

NCICU EXECUTIVE SUMMARY

DEMONSTRATING THE ECONOMIC VALUE OF NORTH CAROLINA'S
INDEPENDENT COLLEGES AND UNIVERSITIES

N O R T H C A R O L I N A
I N D E P E N D E N T
C O L L E G E S & U N I V E R S I T I E S

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EXECUTIVE SUMMARY

North Carolina Independent Colleges and Universities (NCICU) supports the individual missions of the state's 36 private non-profit colleges and universities. Each of NCICU's campuses has an important impact on the students it serves, helping them increase their employability and achieve their individual potential. By facilitating new research and business creation, and by drawing students and visitors to the state, the institutions also generate new dollars and opportunities for North Carolina. NCICU's institutions further benefit society as a whole in North Carolina through the added income and social savings generated by students who remain in the state. The benefits created by the institutions extend as far as the state and local government, in the form of increased tax revenues and reduced government expenditures.

ADDED INCOME CREATED BY NCICU INSTITUTIONS IN FY 2012-13

\$14.2 billion
Total economic impact

JOB EQUIVALENTS CREATED BY NCICU INSTITUTIONS IN FY 2012-13

219,590
Full and part-time jobs

The purpose of this study is to assess the collective economic value generated by NCICU's institutions, along with their hospitals and medical centers. The following two analyses are presented:

- The **economic impact analysis** measures the impact of the institutions on the state economy in terms of total income, which is analogous to Gross State Product, and the corresponding number of jobs created.
- The **benefits analysis** examines the return on investment for students and the benefits for North Carolina as a whole and for taxpayers.

All results reflect student and financial data for Fiscal Year (FY) 2012-13.

STATEWIDE ECONOMIC IMPACT ANALYSIS

North Carolina’s private colleges and universities generate economic impacts in a variety of ways. The institutions and their hospitals and medical centers employ thousands of people and spend billions of dollars on purchases at in-state businesses for goods and services. They attract monies that would not otherwise have entered the economy through the spending of their out-of-state students and visitors. They foster the development of new companies and provide students with the skills they need to become productive citizens. All of these impacts lead to the creation of new income and jobs in the state.

TOTAL IMPACT

This analysis shows that in FY 2012-13, payroll and operations spending of the NCICU campuses, together with the spending of their students, visitors, start-up companies, and alumni, created \$14.2 billion in added state income to the North Carolina economy. The term “added state income” in this context refers to economic impacts and is equivalent to the commonly referred to measure of Gross State Product. The added state income, or additional Gross State Product, of \$14.2 billion created by NCICU’s institutions is equal to approximately 3.2% of the total Gross State Product of North Carolina, and is equivalent to creating 219,590 new jobs. The components that make up these economic impacts appear in the following sections.

OPERATIONS SPENDING IMPACT

North Carolina’s private colleges and universities are important employers in the state.

TABLE 1. ADDED INCOME CREATED
BY THE NCICU INSTITUTIONS IN FY
2012-13

\$14.2 billion Total impact
\$3 billion Operations spending impact
\$1.1 billion Research spending impact
\$4.5 billion Clinical spending impact
\$166.3 million Construction spending impact
\$242.7 million Student spending impact
\$119 million Visitor spending impact
\$78.8 million Business start-up impact
\$4.9 billion Alumni impact

Excluding research and clinical activities, the institutions employed 33,103 full-time and part-time faculty and staff in FY 2012-13. Of these, 98% lived in North Carolina. Total payroll for these employees was \$1.9 billion, much of which was spent in the state for groceries, eating out, clothing, and other household expenses. NCICU's institutions also made large-scale purchases for goods and services and spent \$4.1 billion in FY 2012-13 to cover their expenses for facilities, professional services, and supplies (excluding research and clinical expenses).

The initial round of spending generated by the NCICU campuses and their employees in the state creates more spending at other businesses throughout the North Carolina economy, resulting in the commonly referred to multiplier effects. Multiplier effects comprise the additional activity that occurs across all industries in the economy as a result of the initial effect and are derived using EMSI's Social Accounting Matrix (SAM) model, which is designed to capture the interconnection of industries, government, and households in a given region. In estimating multiplier effects, this study follows best practice and applies a downward adjustment to account for funding that the institutions received from state and local sources and that could have been spent elsewhere in the state had they not been directed towards the institutions (see the methodological note for more information).

