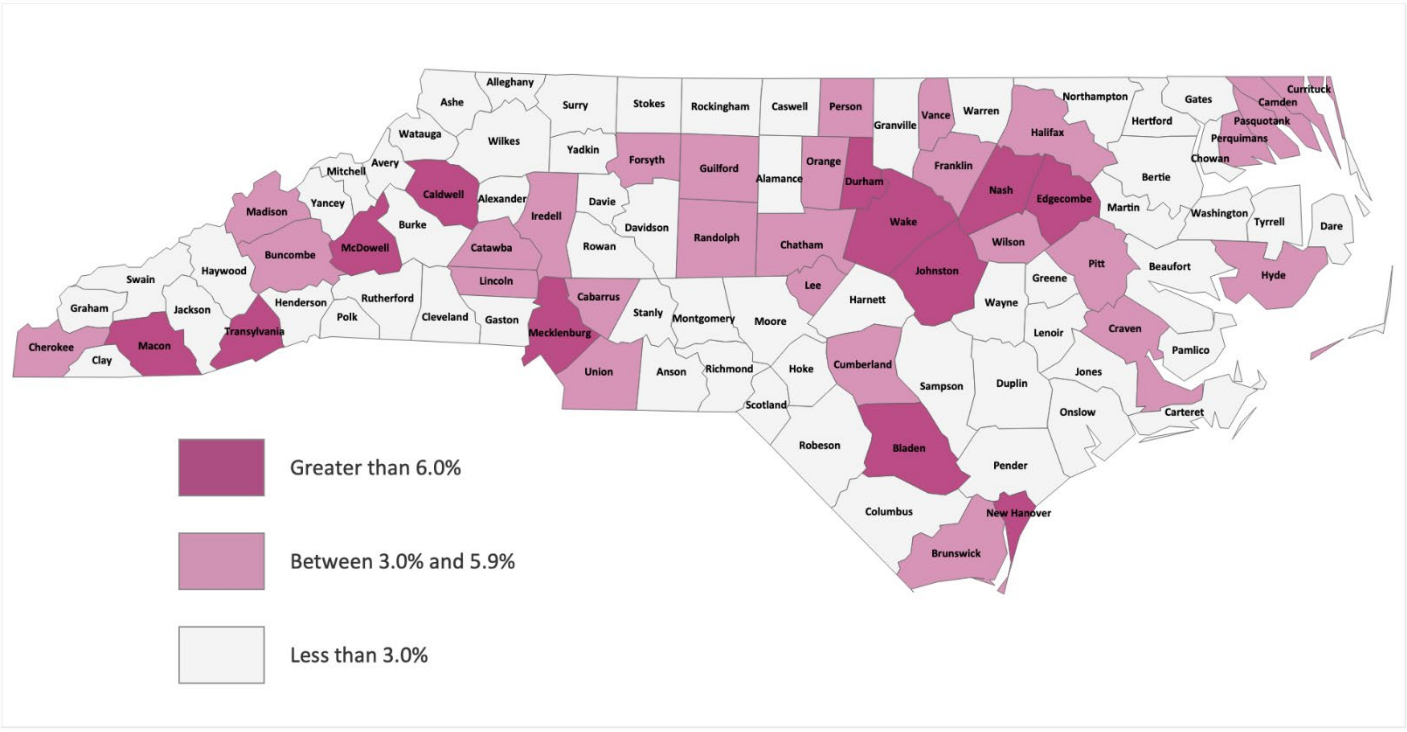
Average Annual Earnings per Worker by Sub-Industry, 2023

Technology Categories	North Carolina	North Carolina (Purchasing Power)	National Average
Energy Tech	$148,900	$158,100	$175,600
Environmental Tech	$84,900	$90,100	$96,600
Life Sciences	$138,200	$146,700	$153,500
IT	$149,000	$158,200	$187,600
All Categories	**North Carolina**	**North Carolina (Purchasing Power)**	**National Average**
Tech Services	$140,300	$149,000	$169,800
Tech Manufacturing	$142,100	$150,900	$165,900
TOTAL TECH INDUSTRY	**$140,700**	**$149,300**	**$169,200**

Source: EL estimates based on Lightcast 2024.4 and BEA (2024)

Across the state, major metro areas have been leading the tech industry growth. Mecklenburg, Wake, and Durham counties account for about 56 percent of the tech industry in North Carolina. While tech industry jobs are still very strong in the urban centers of the state, jobs have spread to many areas of North Carolina. Tech industry jobs now account for more than six percent of all jobs in counties as geographically diverse as Macon, McDowell, Caldwell, Bladen, and Edgecombe counties. 40 of the 100 counties in the state have more than three percent of their total jobs in the tech industry.

Tech Industry Jobs as a Percentage of Total Jobs, 2023



Source: EL calculations based on Lightcast 2024.4

The industries were also divided down into even further detailed groupings, super sub-industries. This breakdown shows that software services are a significant driver of the tech industry growth in the state. Jobs

in this group have grown by 42 percent from 2018 to 2023. R&D and Testing and Life Sciences Manufacturing also have strong concentrations in the state, and experienced strong job growth in recent years. Again, growth is strong across almost all categories.

North Carolina's Tech Industry by Super Sub-Industries, 2023

Subsectors	2023 Employment	Employment Change (2018-2023)	National Location Quotient
Software	103,778	42%	1.06
Internet, Social Media, & Telecom	44,015	-8%	0.92
Engineering, Environmental, & Clean Tech	43,643	13%	0.95
R&D and Testing	42,068	35%	1.07
Life Sciences Manufacturing	34,230	13%	1.46
Electronics Hardware	27,091	5%	0.95
Other Energy and Power Generation	13,825	5%	0.45
Remediation and Waste Management	13,669	18%	0.86
Renewable Energy	880	78%	0.88
TOTAL TECH SECTOR	**323,199**	**19%**	**0.98**

Source: EL estimates based on Lightcast 2024.4

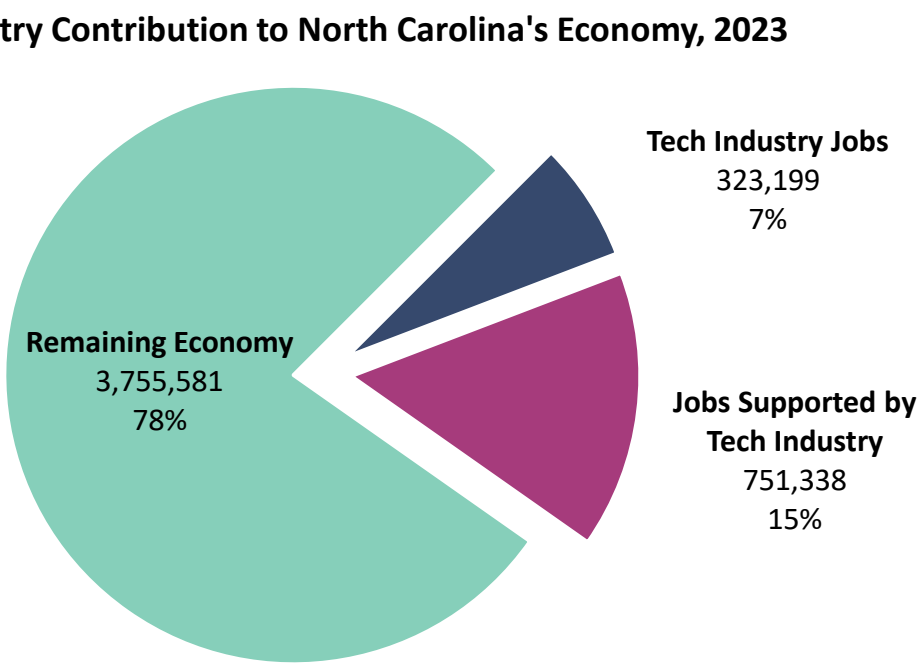
The tech industry contributes to the state economy far beyond its direct employees and payroll. Supply chain impacts multiply throughout the economy and help support jobs across a variety of industries. Using multipliers from Lightcast's social account matrix input-output model, the total economic impact of the tech industry on North Carolina's economy was determined. Employment, earnings, and sales within the industry represent the direct impact on the state economy. These effects are multiplied through the economy by supply chain purchases (indirect) and income effects (induced) to estimate the total impact on the state.

Economic Impact of Tech Industry on State Economy, 2023

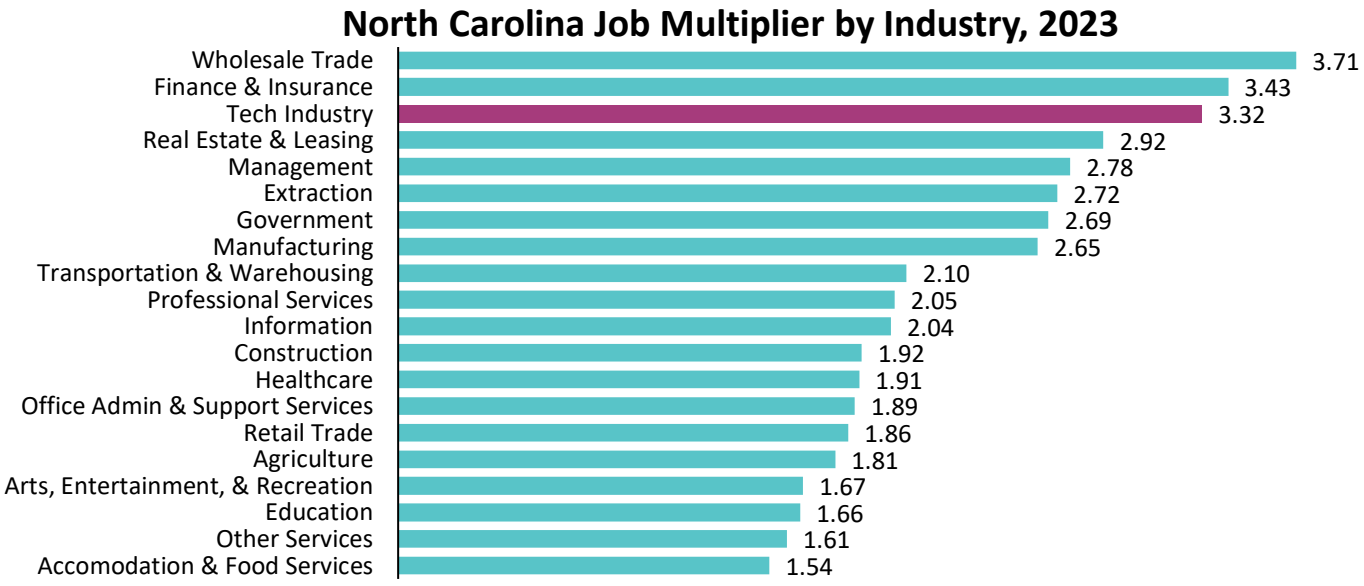
Impact Type	Employees	Earnings (Millions)	Sales (Millions)
Direct Impact	323,199	$41,981	$130,272
Multiplier	3.32	2.12	2.01
Indirect & Induced Impact	751,338	$47,183	$131,101
Total Impact	**1,074,537**	**$89,164**	**$261,373**
Percentage of NC Economy	***22.2%***	***25.5%***	***23.4%***

Source: EL calculations based on Lightcast 2024.4

The tech industry in North Carolina has an employment multiplier of 3.32. This means one position in the tech industry supports at least another two positions elsewhere in the state economy for a total impact of over three jobs. $42 billion in earnings in the tech industry supports $89 billion wages across the North Carolina economy, accounting for almost 26 percent of North Carolina's total earnings. The graph below displays the contribution of the tech industry of 22 percent to the overall state employment. The tech industry jobs multiplier of 3.32 was one of the largest across the state's economy.



Source: EL calculations based on Lightcast 2024.4

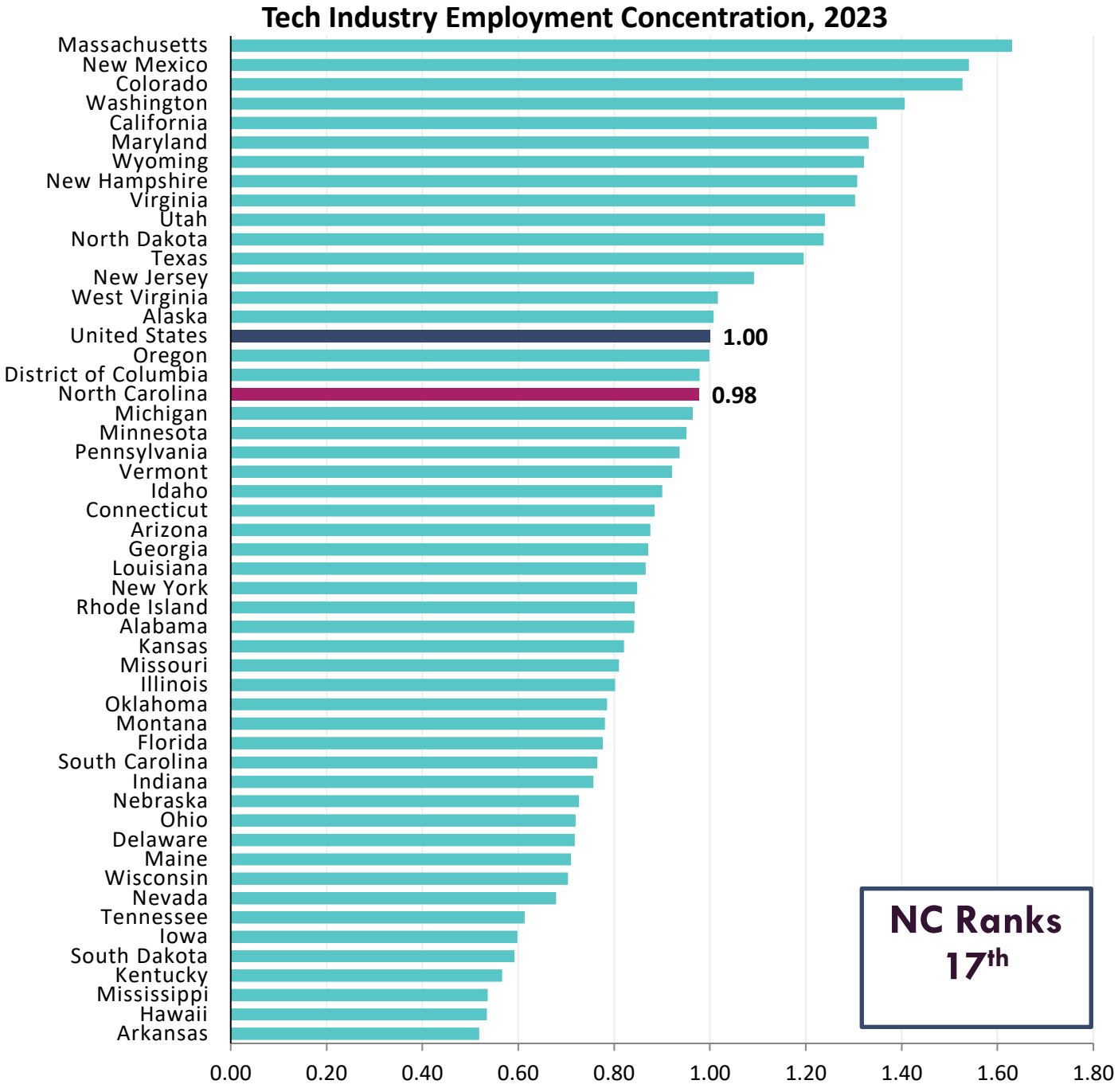


Source: EL calculations based on Lightcast 2024.4

SECTION 4. STATE COMPARISONS OF TECH INDUSTRY METRICS

Using the same methods for calculating the tech industry in North Carolina, the corresponding metrics were calculated for the remaining states and the District of Columbia to measure how North Carolina tech trends compare. The District of Columbia is included in the charts, but not included in the state rankings. This section of the report evaluates many of the North Carolina level metrics shown in Section 3 compared against the values for the United States as a whole and the other states. This section looks first at metrics for the total tech industry but also shows state comparisons of the subcategories. Tech occupation data is compared in a later section of the report.

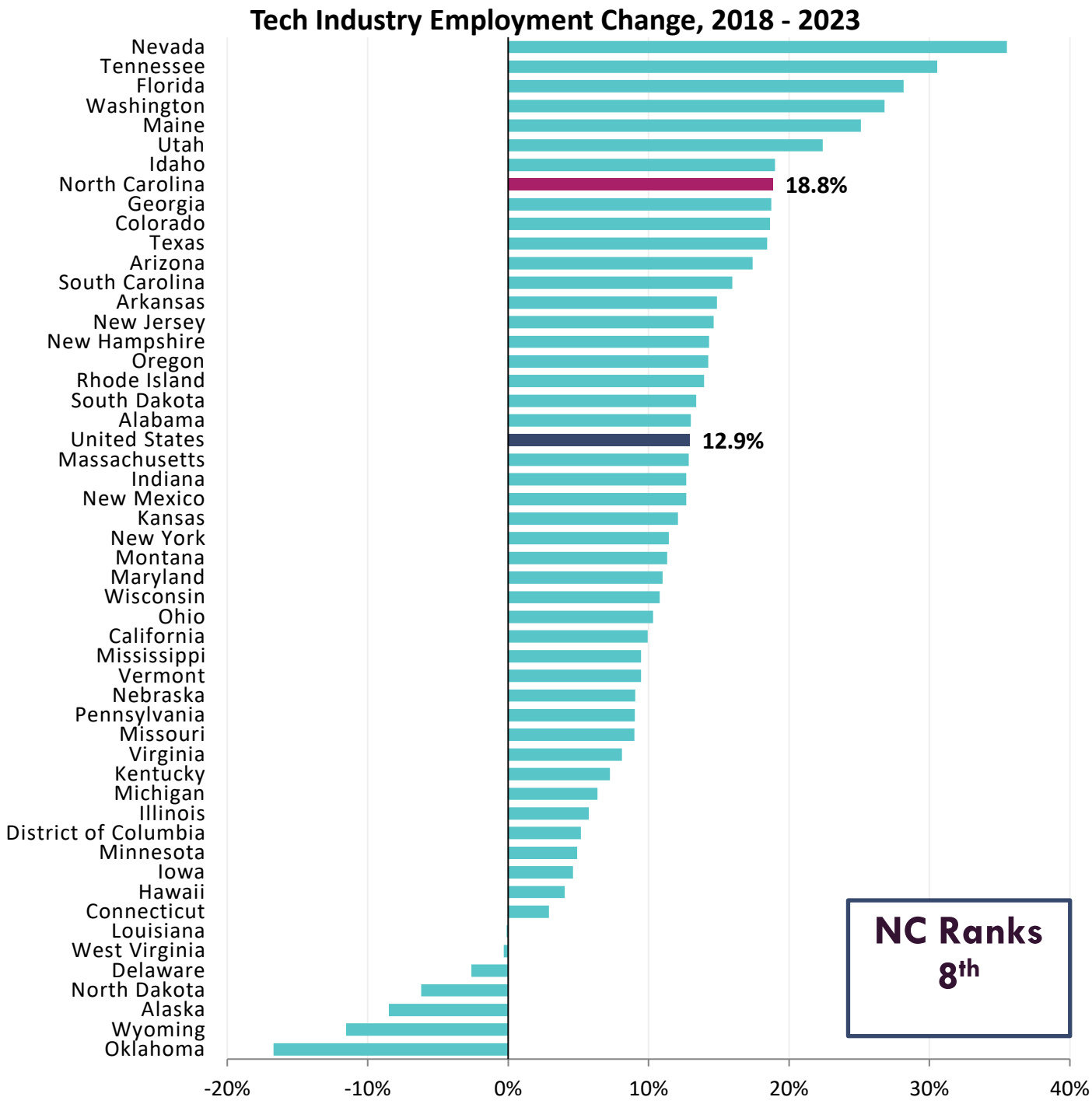
When comparing the tech industry to the make-up of a state's entire economy, states like California and Washington that are internationally known for their tech industries have much higher portions of the tech industry in their overall economies. However, an average concentration is not necessarily a negative trait, as it can indicate a diverse economy that is not overly reliant on any one industry. The state ranks 17th in tech industry concentration, up one spot from last year's report. Since the first State of the Technology Sector report, North Carolina has continued to move up in this category. Based on the other strong rankings, there is reason to expect tech to move to an even more significant role in the state economy.



Source: EL calculations based on Lightcast 2024.4

One the strongest performance indicators for the state's tech industry is its recent growth and future growth potential. In the past five years, jobs in this industry have grown by almost 19 percent in the state. That is the

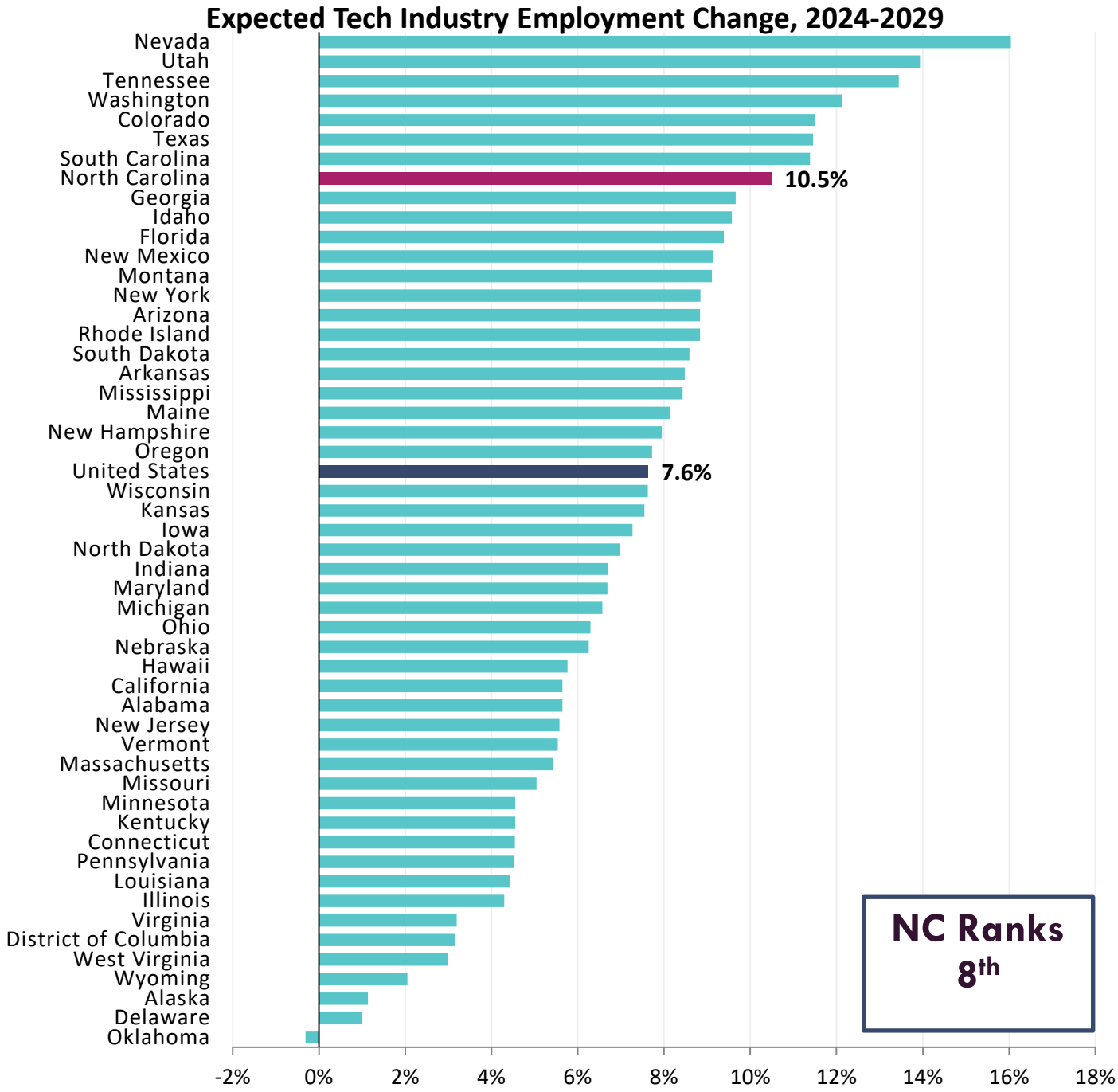
8th highest growth rate in the country, and nearly six percentage points higher than the national average. This ranking is an improvement from 10th in the previous year's report. The number one state, Nevada, is growing at a high rate due to the rapid expansion at the Tesla Gigafactory in Reno. Top growing states tend to be in the Southeast or the Intermountain West.



Source: EL calculations based on Lightcast 2024.4

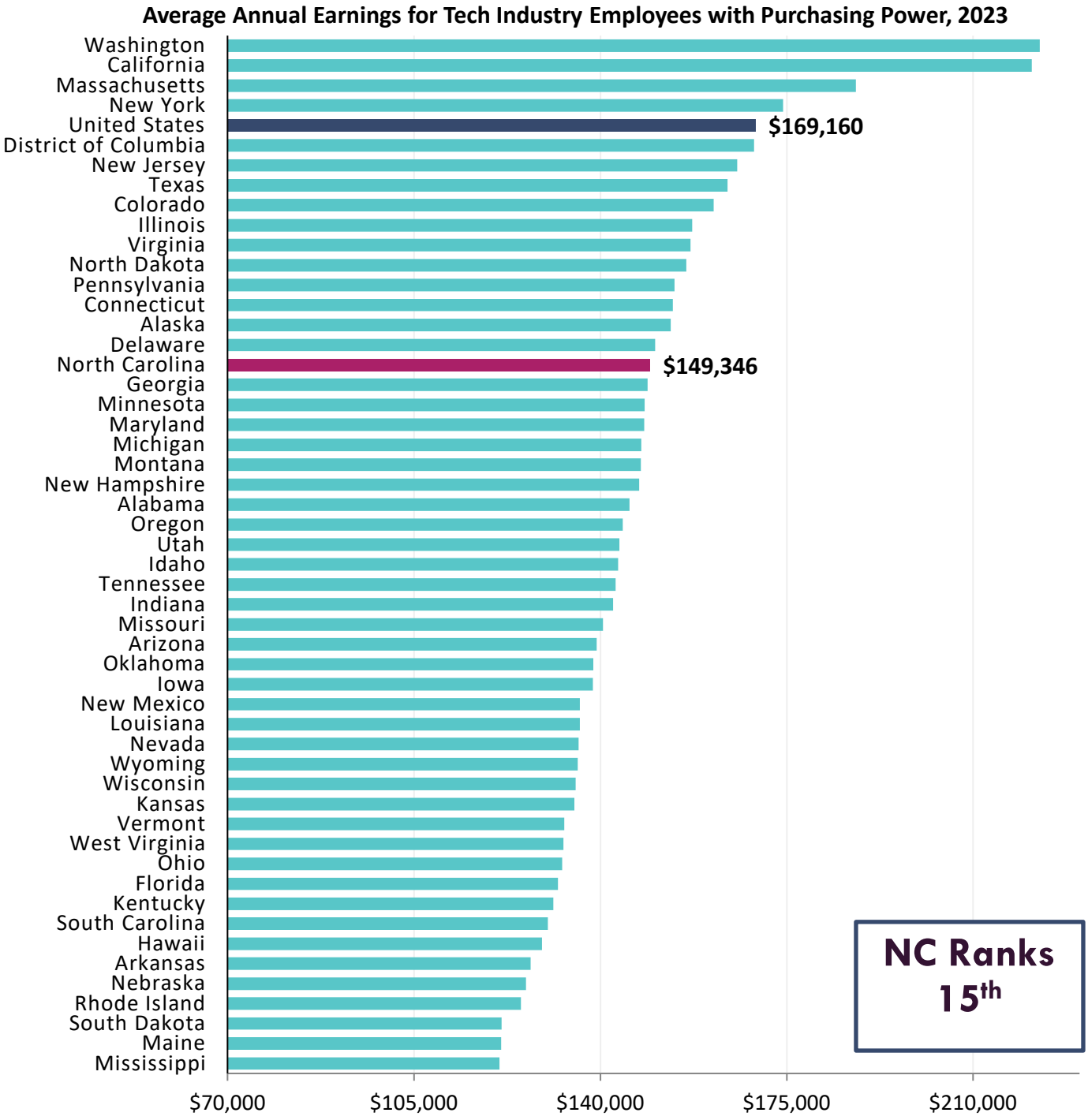
Using Lightcast forecasting models, the expected growth of the tech industry for all 50 states and the District of Columbia for the next five years was calculated. North Carolina is estimated to grow its tech industry

employment by 10.5 percent from now to 2029. The state improved one spot in the rankings this year to 8th out of all the states and is higher than the national average. North Carolina jumped eight spots from 16th in last year's report.



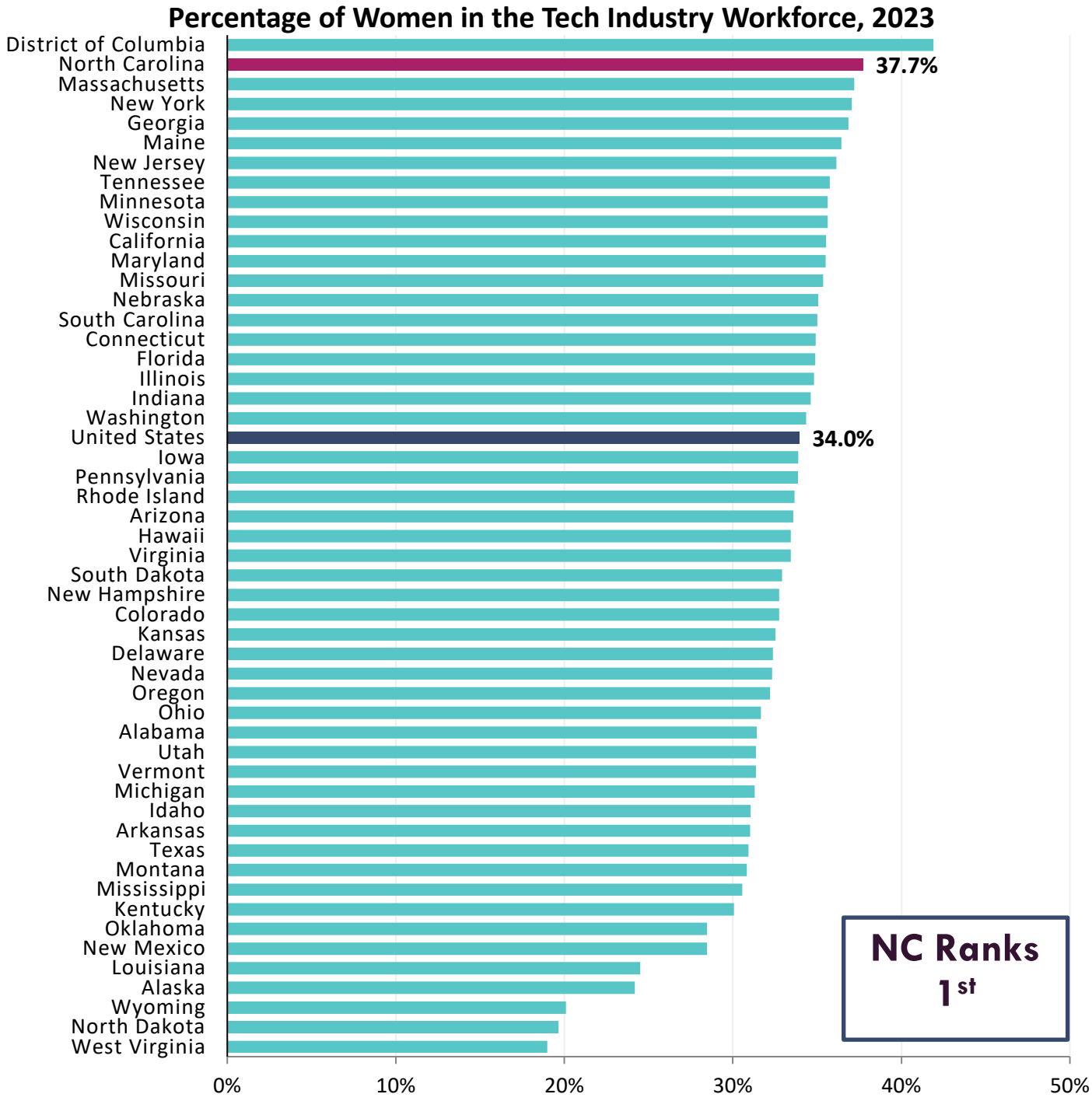
Source: EL calculations based on Lightcast 2024.4

Normalizing tech industry wages by purchasing power, or accounting for the lower cost of living in North Carolina, the annual wage is closer to the national average and the state rank is 15th. The metric shows a dramatic difference between the other fast-growth tech states. For example, Utah, Florida, and Tennessee are three of the top growing tech markets, but adjusted wages for tech industry workers are much lower.



