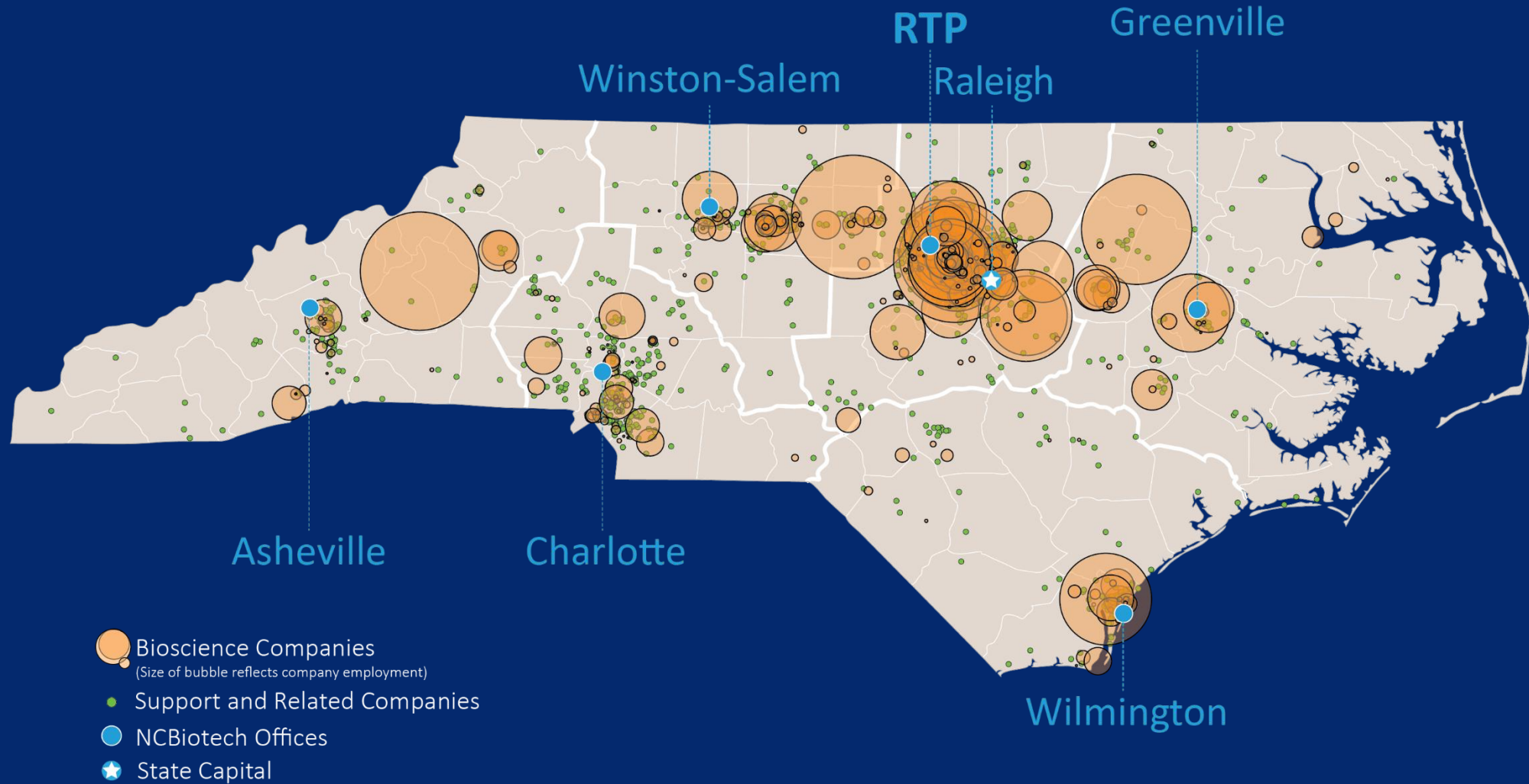


Evidence & Opportunity 2022: Impact of Life Sciences in North Carolina

Presentation to the General Assembly's Life Sciences Caucus

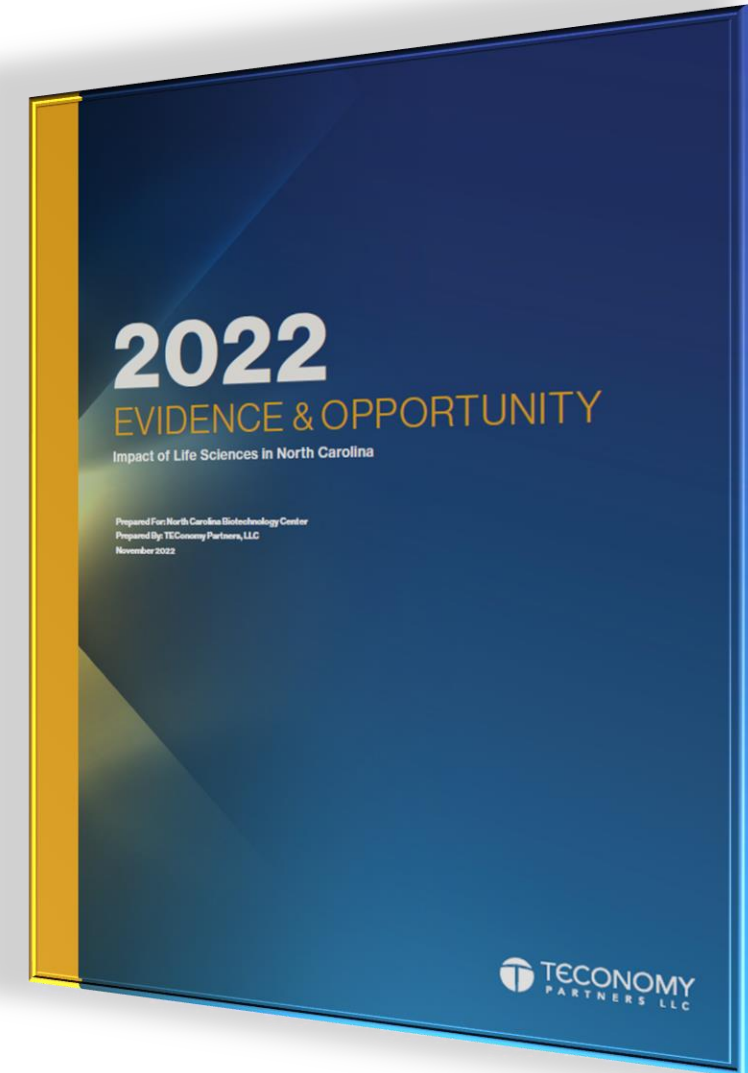
February 8, 2023

North Carolina Life Sciences



8th Edition of Evidence & Opportunity

- The ***Evidence & Opportunity*** series represents a long-term assessment partnership between NCBiotech and TEconomy Partners (formerly Battelle)
- Each report has evaluated, updated the impacts of the life sciences industry in NC and highlighting the multi-faceted role of NCBiotech in its continued development