The net added state income that NCICU's institutions created during the analysis year as a result of their day-to-day operations was approximately \$3 billion in added state income, equivalent to creating 44,945 jobs.

NOTE ON THE METHODOLOGY

Economic impact analyses use different types of impacts to estimate the results. Frequently used is the sales impact, which comprises the change in business sales revenue as a result of increased economic activity. However, sales revenue includes the intermediary costs of production and overstates actual impacts. A more accurate measure is the income impact, which assesses the change in Gross State Product, or GSP. Another way to state the income impact is job equivalents, a measure of the number of full- and part-time jobs that would be required to support the change in income. Both of these measures – job equivalents and income – are used to estimate the economic impact results presented in this report.

Also, the economic impact analysis in this report is conservative in that it directly takes into account the fact that in-state monies spent on NCICU's institutions could have been spent elsewhere in North Carolina, and thus would have created some economic impacts regardless. The analysis accounts for such alternative uses of funds by (1) assuming that if in-state funds had not been directed to the NCICU campuses, they would have been returned to their original sources and generated economic impacts through household spending on goods and services, and (2) subtracting the estimated economic impacts generated by such alternative uses of funds from the estimated economic impacts of the NCICU institutions. Thus, the analysis reports only net impacts that are *above and beyond* what would have happened had the institutions' in-state funding been returned to its original sources.

INTELLECTUAL PROPERTY CREATED BY THE NCICU CAMPUSES

	INVENTIONS	PATENT APPLICATIONS	LICENSES
2009-10	72	40	16
2010-11	70	51	25
2011-12	68	44	23
2012-13	102	36	22
Total	312	171	86

RESEARCH SPENDING IMPACT

Research activities impact the economy by employing people and requiring the purchase of equipment and other supplies and services. Over the last four years, the NCICU institutions received 312 invention disclosures, filed 171 new U.S. patent applications, and produced 86 licenses. Total license income received by the institutions in FY 2012-13 amounted to \$2.2 million.

In FY 2012-13, NCICU's institutions collectively spent \$418.8 million to cover the payroll of faculty and staff involved in research and development activities. The research efforts of the institutions attracted new dollars into the state, with 63% of total research funding received from federal sources. Research activities also drew funds from sources within the state, including private industry and state and local government.

Research spending by the NCICU campuses stimulated economic activity in the state that resulted in \$1.1 billion in added income. As with the operations spending impact, this impact accounts for the opportunity cost of monies withdrawn from the state economy to support the research of NCICU's institutions. The \$1.1 billion in added income is equivalent to creating 17,334 new jobs.

CLINICAL SPENDING IMPACT

Two of NCICU's largest campuses – Wake Forest University and Duke University – have highly-regarded medical centers and health care systems that provide quality care to in-state residents. Wake Forest Baptist Medical Center (including Wake Forest's affiliated hospitals North Carolina Baptist Hospital, Lexington Memorial Hospital, and Davie Medical Center) is Wake Forest's clinical enterprise and employs more than 13,000 people. Duke University's health care system includes three hospitals – Duke University Hospital, Duke Regional Hospital, and Duke Raleigh Hospital – as well as primary care and home hospice care. In FY 2012-13, Wake Forest University and Duke University collectively spent \$1.7 billion on payroll at their hospitals and care centers.

The expenses of the hospitals and care centers affiliated with Wake Forest University and Duke University added a net impact of \$4.5 billion in state income for North Carolina, equivalent to creating 62,757 new jobs. These impacts, while substantial, do not reflect the broader impacts of health care, most notably the added productivity in the workforce related to reduced mortality and improved health. These impacts are beyond the scope of this analysis and are thus not included.

CONSTRUCTION SPENDING IMPACT

NCICU's institutions commissioned in-state and out-of-state contractors to build or renovate their facilities during the analysis year. The quick infusion of income and jobs that occurred in the state economy as a result of the institutions' construction spending is only considered short-term due to the one-time nature of construction projects. Nonetheless, the institutions' construction spending still had a substantial impact on the state economy in FY 2012-13, equal to \$166.3 million in added state income and the creation of 5,256 new jobs.