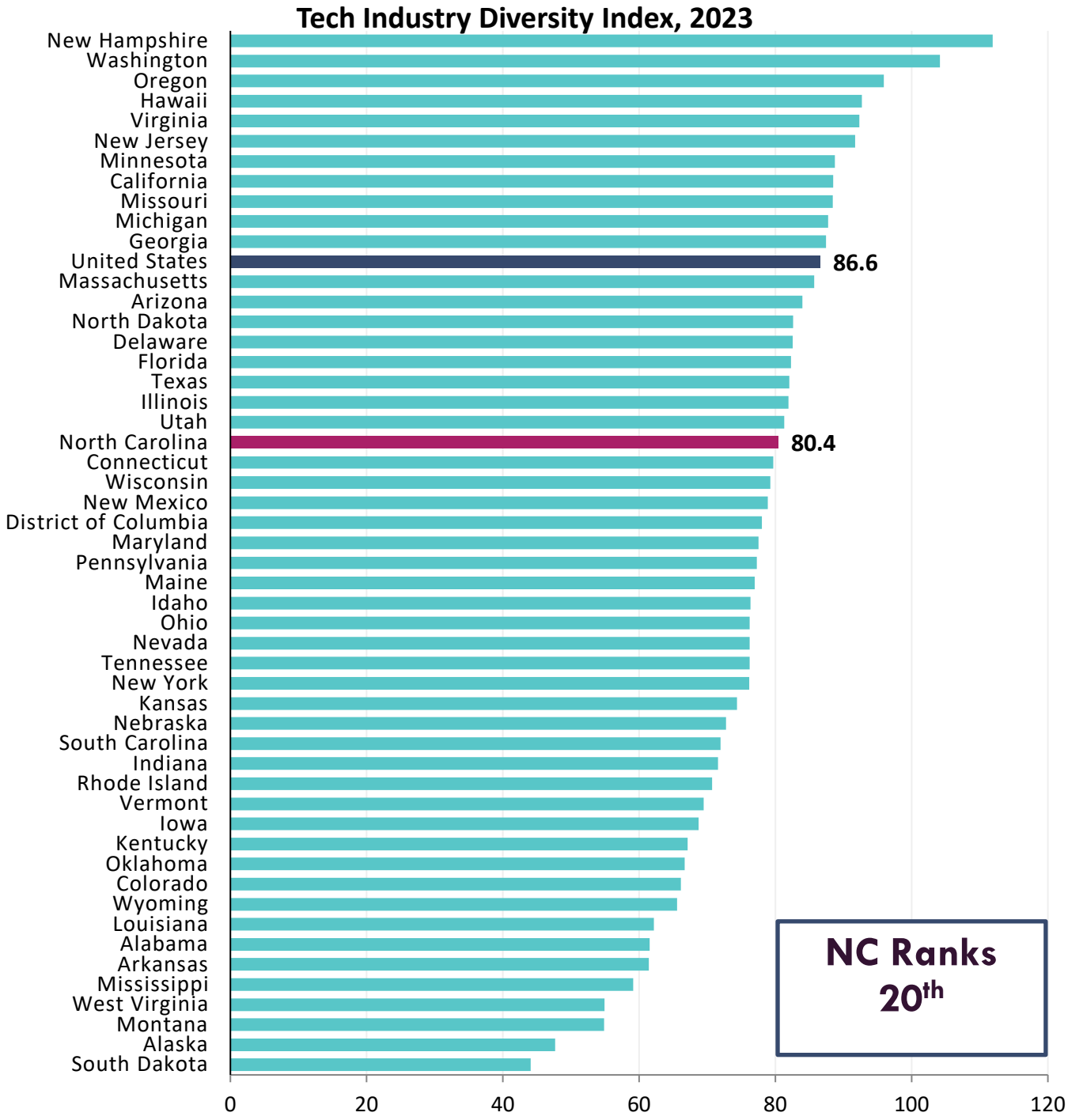
Source: EL calculations based on Lightcast 2024.4

The gender make-up of the tech industry across all 50 states was evaluated. The tech industry has been traditionally, and is still, male dominated. States are making efforts to encourage women into STEM careers and education. While almost every state has far from equal representation in this industry, North Carolina remains again a top state. North Carolina has retained the top ranking for this metric for 9 of the 11 years of this report.



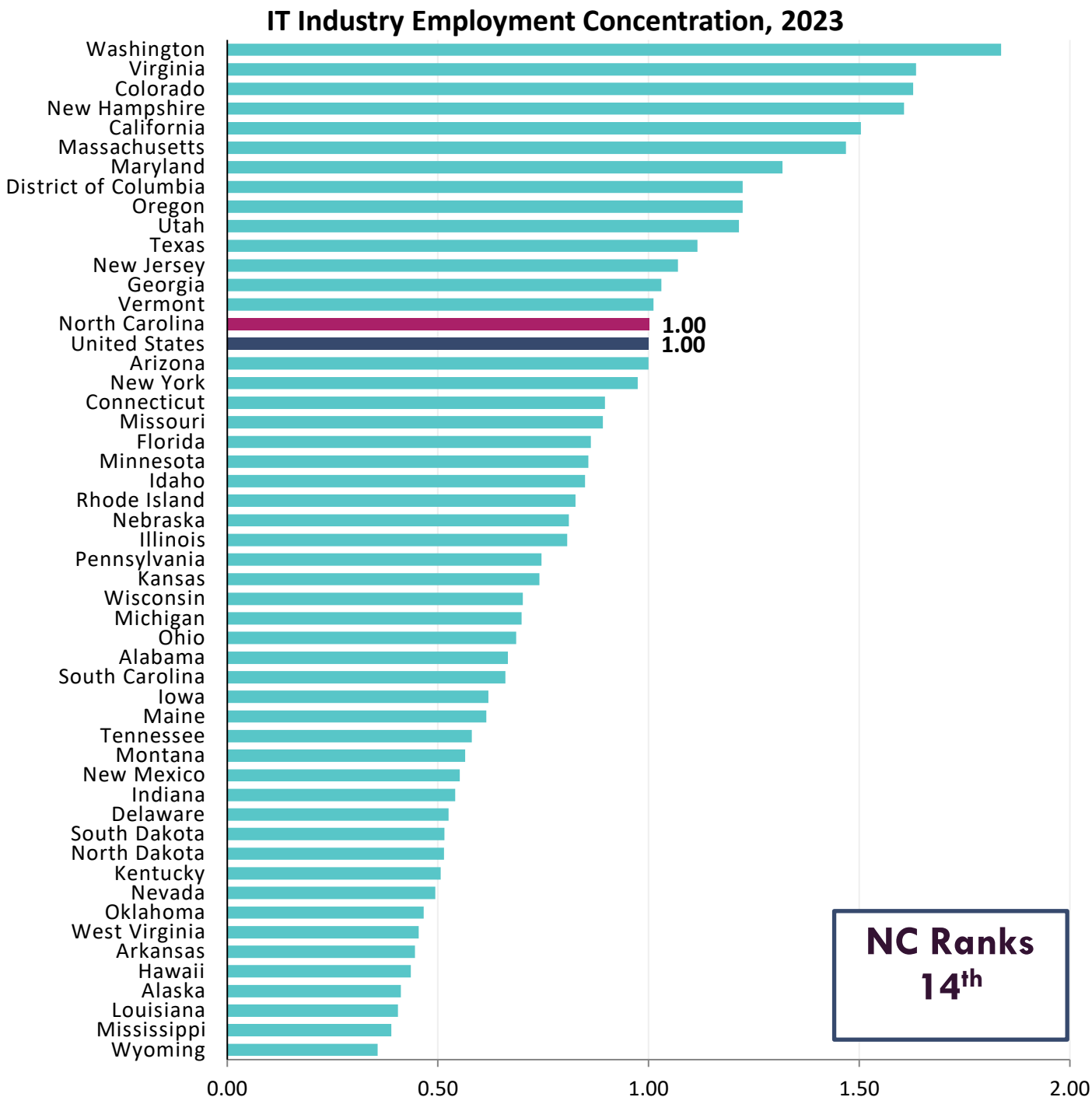
Source: EL calculations based on Lightcast 2024.4

The tech industry diversity index is calculated by dividing the percentage of tech industry workers who identify as people of color, or in the Hispanic community, by the ratio present in the overall population. Therefore, if a state has a tech industry diversity index lower than 100, this indicates that the tech industry is less diverse compared to the state's overall population. A value of 100 would mean the tech industry is representative of the state's overall population. Only two states had a diversity index score above 100. North Carolina had a diversity index of 80.4, indicating that people of color are underrepresented in the tech industry compared to the state's general population. North Carolina did improve its ranking from 23rd to 20th this year.



Source: EL calculations based on Lightcast 2024.4

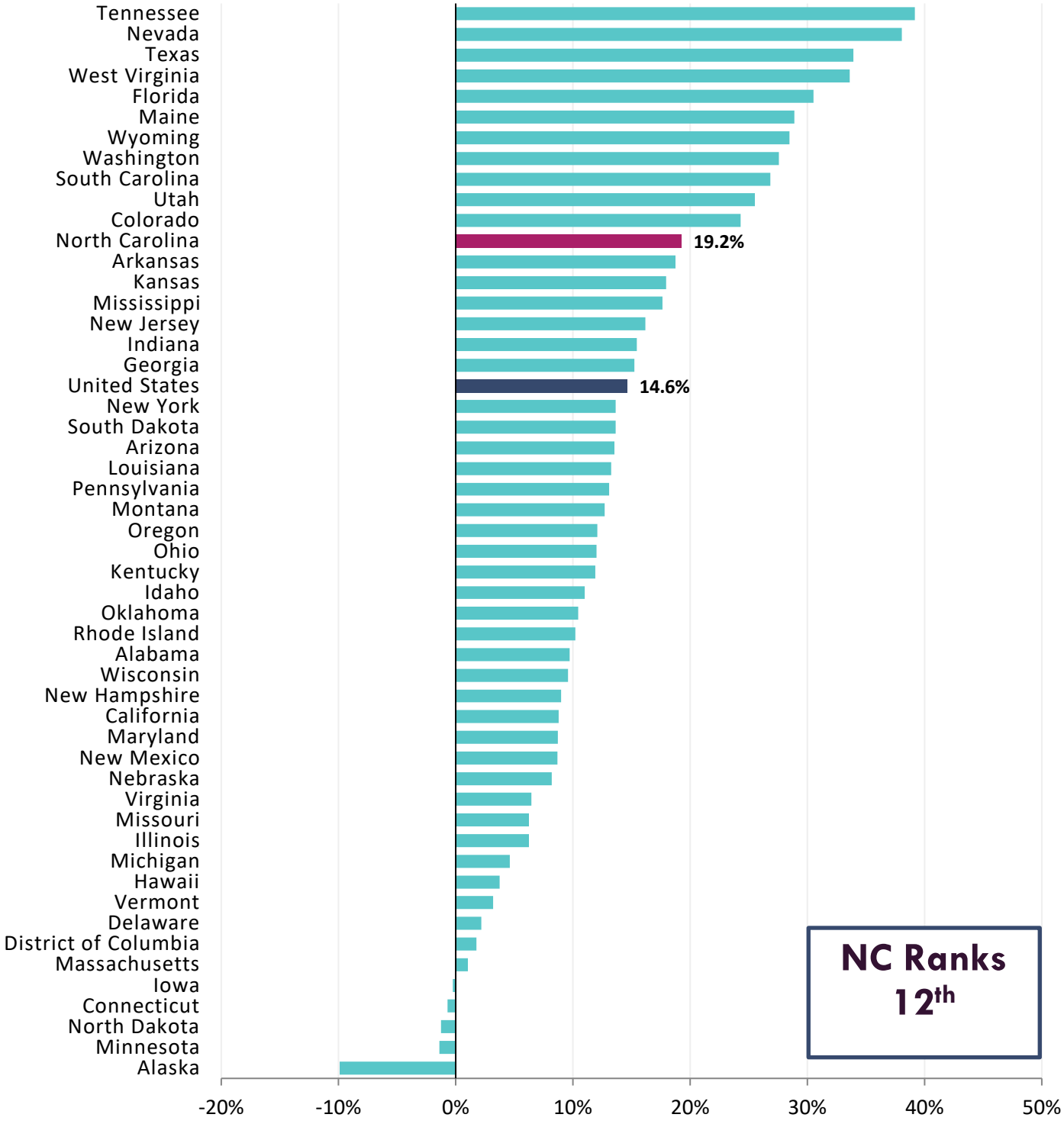
Next, we evaluated the IT sub-industry specifically. This group of industries represents the core high-tech industries including hardware manufacturing, internet, telecommunications, and software companies. In 2023, the IT industry accounted for 3.6 percent of total state employment, with a location quotient of 1.00. The concentration of IT industry employment in North Carolina matches the national average. The state has consistently moved up the rankings for this metric and now ranks 14th.



Source: EL calculations based on Lightcast 2024.4

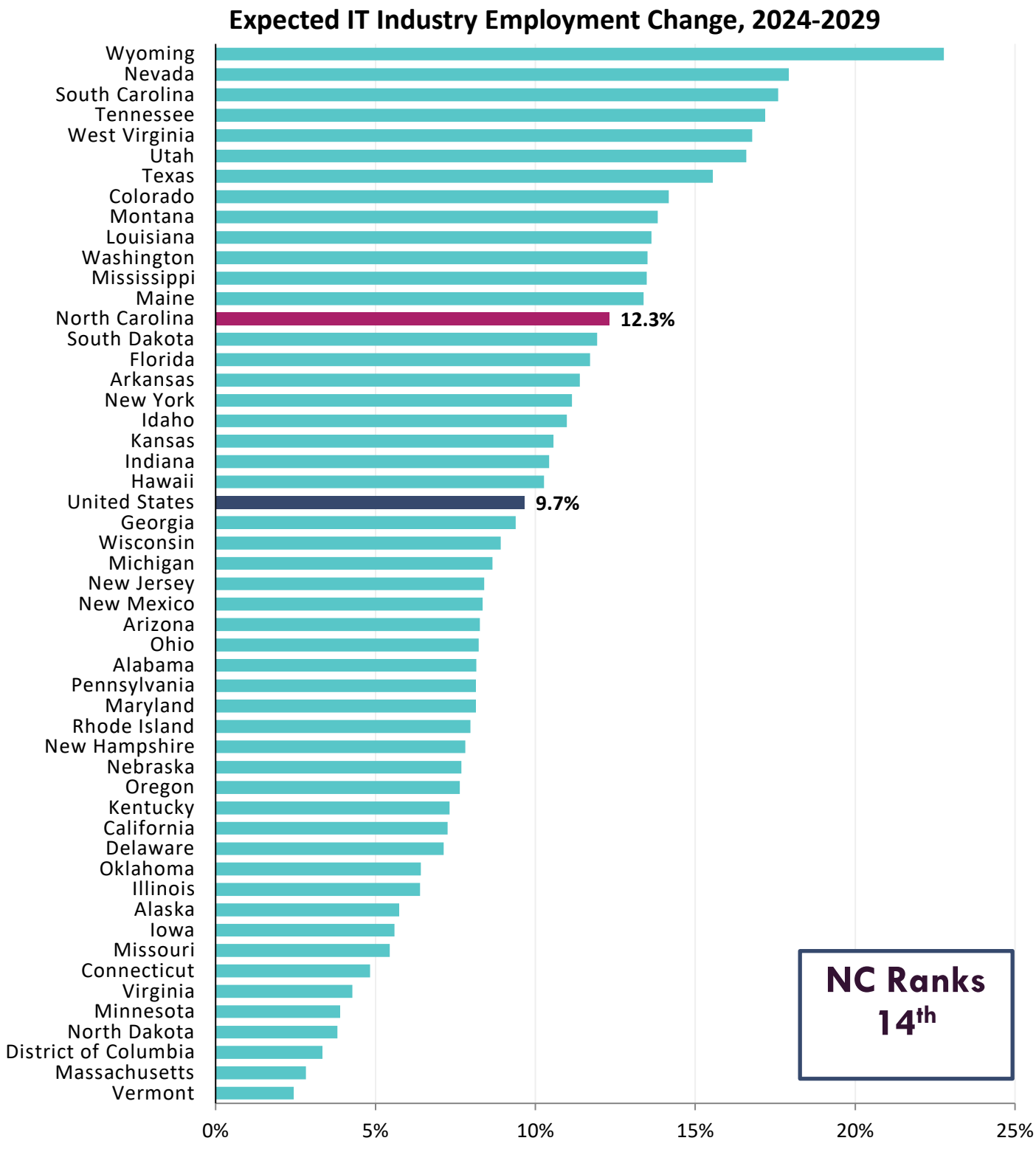
The employment growth rate in IT from 2018 to 2023 for the state was 19.2 percent. This was the 12th fastest growth rate across all 50 states. In the first two State of the Technology Sector reports, North Carolina ranked 1st and 2nd in this metric, and has remained in the top 15 in recent years.

IT Industry Employment Change, 2018-2023



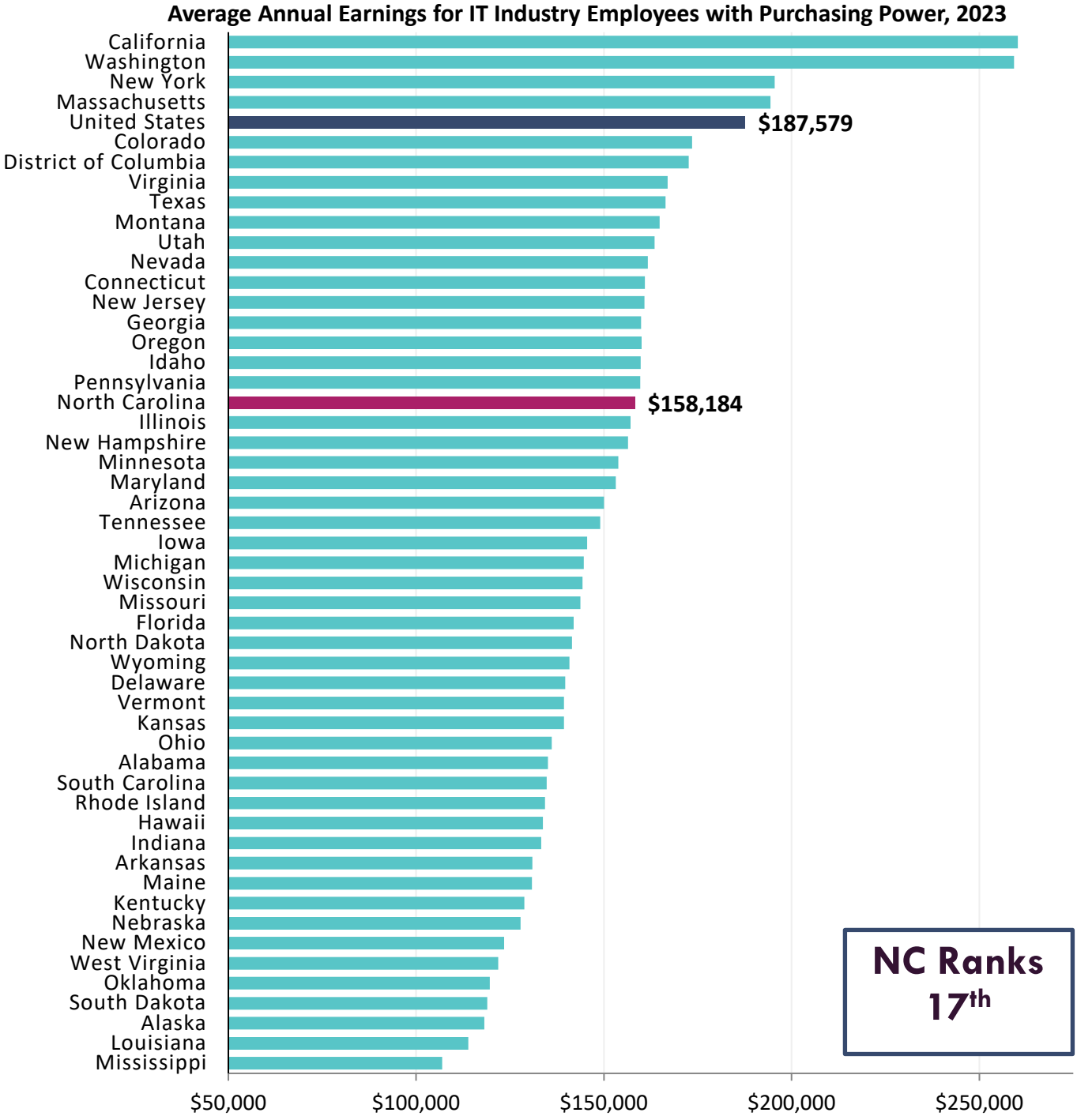
Source: EL calculations based on Lightcast 2024.4

North Carolina IT growth is currently projected to level off some in the future. From 2024 to 2029, employment in IT is expected to grow by 12.3 percent, 2.6 percentage points higher than the national average. The state's ranking on this metric is up to 14th from 25th two years ago.



Source: EL calculations based on Lightcast 2024.4

Like the total tech industry, the IT industry's wages are lower in North Carolina than the national average. Still, the state ranks 17th across all states for IT industry average wage when purchasing power is considered. The lower cost of living in the state can make it attractive to tech firms looking for lower operating costs. Within the state, IT wages almost double the average for wages across all industries.



Source: EL calculations based on Lightcast 2024.4

LIFE SCIENCES INDUSTRY SUBCATEGORY

Starting with last year's report, the performance of the other subcategories of the tech industry were ranked. Life Sciences was the fastest growing tech subcategory in the state from 2018 to 2023. In 2023, Life Sciences accounted for 2.3 percent of North Carolina's employment with a location quotient of 1.12. This was the 13th most concentrated Life Science economy in the nation. The subcategory has expanded jobs at a rate of 27 percent over the last five years. That growth ranked 10th in the nation, an impressive feat considering Life Sciences jobs were already concentrated in the state. Job growth in this sector has primarily been expanding in the research and development industries which have added about 10,390 net new jobs in the last five years.

The Life Sciences sector has benefited from more investment in recent years. The sprint to develop COVID-19 vaccines and treatments spurred investment in the industry. According to Invest.gov, a government website tracking private investment announcements associated with the major federal stimulus bills in recent years (CHIPS Act, IRA, BIL, etc.), there has been $16 billion in biomanufacturing investment in North Carolina.

Life Sciences Industry		
Metric	**Value**	**Rank**
Life Sciences Employment Concentration (2023)	1.12	**13**
Life Sciences Job Change (2018-2023)	27.0%	**10**
Expected Life Sciences Job Change (2024-2029)	8.5%	19
Average Earnings for Life Sciences Employees with Purchasing Power (2023)	$146,665	**15**

ENERGY TECH INDUSTRY SUBCATEGORY

The Energy Tech subcategory is a small part of North Carolina's economy at 0.3 percent of all jobs in the state. However, as the energy fuel mix in the country shifts to cleaner technologies, states like North Carolina are places where wind, solar, nuclear, and carbon capture can expand. Renewable energy jobs grew by 78 percent in the last five years. This, combined with national expansion in clean energy, is why the state is predicted to add jobs in this industry group at the 4th highest rate in the next five years.

Since 2020, over 50 clean power projects have been announced in the state with about $1 billion in investment, according to Invest.gov. The state also has multiple offshore wind leases that could dramatically improve clean energy capacity if they continue to progress.

Energy Tech Industry		
Metric	**Value**	**Rank**
Energy Tech Employment Concentration (2023)	0.46	39
Energy Tech Job Change (2018-2023)	7.3%	**10**
Expected Energy Tech Job Change (2024-2029)	7.5%	**4**
Average Annual Wage for Energy Tech Employees with Purchasing Power (2023)	$158,067	43

ENVIRONMENTAL TECH INDUSTRY SUBCATEGORY

The historical data for environmental tech in North Carolina had poor performance, but this is highly driven by the reclassification of 4,900 jobs in Durham County away from environmental tech to corporate office jobs in 2022. The one-year growth and predicted job growth are among the top 20 states in the country. Outside of this reclassification, there is growth in this subcategory driven by battery manufacturing and environmental consulting services.

Jobs in Environmental tech are likely to expand in the future as the industry will be supported and incentivized through federal legislation like the Inflation Reduction Act and CHIPS Act. As tracked by Invest.gov, there were nine major battery and EV manufacturing announcements in North Carolina. These announcements are projected to come with massive potential investment in the state at about $21 billion.

Environmental Tech Industry		
Metric	**Value**	**Rank**
Environmental Tech Employment Concentration (2023)	0.90	35
Environmental Tech Job Change (2018-2023)	-5.8%	47
Expected Environmental Tech Job Change (2024-2029)	8.1%	17
Average Annual Wage for Environmental Tech Employees with Purchasing Power (2023)	$90,094	34

TECH SERVICES OUTPUT GROUP

Next, tech groupings based on output type were evaluated. Tech services represents the high-tech core services like social media, data storage, telecommunications, and software companies. In 2023, the tech services industry accounted for 5.3 percent of North Carolina's employment, with a location quotient of 0.94. This is the 19th most concentrated tech services economy in the nation. Growth in tech services has been among the top ten states in the country.

Tech Services		
Metric	**Value**	**Rank**
Tech Services Employment Concentration (2023)	0.94	19
Tech Services Job Change (2018-2023)	24.4%	**8**
Expected Tech Services Job Change (2024-2029)	11.9%	**7**
Avg Annual Earnings for Tech Services Employees Adjusted for Purchasing Power (2023)	$148,951	21

TECH MANUFACTURING OUTPUT GROUP

Tech manufacturing is highly concentrated in North Carolina. While growth rates were positive for this group, they were not among the top states. This grouping is impacted by the NAICS code reclassification in Durham County. This impact should smooth in future years. These industries are also likely to expand as federal policy, like the CHIPS Act, is providing investment in US manufacturing and R&D of tech manufactured products like semiconductors. In NC, over $6 billion of investments have been announced in semiconductors, fiber optic cables, and aerospace technology. Wages in these industries are competitive and rank in the top ten.

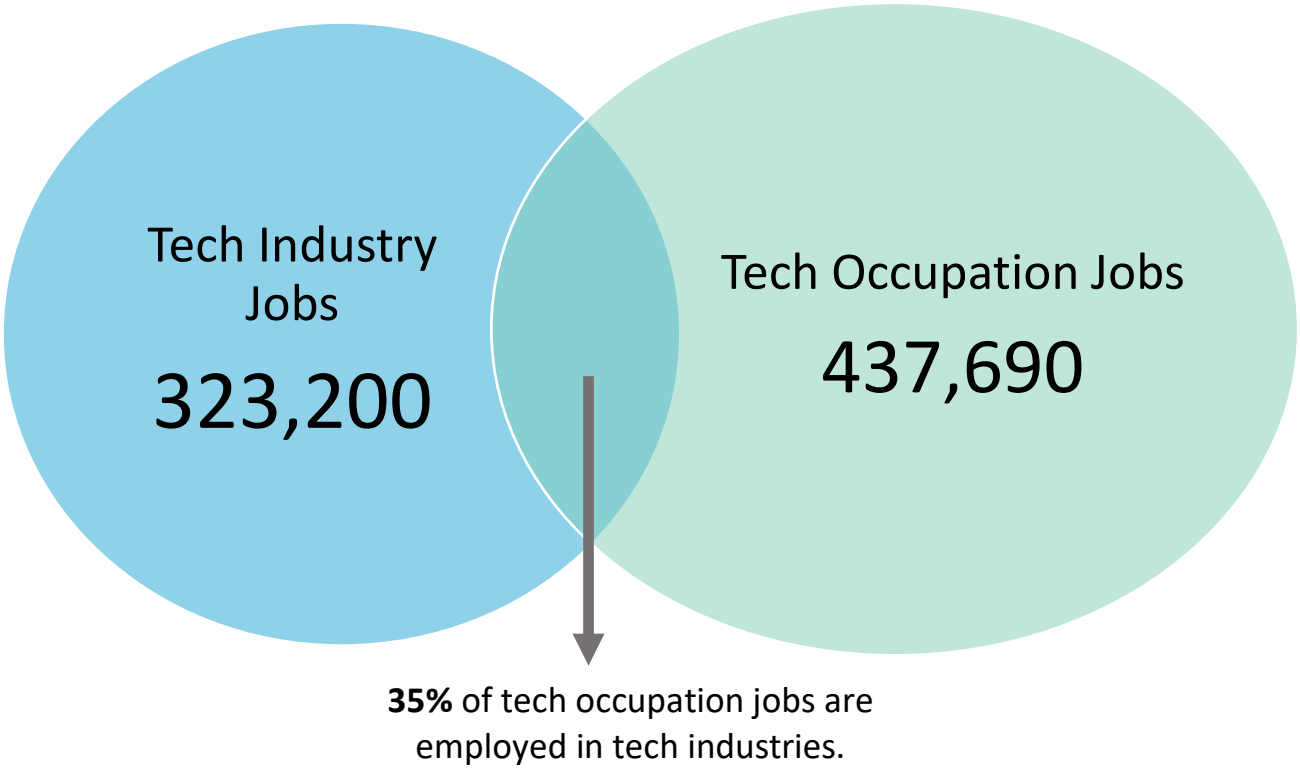
Tech Manufacturing		
Metric	**Value**	**Rank**
Tech Manufacturing Employment Concentration (2023)	1.15	**13**
Tech Manufacturing Job Change (2018-2023)	1.2%	39
Expected Tech Manufacturing Job Change (2024-2029)	4.9%	33
Avg Annual Earnings for Tech Manufacturing Employees Adj for Purchasing Power (2023)	$150,881	**10**

SECTION 5. TECH OCCUPATIONS

Technology workers today are present in almost every industry. As technology has permeated most businesses and is increasingly important to company competitiveness, industries like banking, energy, and healthcare employ more tech workers. In order to account for the number of tech occupations that exist across all industries we reviewed 85 separate five-digit Standard Occupational Codes (SOC) codes focusing mostly on computer and engineering driven work. In 2021 there was a reclassification of SOC codes and the groupings of occupations for this report changed as a result. A complete list is included in the appendix. Here, the breakdown of tech occupations within North Carolina is reviewed, and then statistics are compared against other states and the national average.

Using this methodology, the data showed that there are 437,690 workers in tech occupations in North Carolina. This number is higher than the 323,200 workers employed by the tech industry. This means there is a significant portion of tech occupations outside traditional technology companies in the state. Only an estimated 35 percent of tech occupations jobs are located within the tech industry; the rest are employed in other industries such as manufacturing and finance. The percentage of overlap between tech workers and the tech industry has been declining each year of this report.

Staffing Patterns of Tech Industries and Tech Occupations, 2023



Source: EL estimates based on Lightcast 2024.4

Software developers were the top tech occupation with over 58,210 workers. Their median annual earnings are $130,620. Tech occupations have grown by 31 percent in the past five years. On average, there are about 56,400 annual job openings in tech occupations that need to be filled to account for growth and replacement of retiring workers.

