THE ECONOMIC IMPACT OF EAST CAROLINA UNIVERSITY ON THE LOCAL, REGIONAL AND STATEWIDE ECONOMIES

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Economic Impact Analysis Overview

University and University-Related Activities

East Carolina University impacts the local, regional and state economies in a variety of ways through expenditures, community engagement and education. In this study, we focus on the economic impacts on the local, regional and state economies by tracking spending from:

1. University expenditures;
2. Student spending;
3. Visitor spending; and
4. Alumni dividends.

Methodology

To estimate the economic impacts of these spending categories, we use the industry leader for economic impact data and analytical software, IMPLAN (IMpact Analysis for PLANning). It is used in academic, government and corporate sectors to conduct economic impact analysis of a variety of different types of expenditures on economies specified to the county level. IMPLAN pulls national and state economic and demographic information collected by various federal and state agencies including the Bureau of Economic Analysis, the Bureau of Labor Statistics and the Bureau of the Census to create input-output models of local, regional and statewide economies.

IMPLAN creates production functions by industry and consumption functions for households. Using the regional data, it creates an economic model that draws on local resources, local suppliers and local purchases to simulate how spending injections spark economic activities through the supply chain and through household purchases. The initial injections of spending by the university and university-related expenditures ripple through the economy. The initial spending changes are direct effects; the summation of the impacts through the supply chain are called indirect effects; and the total impacts from household spending are called induced effects. The total economic impacts are the sum of these direct, indirect and induced effects.

Economic impacts can be quantified in different ways. In this study, we report impacts in terms of personal income, output and employment that resulted from university and university-related expenditures for 2018. These impacts are modeled and reported at the local, regional and state levels. Specifically, each time a direct impact was modeled, we used IMPLAN's Multi-Region Analysis (IMRA) methodology. Thus, we were able to measure the direct impact of the economic event and the event's secondary impacts, indirect and induced, for all parts of North Carolina.

We group North Carolina counties into four mutually exclusive regional economies: Pitt County, the local area[1], the remaining 21 eastern N.C. counties that are included in ECU's economic transformation targeted area[2], and the 71 counties that comprise the rest of the state.

The eastern NC[3] overall impact is the combined effects of three of the regions: Pitt County, the local area and the remaining 21 eastern N.C. counties that are included in ECU's economic transformation targeted area. Finally, the North Carolina total includes the impacts from all N.C. counties.

Data

IMPLAN includes the regional data used to create the model of the economies. The data inputs into the model are the expenditure injections from the university and university-related activities. Expenditures for broad institutional activities, capital expenditures, enrollment counts, visitor counts, and number of graduates were collected from university and university-system sources. These data sets were augmented with income data and visitor spending data from government sources. Spending metrics for each expenditure category, including operations, payroll, students, visitors, graduates, and capital expenditures, were used as data input into the IMPLAN software. The economic impacts, including output, income, and employment, were measured for each of the economic regions.

Table 1 reports the economic impacts of the different university and university-related activities on the 29 counties of eastern North Carolina.

Table 1: Total Economic Impacts of East Carolina University on Eastern North Carolina

	Total Income ($)	Total Output ($)	Total Employment
University Operations	822,090,377	1,706,114,180	18,651
Student Spending	114,455,222	354,325,436	4,222
Visitor Spending	52,824,424	132,143,247	1,942
Alumni Dividend	1,744,011	6,363,582	52
Capital Expenditures	50,593,976	139,928,500	1,055
Total	**1,041,708,010**	**2,338,874,945**	**25,922**

University operations increased personal income in eastern N.C. by $822.1 million and student spending increased personal income in the region by $114.5 million. In total, across the different university and university-related activities, personal income in eastern N.C. was higher by $1.04 billion in 2018.[4]

Another way to quantify economic impacts is to consider the effects of these spending categories on the output or gross regional product of eastern N.C. For example, the university operations increased output in eastern N.C. by nearly $1.71 billion. In total, output in eastern N.C. was $2.34 billion higher due to ECU's university and university-related activities.

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[1] The local area includes Beaufort, Craven, Edgecombe, Green, Lenoir, Martin, and Wilson counties.

[2] The remaining 21 eastern N.C. counties that are included in ECU's economic transformation targeted area include Bertie, Camden, Carteret, Chowan, Currituck, Dare, Duplin, Gates, Halifax, Hertford, Hyde, Jones, Nash, Northampton, Onslow, Pamlico, Pasquotank, Perquimans, Tyrrell, Washington, and Wayne counties.

[3] Includes Pitt County, local area and eastern region for a total of 29 counties. The remaining counties comprise the rest of N.C.

[4] University operations, payroll and medical visitors are reported for the fiscal year July 1, 2017-June 30, 2018 (FY 18). Enrollment, graduates, and event visitors are reported on the academic year, Fall 2017, Spring 2018 and Summer 2018 (AY 2017-18).

The spending by the university, its employees, students, visitors, and graduates supported jobs across eastern N.C. For example, university operations supported 18,651 jobs. In eastern N.C., there were 25,922 jobs that were supported by ECU's operations, payroll, student and visitor spending, capital expenditures, and by the increased income earned by its graduates.