 - Provides ability to assess longer-term growth in industry impacts and contributions of NCBiotech
 - Spotlights various “special topics” across reports



Defining the Life Sciences Industry

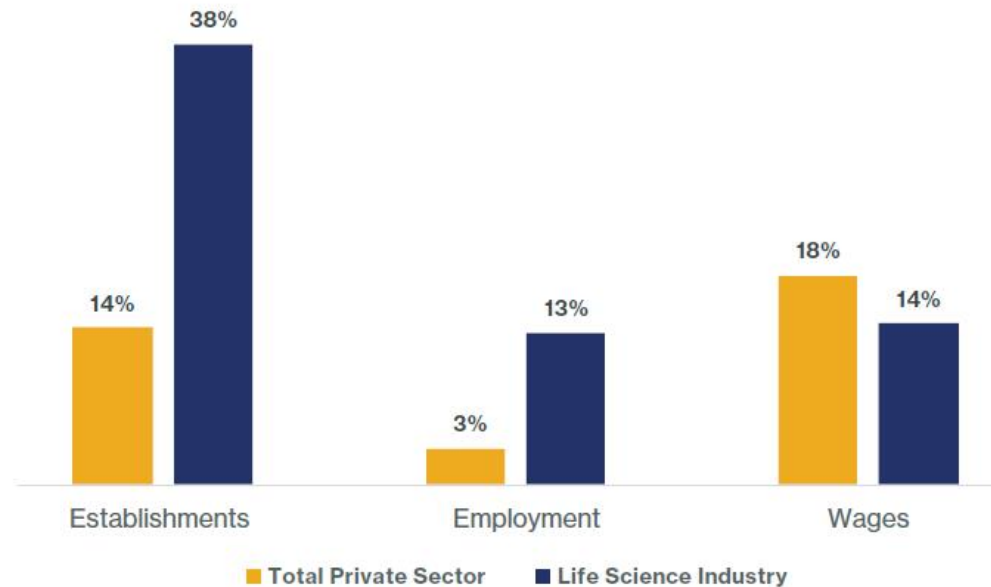
- A diverse industry with broad innovation and economic development opportunities across regions, states, and nations:



The Life Sciences are a Vital Growth Engine for North Carolina's Economy

- North Carolina's life sciences jobs have grown at a double-digit pace since 2018 and saw strong and even accelerating growth during the pandemic years—far outpacing the state's private sector which was hit hard in 2020 amidst economic shutdowns and challenges during the pandemic.