Top Tech Occupations in North Carolina, 2023

Description	2023 Occupations	Change in Employment, 2018-2023	Median Annual Wage	Annual Openings	Turnover Rate
Software Developers	58,210	+70%	$130,620	7,390	39%
Market Research Analysts	27,920	+57%	$74,900	4,090	66%
Computer Systems Analysts	25,700	+1%	$105,770	2,165	48%
Computer User Support Specialists	22,280	+2%	$56,990	2,060	53%
Management Analysts	21,680	+18%	$100,570	2,460	59%
Computer and Information Systems Managers	21,455	+79%	$164,220	2,930	44%
Financial and Investment Analysts	10,530	+31%	$99,990	1,210	41%
Industrial Engineers	10,130	+12%	$94,040	900	31%
Network and Computer Systems Administrators	9,960	-11%	$94,120	790	41%
Computer Network Architects	8,170	+66%	$120,660	1,020	47%
Software QA Analysts and Testers	8,110	+46%	$99,320	1,050	49%
Mechanical Engineers	7,510	-16%	$95,490	590	31%
Logisticians	7,510	+62%	$75,110	1,040	51%
Information Security Analysts	7,130	+57%	$125,920	890	42%
Data Scientists	6,550	+142%	$126,940	1,080	42%
All Tech Occupations	**437,686**	**+31%**	**$95,750**	**56,400**	**49%**

Source: EL estimates based on Lightcast 2024.4

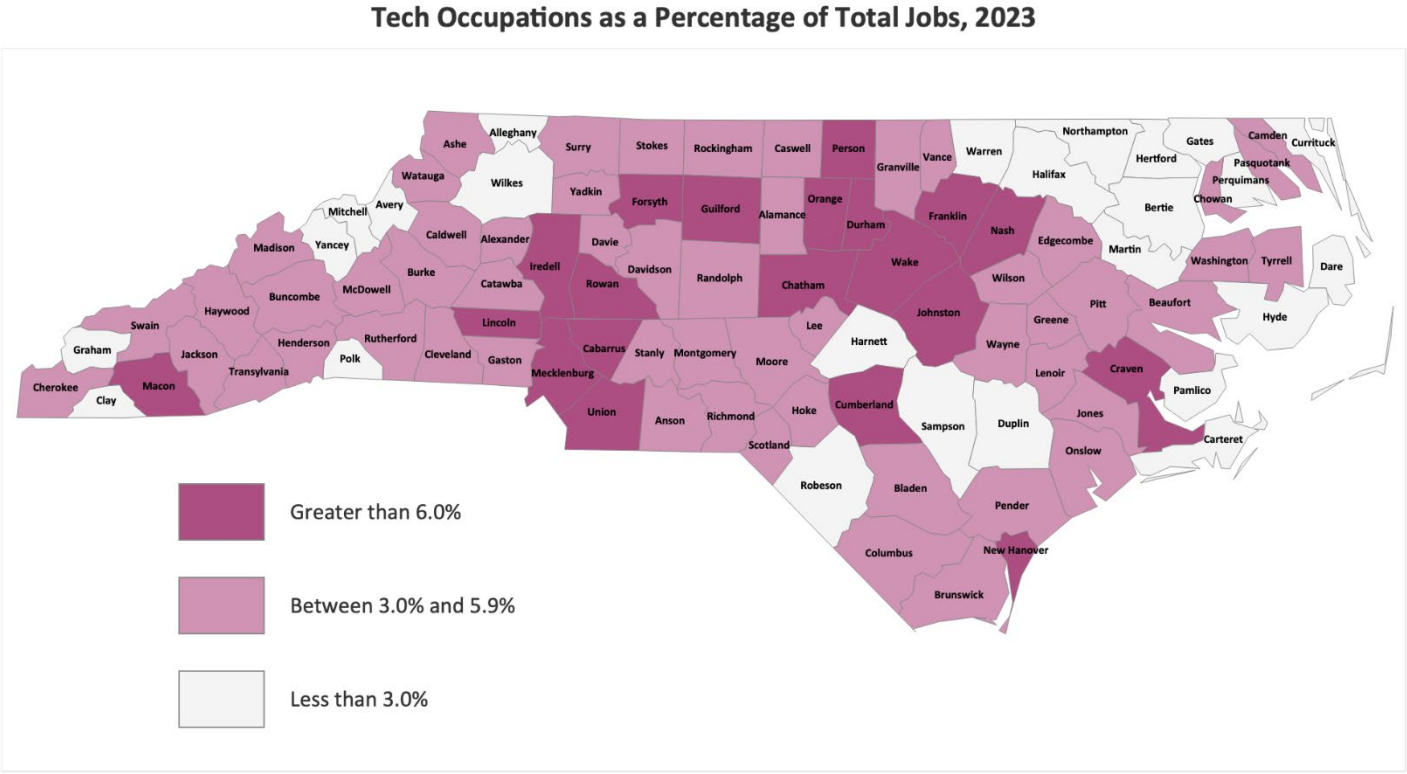
Top 5 Tech Occupations in Growth

Top Five in Net Job Growth		Top Five in Growth Percentage	
Software Developers	+23,910	Electro-Mechanical Technicians	+215%
Market Research Analysts	+10,110	Life Scientists	+184%
Computer and Information Systems Managers	+9,460	Database Architects	+151%
Data Scientists	+3,845	Data Scientists	+142%
Management Analysts	+3,290	Food Science Technicians	+107%

Source: EL estimates based on Lightcast 2024.4

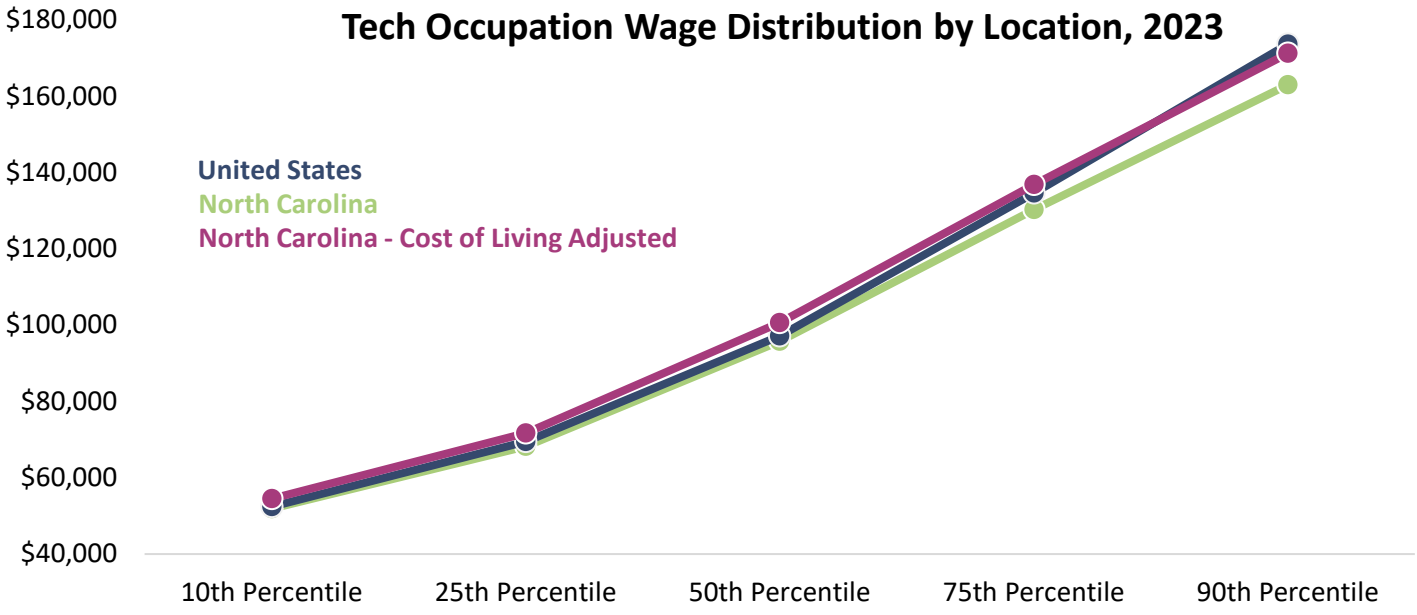
Looking at growth rates in the past five years, analysts are in high demand. The increasing use of Big Data has created demand for workers who can help process and dissect that information. This shows that from a talent perspective, cultivating a tech workforce is not just about coding websites and apps, but having smart individuals who are well versed in statistics and mathematics. In terms of percentage growth, jobs that support high-tech manufacturing are experiencing the strongest growth like electro-mechanical technicians. This job supports the R&D and semiconductor manufacturing industries in the state.

Like tech industry jobs, tech occupations tend to strongly concentrate in the more urban counties. The top counties with tech occupations also tend to follow the “Piedmont Crescent” I-40/I-85 corridor, and the new “Carolina Core” counties stretching from the Piedmont Triad to Fayetteville. Tech occupations are more widespread throughout the state compared to tech industry jobs. 75 of the 100 North Carolina counties have tech occupations that make up more than three percent of their total economy. Another 20 counties have more than six percent of their workers in tech jobs.



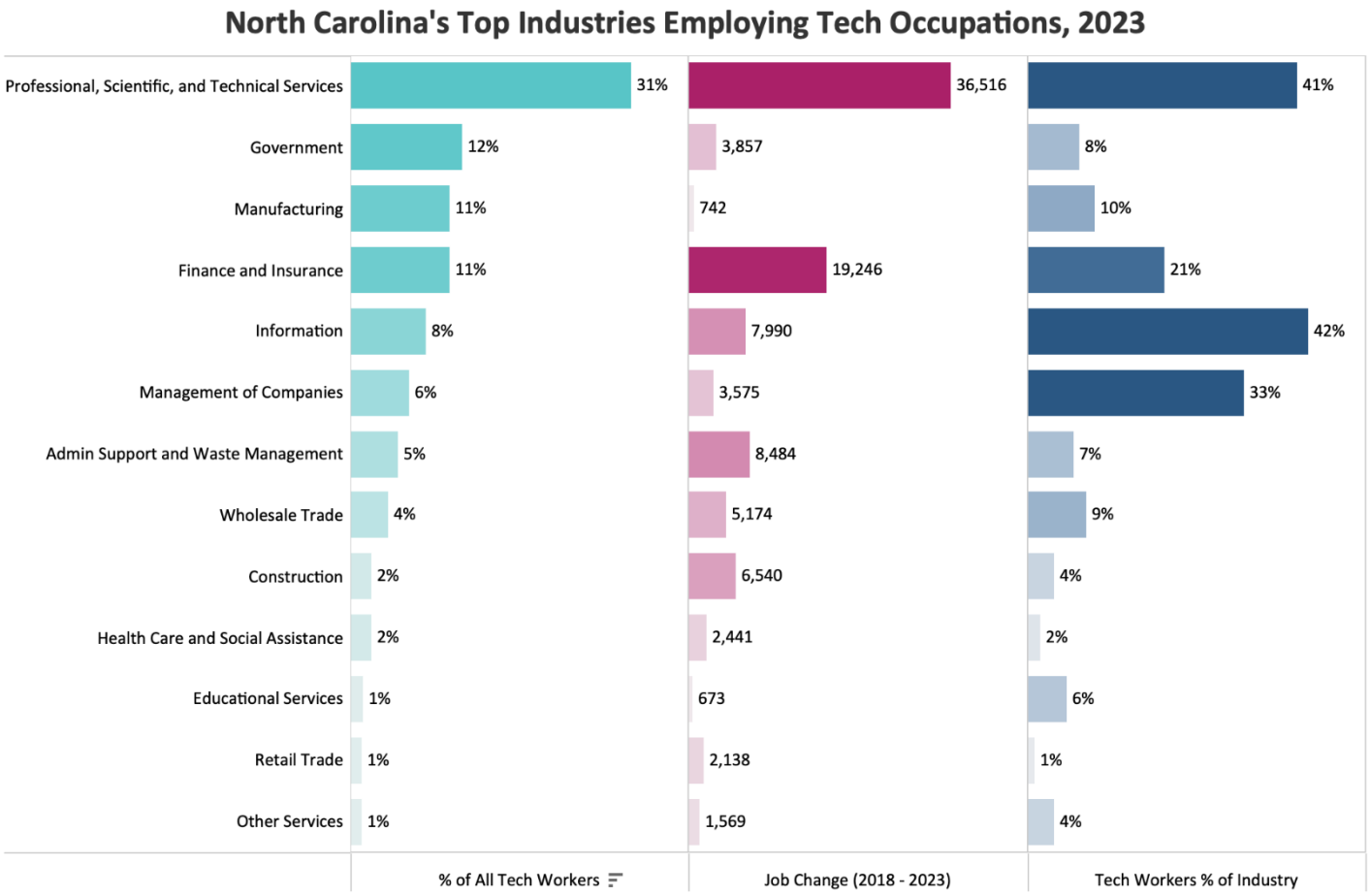
Source: EL calculations based on Lightcast 2024.4

While the median earnings for a tech occupation are around $95,750, the true earnings can range based on industry and experience. The lowest percentile earns about $51,890 and the highest can earn about $162,970 a year. North Carolina's wages are competitive with the national average – particularly when accounting for cost of living – except for the highest-skilled positions. The cost-of-living adjusted wage is higher than the national average up until the 90th percentile.



Source: EL calculations based on Lightcast 2024.4

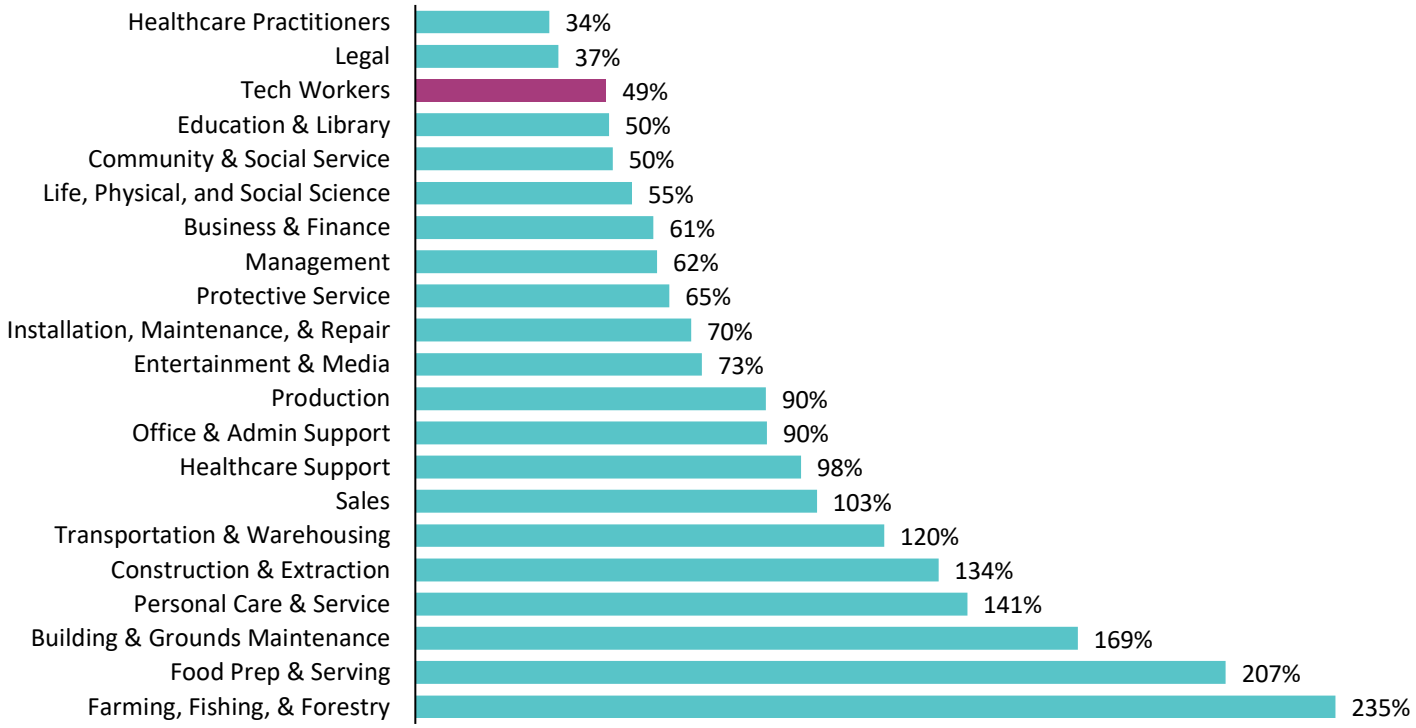
As mentioned, these tech occupations exist across many different industries. The chart below demonstrates which industries (two-digit level) employ tech workers in North Carolina. Beyond the expected Professional Services and Information industries, tech workers are also present and growing strongly in Finance, Government, and Healthcare. In the Finance and Insurance sectors, about 21 percent of all jobs are tech occupations, and have added over 19,250 tech workers from 2018 to 2023. Tech workers now account for 10 percent of the manufacturing industry as production has become more automated and integrated.



Source: EL calculations based on Lightcast 2024.4

Job quit rates rose in the wake of the pandemic in North Carolina, and the nation. Turnover across occupations can be measured by taking the number of separations (when a social security number is removed from a payroll) and dividing it by the total number of employees in the field. This turnover rate provides a measure of churn in workers in the field. For tech jobs in North Carolina, the rate was about 50 percent in 2022 and decreased slightly to 49 percent in 2023. This was one of the lowest rates in the state's economy. Tech industries have been hesitant to trim down their workforce because of the hiring difficulties and workers have been content to stay in their jobs as quit rates are down. This low turnover can enhance organizational stability, however over time low turnover can limit innovation.

North Carolina Turnover Rate by Occupation Type, 2023



Source: EL calculations based on Lightcast 2024.4

Like the earlier calculation of the diversity index of the tech industry, a comparable methodology was used to assess which demographic groups were underrepresented in tech occupations. Looking at gender, women account for just over one-third of tech occupations while accounting for one-half of the population. While we know North Carolina has higher rates of women working in the tech industry compared to most other states, women are still well underrepresented in tech occupations.

Gender Distribution of Tech Occupations in North Carolina, 2023

Demographic	Tech Occupations	NC Population	Index
Women	37%	51%	72.6
Men	63%	49%	128.7

Source: EL calculations based on Lightcast 2024.4

In North Carolina, 67 percent of tech workers are white, which is an overrepresentation in tech occupations when compared to the state's population. Workers who are Asian are also over-represented in the tech workforce. Other groups of color do not have such high rates. Black people accounted for 15 percent of tech occupations, but make up 21 percent of the state's total population. The representation rates for the Latino or Native communities in the tech workforce were very low in North Carolina. As the tech market continues to grow in the state, it is important that all parts of the population benefit. Broadening the labor pool that has technology skills is a benefit to North Carolina businesses and can be a powerful competitive advantage. The representation rates for women and non-white workers have been slowly increasing over time.

Race/Ethnicity Distribution of Tech Occupations in North Carolina, 2023

Demographic	Tech Occupations	NC Population	Index
White	67%	61%	110.2
Black or African American	15%	21%	73.3
Asian	11%	4%	299.9
Hispanic or Latino	5%	11%	39.7
Two or More Races	2%	2%	93.7
American Indian or Alaska Native	0.3%	1.0%	33.7
Native Hawaiian or Other Pacific Islander	0.1%	0.1%	88.4

Source: EL calculations based on Lightcast 2024.4

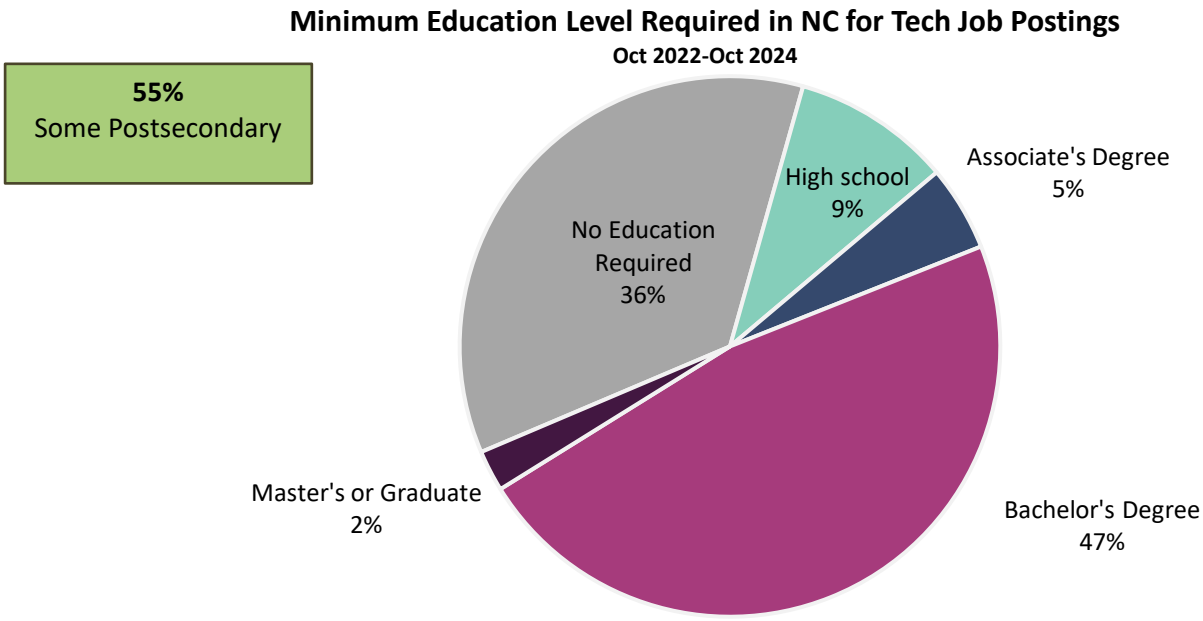
The age of the tech workforce was also compared against the age breakdown of the overall workforce. Tech occupations tend not to rely on the very young, but have a higher level of young and middle-aged workers. Compared to the overall state workforce, tech occupations employ less older workers. This group still represents 20 percent of the tech jobs in North Carolina and is at risk of retirement in coming years. Companies and workforce stakeholders will need to be able to replace their skillsets in the future.

Age Distribution of Tech Occupations in North Carolina, 2023

Demographic	Tech Occupations	NC Workforce	Index
Age 24 and Younger	6%	13%	41.6
Age 25 to 34	26%	21%	119.4
Age 35 to 44	26%	21%	124.2
Age 45 to 54	23%	21%	111.1
Age 55 and Older	20%	24%	84.5

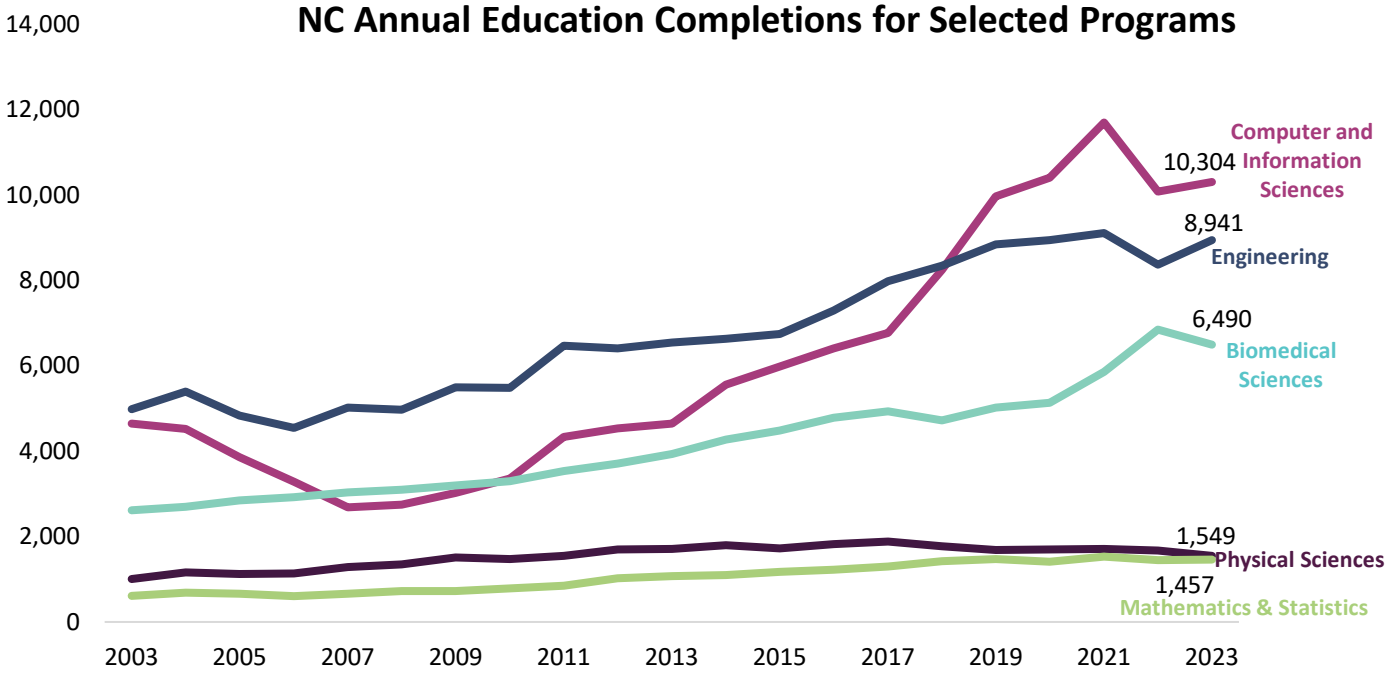
Source: EL calculations based on Lightcast 2024.4

One of the ways to increase the opportunity for tech jobs is to focus on skills-based hiring. While many companies have started to remove education requirements to expand applicant pools, a review of job postings in the last two years reveals that about 55 percent of postings for tech jobs required some form of postsecondary education. This level remains unchanged from last year's report.



Source: EL calculations based on Lightcast 2024.4

When looking at the data for educational completions, which includes degrees, certificates and awards from postsecondary institutions, there has been an increase in tech related programs. The state produced over 10,300 education completions in computer and information sciences in 2023, which should help supply the needed talent for tech companies choosing to locate in the state. From 2022 to 2023, completions in computer sciences and engineering grew while biomedical sciences and physical sciences completions fell.



Source: EL calculations based on Lightcast 2024.4

North Carolina retains a large portion of the students that are educated in the state. Online job profiles for North Carolina STEM graduates indicate that about 52 percent stay in the area for work. This indicates that North Carolina will need to continue to produce talent through the postsecondary system and find new ways to train talent for tech jobs.

Current Location of STEM Program Completers From NC Schools

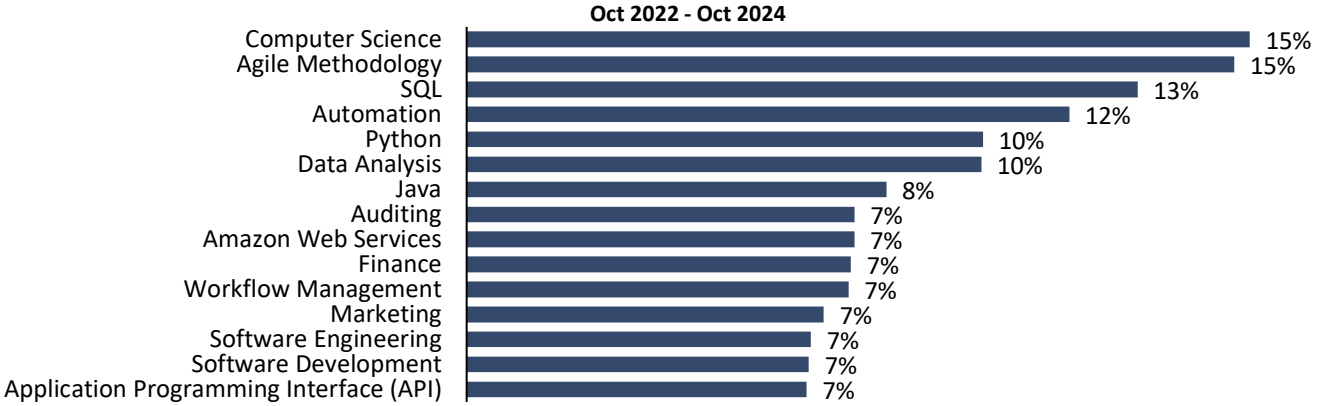
Source: Lightcast 2024.4
Note: This data comes from individuals who have updated their online profile since 2019.

Research from CompTIA, who surveys individuals between the ages of 18 to 34, has highlighted that many workers self-select themselves away from a career in tech. About 6 in 10 prospective workers believe there is a major barrier to them pursuing a career in tech. The top confidence gap barriers include:

- Concern over perceived lack of math/science skills.
- Concern over not having four-year degree.
- Belief that it is too late to start a career in tech.
- Belief that training is cost prohibitive.
- Belief that jobs are limited to “Big Tech”/Silicon Valley firms.
- Belief that there are not significant tech jobs in their region.

The truth about the demand and accessibility of a tech career might not be reaching the potential workers. Companies and workforce stakeholders can do more to develop a skills-based hiring approach, and find new ways to connect workers to these jobs. Companies will likely need to perform more in-house training than they have in the past as the tech skills needed are changing rapidly. While computer science education is still listed as a preference in many of North Carolina’s tech job postings, specific software skills are requested just as often. Short-term training that focuses on specific programming languages like SQL, Python, and Java could be helpful in filling talent gaps more quickly than 4-year computer science degrees.

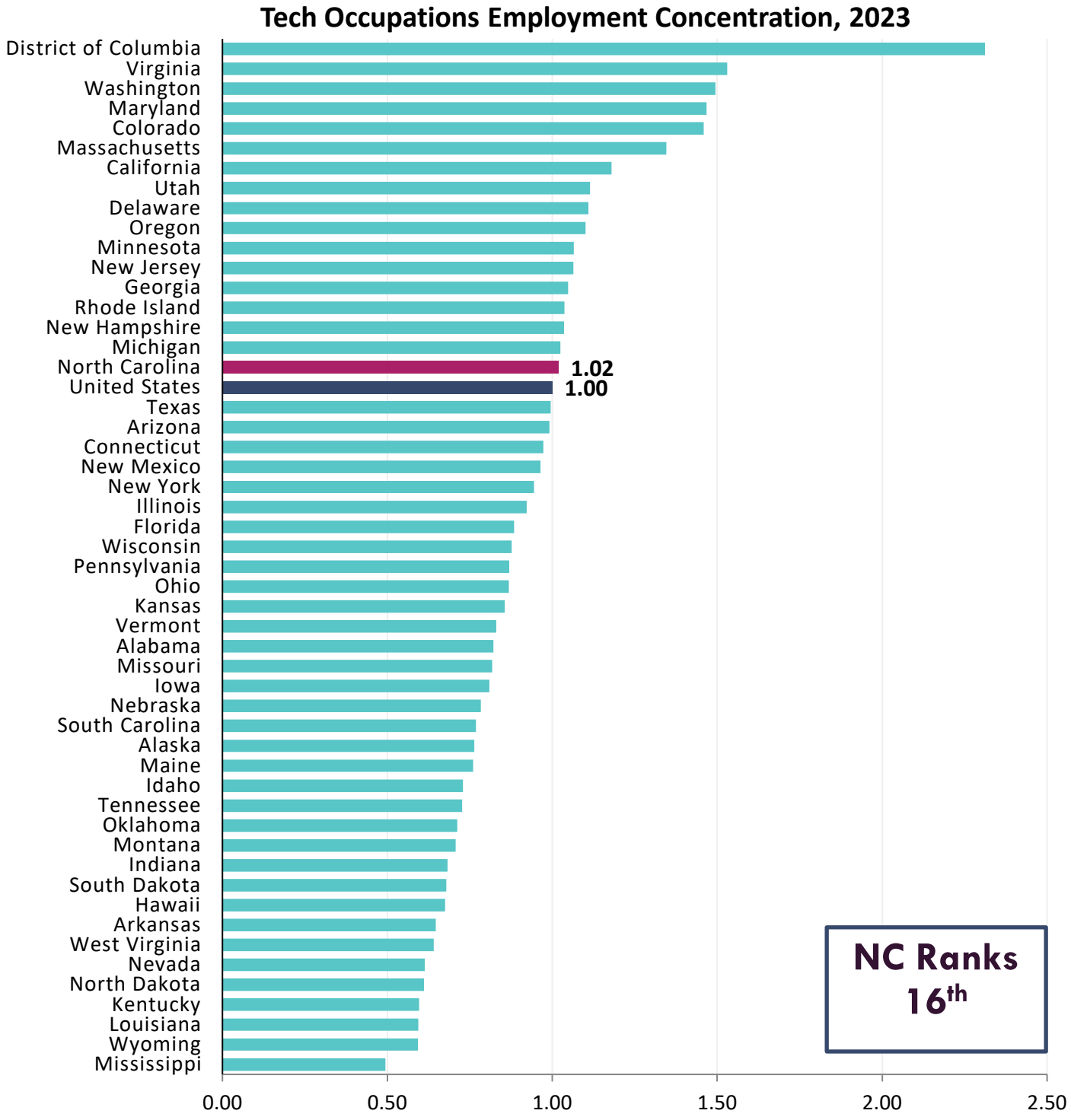
Top Skills Listed in NC Tech Occupation's Job Postings



Source: EL calculations based on Lightcast 2024.4

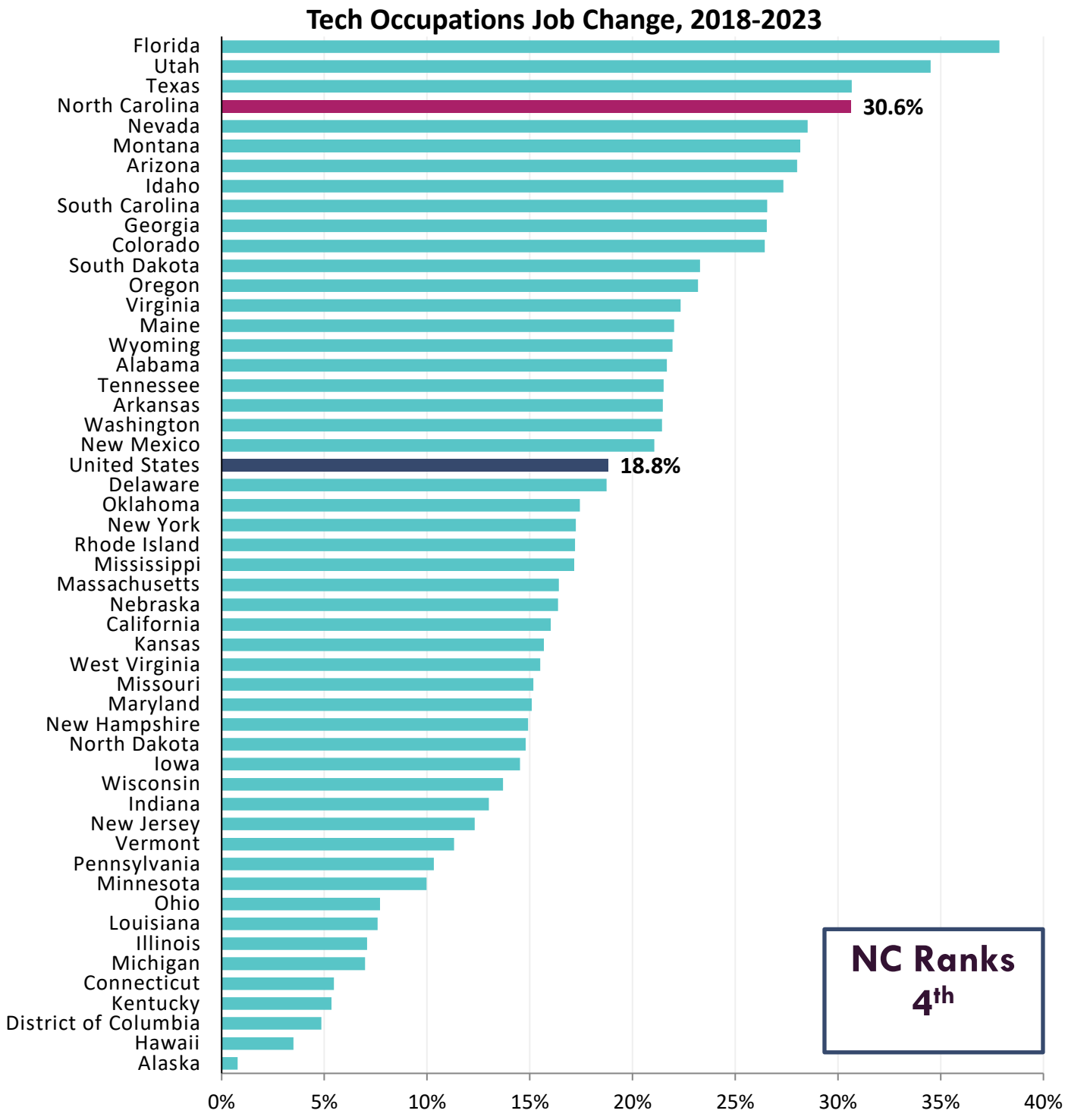
Tech Occupation State Comparisons

When compared to the other states and the national average, North Carolina ranks 16th in tech occupations. Nationally, tech occupations make up 8.98 percent of the workforce. North Carolina falls just above this rate, with a location quotient of 1.02. Again, this indicates a diverse economy that includes, but is not intensively dependent on, tech workers.



