The University of North Carolina (UNC) system includes 16 universities, UNC Hospitals and Faculty Physicians (UNC Medical Center), and East Carolina University Division of Health Sciences.* This study analyzes the collective economic value these institutions create.

UNC universities improve higher education delivery throughout the state and help students increase their employability and potential. By facilitating new research, entrepreneurship, and drawing students and visitors to North Carolina, the universities also generate new dollars and opportunities for the state. The purpose of this analysis is to assess the collective impact of the UNC system on the state economy and the benefits generated for students, North Carolina as a whole, and taxpayers.

* Note: The UNC system also includes the North Carolina School of Science and Mathematics, the North Carolina Arboretum, UNC Public Television, along with other affiliated entities. This study only evaluates the economic impact of the UNC system’s 16 universities, along with the clinical activities of the UNC Medical Center and East Carolina University Division of Health Sciences.
IMPACT OF SPIN-OFF COMPANIES

Spin-off companies include those that were created and fostered through programs at UNC universities that support entrepreneurial business development, as well as companies that were created by faculty, students, or alumni from their work at UNC universities. The collective impact of spin-off companies related to UNC universities in FY 2012-13 was $2.1 billion in added state income, equivalent to 26,858 new jobs. These impacts are important because they comprise a significant part of the state’s business environment. The connection between UNC universities and their related spin-off companies is less direct than with start-up companies licensing technology of UNC universities. For this reason, the impact of business spin-offs related to UNC universities are presented separately for the universities in this analysis.

**Note:** Our estimated economic impacts are conservative in that we directly take into account the fact that state dollars spent on the university could have been spent elsewhere in North Carolina if not directed toward the UNC universities, and thus would have created some economic impacts regardless. We account for these alternative uses of funds directly in our analysis by (i) assuming that if funds were not directed to the UNC universities, they would have been returned to the taxpayer and generate economic impacts through household spending on goods and services, and (ii) subtracting the estimated economic impacts generated by this alternative use of funds from the estimated economic impacts of the UNC universities. Thus, we report a net impact of the UNC universities that is above and beyond what would have occurred had the funds been returned to the taxpayer.

IMPACT ON THE STATE BUSINESS COMMUNITY

During the analysis year, FY 2012-13, the UNC system spent $5.3 billion on payroll and benefits for 74,079 full-time and part-time employees, and spent another $3.6 billion on goods and services to carry out its day-to-day operations and research. This initial round of spending creates more spending across other businesses throughout the state economy, resulting in the commonly referred to multiplier effects. We estimate these multiplier effects in this study and report the additional economic activity that is created by the initial spending of UNC universities and the affiliated medical institutions.** Impacts are reported in terms of total income, which is analogous to Gross State Product, and the corresponding number of jobs created.

These economic impacts break down as follows:

**Operations spending impact**

- Payroll and non-pay expenditures to support day-to-day operations (less clinical, research, and extension) of UNC universities amounted to $3.5 billion and $2.1 billion, respectively. The net impact of the universities’ operations spending in North Carolina during the analysis year was approximately $3.9 billion in added state income, which is equivalent to creating 54,832 jobs.

**Clinical spending impact**

- In FY 2012-13, the UNC Medical Center and East Carolina University Division of Health Sciences spent $1.7 billion on clinical and hospital faculty and staff and other costs to support their operations in North Carolina. The total net impact of these clinical operations in the state was $2.3 billion in added state income, which is equivalent to creating 27,759 new jobs.

### INTELLECTUAL PROPERTY CREATED BY UNC UNIVERSITIES

<table>
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<tr>
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<tr>
<td>Total</td>
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Research spending impact

- Research activities of UNC universities impact the state economy by employing people and making purchases for equipment, supplies, and services. They also facilitate new knowledge creation throughout North Carolina through inventions, patent applications, and licenses. In FY 2012-13, UNC universities spent $717.2 million on payroll to support research activities.

- Research spending of UNC universities generates $1.5 billion in added state income for the North Carolina economy, which is equivalent to creating 22,094 new jobs.