STUDENT SPENDING IMPACT

Around 42% of graduate and undergraduate students at NCICU's campuses originated from outside the state in FY 2012-13. These students would not have come to North Carolina if the institutions did not exist. While attending, out-of-state students spent \$295.2 million to purchase groceries, rent accommodations, pay for transportation, and so on. A significant portion of these expenditures occurred in the state, generating \$242.7 million in new income in the state economy during the analysis year, which is equivalent to creating 4,433 new jobs.

VISITOR SPENDING IMPACT

Thousands of visitors from outside the state were attracted to the NCICU institutions during the analysis year to attend commencements, sports events, and other activities sponsored by the institutions. While in the state, visitors spent money for lodging, food, transportation, and other personal expenses. The off-campus

expenditures of these out-of-state visitors generated a net impact of \$119 million in new income in the state economy in FY 2012-13, equivalent to creating 3,041 new jobs.

BUSINESS START-UP IMPACT

North Carolina's private colleges and universities create an exceptional environment that fosters innovation and entrepreneurship, evidenced by the number of start-up companies

IMPACT OF START-UP COMPANIES

Start-up companies are defined as companies that were created specifically to license and commercialize technology or knowledge of the NCICU campuses. The founding of business start-ups creates new jobs in North Carolina and enhances the competitiveness of the state's business environment. In FY 2012-13, NCICU's campuses had 43 active start-up companies in North Carolina. Collectively these companies employed 242 people.

Also worth mentioning but not explicitly assessed in this study are the institutions' spin-off companies. Spin-off companies are those that were created and fostered through institutional programs that support entrepreneurial business development, as well as companies that were created by faculty, students, or alumni as a result of their experience at the NCICU institutions. The data needed to assess the impacts of business spin-offs was insufficient; however, the fact that such companies exist and contribute to North Carolina's economy enhances the value that NCICU's institutions bring to the state.

created by the institutions in the state. Start-up companies are defined as companies that were created specifically to license and commercialize technology or knowledge of the NCICU campuses. These are companies that have a strong and clearly-defined link to the NCICU institutions and that would have not existed in North Carolina but for the presence of the campuses. In FY 2012-13, start-up companies related to the NCICU campuses added \$78.8 million in income to the state economy, equivalent to 477 new jobs.

ALUMNI IMPACT

Further to the sharing of knowledge and technologies through the development of their start-up companies, NCICU's institutions gen-

erate their most significant economic impact through the knowledge, skills, and abilities that they transfer to their students. Since the institutions were established, students have studied at NCICU's campuses and subsequently entered the workforce. Today, hundreds of thousands of alumni are employed in North Carolina and are directly applying the education they received at the institutions to their jobs.

During the analysis year, the NCICU institutions' alumni generated \$4.9 billion in added income in the state, which is equivalent to creating 81,348 new jobs. This figure represents the higher wages that alumni earned during the year as a result of attending NCICU's institutions, the increased output of the businesses that employed the alumni, and the multiplier effects that occurred as alumni and their employers spent money at other businesses.



BENEFITS TO STUDENTS, SOCIETY, AND TAXPAYERS

The benefits created by North Carolina's private, non-profit colleges and universities affect the lives of many people. Students benefit the most from the higher earnings and improved quality of life that they enjoy as a result of the education and training they receive from the institutions. Benefits accrue to society and to taxpayers as well, as students expand the economy through their increased productivity and generate a wide variety of social savings across the state. This study assesses the benefits that accrue to students and to North Carolina as a whole in return for the monies spent by students and the NCICU campuses during the analysis year. Also presented is an assessment of the benefits that accrue to taxpayers in North Carolina, in the form of added tax revenues and a reduced dependency on government-funded services.