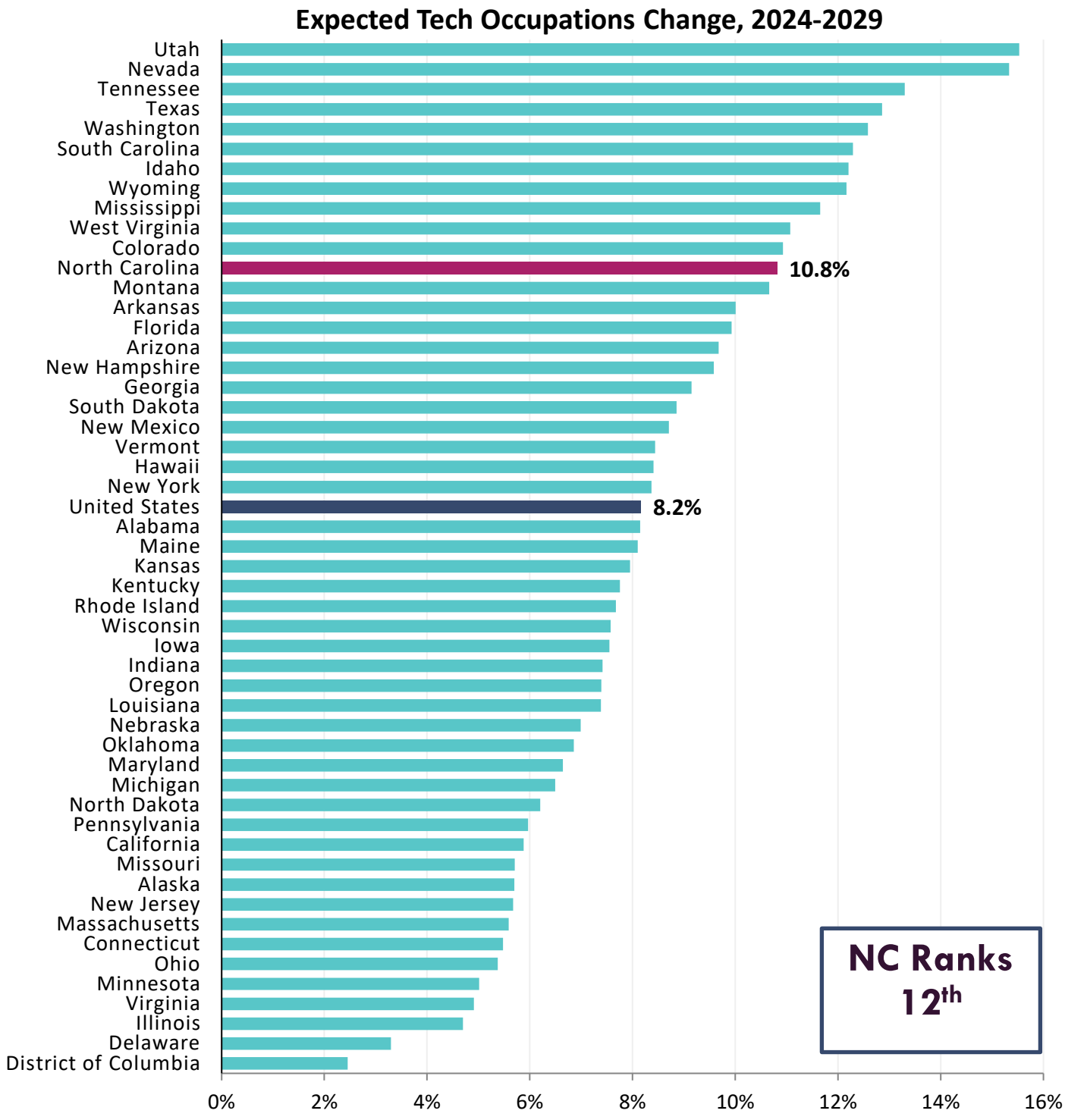
Source: EL calculations based on Lightcast 2024.4

Similar to the data for the tech and IT industries, growth within the state in employment for tech occupations was very robust from 2018 to 2023. Tech occupations grew by almost 31 percent, about twelve percentage points above the national average. With this high growth, North Carolina has consistently ranked in the top 15 states for this metric in recent years and moved up to 4th in this year's analysis.



Source: EL calculations based on Lightcast 2024.4

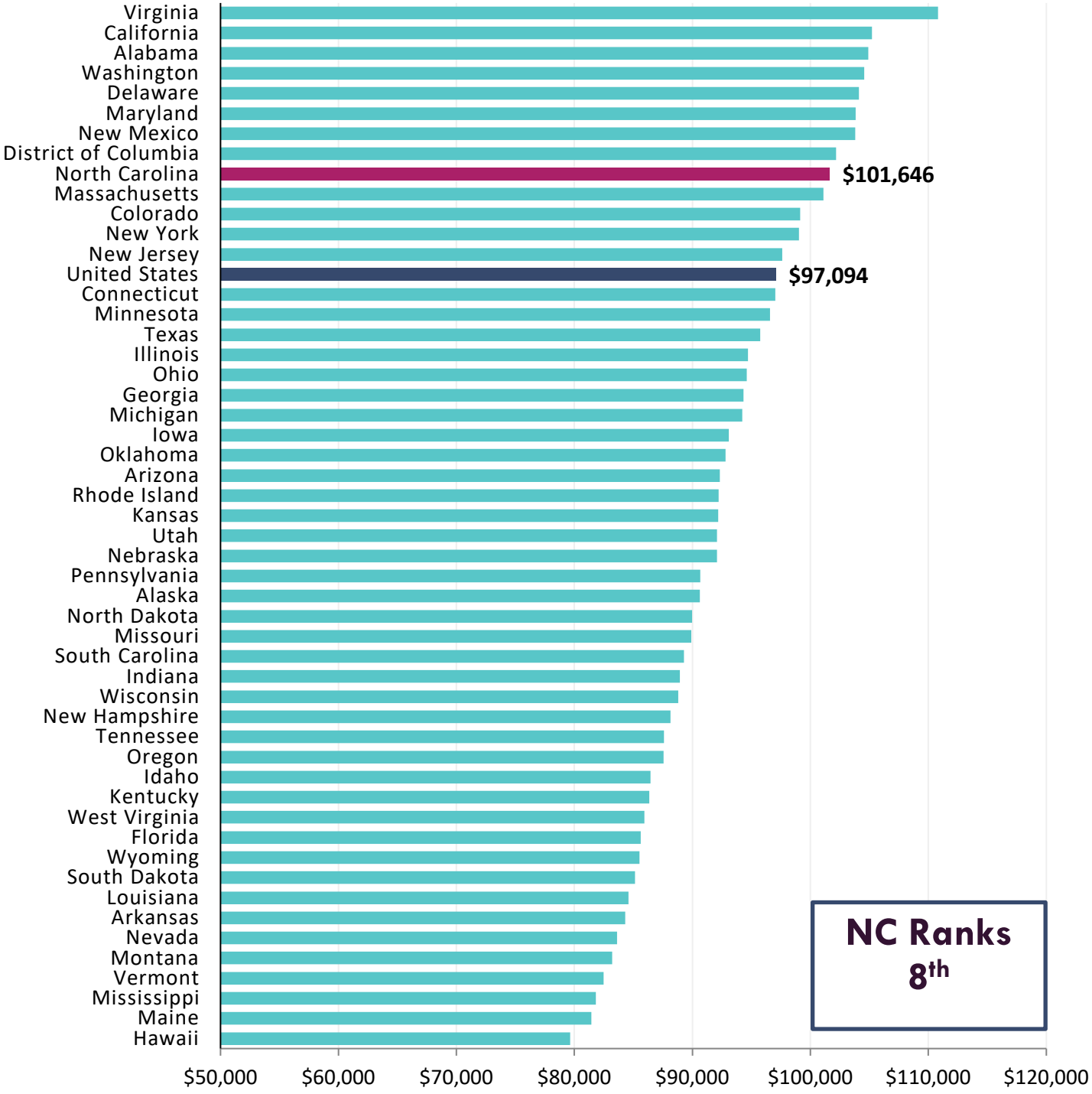
Using Lightcast's models of forecasted growth, North Carolina is expected to grow its tech occupations by 10.8 percent by 2029. This ranks the state 12th in predicted growth, a bump up from 14th in last year's rankings. North Carolina's expected growth rate is above the national average.



Source: EL calculations based on Lightcast 2024.4

When evaluating tech occupations, median annual earnings data is available. For the tech industry analysis, only average annual earnings data is available, which can be skewed by the presence of outliers. This median estimate provides us with the middle of the bell curve measure on wages. The typical tech worker in North Carolina earns around $95,750 a year, while a tech worker in California earns about $118,320 a year. This discrepancy however is eliminated when we account for purchasing power by state. When adjusted, the state ranks 8th across the country, up from 10th in last year's report.

Median Annual Earnings for Tech Occupations Adjusted for Purchasing Power, 2023



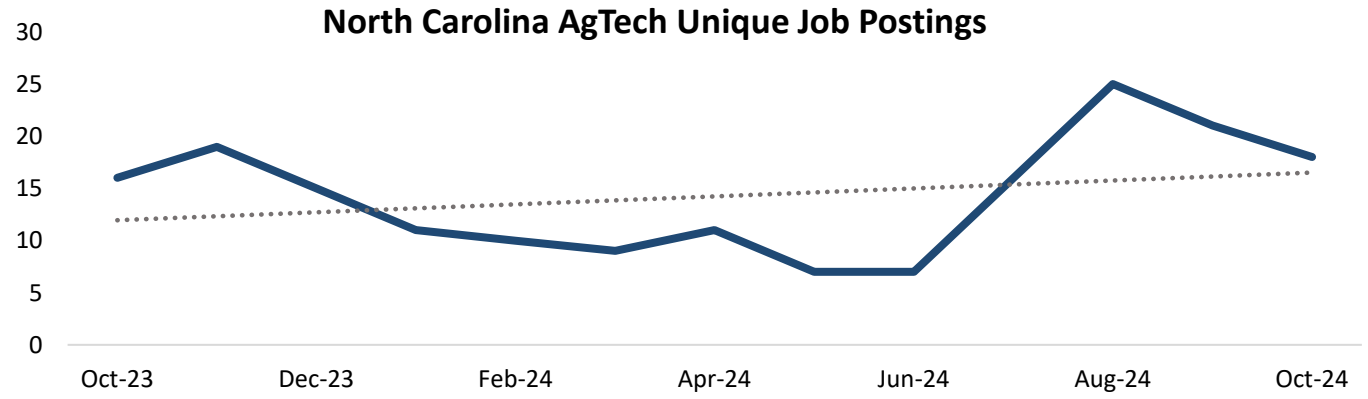
Source: EL calculations based on Lightcast 2024.4

SECTION 6. Emerging Tech

There are many portions of the tech sector that stakeholders would like to measure, but are difficult to capture in the traditional labor market data. A company is assigned to the NAICS code of their primary activity. If a company is providing software solutions to the agricultural market, they are likely categorized as a software publisher, and there is no way of knowing they are a player in the emerging market of AgTech. One way to measure and track these emerging markets is through online job postings. Job postings data can be filtered based on the postings that mention certain phrases. In this section, job postings data is used to reveal some trends in a few emerging tech markets that are of interest to the North Carolina economy. An AI company research platform, Gazelle, was used also to see if there were North Carolina based companies on their top companies lists for these emerging sectors.

AgTech

North Carolina has had a traditionally strong agricultural industry and has had several AgTech and BioTech employers in the state. Job postings data from October 2023 to October 2024 revealed that there were 185 unique postings that mentioned keywords associated with AgTech, averaging 14 openings a month. In the last three years, 37 different employers in North Carolina posted jobs with AgTech keywords. The median posted salary for these jobs was $45 per hour. AgTech focused positions are averaging 25 job postings per month in the state for job titles ranging from formulation chemists, data engineers, and chemistry scientists.



Source: EL calculations based on Lightcast 2024.4

Top North Carolina Companies Posting for AgTech:

- Vestaron Corporation
- Syngenta Group
- United Phosphorus
- ELO Life Systems
- Earthoptics

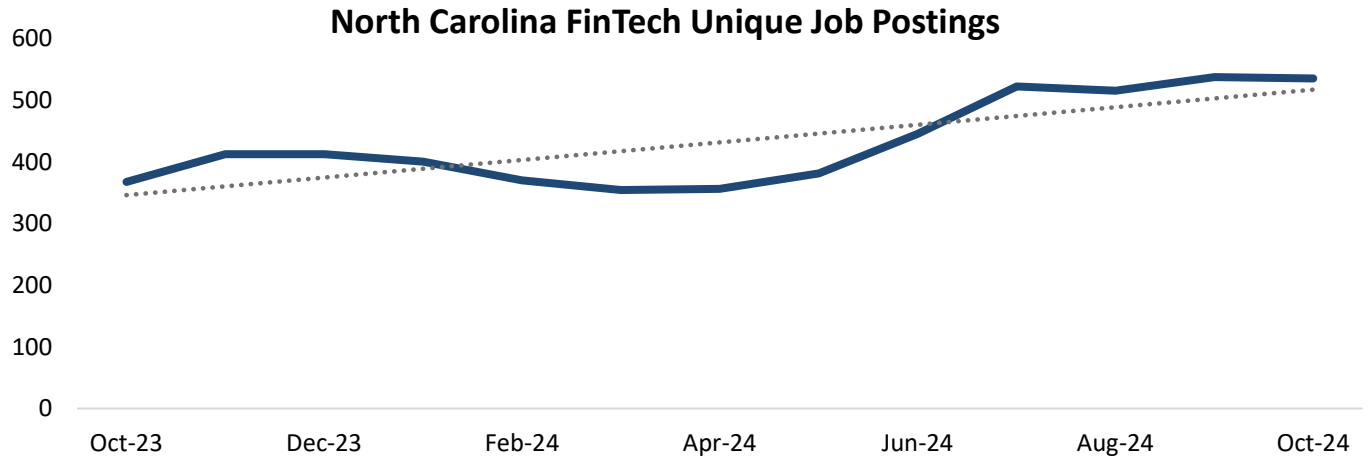
Top AgTech Companies from Gazelle:

-Vestaron (Durham)
-Pairwise (Durham)

FinTech

North Carolina is home to major financial companies, particularly in the Charlotte metro area. Technology has helped transform the traditional banking structure and created a demand for tech workers in the industry. In the last year, there were 2,560 unique postings in North Carolina that mentioned FinTech keywords. There were 400 employers competing for talent with FinTech skills. The median posted salary for these

FinTech positions was $60 per hour. On average, there are an average of 430 job postings per month for FinTech jobs ranging from software engineers, data scientists, and digital product managers. FinTech boomed during 2021, during which time there was a lot of private investment when interest rates were low, but demand fell drastically as the Federal Reserve has increased interest rates to curb inflation. FinTech job postings are on the rise in recent months indicating Federal Reserve rate cuts may be expanding activity.



Source: EL calculations based on Lightcast 2024.4

Top North Carolina Companies Posting for FinTech:

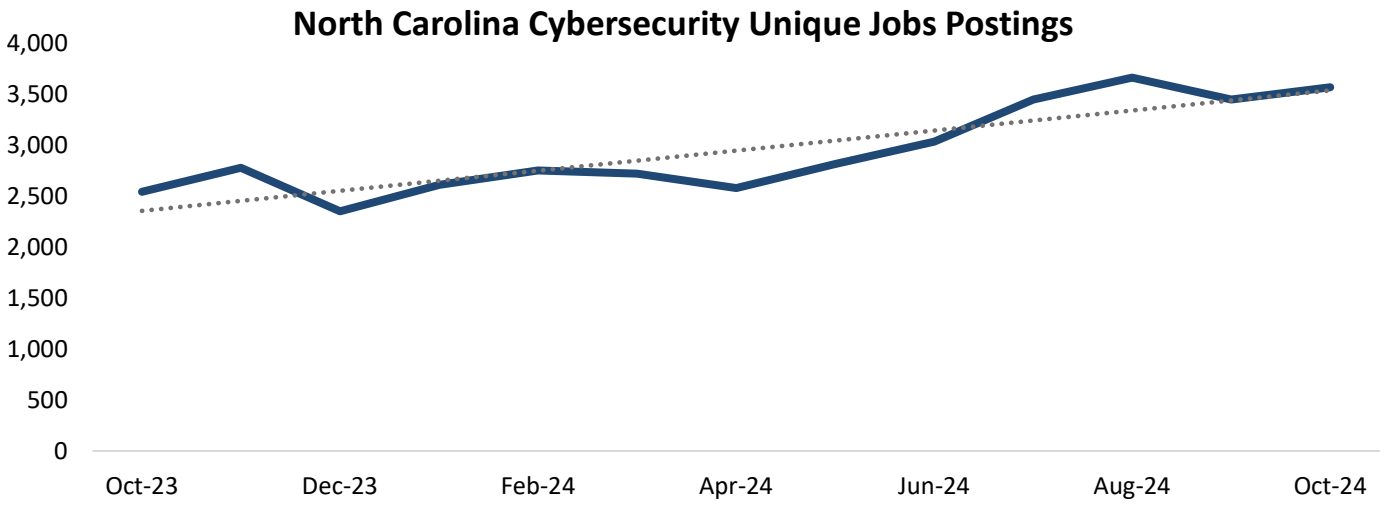
- JPMorgan Chase
- Jobot
- Envestnet
- Wells Fargo
- nCino
- Insight Global

Top FinTech Companies from Gazelle:

- Work Smart (Durham)
- Private Wealth Systems (Charlotte)
- RegEd (Morrisville)
- nCino (Wilmington)

Cybersecurity & Data Privacy

Data privacy, and protecting cyber assets from security threats, is becoming a need for businesses regardless of their industry. Demand for cybersecurity is strong in North Carolina, particularly with a prominent military presence in the state, with 17,970 unique postings in the last year. Postings for cybersecurity jobs averaged about 2,940 per month and were trending higher in recent months. About 2,540 employers competed for cybersecurity talent. The median posted salary for cybersecurity focused jobs was $60 per hour.



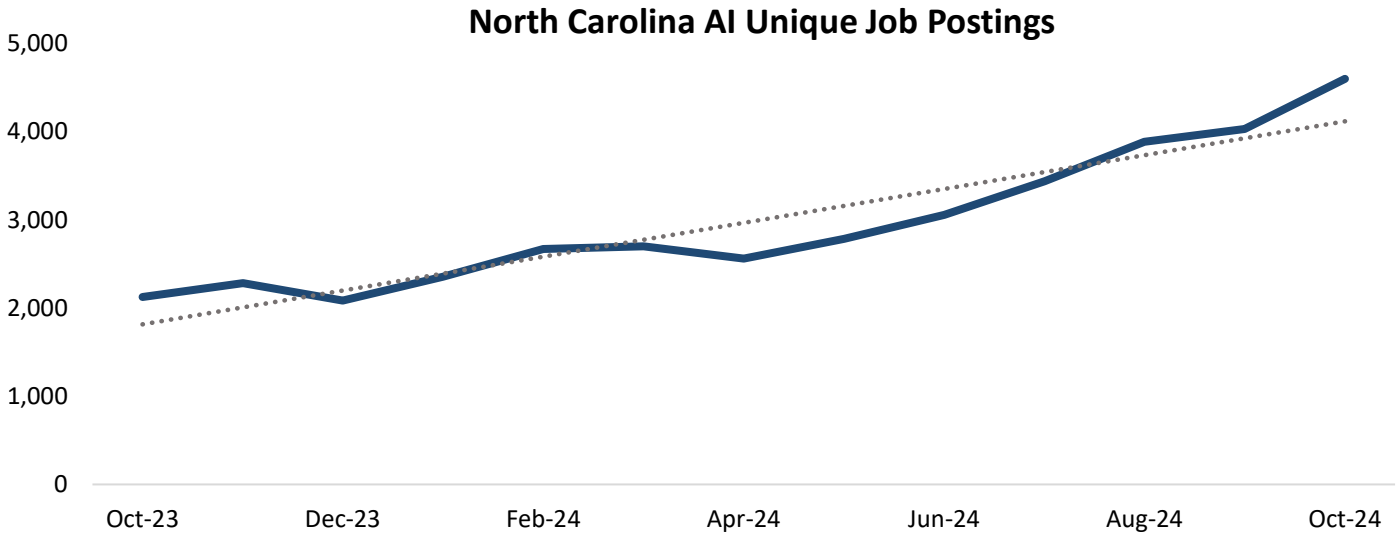
Source: EL calculations based on Lightcast 2024.4

Top North Carolina Companies Posting for Cybersecurity:

- Wells Fargo
- Truist Financial
- Deloitte
- First Citizens Bank
- General Dynamics
- TEKsystems

Generative AI

The newest disruptive technology, generative AI, has created a stir in the economy. The biggest product, chatGPT, has been available for use for about two years. In North Carolina, demand for AI skills in jobs has been consistent, and not overtaking the market as some have predicted. In the last year, 18,330 unique jobs have been posted with 2,950 employers competing for talent. The median posted salary for jobs requiring AI skills was $58 per hour. Job postings requesting AI skills are on the rise in the past several months.



Source: EL calculations based on Lightcast 2024.4

Top North Carolina Companies Posting for AI:

- Outlier
- Wells Fargo
- Deloitte
- Accenture
- University of North Carolina
- PricewaterhouseCoopers

SECTION 6. STATE COMPARISON OF TECHNOLOGY INFRASTRUCTURE METRICS

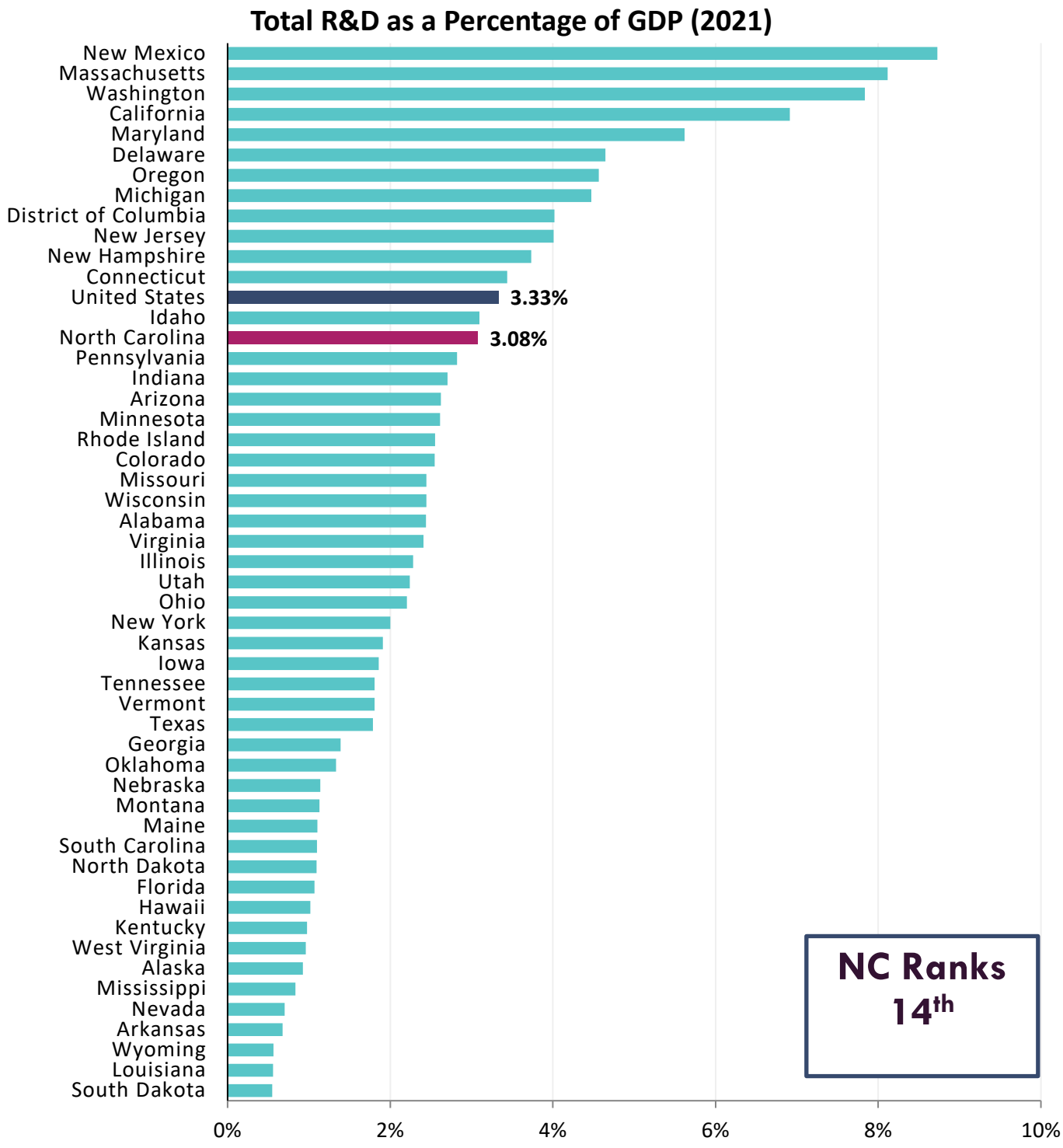
Similar to other parts of the economy, the technology sector needs a solid infrastructure to flourish. Logistics firms must have good highways to conduct their business, agriculture firms need good ports for export, and many manufacturers need robust water systems. A strong technology infrastructure can be essential to a "knowledge-based economy". The World Bank defines strong knowledge-based economies on four pillars:

- Entrepreneurship incentives,
- Skilled and educated labor force,
- Physical infrastructure access for technology and communications, and
- Innovation ecosystem that fosters collaboration between academia, private sector, and government.

Using this framework, the technology infrastructure of North Carolina was evaluated by comparing factors such as funding access, patents, STEM education, and university technology transfer. This section compares indicators that reflect a state's technology infrastructure and assesses North Carolina's position amongst other states. This year additional competitiveness factors like working age population change and business tax rates were weighed.

Research & Development (R&D) funding is a major component of a technology sector's infrastructure. R&D funding helps companies and universities develop new technologies that can be commercialized and spur tech growth. For total R&D obligations, including federal, state, and private funding sources, North Carolina ranks 14th across the states. This is the same ranking from last year, but the level of R&D as a percentage of GDP increased from 3.0 to 3.1 percent.

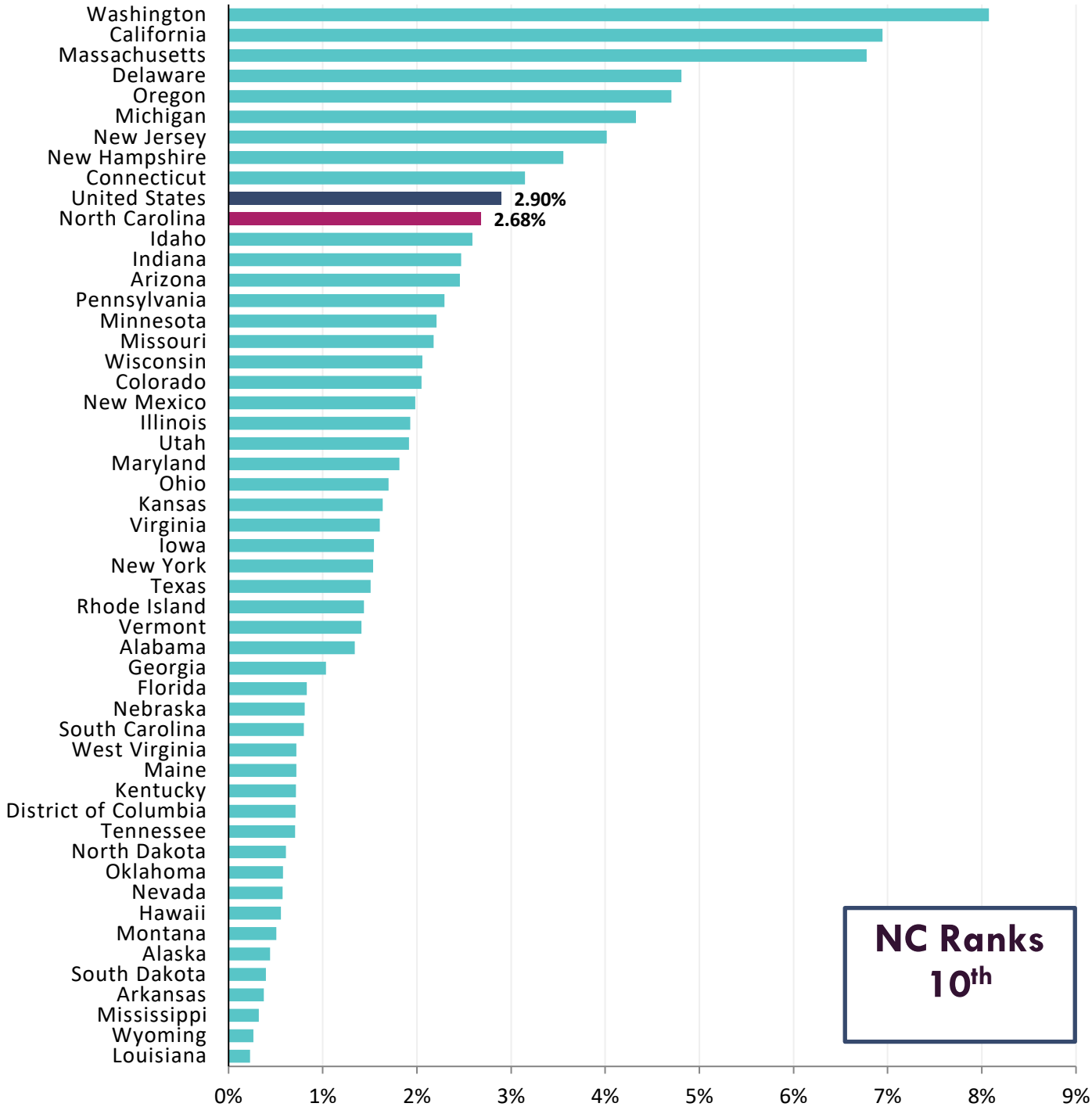
Funding Source	NC Ranking
Federal	17th
Business	10th
Academic	6th
State	33rd
TOTAL R&D	**14th**



Source: National Science Foundation (2024)

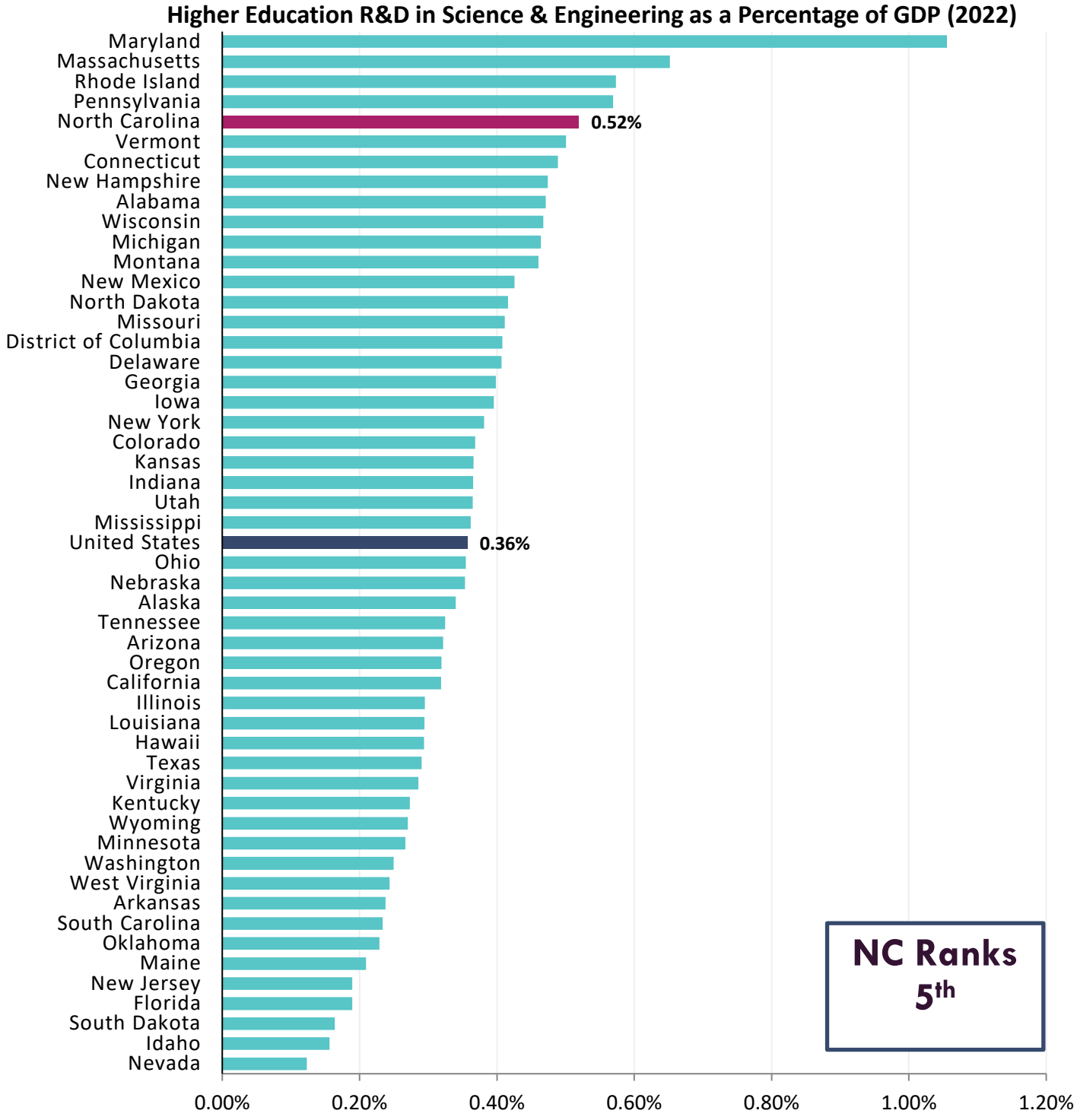
Another indicator of a technology development atmosphere is the amount of private R&D spending as a percentage of the state's private output. This demonstrates R&D driven by companies themselves for profit driven innovation. Business performed R&D funding made up 2.7 percent of North Carolina's private GDP in 2021, ranking it 10th among the states. Ranking in the top 10 states is an accomplishment, considering that in the first State of the Technology Sector report, North Carolina ranked 37th.