FIGURE 1: NC LIFE SCIENCE INDUSTRY GROWTH TRENDS RELATIVE TO THE PRIVATE SECTOR, 2018-21



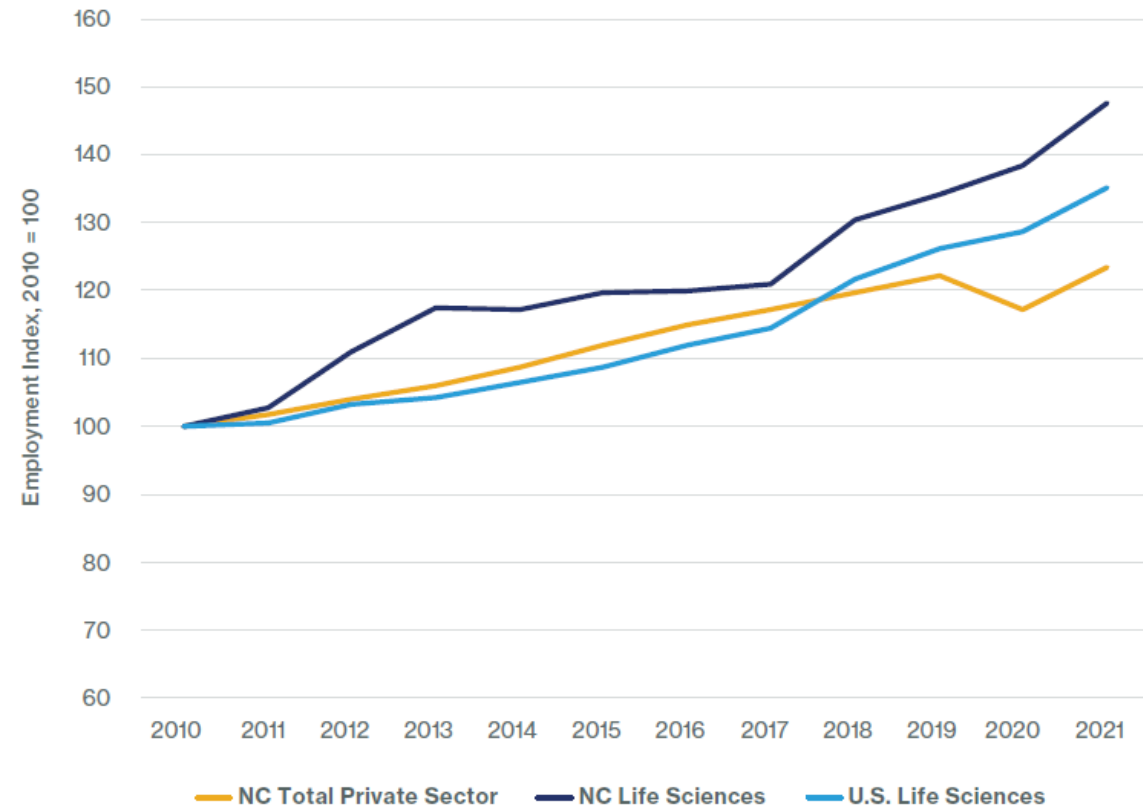
Source: TEconomy Partners' analysis of Bureau of Labor Statistics, QCEW data from Lightcast (Datarun 2022.3).

In 2021 life sciences firms employed more than 92,000 across nearly 5,900 business establishments throughout the state and paying wages averaging \$112,000 per year.

Life Sciences' Strong, Steady Growth Continues and has Even Accelerated recently, particularly in 2021

- Life sciences employment growth has not only well outpaced that for NC's private sector, but the industry's growth rate has accelerated and **outperformed national growth**

FIGURE 2: LIFE SCIENCE INDUSTRY EMPLOYMENT TRENDS, NORTH CAROLINA AND THE UNITED STATES, 2010–2021



Source: TEconomy Partners' analysis of Bureau of Labor Statistics, QCEW data from Lightcast (Data run 2022.3).