Construction spending impact

- UNC universities commissioned in-state and out-of-state contractors to build or renovate their facilities during the analysis year. This spending generated a short-term infusion of income and jobs in the state economy.

- The net impact of the universities’ construction spending in FY 2012-13 was $173.2 million in added state income, equivalent to 6,349 new jobs.

Business start-up impact

- UNC universities create an exceptional environment that fosters innovation and entrepreneurship, evidenced by the number of start-up companies related to UNC universities in the state. In FY 2012-13, start-up companies related to UNC universities created $1.4 billion in added state income for the North Carolina economy, which is equivalent to creating 7,712 jobs.

Extension service impact

- The North Carolina Cooperative Extension Service is a partnership between North Carolina State University and North Carolina A&T State University. Its purpose is to provide education and technology to help address the needs and local problems of the state’s diverse communities.

- North Carolina State University also operates an Industrial Extension Service program that caters to North Carolina’s industries and businesses.

- In FY 2012-13, these universities and their partner counties spent $78.3 million to support extension services, adding $112.1 million in state income for the North Carolina economy, which is equivalent to creating 1,459 new jobs.
Student spending impact

- Around 19% of graduate and undergraduate students attending UNC universities originated from outside the state. Some of these students relocated to North Carolina and spent money on groceries, transportation, rent, and so on at North Carolina businesses.
- The expenditures of students who relocated to the state during the analysis year added approximately $293.6 million in state income for the North Carolina economy, which is equivalent to creating 5,377 new jobs.

Visitor spending impact

- Out-of-state visitors attracted to North Carolina for activities at UNC universities brought new dollars to the economy through their spending at hotels, restaurants, gas stations, and other state businesses.
- Visitor spending added approximately $253.4 million in state income for the North Carolina economy, which is equivalent to creating 6,474 new jobs.

Alumni impact

- Over the years, students gained new skills, making them more productive workers, by studying at UNC universities. Today, hundreds of thousands of these former students are employed in North Carolina.
- The accumulated contribution of former UNC students currently employed in the North Carolina workforce amounted to $17.9 billion in added state income to the North Carolina economy, which is equivalent to creating 293,995 new jobs.

RETURN ON INVESTMENT TO STUDENTS, SOCIETY, AND TAXPayers

Student perspective

- Students attending UNC universities during FY 2012-13 paid a total of $1.7 billion to cover the cost of tuition, fees, books, and supplies. They also forwent $4.5 billion in money that they would have earned had they been working instead of learning.
- In return for the money students invest to earn their degrees, they will receive a present value of $19.2 billion in estimated increased earnings over their working lives.
This translates to a return of $3.10 in higher future income for every $1 that students invest in their UNC education. The average annual return for students is 13.7%.

Societal perspective
- North Carolina as a whole will receive a present value of $93.1 billion in added state income over the course of the students’ working lives. Communities will also benefit from $13.6 billion in present value social savings related to reduced crime, lower unemployment, and increased health and well-being across the state.
- For every dollar that society spent on educations at UNC universities during the analysis year, North Carolina communities will receive a cumulative value of $8.90 in benefits, for as long as the 2012-13 students of UNC universities remain active in the state workforce.

Taxpayer perspective
- In FY 2012-13, state taxpayers in North Carolina invested $2.9 billion (excluding clinical) to support the operations of UNC universities. The net present value of the added tax revenue stemming from the students’ higher lifetime incomes and the increased output of businesses amounts to $9 billion in benefits to taxpayers. Savings to the public sector add another $2.4 billion in benefits due to a reduced demand for government-funded services in North Carolina.
- Dividing benefits to taxpayers by the associated costs yields a 3.9 benefit-cost ratio, i.e., every $1 in costs returns $3.90 in benefits. The average annual return on investment for taxpayers is 11.8%.

About EMSI
Economic Modeling Specialists International turns labor market data into useful information that helps organizations understand the connection between economies, people, and work. Since 2000, EMSI has completed numerous economic impact studies for educational institutions across the US, Canada, the UK, and Australia. It also provides industry-leading labor market data via software and reports to higher education professionals, workforce planners, and regional developers in the U.S. and internationally.

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