Business Performed R&D as a Percentage of Private Industry Output (2021)



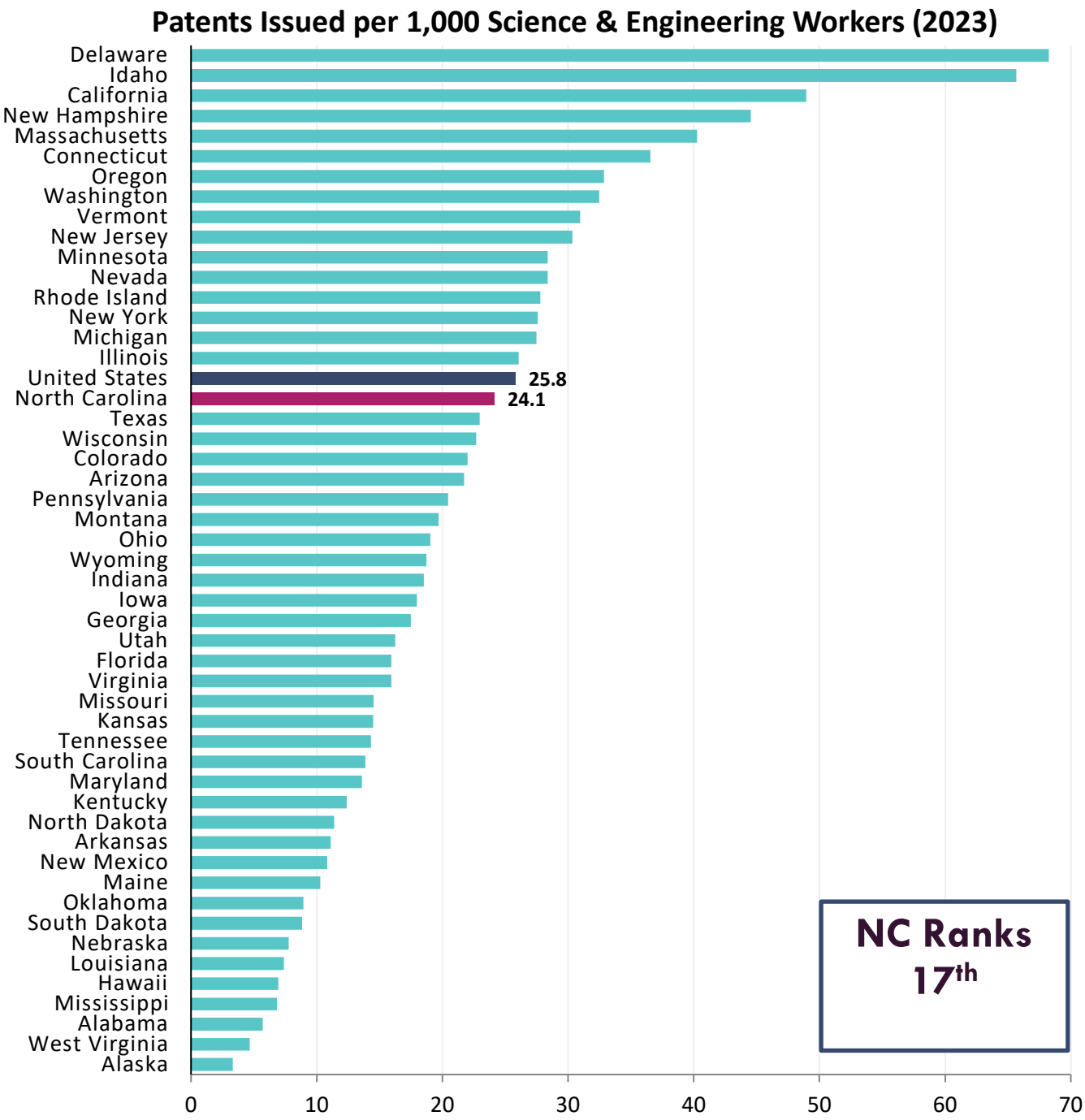
Source: National Science Foundation (2024)

Another indicator of relevant R&D funding, particularly for tech innovation, is science & engineering funding in higher education. The technology that comes from this research can be spun off to create new companies. North Carolina ranked 5th amongst all states in 2022 retaining its spot in the top 5 states for the last several years.



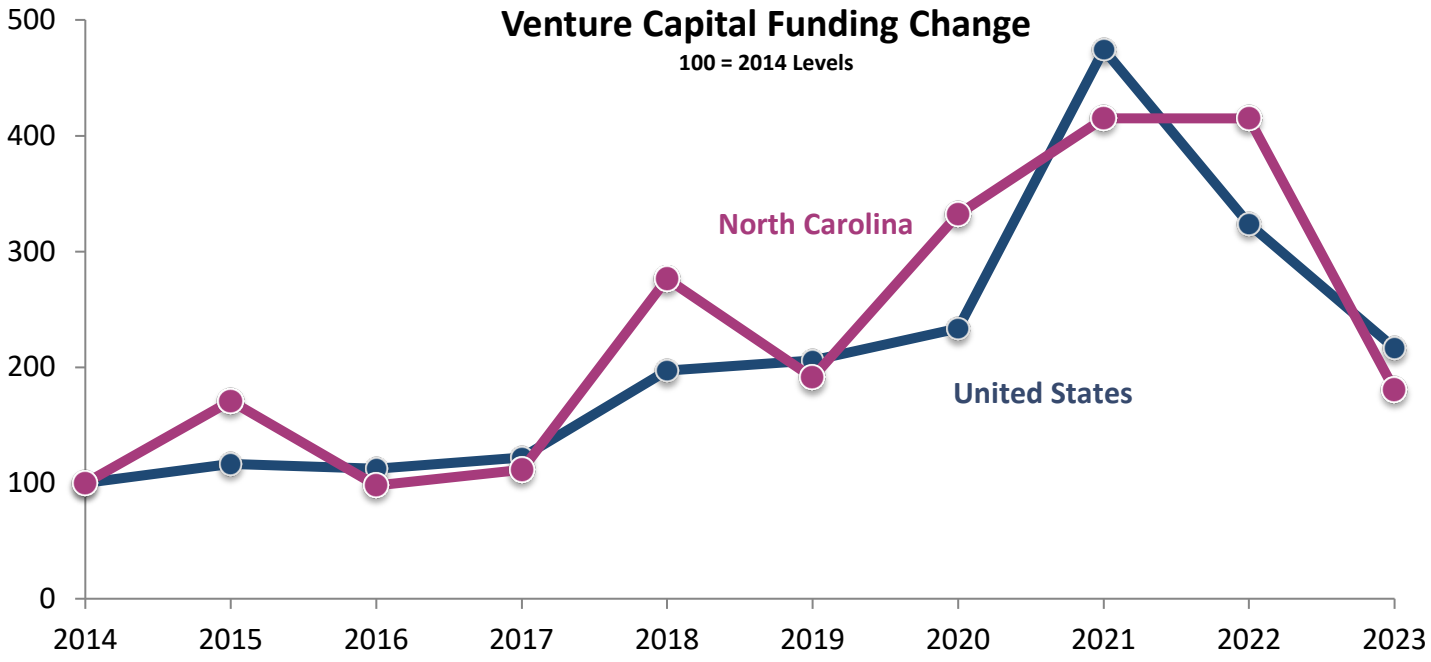
Source: National Science Foundation (2024)

Patents are another indicator of the level of innovation occurring in a place. Patents usually spur growth, particularly in high-cost industries like pharmaceuticals. For this metric, patents are standardized by the number of science and engineering workers. North Carolina averaged about 24.1 patents per 1,000 science and engineering workers in 2023. North Carolina's ranking remained at 17th.



Source: EL calculations based on USPTO (2024) and Lightcast 2024.4

Venture capital is often an essential tool for start-up companies to grow into a tech leader, and to get to market quickly. Traditional tech economies like California, Massachusetts, and Washington are still accumulating much of the nation's venture capital. This year the state dropped two spots in the ranking to 12th place as the overall value of venture capital funding per GDP remained around the same at the previous five-year average. Looking at growth rates for venture capital, North Carolina's growth has kept pace with the national average in recent years and even exceeded national levels in some years.



Source: EL calculations based on NVCA (2024)

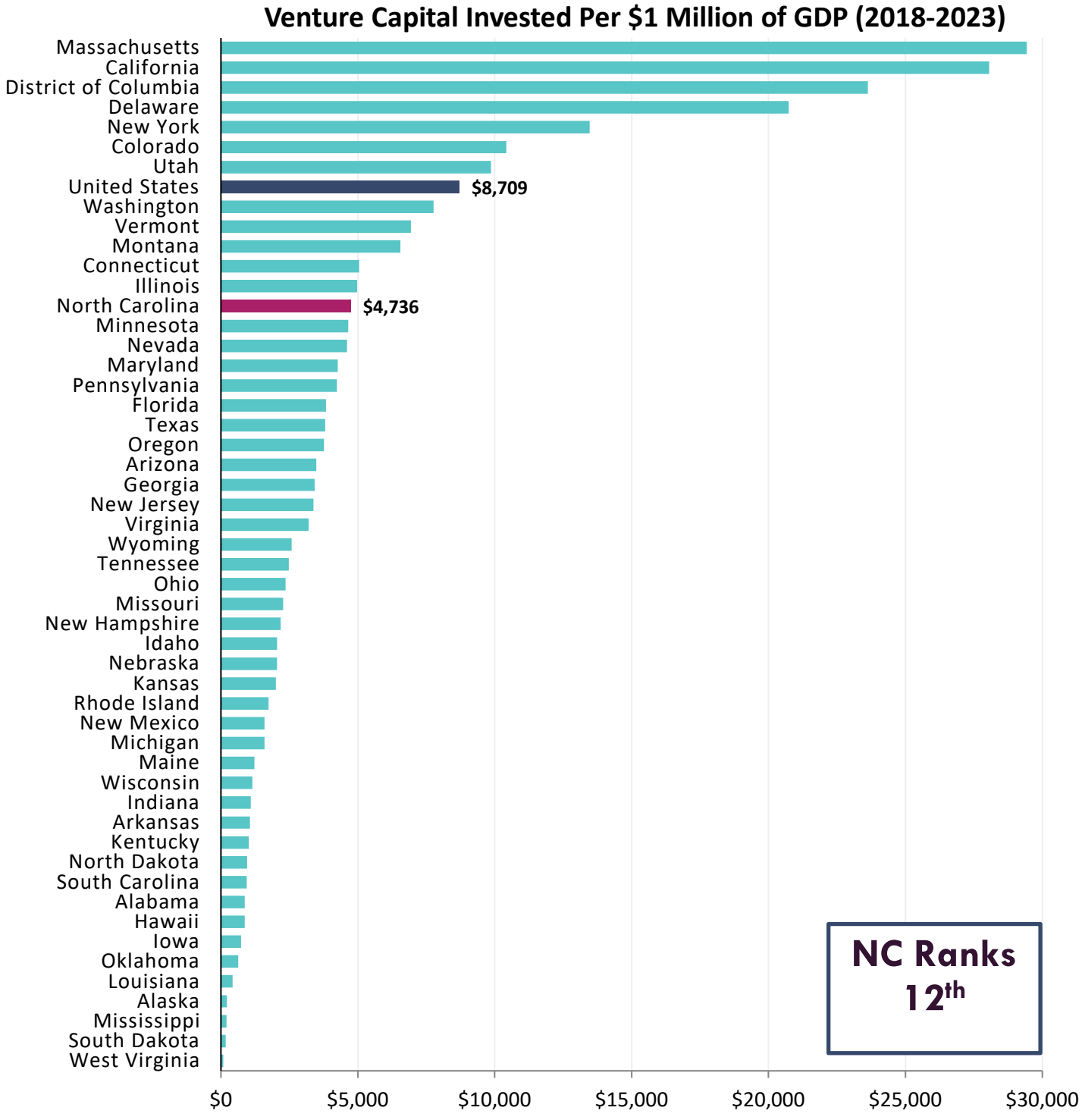
Additional research shows the breakdown of the state's venture capital funding. Funding research conducted by the Council for Entrepreneurial Development found there was $4 billion in equity funding in 2022 but this level fell to $1.6 billion in 2023. Most of the venture capital funding is going to tech companies in the state.

North Carolina Equity Funding (in millions)

Company Type	2023 Funding	2022 Funding
Tech Companies	$926	$3,002
Life Sciences	$555	$834
Advanced Manufacturing	$45	$52
Cleantech	$90	$102
Makers	$19	$26
All NC Entrepreneurs	**$1,635**	**$4,016**

Source: Council for Entrepreneurial Development (2024)

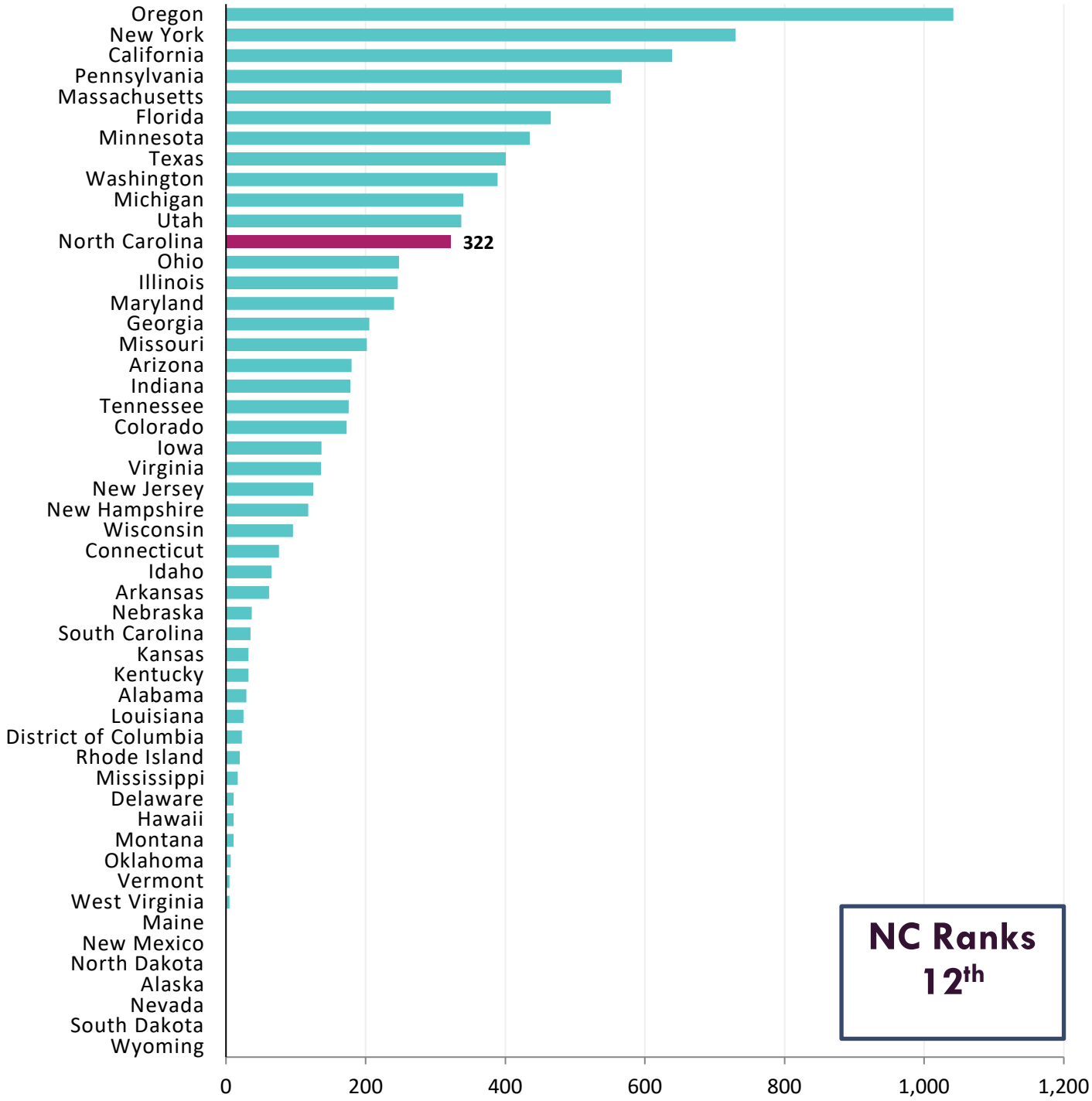
The report also highlights that in 2023 tech companies did the largest number of deals (126), followed by the life science sector (54), advanced manufacturing and materials (12), cleantech (11), and makers (11). North Carolina companies attracted over 317 investors in 2023 from across the globe. North Carolina's 2023 entrepreneurial exit activity included three IPOs and 23 mergers or acquisitions.



Source: EL calculations based on NVCA (2024) and BEA (2024)

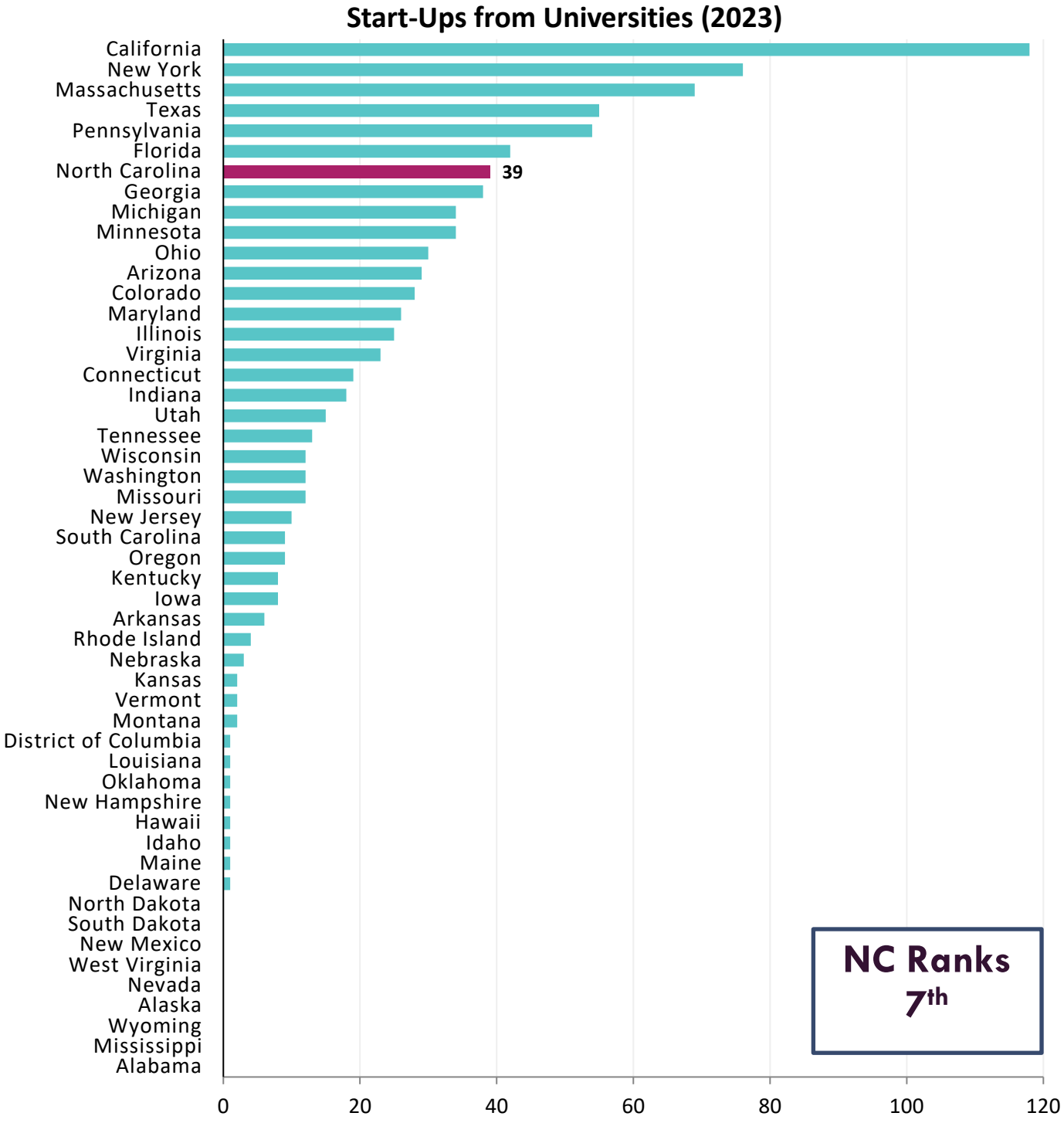
One of North Carolina's major strengths in its tech infrastructure is the high quality of research universities across the state. North Carolina rates strongly in the indicators that measure technology transfers from universities. Technology transfer utilizes the innovation assets at universities and turns them into commercialized opportunities. The ability of a state to capitalize on its research capabilities, and turn them into marketable concepts, means more tech start-ups and jobs. In 2023, North Carolina ranked 12th among states in terms of options and licenses that its universities were able to execute, a decline in the rankings from 8th the previous year.

Technology Licenses and Options Executed from Universities (2023)



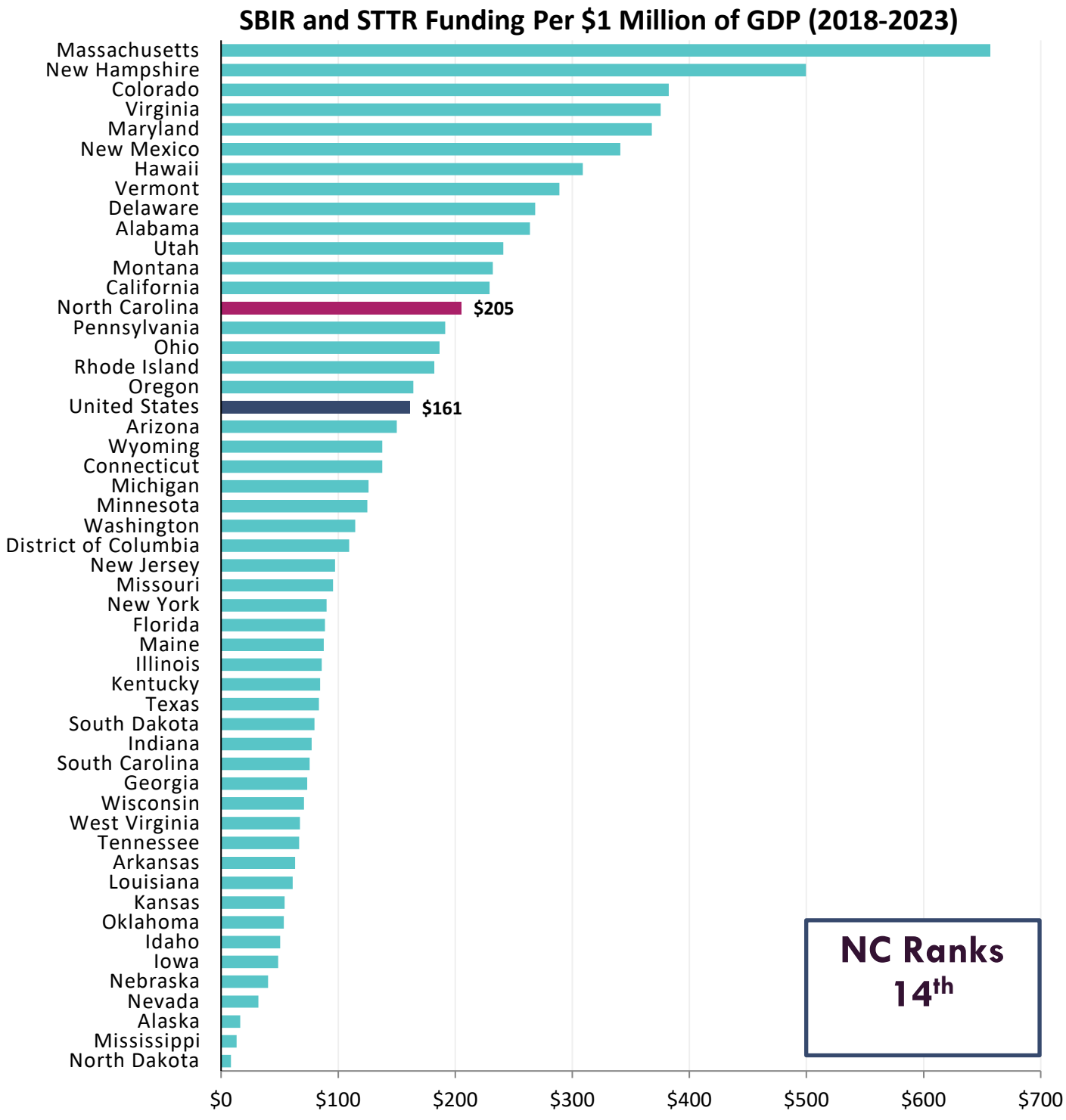
Source: Association of University Technology Managers [AUTM] (2024)

Another measure of technology transfer, the number of start-ups from universities, can indicate the level of entrepreneurship interest within a state's universities, as well as its ability to convert research assets and public funding into economic opportunities. North Carolina had the 7th highest number of start-ups spun off from its universities in 2023, with 39 new companies established.



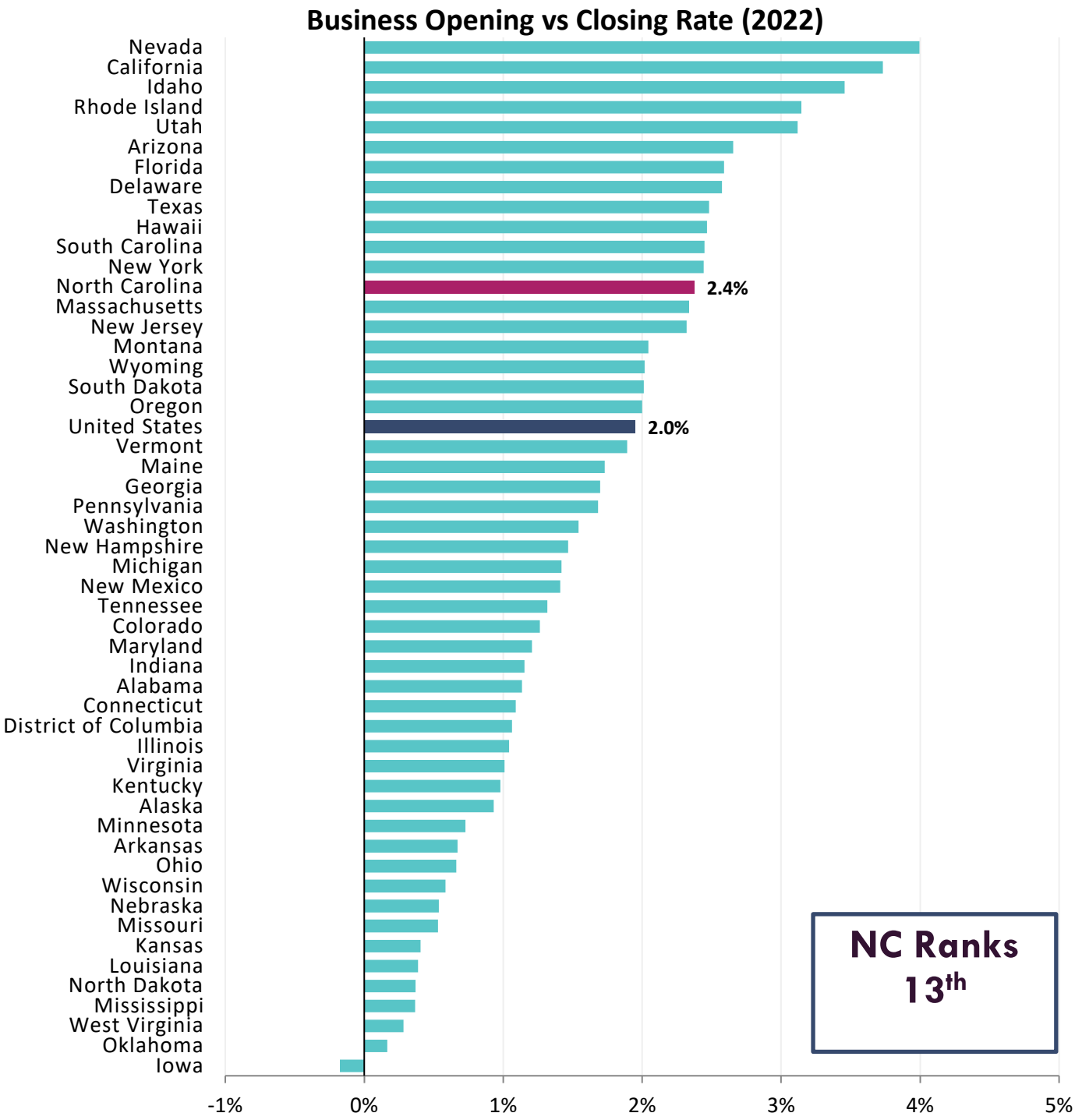
Source: Association of University Technology Managers [AUTM] (2024)

The federal government's SBIR/STTR funding program supports and encourages innovation in small business. The program acts as an angel investor, and helps high-tech concepts move toward commercialization. North Carolina moved up two rankings this year, 14th from 16th. North Carolina also ranks above the national average. Helping local startups apply for, and receive, SBIR/STTR funding can lead to critical early-stage funding for high-reward concepts.