NC Stands Out for its Diverse Life Sciences Strengths

While numerous states have an outsized concentration and even “specialization” in one of the industry’s five major subsectors NC boasts essentially three and nearly four specialized subsectors, namely:

- **Drugs & Pharmaceuticals**, which has more than twice the national concentration (LQ is 2.24);
- **Research, Testing, & Medical Labs**, which is 66% more concentrated in North Carolina (LQ is 1.66); and
- **Agricultural Feedstock & Industrial Biosciences**, which is 15% more concentrated in North Carolina, essentially meeting the threshold (LQ is 1.15).

NC is Among the Top Tier of States Nationally in Most Life Sciences Subsectors

NC's National Ranking

11th



Agricultural Feedstock & Industrial Biosciences

National Ranking: 11th

NC Status: Current Strength—specialized, growing, though not outpacing U.S. growth

Specialized NC Components: Phosphatic Fertilizer Mfg.; Pesticides and Other Ag Chemical Mfg.

4th



Drugs & Pharmaceuticals

National Ranking: 4th

NC Status: Current Strength—specialized, growing, essentially matching U.S. growth

Specialized NC Components: Biological Products (Biomfg.) ;Pharmaceutical Preparation Mfg.

19th



Medical Devices & Equipment

National Ranking: 19th

NC Status: Divergent—not specialized, not growing, lagging U.S.

Specialized NC Components: None

6th



Research, Testing, & Medical Labs

National Ranking: 6th

NC Status: Current Strength—specialized, growing, outpacing U.S.

Specialized NC Components: Medical Labs; Biotech and Other Commercial Life Sciences R&D

8th



Bioscience-Related Distribution

National Ranking: 8th

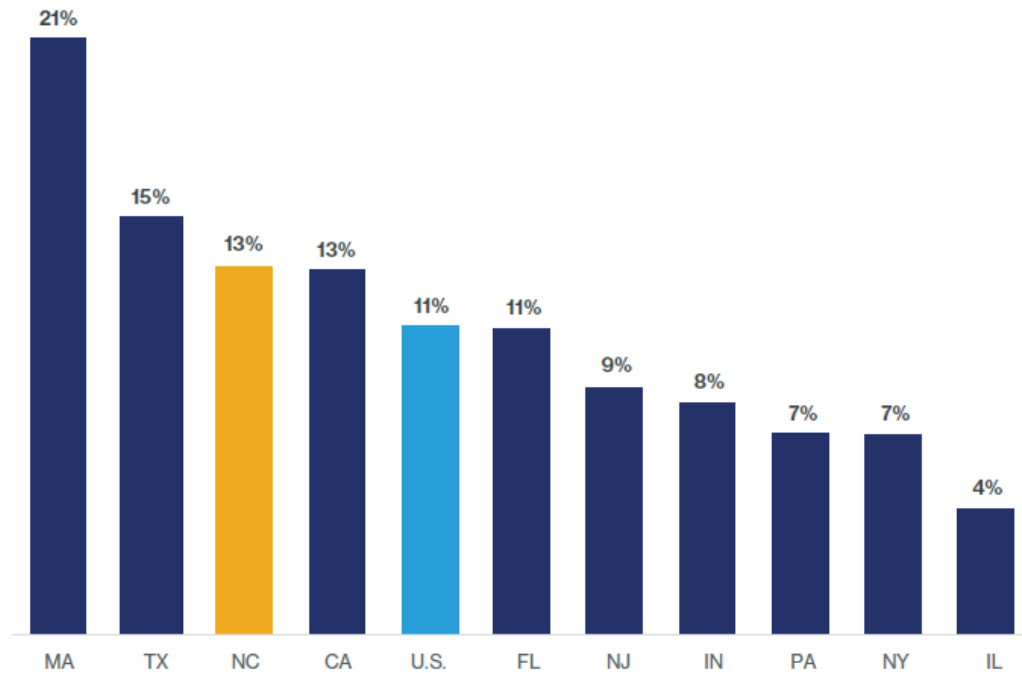
NC Status: Emerging Strength—highly concentrated, growing, outpacing U.S.

Specialized NC Components: Medical, Dental, and Hospital Equipment Wholesalers

Source: TEconomy Partners' analysis of Bureau of Labor Statistics, QCEW data from Lightcast (Data run 2022.3).