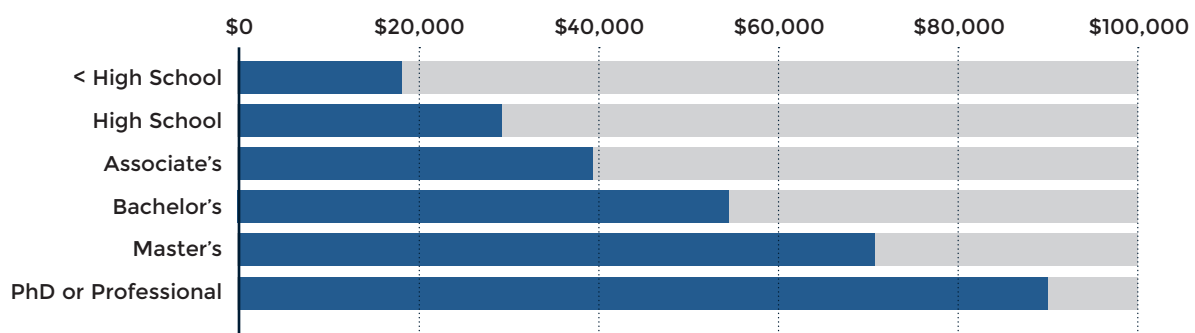
STUDENT PERSPECTIVE

In 2012-13, the NCICU institutions served 100,962 for-credit students and 964 non-degree seeking students. In order to attend the institutions, students paid for tuition, fees, books, and supplies. They also gave up money that they would have otherwise earned had they been

working instead of attending an NCICU campus. The total investment made by students in FY 2012-13 amounted to \$3.1 billion, equal to \$1.6 billion in out-of-pocket expenses plus another \$1.6 billion in forgone time and money.

In return for their investment, students will receive a stream of higher future wages that will continue to grow through their working

FIGURE 1. ANNUAL INCOME BY EDUCATION LEVEL AT CAREER MIDPOINT IN NORTH CAROLINA



Source: EMSI complete employment data.

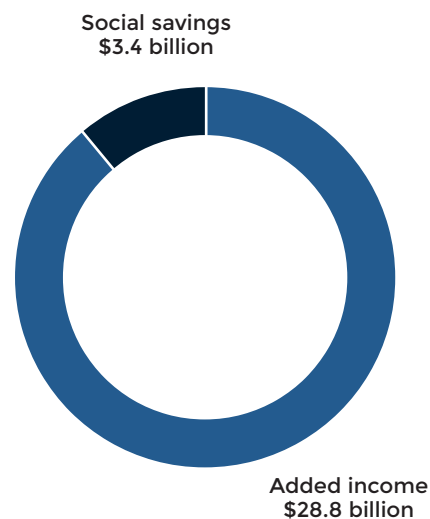
lives. As shown in Figure 1, mean income levels at the midpoint of the average-aged worker's career increase as people achieve higher levels of education. For example, the average bachelor's degree completer will see an increase in earnings of \$25,700 each year compared to someone with a high school diploma or equivalent. Over a working lifetime, this increase in earnings amounts to an undiscounted value of approximately \$1,086,587 in higher income.

The present value of the higher future wages that students at NCICU's campuses will receive over their working careers is \$7.2 billion. Dividing this value by the \$3.1 billion in student costs yields a benefit-cost ratio of 2.3. In other words, for every \$1 students invest in one of NCICU's institutions in the form of out-of-pocket expenses and forgone time and money, they receive a cumulative of \$2.30 in higher future wages. The average annual rate of return for students is 10.3%. This is an impressive return compared, for example, to the less than 1% return per annum that is generally expected from saving money in today's standard bank savings accounts.

SOCIETAL PERSPECTIVE

Communities and citizens throughout North Carolina benefit from the presence of NCICU's institutions in two major ways. The first and largest benefit that society receives is the added income created in the state. As discussed in the previous section, students earn more because of the skills they acquire while attending the NCICU campuses. Businesses also earn more because the enhanced skills of students make them more productive. Together, higher wages and increased business output stimulate increases in income across the state, thereby raising prosperity in North Carolina

FIGURE 2. PRESENT VALUE OF ADDED INCOME AND SOCIAL SAVINGS IN NORTH CAROLINA



and expanding the economic base for the citizenry as a whole.

Benefits also include the savings generated by the improved lifestyles of students. Education is statistically correlated with a variety of lifestyle changes that generate social savings across three main categories: 1) health, 2) crime, and 3) unemployment. Health savings include avoided medical costs associated with smoking, alcoholism, obesity, drug abuse, and mental disorders. Crime savings include reduced security expenditure and insurance administration, lower victim costs, and reduced criminal justice system expenditures. Unemployment savings include the reduced demand for income assistance and welfare benefits.