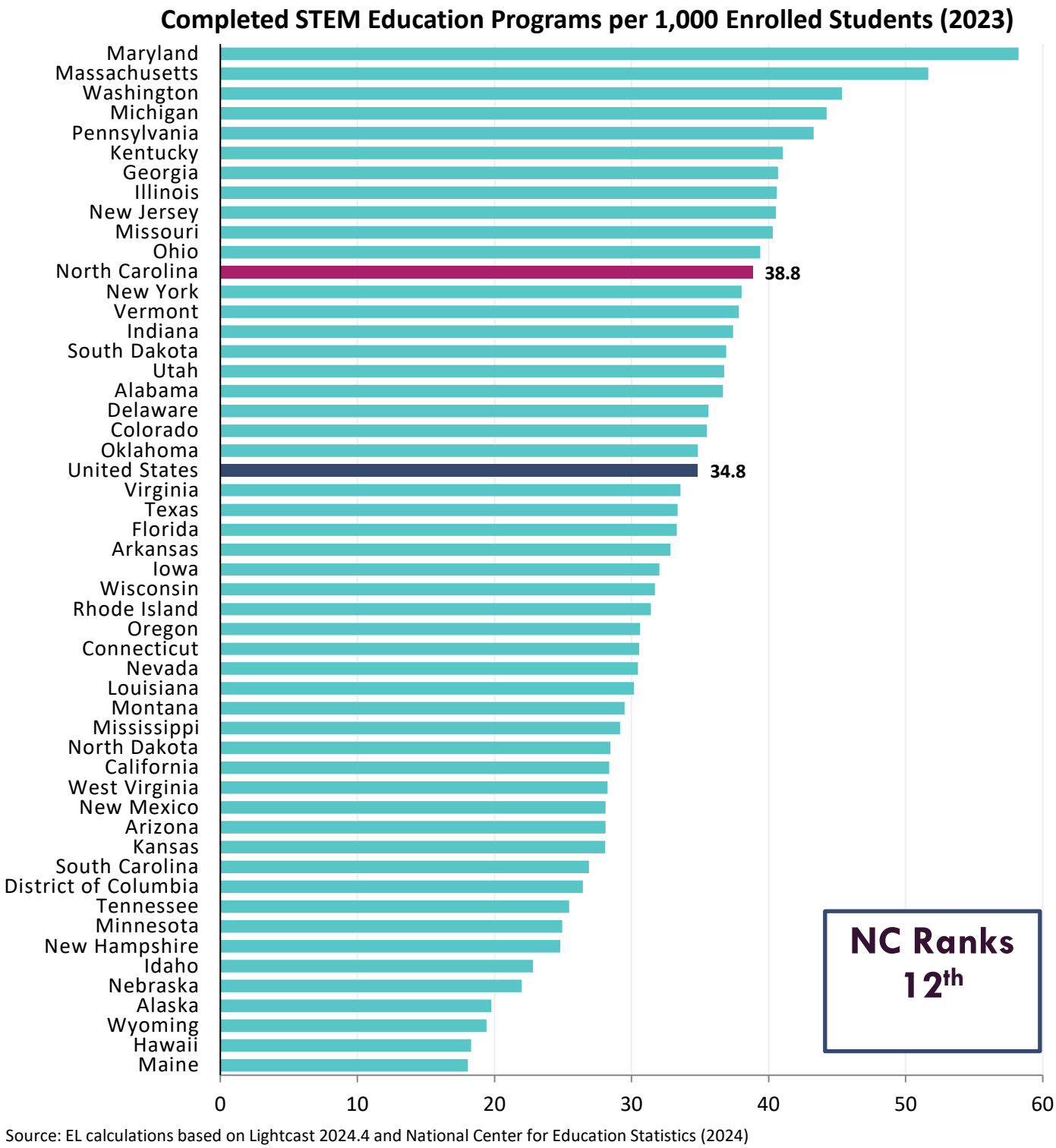
Source: EL calculations based on SBIR (2024) and BEA (2024)

Entrepreneurs are the lifeblood of a knowledge-based economy. Each year the economy is replenished and reenergized by entrepreneurial activity. Businesses that originate in one location often look to grow in that same region. The US Census Bureau tracks the number of companies opening, and those who close. Comparing the rates of entrance and exits, can provide a measure of business dynamism, an indicator of churn and innovation in an economy. North Carolina had a positive dynamism rate of 2.4 percent in 2022, up from 1.3 percent in 2021. This ranked the state 13th across the country and above the national average. Other Southern states and Intermountain West states ranked high for this metric.



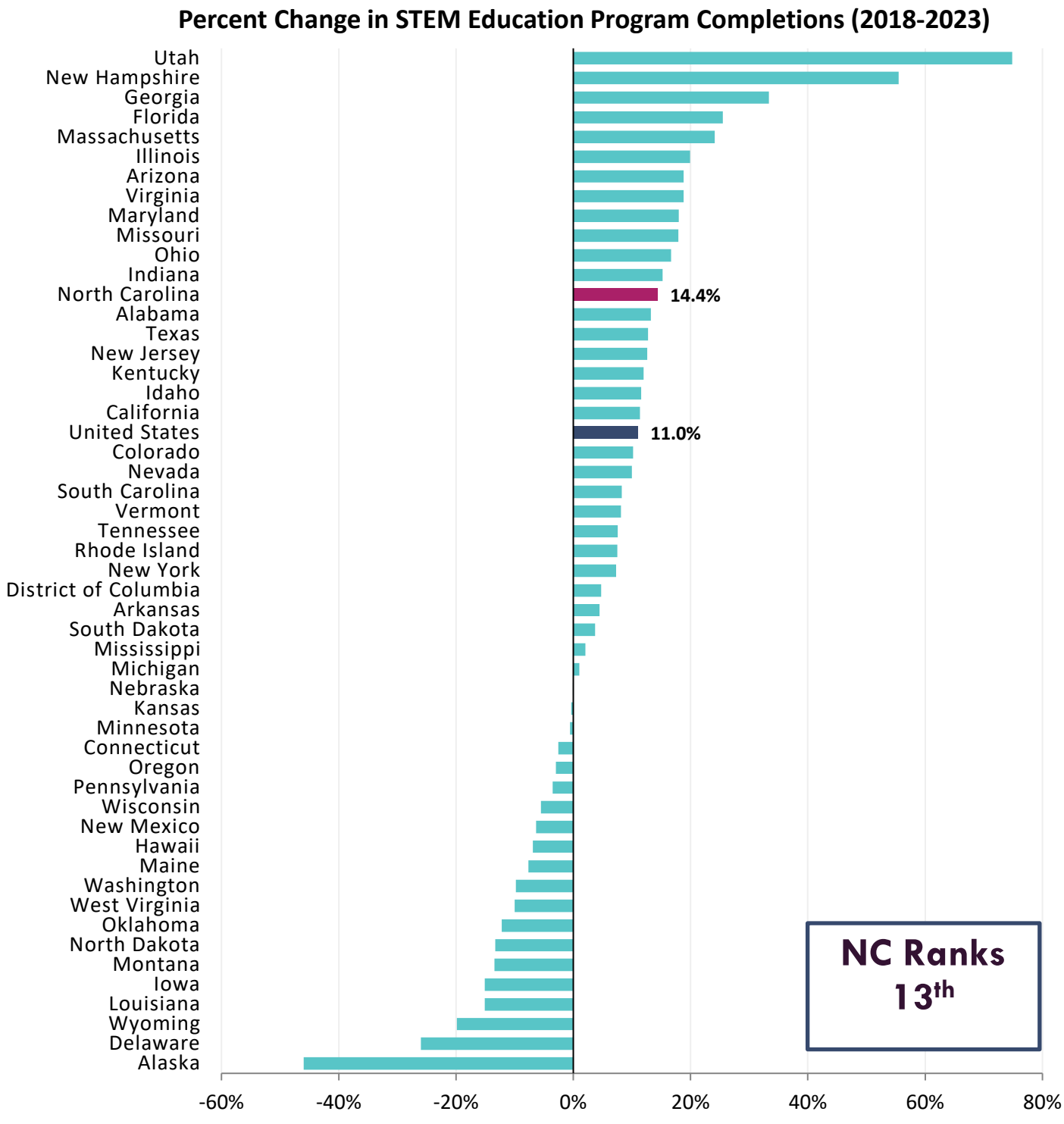
Source: EL calculations based on US Census Bureau (2024)

One of the essential components of infrastructure for a knowledge-based economy is a skilled labor force. Tech occupations often require science, tech, engineering, or math (STEM) bachelor's degrees for entry-level positions. In 2023, North Carolina saw its students complete 21,420 education programs that were focused on computer technology, science, and engineering. This value was standardized by accounting for the number of enrolled postsecondary students in each state. North Carolina averaged about 39 completed STEM programs per one thousand students. This rate is well above the national average, and the state ranks 12th. This was a fall from a ranking of 5th two years ago.



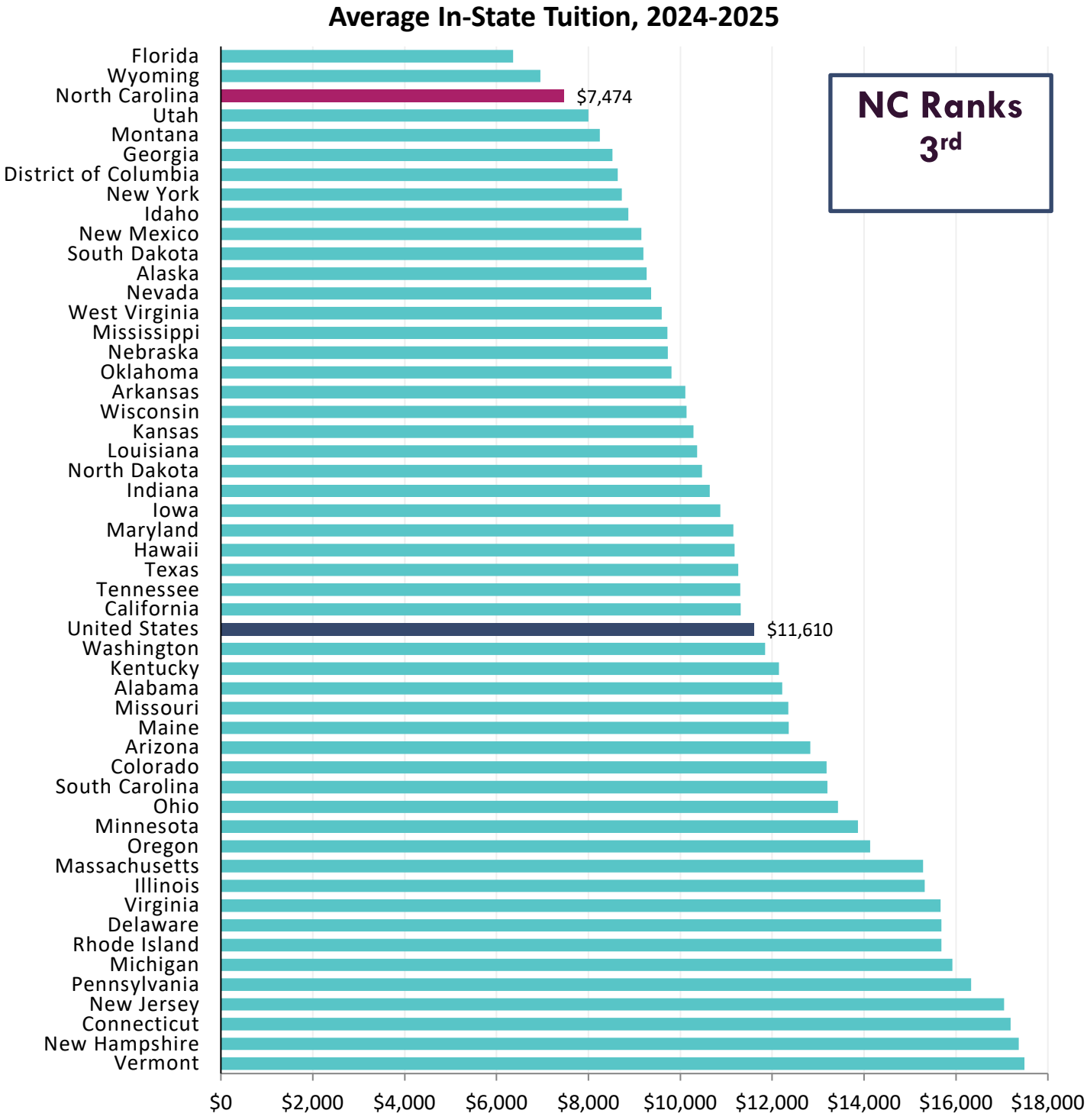
Source: EL calculations based on Lightcast 2024.4 and National Center for Education Statistics (2024)

Over the past few years, many states have focused their efforts on growing the number of STEM students in their educational systems. STEM program completions from 2018 to 2023 found that North Carolina has experienced an increase of 14 percent. After several years of continued improvement in this ranking, North Carolina dropped from 3rd to 5th place last year and then dropped down to 13th in this year's report.



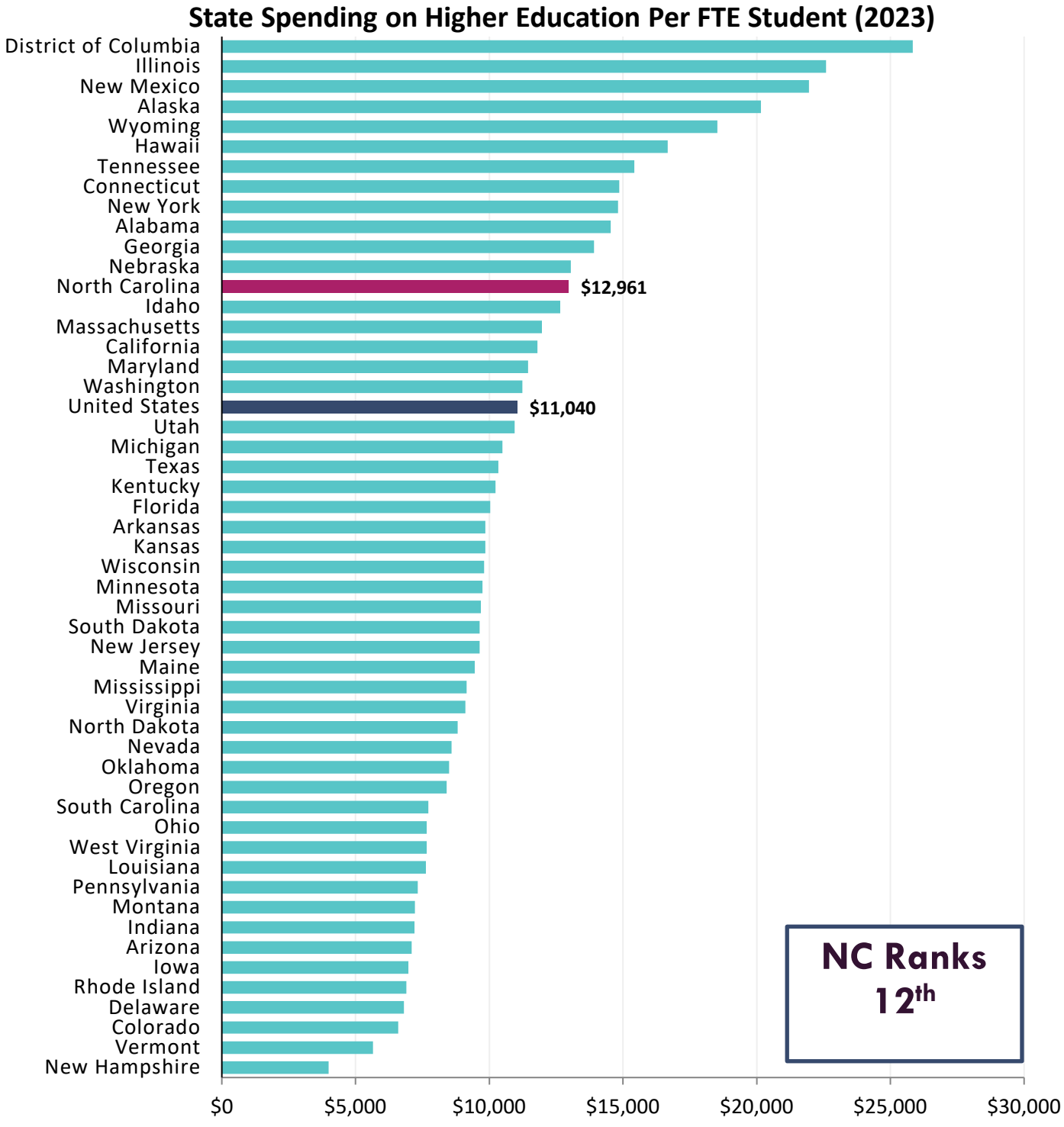
Source: EL calculations based on Lightcast 2024.4

Students now are looking to achieve their education with the lowest debt burden. North Carolina ranks high in terms of providing low-cost quality higher education. Despite tuition increases nationally in recent years, for the 2024-2025 school year, one year of in-state tuition costs $7,474 on average in North Carolina. The state has consistently ranked in the top ten for this metric throughout the production of this report and retained its 3rd place ranking from the previous year.



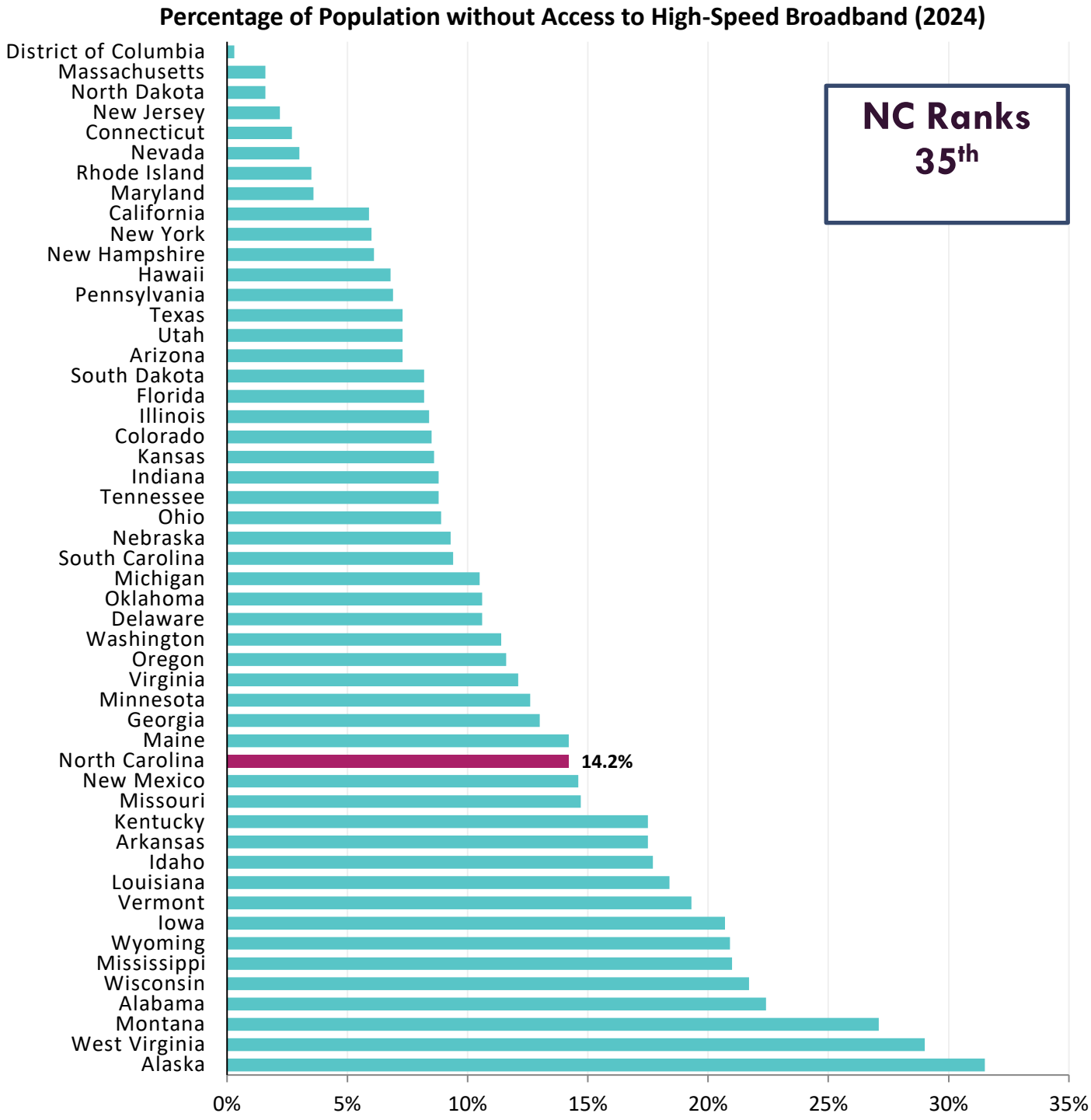
Source: College Board (2024)

One of the reasons tuition costs are rising across all states is that funding for higher education was reduced during the Great Recession. Tuition increases have not been able to offset decreases in funding, resulting in reduced offerings at colleges and reduced research faculty. Funding in North Carolina, however, has remained strong and higher than the national average. The state has often ranked in the top 15 for this metric, and ranked 12th in this year's report.



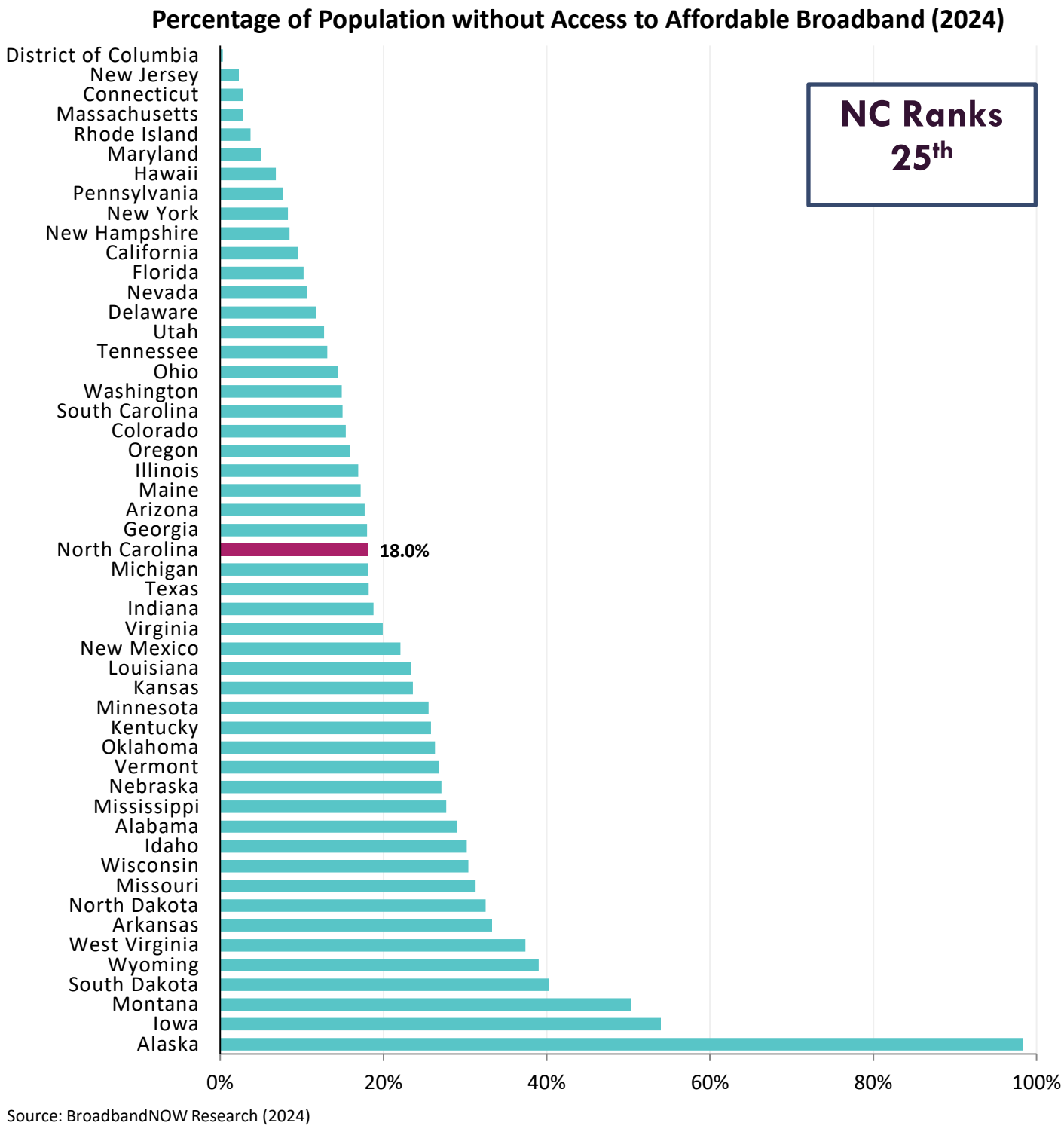
Source: State Higher Education Executiver Officers [SHEEO] (2024)

High-speed broadband internet is a leading priority, and a good indicator of connectivity for a knowledge economy. Access is the first step in making sure everyone can be plugged into the information economy. BroadbandNOW Research measures the population without access to high-speed broadband. In North Carolina, 14.2 percent of the population lacked access to this service in 2024, ranking the state 35th in the nation. BroadbandNOW changed their methodology this year, so the ranking is not comparable to previous reports.



Source: BroadbandNOW Research (2024)

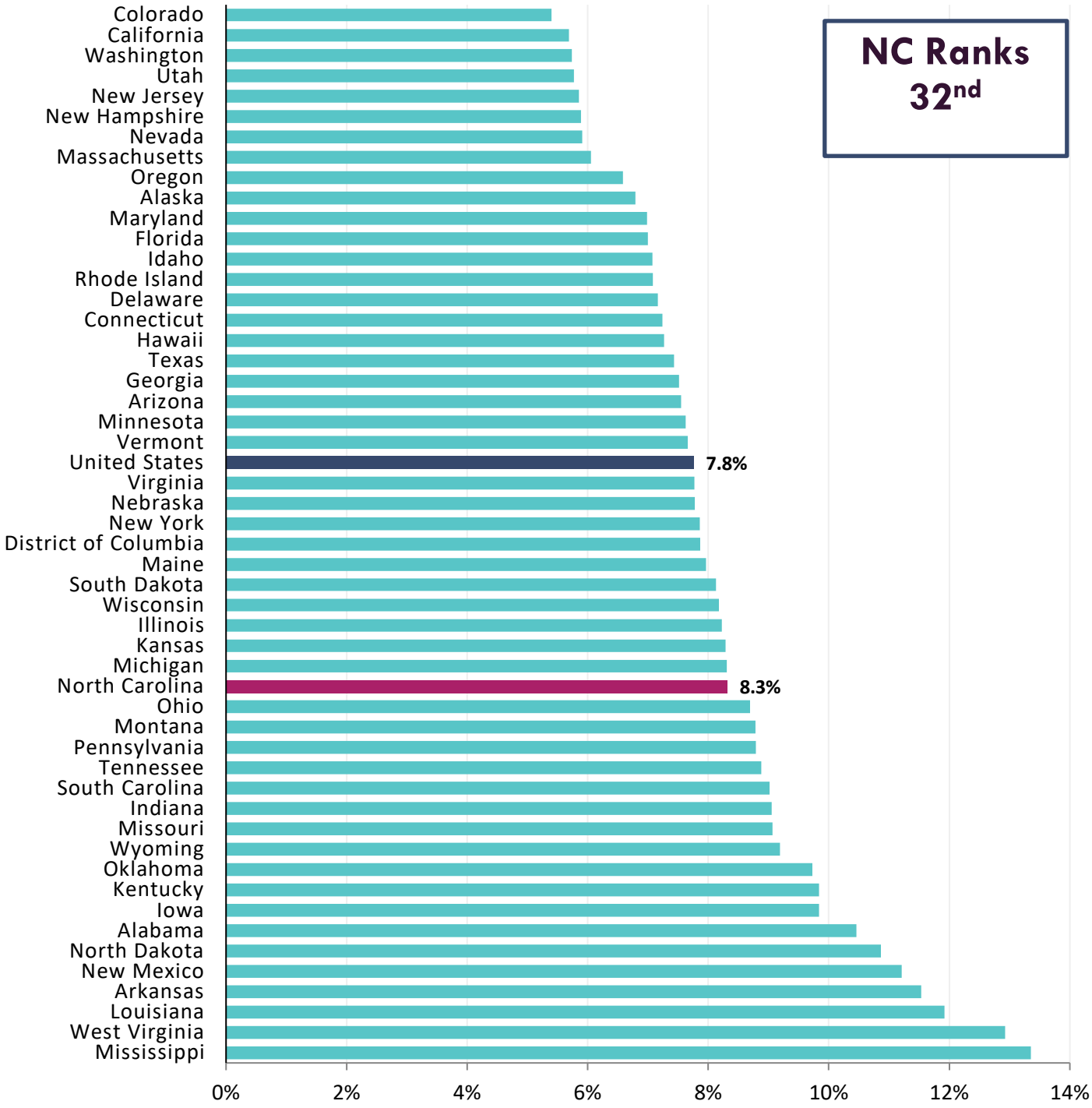
The availability of broadband must be paired with adoption by communities to ensure that all households are connected to the internet. Research has shown that adoption has a stronger link to economic benefit than just broadband availability. The central piece to adoption is affordability. Affordable plans were defined by BroadbandNOW Research as under $60 per month in 2024. About 18 percent of North Carolinians do not have access to high-speed broadband at this price. North Carolina ranks even better at this metric than regular broadband access at 25th when affordability is assessed. This indicates broadband pricing is helping expand adoption in the state.



Source: BroadbandNOW Research (2024)

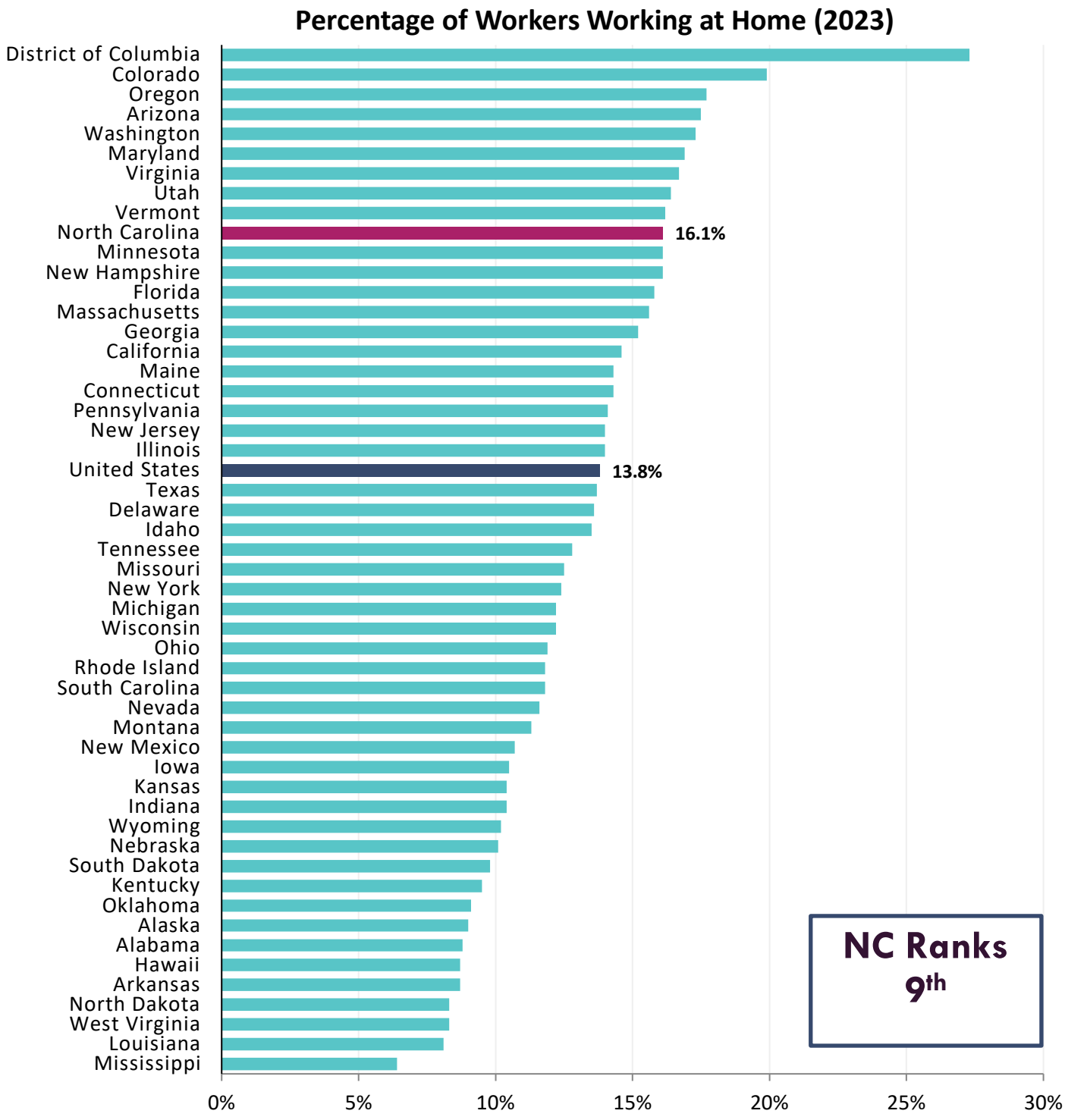
Another measure of adoption is from Census Bureau surveys that measure the number of households that have internet subscription services. In North Carolina, 8.3 percent of the population is estimated to lack an internet subscription; this ranks 32nd in the nation. While North Carolina ranks below the national average, the percentage value has improved in recent years.