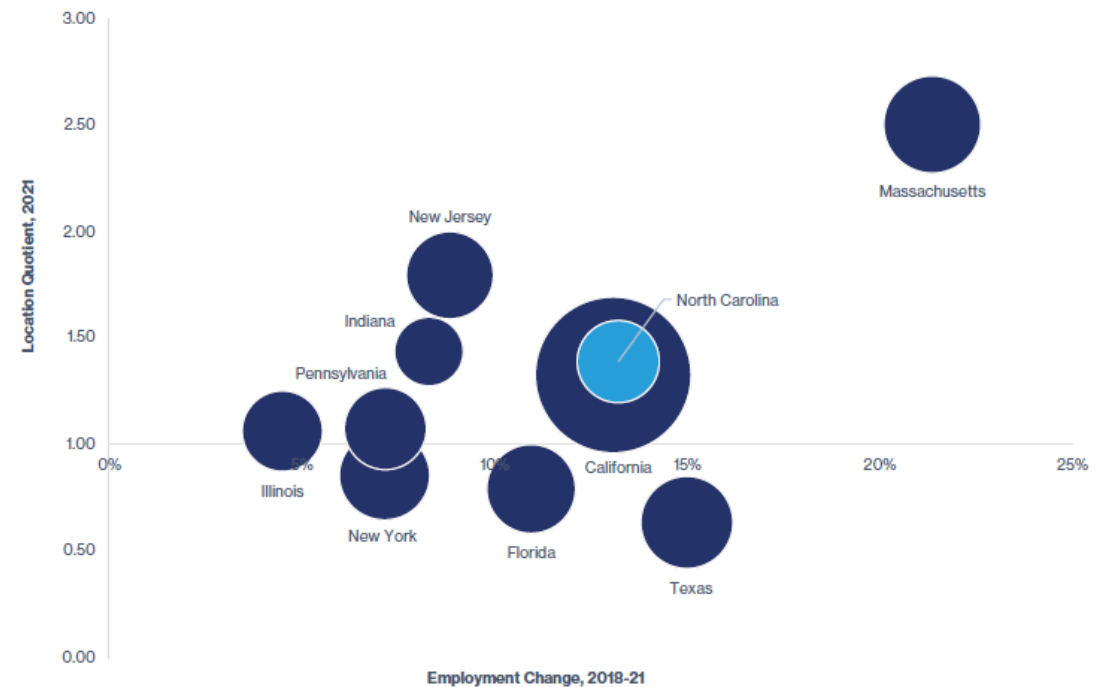
NC Continues to be Among the Fastest-Growing of the Nation's Leading Life Sciences States

FIGURE 8: LIFE SCIENCE INDUSTRY EMPLOYMENT TRENDS, NC AND COMPARISON STATES, 2018-21



Source: TEconomy Partners' analysis of Bureau of Labor Statistics, QCEW data from Lightcast (Data run 2022.3).

FIGURE 9: LIFE SCIENCE INDUSTRY POSITIONING AMONG TOP-TIER STATES: EMPLOYMENT SIZE, CONCENTRATION, AND RECENT TRENDS



Note: the size of each bubble represents its total employment level in 2021.

Source: TEconomy Partners' analysis of Bureau of Labor Statistics, QCEW data from Lightcast (Data run 2022.3).

The Far-Reaching Economic Impacts of the Life Sciences Industry in North Carolina Total \$88 Billion, Nearly Doubling Since 2008

- NC's life science industry not only **directly** creates significant employment opportunities and large numbers of high-paying jobs, but also generates new employment opportunities through its intra-state purchases of goods and services from North Carolina's diverse and **extensive supply chain** network as well as the personal spending of its high-income workforce.

FIGURE 10: ECONOMIC OUTPUT AND EMPLOYMENT IMPACTS OF NORTH CAROLINA'S LIFE SCIENCES INDUSTRY: 2008 VS. 2022



Source: TEconomy Partners' analysis of NCBiotech data using IMPLAN.

Including Multiplier Effects, the life science industry's economic impact accounts for 4% of total North Carolina employment and 8% of overall state output.