Figure 2 shows the present value of the added income and social savings that will occur in North Carolina over the working lifetimes of the NCICU institutions' 2012-13 students. Added income amounts to a present value of \$28.8 billion due to the increased lifetime

incomes of students and associated increases in business output. Social savings amount to \$3.4 billion, the sum of health, crime, and unemployment savings in North Carolina. Together, added income and social savings in North Carolina equal \$32.3 billion (in present value terms).

The societal investment in NCICU's campuses during the analysis year totaled \$8.9 billion. This includes all expenses of the institutions (excluding clinical activities), all student expenditures, and all student opportunity costs. For every dollar of this investment, North Carolina as a whole will receive a cumulative value of \$3.60 in benefits, equal to the \$32.3 billion in benefits divided by the \$8.9 billion in costs. These benefits will occur for as long as the institutions' 2012-13 students remain employed in the state workforce.

TAXPAYER PERSPECTIVE

From the taxpayer perspective, benefits consist primarily of the taxes that state and local government will collect from the added income created in the state. As the NCICU institutions' 2012-13 students earn more, they will make higher tax payments. Employers will also make higher tax payments as they increase their output and purchase more supplies and services. By the end of the students' working careers, state and local government will have collected a present value of \$2.8 billion in added taxes.

A portion of the savings enjoyed by society also accrues to state and local taxpayers. Students are more employable, so the demand for welfare and unemployment benefits reduces. Improved health habits lower the students' demand for public health care services. Students are also less likely to commit crimes, so the demand for law enforcement services

reduces. Combined, avoided government costs amount to a present value of \$595.7 million. Total benefits to taxpayers thus come to \$3.4 billion, equal to the sum of the added taxes and government savings.

SUMMARY OF BENEFITS ANALYSIS RESULTS

Table 2 presents a summary of the benefits that accrue to students, society, and taxpayers. As shown, students receive a great value for their educational investment. At the same time, the presence of NCICU's institutions in the state expands the economy and creates a wide range of positive social benefits that accrue to taxpayers and to society as a whole in North Carolina.

TABLE 2. SUMMARY OF BENEFITS

STUDENT PERSPECTIVE	
\$7,221,148	Benefits (thousands)
\$3,132,572	Costs (thousands)
\$4,088,576	Net present value (thousands)
2.3	Benefit-cost ratio
10.3%	Rate of return
SOCIETAL PERSPECTIVE	
\$32,255,080	Benefits (thousands)
\$8,894,254	Costs (thousands)
\$23,360,826	Net present value (thousands)
3.6	Benefit-cost ratio
TAXPAYER PERSPECTIVE	
\$3,382,321	Benefits (thousands)

CONCLUSION

The results of this study demonstrate that North Carolina's private colleges and universities create value from multiple perspectives. The institutions benefit businesses by increasing consumer spending in the state and supplying a steady flow of qualified, trained workers into the workforce. They enrich the lives of students by raising their lifetime incomes and helping them achieve their individual potential. They benefit North Carolina as a whole by creating a more prosperous economy and generating a variety of savings through the improved lifestyles of students. Finally, they benefit state and local taxpayers through increased tax receipts across the state and a reduced demand for government-supported social services.

ABOUT THE STUDY

Data and assumptions used in the study are based on several sources, including the 2012-13 academic and financial reports from the institutions, industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau, outputs of EMSI's Social Accounting Matrix (SAM) model, and a variety of studies and surveys relating education to social behavior. The study applies a conservative methodology and follows standard practice using only the most recognized indicators of investment effectiveness and economic impact. For a full description of the data and approach used in the study, please visit the NCICU website at www.ncicu.org/economic-impact-2015.

ABOUT EMSI

Economic Modeling Specialists International, a CareerBuilder company, is a leading provider of economic impact studies and labor market data to educational institutions, workforce planners, and regional developers in the U.S. and internationally. Since 2000, EMSI has completed comprehensive economic impact studies for educational institutions in four countries. Visit www.economicmodeling.com for more information about EMSI's products and services.

ABOUT NCICU

North Carolina Independent Colleges and Universities (NCICU) is comprised of the state's 36 private, non-profit liberal arts, research, and comprehensive colleges and universities accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS). NCICU's board of directors includes the presidents of each of the 36 institutions and the president of NCICU serves on the Governor's North Carolina Education Cabinet. For more information, visit NCICU's website at www.ncicu.org.