Percentage of Households without an Internet Subscription (2023)



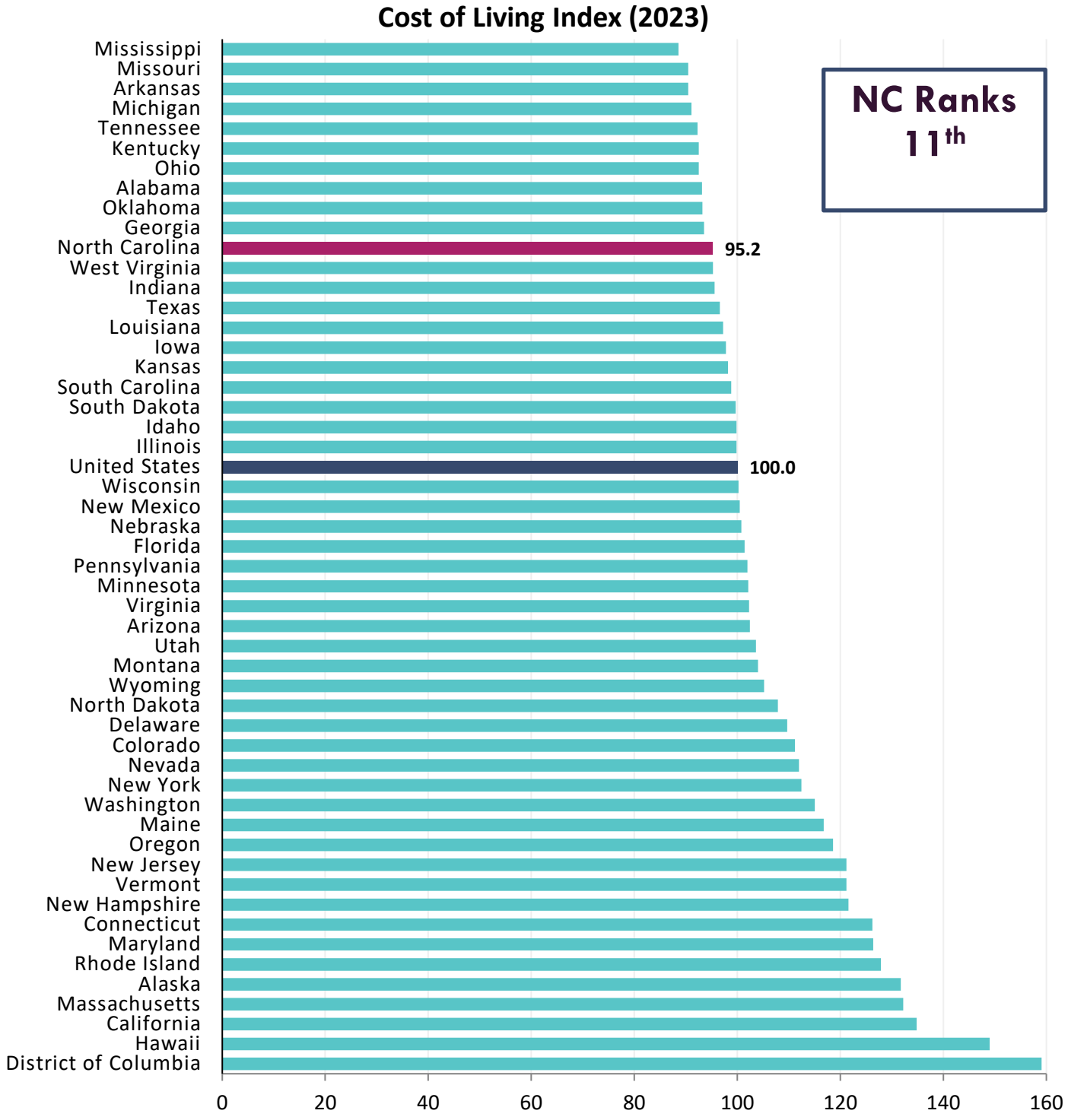
Source: US Census Bureau (2024)

The availability and adoption of broadband can expand employment opportunities for residents in rural areas and increase opportunities for remote work. The expansion of remote work also provides opportunity to bring new talent and wealth to an area, regardless of the local employment situation. According to Census surveys, North Carolina had almost 16 percent of its workers say they worked from home. This was the 9th highest state up from 12th in 2022. Remote work is tamping down from its pandemic height but remains quite elevated for tech workers.



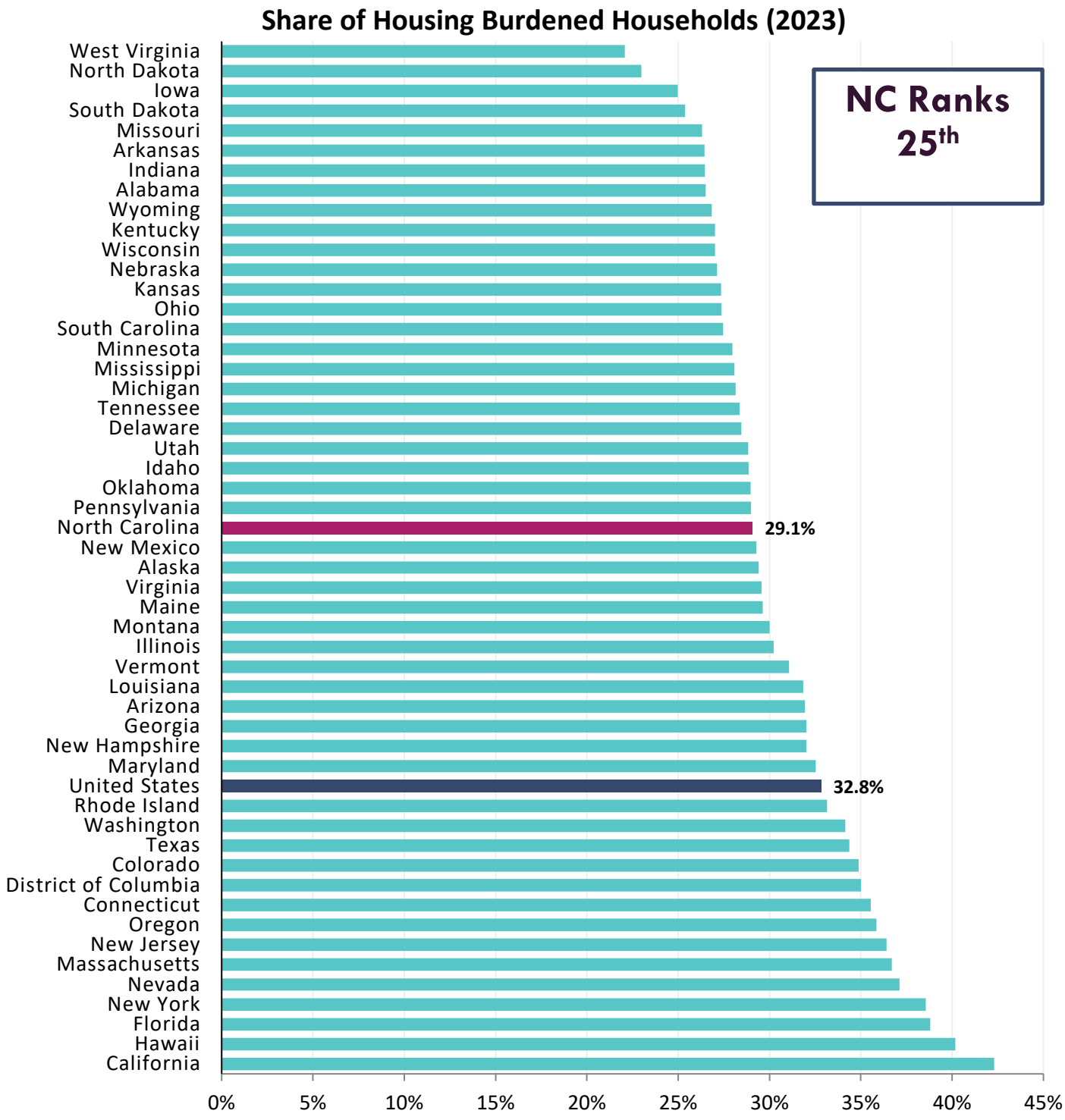
Source: US Census Bureau (2024)

North Carolina has attracted many new residents to the state in recent years. One downside of this growth is the impact to cost of living. Housing prices rose sharply in recent years, and that has put increasing pressure on affordability. Despite these increases in prices, the state retains some cost advantages in terms of cost of living to the highest states including many in the Northeast and the West. North Carolina had the 11th lowest cost of living in the nation.



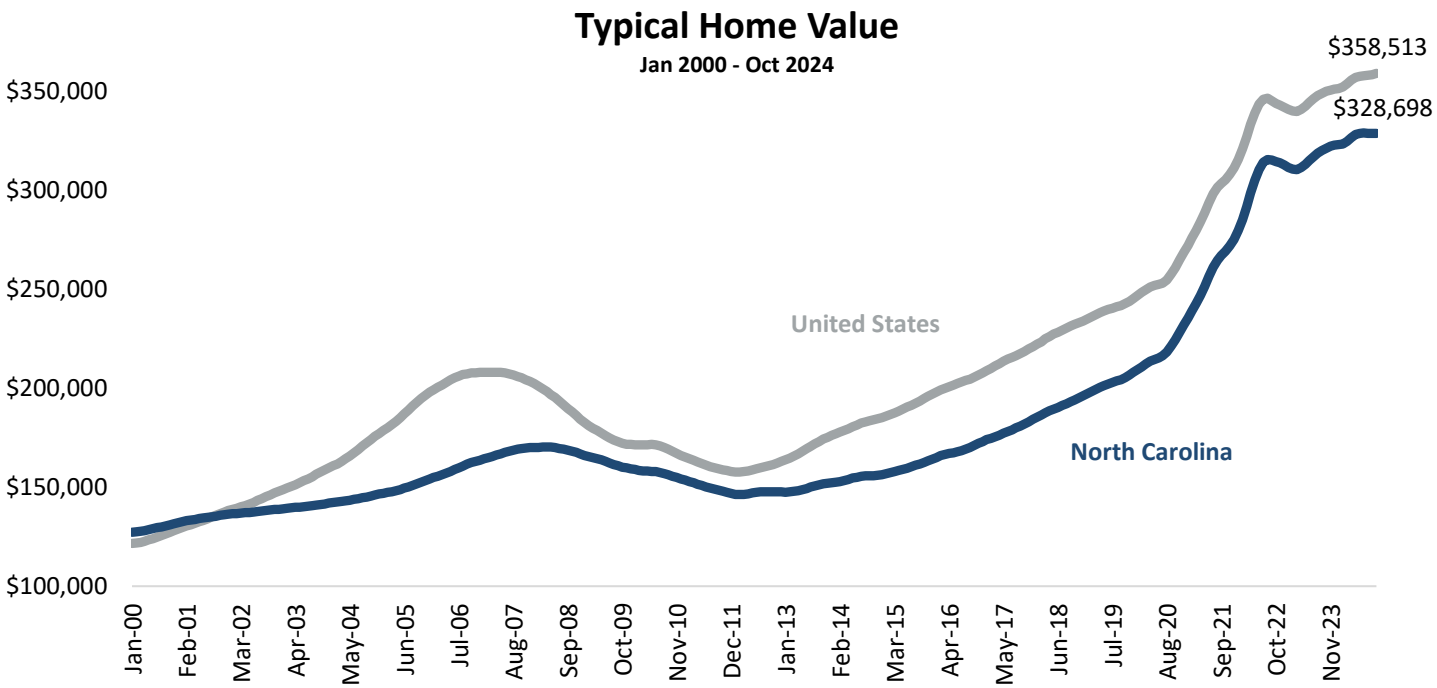
Source: Lightcast 2024.4

In 2022, over 28 percent of households were considered housing burdened (paying more than 30 percent of household income on housing). In 2023 this rate increased to 29.1 percent. Showing the burden that higher housing cost are placing on residents. This rate is lower than the national average and ranks 25th.



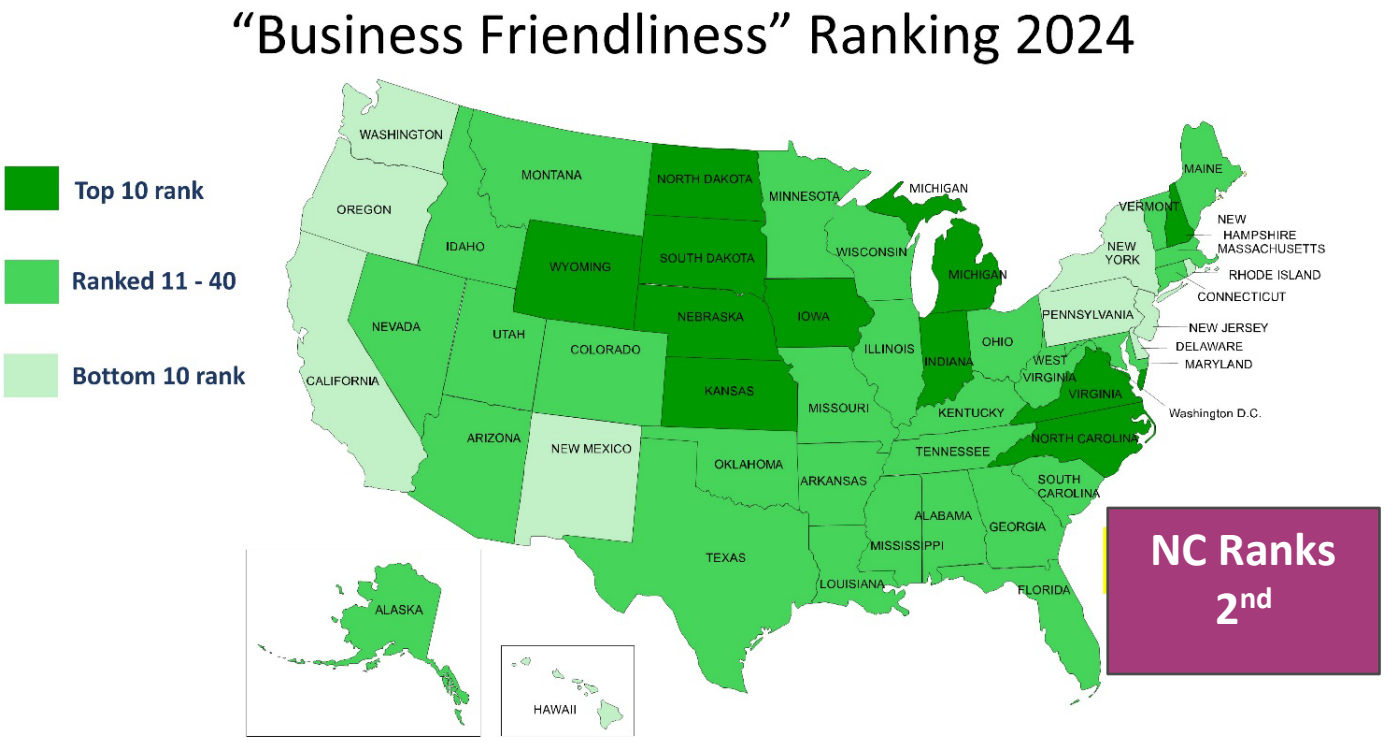
Source: US Census Bureau (2024)

North Carolina home prices had been rising similar to the national average before the pandemic. After the pandemic, this trend became even more pronounced. After the Federal Reserve began fighting inflation with interest rate cuts the real estate market stabilized. With recent cuts in rates from the Federal Reserve in the fall of 2024, a spike of real estate activity could cause prices to increase again but these increases are unlikely to be as dramatic as those experienced in recent years.

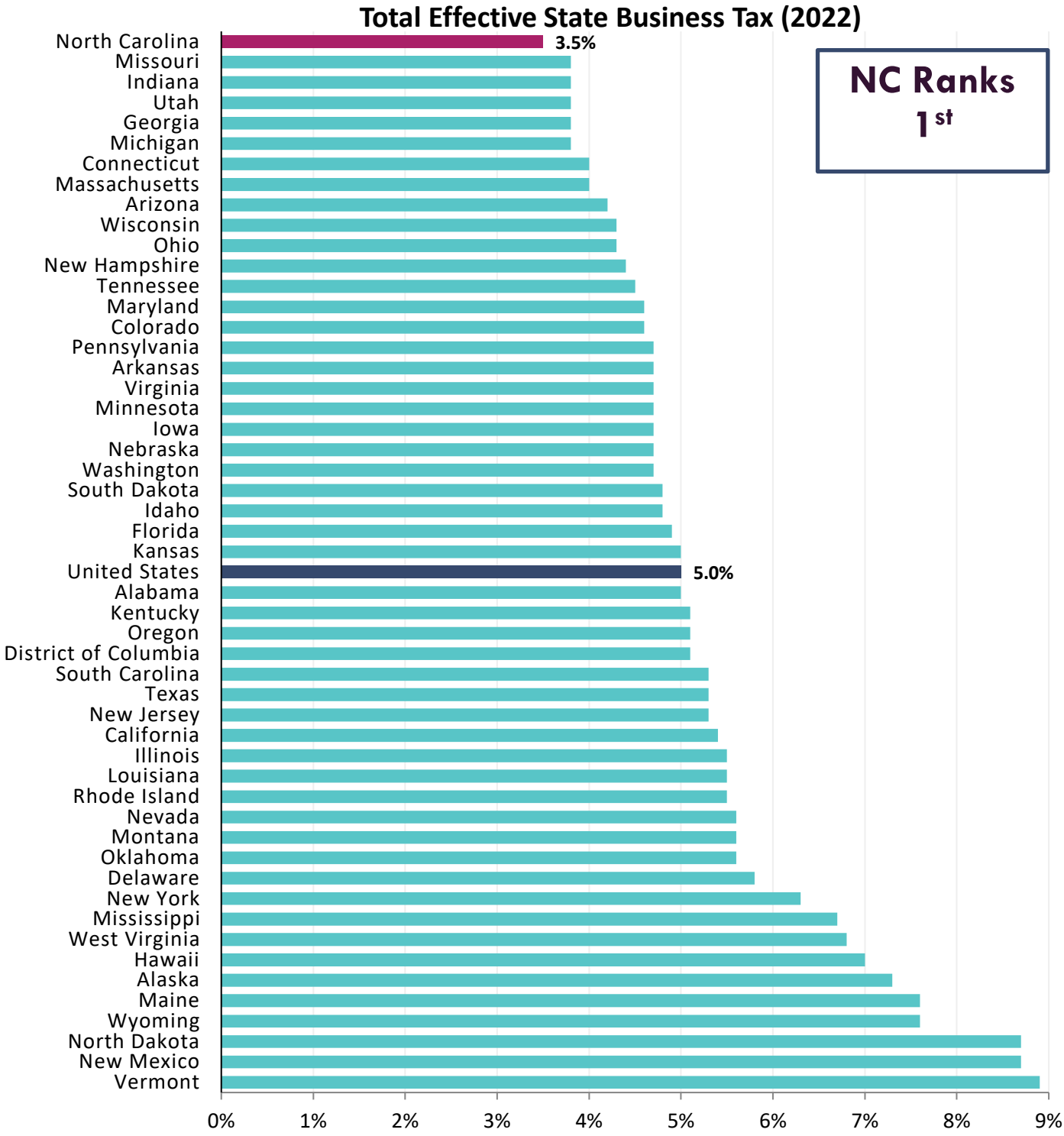


Source: Zillow (2024)

In this year's report several business climate and workforce metrics were added to the tech infrastructure section. A friendly business climate is crucial in states where the tech sector is prominent, as supportive policies and incentives can attract high-growth firms, skilled talent, and venture capital. By fostering a competitive regulatory and tax environment, the state enhances its appeal as a hub for innovation.

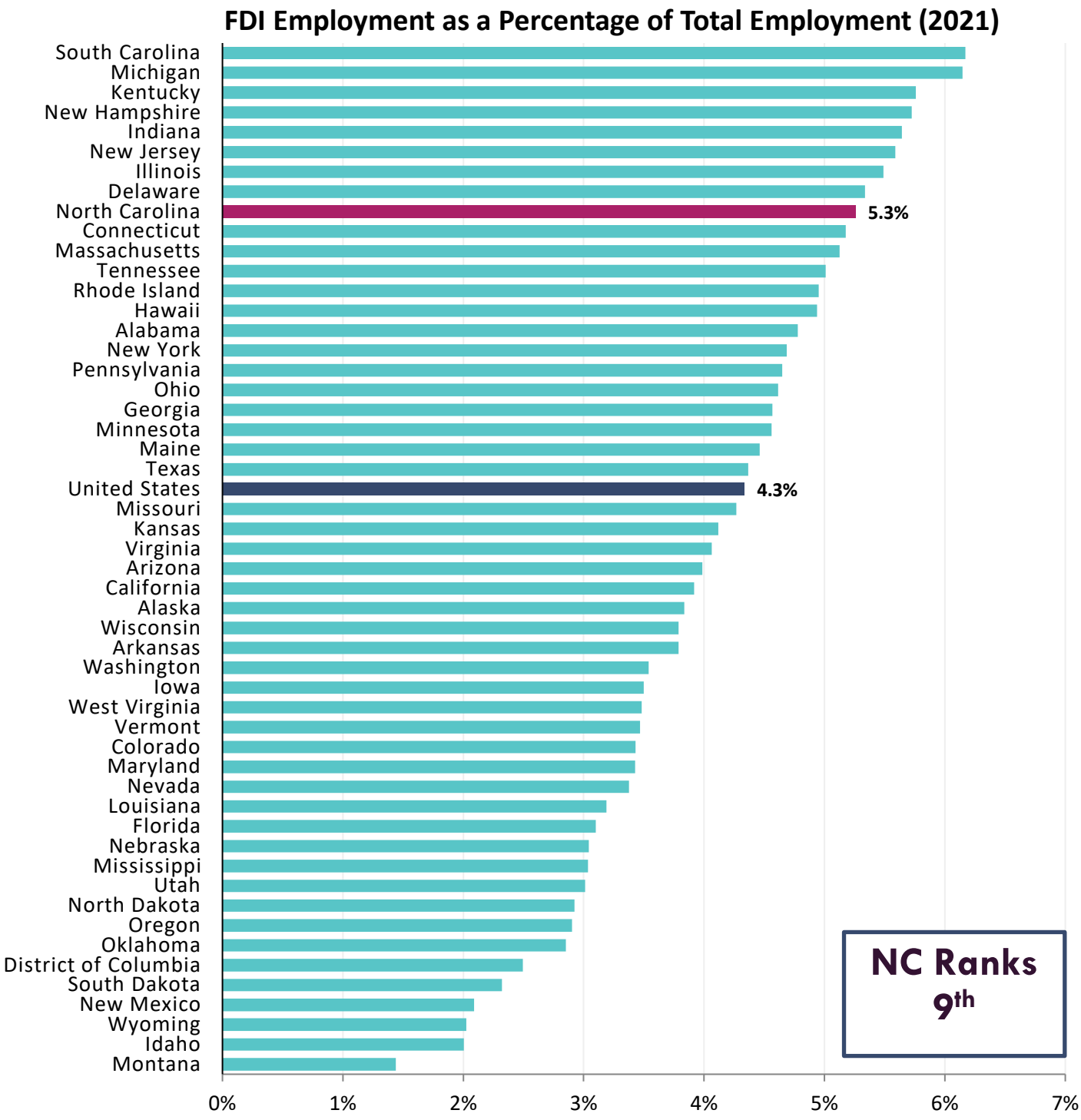


Source: CNBC *America's Top States for Business 2024*



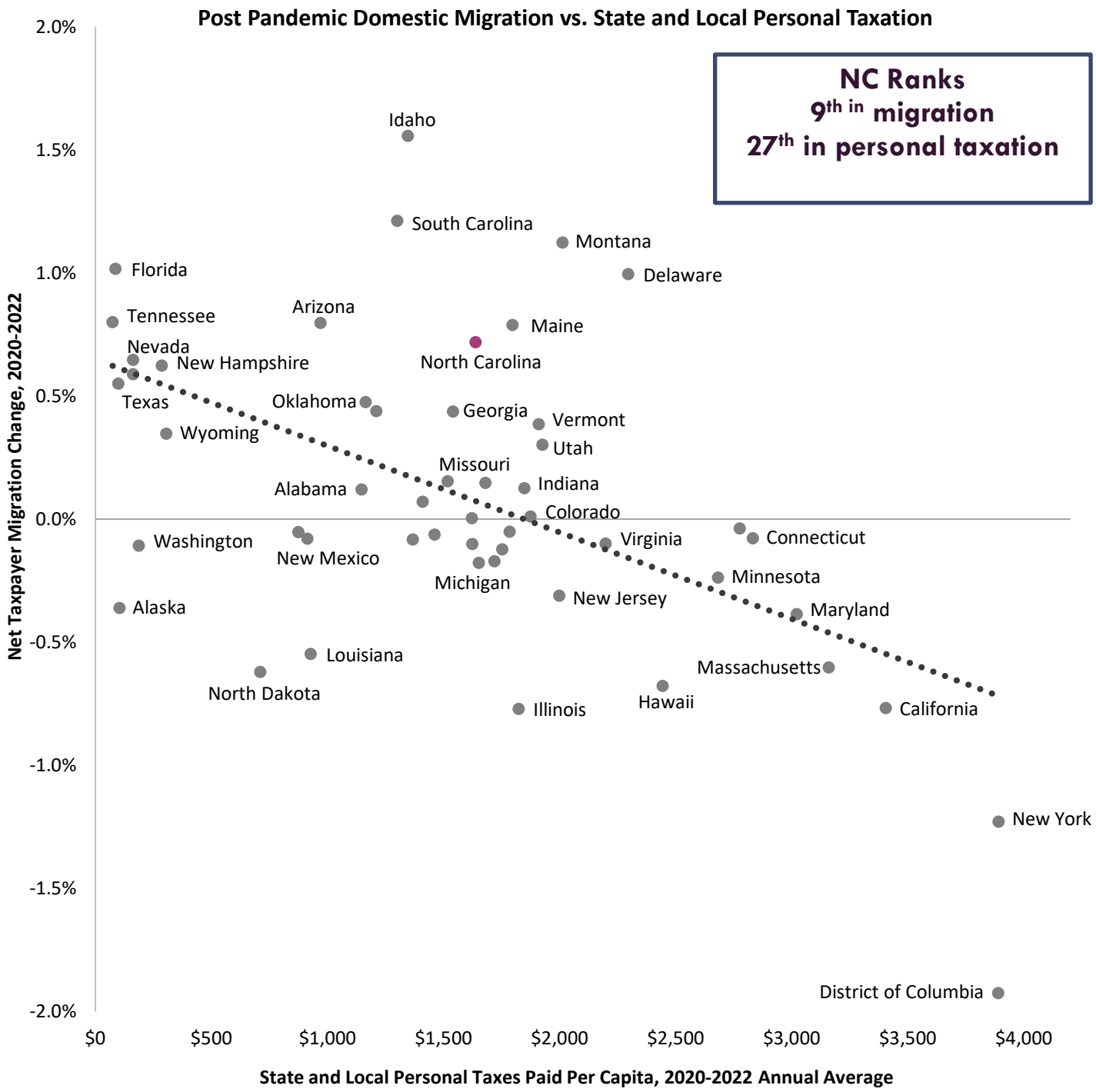
Source: Council on State Taxation (2023)

North Carolina scores well in terms of business friendliness as ranked by CNBC. The state also has the lowest effective business tax rate in the nation. Competitive tax rates can help recruit new businesses and retain existing companies in the state. Foreign direct investment (FDI) was measured to understand the state's global competitiveness. FDI into the state can bring capital, new technologies, and expand the region's tech ecosystem. The most recent data is from 2021, when 5.3 percent of all employment in the state was a result of foreign-based companies. This was the 9th highest level in the country.



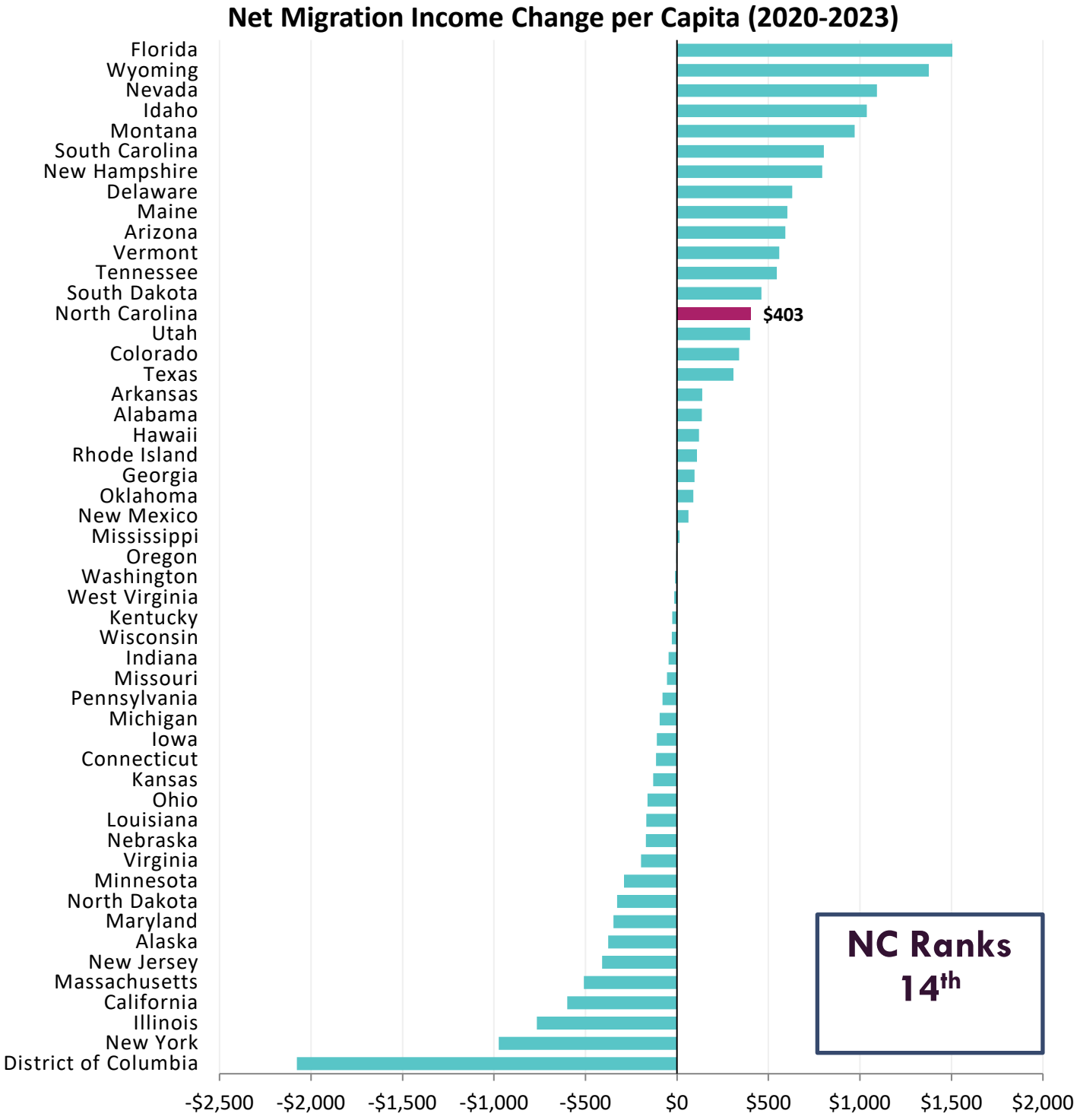
Source: EL calculations based on BEA (2024)

As the number of available workers continues to be a challenge for companies, specific data that influences the size of the talent pool for the state were measured. Migration into the state can increase the size of the workforce. As mentioned previously in this report, North Carolina's migration has increased in recent years. The state's average annual migration rate from 2020 to 2022 was 0.7 percent and ranked 9th in the country. Migration patterns particularly in recent years have typically followed trends in state taxation. States with the lowest income taxes tended to gain the most new residents. North Carolina's average taxes per person during this timeframe were ranked 27th. Other states with similar personal tax rates to North Carolina experienced more in-migration than North Carolina during this time, including South Carolina, Idaho, Maine, and Montana.



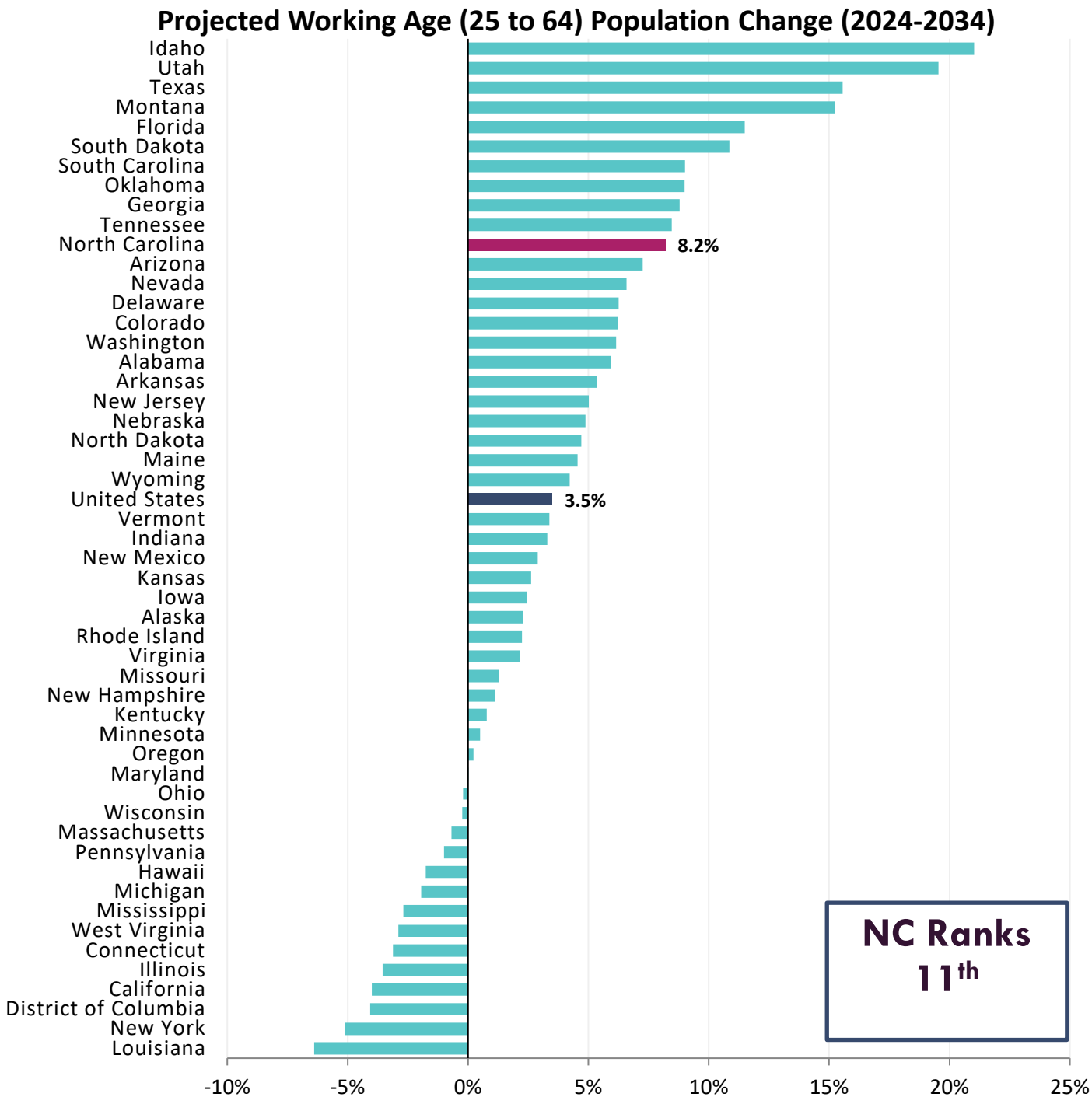
Source: EL calculations based on IRS (2024) and BEA (2024)
Note: The tax per capita value includes state and local taxes on income, personal property, motor vehicle licenses, and other taxes on personal licenses by US residents. The figure does not include federal taxes or sales, residential property, or production activity taxes .