The Impressive Long-Term Growth Spans Direct Employment, Revenues, and has Translated into Nearly \$1B in Estimated Additional State/Local Tax Revenues Since 2008

Since 2008:

- Direct employment has increased by 39%; estimated revenues have more than doubled since 2008.
- The total impact on state output estimated for the life science industry has increased by 93% to more than \$88 billion in 2022.
- **The life science industry generated \$2.4 billion in state and local government revenues in 2022, up from \$1.4 billion in 2008, even as the corporate tax rate has decreased.**

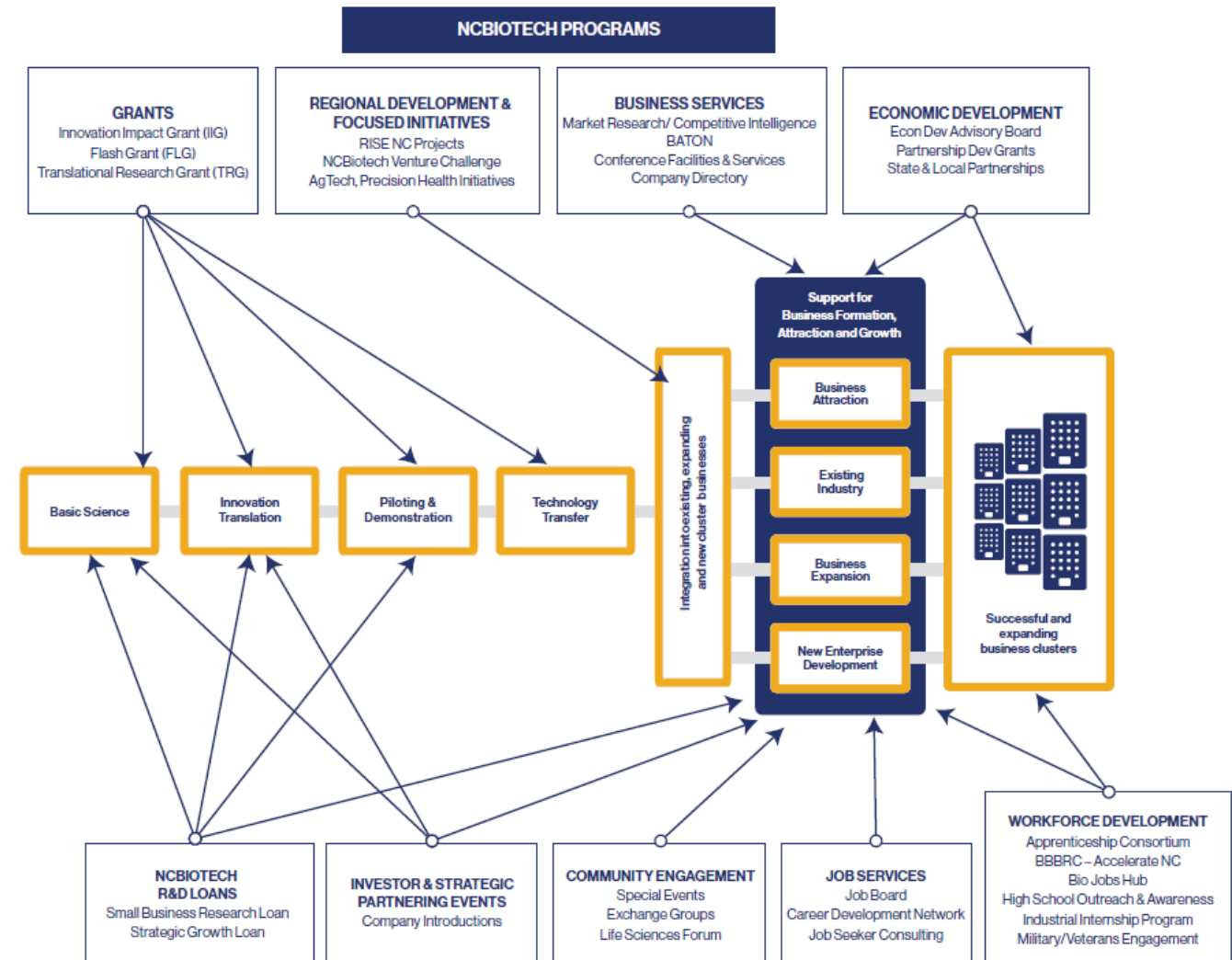
The Economic Contribution of the Life Science Industry to the NC Economy, 2008 to 2022

Economic Impact	2008	2022	Change 2008-22	% Change 2008-22
Direct Impact (Output Mil. \$s)	\$28,691	\$58,643	\$29,952	104%
Total Impact (Output Mil. \$s)	\$45,806	\$88,286	\$42,480	93%
State Impact Multiplier	1.60	1.51		
Direct Impact (Employment)	53,182	73,775	20,593	39%
Indirect Impact (Employment)	64,913	79,477	14,564	22%
Induced Impact (Employment)	61,913	71,955	10,042	16%
Total Impact (Employment)	180,007	225,206	45,199	25%
State Impact Multiplier	3.38	3.05		
State and Local Tax Revenues (Mil. \$)	\$1,436	\$2,381	\$945	66%

Source: TEconomy analysis of NCBiotech data using IMPLAN.