When the average income of those moving into the state is compared to the income of those moving out, North Carolina ranks 14th across the nation in wealth migration. This indicates the state is still attracting wealth to the region which can help support and invest in the tech ecosystem.



Source: EL calculations based on IRS (2024)

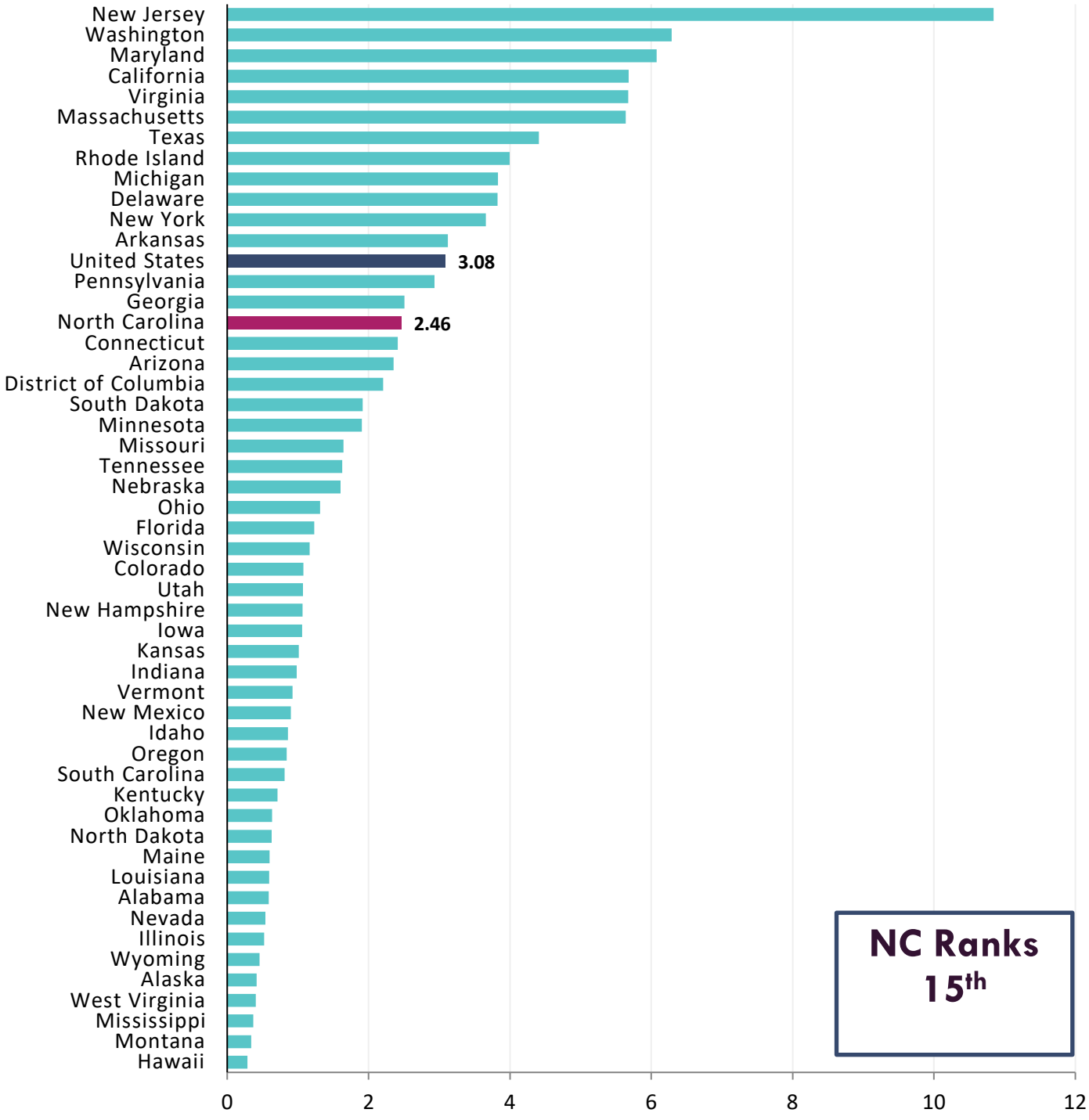
Migration is only a part of the workforce size equation. North Carolina's working age population is predicted to grow in the next ten years at a rate of 8.2 percent. This is the 11th highest rate in the nation and higher than the national average. Several states in the country are expected to see declines in their working age population during this time. These trends help North Carolina remain competitive in today's talent wars.



Source: EL calculations based on Lightcast 2024.4

Another way to expand the labor pool in North Carolina is through immigration. Tech has often utilized H1-B visas which allow firms to bring high skilled international talent to the US. By supporting the influx of specialized workers, these visas help address domestic skill shortages and enhance productivity. From 2021 to 2024, North Carolina utilized H1-B visas at a lower rate than the national average. The state ranked 15th in the nation. Expanding the use of this program in the state could help boost the workforce equation in the future.

H-1B Visa Beneficiaries Per 1,000 Workers (2021-2024)

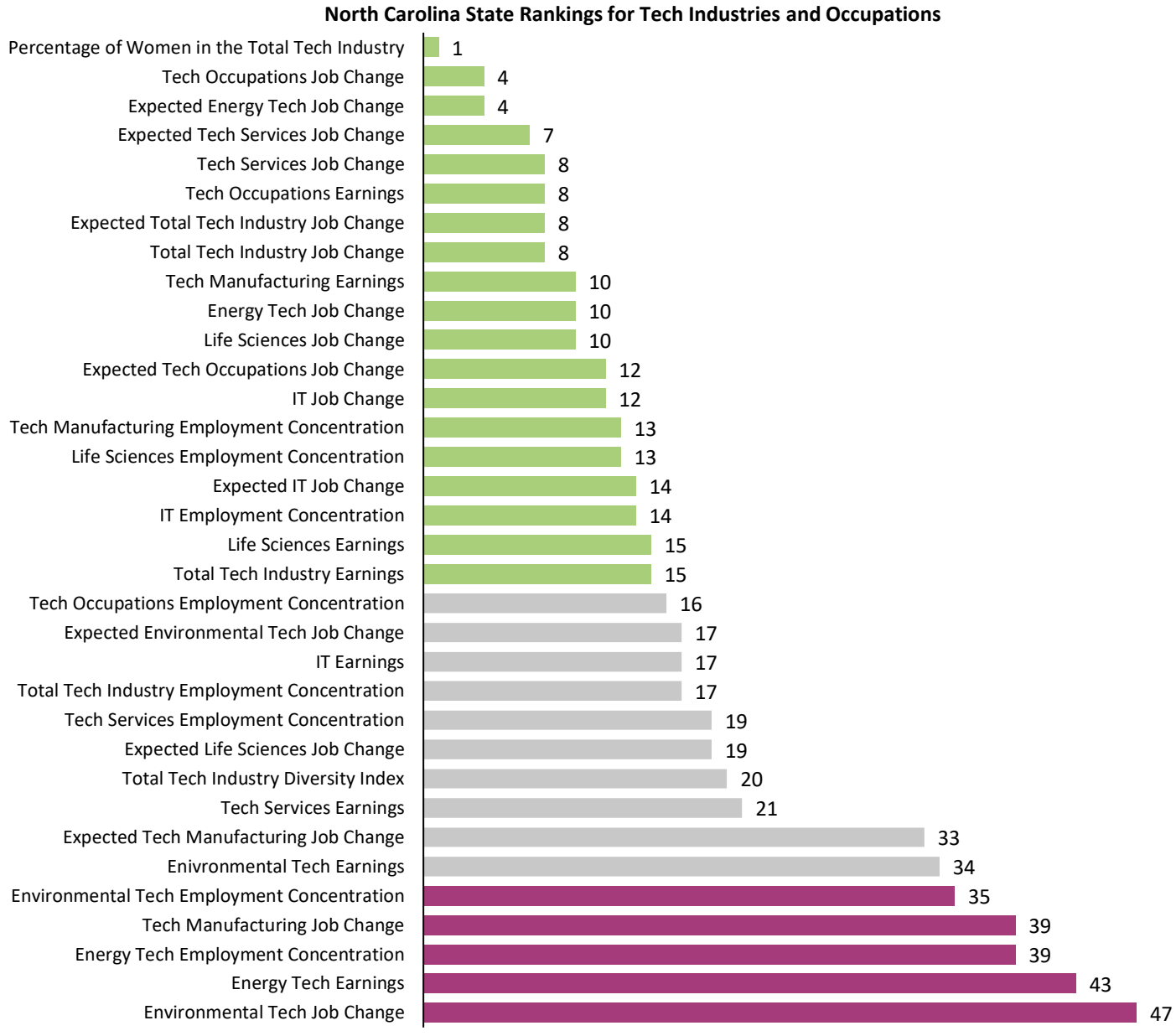


Source: EL calculations based on US Citizenship and Immigration Services (2024) and Lightcast 2024.4

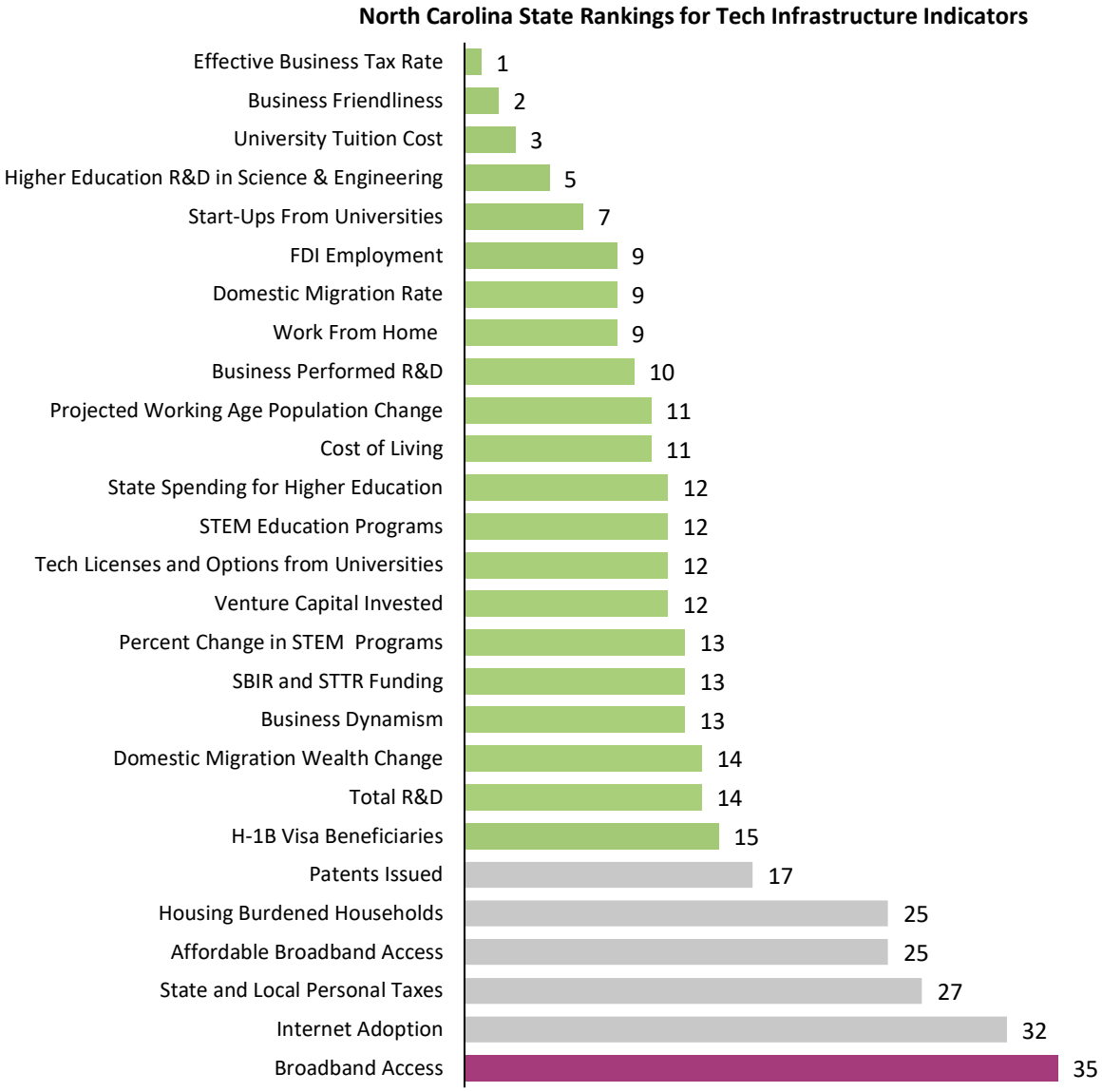
SECTION 7. KEY TAKEAWAYS FOR TECH SECTOR

The following chart lists all the metrics we have measured for North Carolina's tech sector and its corresponding ranking among the other states and the District of Columbia. North Carolina ranks in the best 15 of all states for 19 out of the 34 tech industry and occupation metrics that were measured. North Carolina ranked in the bottom 15 for just five of these indicators.

	Indicates a state ranking of 15th or higher
	Indicates a state ranking between 16th and 35th
	Indicates a state ranking of 35th or greater



North Carolina ranks in the best 15 of all states for 21 out of the 27 tech infrastructure metrics that were measured. North Carolina ranked in the bottom 15 for just one of these indicators. In the eleven years of this research, the state has the most improvement in these metrics like venture capital funding and business R&D funding. If we look back to the 2016 State of the Technology Sector Report, North Carolina ranked 36th and 23rd in private business R&D and venture capital funding, respectively.

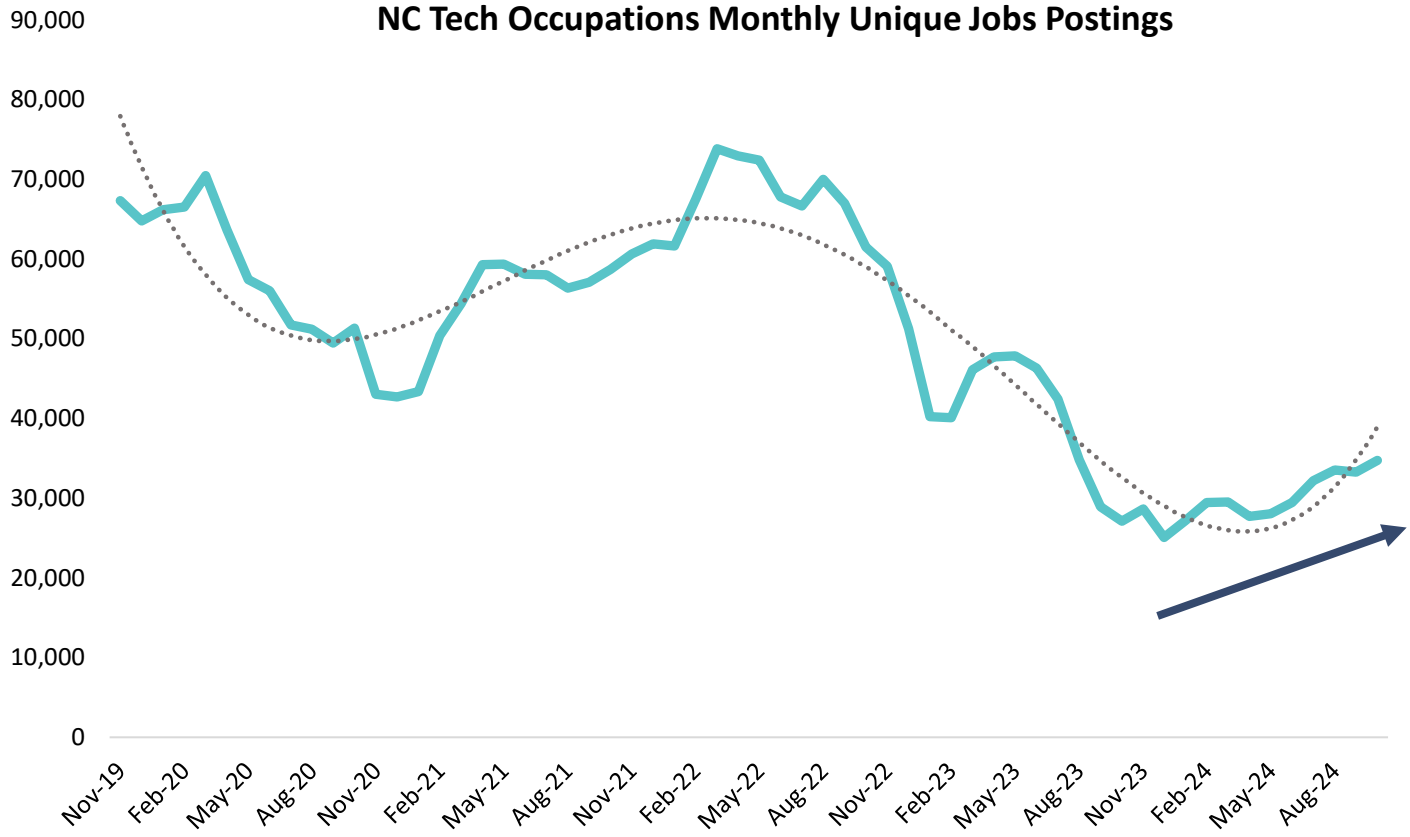


In this year's report, the tech numbers continue to improve. The state continues to improve its position and national reputation as a major player in technology. North Carolina has benefited from several major private sector investments in the tech space, such as Wolfspeed's semiconductor plant or Toyota's battery and EV expansion. These should help the state remain among the top tech states, particularly on the tech manufacturing side. Making sure these new ventures have the talent they need for the future will be important for their success.

Some opportunities still exist for improvement and support for the tech sector. Based on the rankings above, North Carolina's lowest scores were on metrics focusing on broadband access, diversity in the tech workforce, entrepreneurship, housing affordability, and patent rates.

The challenge for the tech industry moving forward will be continuing to meet the need for skilled talent, which has only become more prevalent in the wake of the pandemic, and making sure that rural areas share in the benefits of the tech boom. Migration data shows that talent is choosing the state, and that should help North Carolina remain competitive as the labor market continues to tighten.

As of the writing of this report in December 2024, the impact of the Federal Reserve's recent interest rate reduction has not been reflected in the data. The job postings data in recent months tech job demand appears to be turning back upwards in the state. Tech was one of the industries hit the hardest by these measures in recent years. North Carolina is well positioned to capitalize on this upswing in the coming year.



Source: EL calculations based on Lightcast 2024.4

The report was written by Skylar Elliott Casey and Ted Abernathy of Economic Leadership LLC in December 2024.

Sources:

Association of University Technology Managers (AUTM). 2024. “Statistics Access for Tech Transfer (STATT) Database.” https://www.autm.net/resources-surveys/research-reports-databases/statt-database-(1)

BroadbandNOW Research. 2024. “Best & Worst States for Broadband 2024.” https://broadbandnow.com/research/best-states-with-internet-coverage-and-speed

Bureau of Economic Analysis (BEA). 2024. “GDP by State.” https://www.bea.gov/data/gdp/gdp-state

Bureau of Labor Statistics. 2024. “Job Openings and Labor Turnover.” https://www.bls.gov/jlt/

College Board. 2024. "Trends in College Pricing 2024." https://research.collegeboard.org/trends/college-pricing

Council for Entrepreneurial Development (CED). 20243. “2023 Innovators Report.” https://cednc.org/wp-content/uploads/2024/02/Venture-Report-2023.pdf

Internal Revenue Service (IRS). 2024. “SOI Tax Stats – Migration Data.” https://www.irs.gov/statistics/soi-tax-stats-migration-data

Lightcast. Class of Worker 2024.4 Data Run: QCEW Employees. https://lightcast.io/

National Center for Education Statistics (NCES). 2023. “Total Fall Enrollment – State-Level.” https://nces.ed.gov/programs/digest/current_tables.asp

National Science Foundation (NSF). 2024. “The Stat of US Science and Engineering.” https://ncses.nsf.gov/indicators

National Venture Capital Association (NVCA). 2024. "Pitchbook- NVCA Q3 2024 Venture Monitor." https://nvca.org/research/pitchbook-nvca-venture-monitor/

Small Business Innovation Research (SBIR). 2024. "State Summary Report." https://www.sbir.gov/reports/state-summary

State Higher Education Finance (SHEF). 2024. " State Higher Education Finance Report: FY 2023." https://shef.sheeo.org/report/

US Census Bureau. 2024. “20232 American Community Survey (ACS) 1-Year Estimates.” Accessed through data.census.gov

US Citizenship and Immigration Services. 2024. “H-1B Employer Data Hub.” https://www.uscis.gov/tools/reports-and-studies/h-1b-employer-data-hub

US Patent & Trademark Office (USPTO). 2024. Data accessed through patentsview.org

Zillow. 20234. “Housing Data.” https://www.zillow.com/research/data/

APPENDIX

Total Technology Industry 6-digit NAICS Code Breakdown

NAICS	Industry	Super Sub-Category	Sub-Category	Manufacturing or Services
325411	Medicinal and Botanical Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
325412	Pharmaceutical Preparation Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
325413	In-Vitro Diagnostic Substance Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
325414	Biological Product (except Diagnostic) Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
334516	Analytical Laboratory Instrument Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
334517	Irradiation Apparatus Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
339112	Surgical and Medical Instrument Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
339113	Surgical Appliance and Supplies Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
339114	Dental Equipment and Supplies Manufacturing	Life Sciences Manufacturing	Life Sciences	Manufacturing
541330	Engineering Services	Engineering, Environmental, & Clean Tech	Life Sciences	Services
541380	Testing Laboratories	R&D and Testing	Life Sciences	Services
541690	Other Scientific and Technical Consulting Services	R&D and Testing	Life Sciences	Services
541713	Research and Development in Nanotechnology	R&D and Testing	Life Sciences	Services
541714	Research and Development in Biotechnology (except Nanobiotechnology)	R&D and Testing	Life Sciences	Services
541715	Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	R&D and Testing	Life Sciences	Services
333242	Semiconductor Machinery Manufacturing	Electronics Hardware	IT	Manufacturing
334111	Electronic Computer Manufacturing	Electronics Hardware	IT	Manufacturing
334112	Computer Storage Device Manufacturing	Electronics Hardware	IT	Manufacturing
334118	Computer Terminal and Other Computer Peripheral Equipment Manufacturing	Electronics Hardware	IT	Manufacturing
334210	Telephone Apparatus Manufacturing	Electronics Hardware	IT	Manufacturing
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	Electronics Hardware	IT	Manufacturing
334290	Other Communications Equipment Manufacturing	Electronics Hardware	IT	Manufacturing
334310	Audio and Video Equipment Manufacturing	Electronics Hardware	IT	Manufacturing

334412	Bare Printed Circuit Board Manufacturing	Electronics Hardware	IT	Manufacturing
334413	Semiconductor and Related Device Manufacturing	Electronics Hardware	IT	Manufacturing
334416	Capacitor, Resistor, Coil, Transformer, and Other Inductor Manufacturing	Electronics Hardware	IT	Manufacturing
334417	Electronic Connector Manufacturing	Electronics Hardware	IT	Manufacturing
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing	Electronics Hardware	IT	Manufacturing
334419	Other Electronic Component Manufacturing	Electronics Hardware	IT	Manufacturing
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	Electronics Hardware	IT	Manufacturing
334519	Other Measuring and Controlling Device Manufacturing	Electronics Hardware	IT	Manufacturing
335921	Fiber Optic Cable Manufacturing	Electronics Hardware	IT	Manufacturing
335999	All Other Miscellaneous Electrical Equipment and Component Manufacturing	Electronics Hardware	IT	Manufacturing
513210	Software Publishers	Software	IT	Services
516210	Media Streaming Distribution Services, Social Networks, and Other Media Networks and Content Providers	Internet, Social Media, & Telecom	IT	Services
517111	Wired Telecommunications Carriers	Internet, Social Media, & Telecom	IT	Services
517112	Wireless Telecommunications Carriers (except Satellite)	Internet, Social Media, & Telecom	IT	Services
517121	Telecommunications Resellers	Internet, Social Media, & Telecom	IT	Services
517410	Satellite Telecommunications	Internet, Social Media, & Telecom	IT	Services
517810	All Other Telecommunications	Internet, Social Media, & Telecom	IT	Services
518210	Data Processing, Hosting, and Related Services	Internet, Social Media, & Telecom	IT	Services
519290	Web Search Portals and All Other Information Services	Internet, Social Media, & Telecom	IT	Services
541511	Custom Computer Programming Services	Software	IT	Services
541512	Computer Systems Design Services	Software	IT	Services
541513	Computer Facilities Management Services	Software	IT	Services
541519	Other Computer Related Services	Software	IT	Services
221310	Water Supply and Irrigation Systems	Engineering, Environmental, & Clean Tech	Environmental Technology	Services
221320	Sewage Treatment Facilities	Remediation and Waste Management	Environmental Technology	Services

221330	Steam and Air-Conditioning Supply	Engineering, Environmental, & Clean Tech	Environmental Technology	Services
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	Engineering, Environmental, & Clean Tech	Environmental Technology	Manufacturing
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	Engineering, Environmental, & Clean Tech	Environmental Technology	Manufacturing
334514	Totalizing Fluid Meter and Counting Device Manufacturing	Engineering, Environmental, & Clean Tech	Environmental Technology	Manufacturing
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	Engineering, Environmental, & Clean Tech	Environmental Technology	Manufacturing
335910	Battery Manufacturing	Engineering, Environmental, & Clean Tech	Environmental Technology	Manufacturing
541620	Environmental Consulting Services	Engineering, Environmental, & Clean Tech	Environmental Technology	Services
562111	Solid Waste Collection	Remediation and Waste Management	Environmental Technology	Services
562112	Hazardous Waste Collection	Remediation and Waste Management	Environmental Technology	Services
562119	Other Waste Collection	Remediation and Waste Management	Environmental Technology	Services
562211	Hazardous Waste Treatment and Disposal	Remediation and Waste Management	Environmental Technology	Services
562212	Solid Waste Landfill	Remediation and Waste Management	Environmental Technology	Services
562213	Solid Waste Combustors and Incinerators	Remediation and Waste Management	Environmental Technology	Services
562219	Other Nonhazardous Waste Treatment and Disposal	Remediation and Waste Management	Environmental Technology	Services
562910	Remediation Services	Remediation and Waste Management	Environmental Technology	Services
562920	Materials Recovery Facilities	Remediation and Waste Management	Environmental Technology	Services
562991	Septic Tank and Related Services	Remediation and Waste Management	Environmental Technology	Services
562998	All Other Miscellaneous Waste Management Services	Remediation and Waste Management	Environmental Technology	Services
211120	Crude Petroleum Extraction	Other Energy and Power Generation	Energy Technology	Services
211130	Natural Gas Extraction	Other Energy and Power Generation	Energy Technology	Services
212112	Underground Coal Mining	Other Energy and Power Generation	Energy Technology	Services
212114	Surface Coal Mining	Other Energy and Power Generation	Energy Technology	Services

213111	Drilling Oil and Gas Wells	Other Energy and Power Generation	Energy Technology	Services
213112	Support Activities for Oil and Gas Operations	Other Energy and Power Generation	Energy Technology	Services
213113	Support Activities for Coal Mining	Other Energy and Power Generation	Energy Technology	Services
221111	Hydroelectric Power Generation	Other Energy and Power Generation	Energy Technology	Services
221112	Fossil Fuel Electric Power Generation	Other Energy and Power Generation	Energy Technology	Services
221113	Nuclear Electric Power Generation	Other Energy and Power Generation	Energy Technology	Services
221114	Solar Electric Power Generation	Renewable Energy	Energy Technology	Services
221115	Wind Electric Power Generation	Renewable Energy	Energy Technology	Services
221116	Geothermal Electric Power Generation	Renewable Energy	Energy Technology	Services
221117	Biomass Electric Power Generation	Renewable Energy	Energy Technology	Services
221118	Other Electric Power Generation	Renewable Energy	Energy Technology	Services
221121	Electric Bulk Power Transmission and Control	Other Energy and Power Generation	Energy Technology	Services
221122	Electric Power Distribution	Other Energy and Power Generation	Energy Technology	Services
221210	Natural Gas Distribution	Other Energy and Power Generation	Energy Technology	Services
324110	Petroleum Refineries	Other Energy and Power Generation	Energy Technology	Services

Tech Occupations SOC Code Breakdown

SOC Code	Occupation Description
11-3021	Computer and Information Systems Managers
11-9041	Architectural and Engineering Managers
13-1081	Logisticians
13-1082	Project Management Specialists
13-1111	Management Analysts
13-1141	Compensation, Benefits, and Job Analysis Specialists
13-1161	Market Research Analysts and Marketing Specialists
13-1199	Business Operations Specialists, All Other
13-2031	Budget Analysts
13-2041	Credit Analysts
13-2051	Financial and Investment Analysts
13-2054	Financial Risk Specialists
13-2099	Financial Specialists, All Other
15-1211	Computer Systems Analysts
15-1212	Information Security Analysts
15-1221	Computer and Information Research Scientists
15-1231	Computer Network Support Specialists
15-1232	Computer User Support Specialists
15-1241	Computer Network Architects
15-1242	Database Administrators
15-1243	Database Architects
15-1244	Network and Computer Systems Administrators
15-1251	Computer Programmers
15-1252	Software Developers
15-1253	Software Quality Assurance Analysts and Testers
15-1254	Web Developers
15-1255	Web and Digital Interface Designers
15-1299	Computer Occupations, All Other
15-2011	Actuaries
15-2021	Mathematicians
15-2031	Operations Research Analysts
15-2041	Statisticians
15-2051	Data Scientists
15-2099	Mathematical Science Occupations, All Other
17-1021	Cartographers and Photogrammetrists
17-2011	Aerospace Engineers
17-2021	Agricultural Engineers
17-2031	Bioengineers and Biomedical Engineers
17-2041	Chemical Engineers
17-2051	Civil Engineers
17-2061	Computer Hardware Engineers
17-2071	Electrical Engineers
17-2072	Electronics Engineers, Except Computer
17-2081	Environmental Engineers
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors

17-2112	Industrial Engineers
17-2121	Marine Engineers and Naval Architects
17-2131	Materials Engineers
17-2141	Mechanical Engineers
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers
17-2161	Nuclear Engineers
17-2171	Petroleum Engineers
17-2199	Engineers, All Other
17-3021	Aerospace Engineering and Operations Technologists and Technicians
17-3022	Civil Engineering Technologists and Technicians
17-3023	Electrical and Electronic Engineering Technologists and Technicians
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians
17-3025	Environmental Engineering Technologists and Technicians
17-3026	Industrial Engineering Technologists and Technicians
17-3027	Mechanical Engineering Technologists and Technicians
17-3028	Calibration Technologists and Technicians
17-3029	Engineering Technologists and Technicians, Except Drafters, All Other
17-3031	Surveying and Mapping Technicians
19-1021	Biochemists and Biophysicists
19-1031	Conservation Scientists
19-1042	Medical Scientists, Except Epidemiologists
19-1099	Life Scientists, All Other
19-2021	Atmospheric and Space Scientists
19-2031	Chemists
19-2032	Materials Scientists
19-2041	Environmental Scientists and Specialists, Including Health
19-2042	Geoscientists, Except Hydrologists and Geographers
19-2043	Hydrologists
19-2099	Physical Scientists, All Other
19-4012	Agricultural Technicians
19-4013	Food Science Technicians
19-4021	Biological Technicians
19-4031	Chemical Technicians
19-4042	Environmental Science and Protection Technicians, Including Health
19-4043	Geological Technicians, Except Hydrologic Technicians
19-4044	Hydrologic Technicians
19-4051	Nuclear Technicians
43-9111	Statistical Assistants
49-2011	Computer, Automated Teller, and Office Machine Repairers
51-9141	Semiconductor Processing Technicians