NCBiotech Delivers Impactful Programs and Initiatives Targeting Ecosystem Needs and Gaps, Catalyzing Life Sciences Development

FIGURE 14: TECHNOLOGY-BASED ECONOMIC DEVELOPMENT (TBED) CHAIN AND NCBIOTECH PROGRAMS AND INITIATIVES*



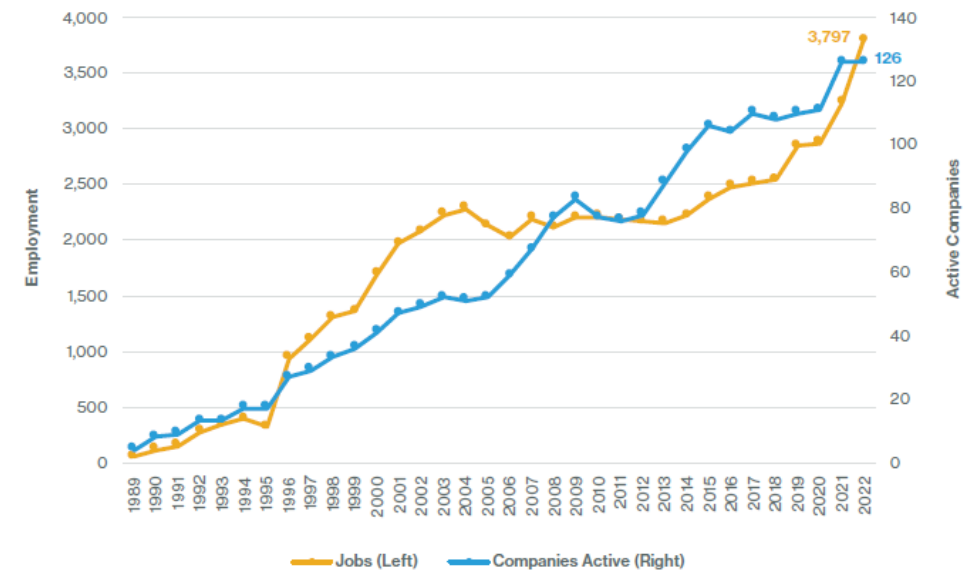
*Note: for program descriptions and links to further information on each, see the Appendix to this report.

Spotlight on the Impacts of NCBiotech's Business Loan Program

The 126 active portfolio companies have total employment of 3,797, estimated revenues of \$3.4 billion and the following impacts:

- Generate \$5.1 billion in economic activity in the state;
- Create or support 12,484 jobs earning \$959 million in labor income; and
- Generate an estimated \$124.1 million in state and local tax revenues.

FIGURE 15: NUMBER OF ACTIVE COMPANIES THAT RECEIVED NCBIOTECH BUSINESS LOANS AND ASSOCIATED EMPLOYMENT



Source: NCBiotech data.

An estimated \$77M in state government revenues is generated by these companies—an amount almost five times greater than the state's FY2022 appropriation to NCBiotech of \$17.1 million for the current fiscal year.

Conclusions

- **The biennial assessment finds the industry in a strong position**, with growth accelerating in recent years, and North Carolina competing well vs. leading peer states.
- **Strong hiring and high-quality jobs are generating extensive impacts**, including an expanding supply chain impact across North Carolina.
- Gains have been hard-earned through the **state's long-term commitment** to life sciences development.
- **Economic headwinds have emerged** with respect to inflation, slowing economic growth, supply chain challenges, and competition for talent that is especially fierce.
- The life sciences industry will continue to lead from both an economic and public health perspective, but its **supportive ecosystem requires continued investment and connectivity**, and NCBiotech plays a crucial role in leadership and provision of strategic ecosystem services.

Appendix Slides

Life Sciences Generate High-Paying Jobs Well Above the Overall Private Sector Average

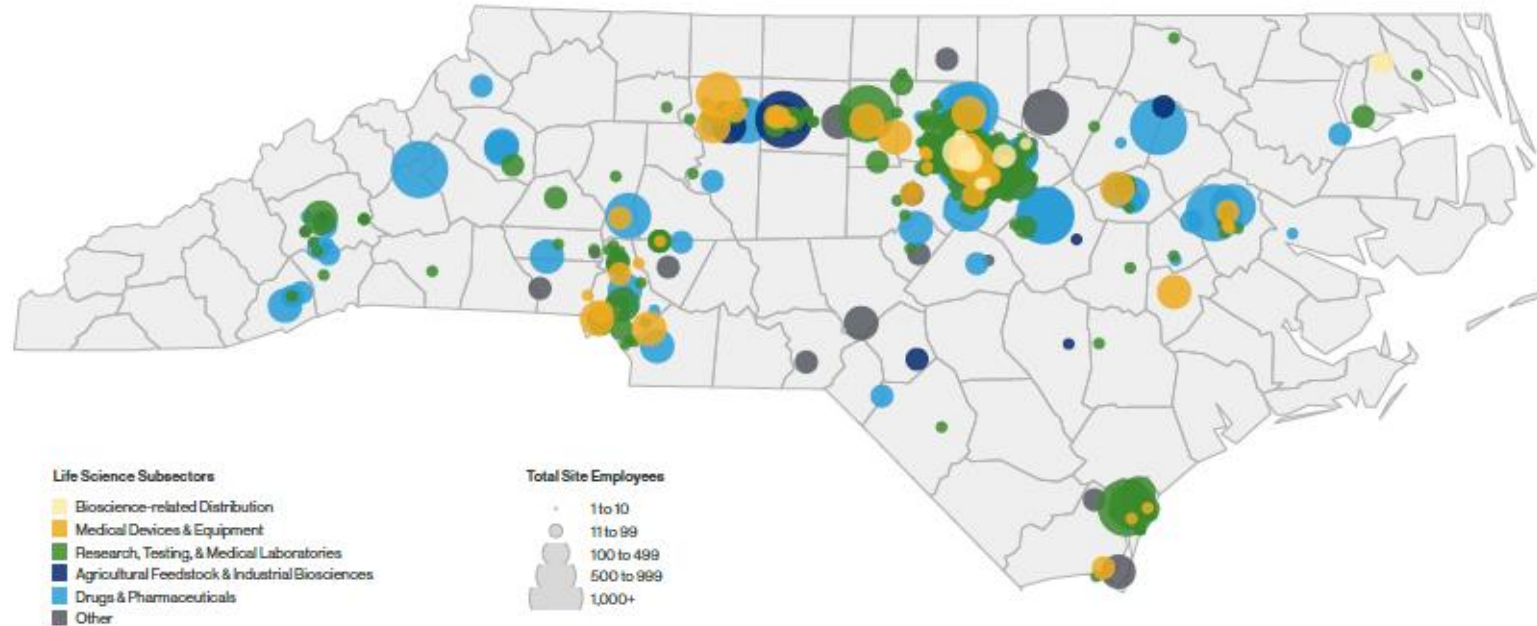
TABLE 2: AVERAGE ANNUAL WAGES IN THE LIFE SCIENCE INDUSTRY AND MAJOR SUBSECTORS, NORTH CAROLINA AND THE UNITED STATES, 2021

Life Science Industry and Subsectors	North Carolina	United States
Research, Testing, & Medical Laboratories	\$122,390	\$147,396
Bioscience-related Distribution	\$118,681	\$121,606
Total Life Sciences	\$111,993	\$125,750
Agricultural Feedstock & Industrial Biosciences	\$109,301	\$91,989
Drugs & Pharmaceuticals	\$104,160	\$126,153
Medical Devices & Equipment	\$72,324	\$98,481
Total Private Sector	\$60,083	\$67,826

Source: TEconomy Partners' analysis of Bureau of Labor Statistics, QCEW data from Lightcast (Data run 2022.3).

The Life Sciences Industry Spans Every Region of NC

FIGURE 7: NORTH CAROLINA'S LIFE SCIENCE COMPANY LOCATIONS BY INDUSTRY SUBSECTOR AND EMPLOYMENT LEVEL



Source: NCBIotech company database, 2022.

Impacts of the Life Sciences Industry, 2022

- **Total Economic Impacts of North Carolina's Life Sciences Industry Surpass \$88 Billion, More Than 225,000 State Jobs**
- The life sciences sector directly generates an estimated \$58.6 billion in business revenues and makes the following contributions to the NC economy:
 - Generates more than \$88 billion in statewide economic activity;
 - Supports a total of 225,206 jobs in all regions of the state with more than 3 jobs created in the larger economy for each life sciences job; and
 - Contributes nearly \$2.4 billion in state and local government revenues consisting of an estimated \$1.5 billion in State government revenues and \$0.9 billion in local government revenues.