The university also positively impacted the entire state. Table 2 reports the total economic impacts from the university and university-related expenditures on the state of North Carolina.

Table 2: Total Economic Impacts of East Carolina University on North Carolina

	Total Income ($)	Total Output ($)	Total Employment
University Operations	857,524,832	1,820,949,202	19,261
Student Spending	119,565,359	371,495,309	4,305
Visitor Spending	54,832,137	138,867,400	1,975
Alumni Dividend	23,842,482	75,475,914	535
Capital Expenditures	50,593,976	139,928,500	1,055
Total	**1,106,358,786**	**2,546,716,325**	**27,131**

ECU's operations increased personal income in the state by $857.5 million. Student spending increased N.C.'s personal income by $119.6 million. In total, the state of N.C.'s personal income was over $1.1 billion higher as a result of ECU's economic activity, its visitors and its graduates. North Carolina's output, or gross state product, was $2.55 billion higher due to ECU. In total, 27,131 jobs were supported in North Carolina in Academic Year (AY) 2018 due to the operations, capital spending, student spending, visitor spending, and ECU's alumni dividend.

In the following sections of this report, we outline the process used to derive the economic impacts reported in Tables 1 and 2. This report describes how data on university activities and university-related activities were incorporated into IMPLAN. Each section details the regional economic impacts of the different types of spending.

Operations Spending

In Fiscal Year (FY) 18, the operations spending by ECU was $877.4 million. Operations spending was used to pay its employees and to purchase goods and services to carry out daily operations, including research. University expenditures by operations were reported by the Office of Administration and Finance.

Table 3: ECU Operations Expenditures for FY 18

Supplies and Materials	$94,621,580
Services	$120,552,008
Scholarships and Fellowships[5]	$41,174,709
Utilities	$18,678,638
Total Non-Payroll	**$275,026,935**
Payroll	$602,388,994
Total	**$877,415,929**

A significant portion of these expenditures became income for the local businesses that they, in turn, spent for their businesses' operational expenses, thereby creating indirect effects from the original spending. The income for the local business that was spent at other businesses by the employees created an induced effect of the original spending.

Operation spending was modeled within a three-step process. First, operational spending impacts were modeled using IMPLAN Sector 473, which is the sector that includes universities and professional schools. Although ECU has operations outside of Pitt County, all activity was assumed to occur within Pitt County.[6] The direct impact assumptions included actual ECU data for total operations, number of employees and employee compensation. Proprietor income was set at zero.

Second, we recognized that many of ECU's employees live in all parts of North Carolina. Given that, payroll was modeled in each of the four regions using the respective compensation totals for a labor Income Change Model (IMPLAN Sector 5001: Employee Compensation). The impacts for the four regions were summed from the results for in each model. Only induced totals were generated within this modeling process.

Third, the induced effects from the payroll model operational spending impacts were used to modify the operational spending model induced impacts. This provided us with a more robust description of ECU's employee spending patterns.

[5] Scholarships and fellowships were primarily supported by three separately incorporated nonprofit foundations associated with the university.

[6] Regional distributions of university expenditures across regional vendors were not consistently available, thus the local-spending assumption was reasonable. Due to the geographic area specifications, it is unlikely the local-spending assumption significantly altered the magnitude of the economic impacts.

Table 4: Economic Impacts on Personal Income Originating from Operations Spending on the Regional Economies of North Carolina

	Direct ($)	Indirect ($)	Induced ($)	Total ($)
Pitt County	607,818,132	87,301,597	97,422,366	792,542,095
Local Area	0	7,931,476	8,540,677	16,472,153
Rest of Eastern N.C.	0	9,418,208	3,657,921	13,076,129
Rest of N.C.	0	20,235,350	15,199,105	35,434,455
Total Eastern N.C.	607,818,132	104,651,281	109,620,964	822,090,377
Total N.C.	607,818,132	124,886,631	124,820,069	857,524,832

Table 5: Economic Impacts on Total Output Originating from Operations Spending on the Regional Economies of North Carolina

	Direct ($)	Indirect ($)	Induced ($)	Total ($)
Pitt County	894,030,832	346,302,092	331,897,512	1,572,230,436
Local Area	0	32,640,322	30,673,554	63,313,876
Rest of Eastern N.C.	0	55,207,200	15,362,668	70,569,868
Rest of N.C.	0	66,729,883	48,105,139	114,835,022
Total Eastern N.C.	894,030,832	434,149,614	377,933,734	1,706,114,180
Total N.C.	894,030,832	500,879,497	426,038,873	1,820,949,202

Table 6: Economic Impacts on Employment Originating from Operations Spending on the Regional Economies of North Carolina

	Direct ($)	Indirect ($)	Induced ($)	Total ($)
Pitt County	12,310	2,673	2,794	17,777
Local Area	0	187	245	432
Rest of Eastern N.C.	0	328	113	442
Rest of N.C.	0	308	302	609
Total Eastern N.C.	12,310	3,189	3,152	18,651
Total N.C.	12,310	3,496	3,454	19,261

Table 7: Total Economic Impacts from University Operations Spending on the Regional Economies of North Carolina

	Total Income ($)	Total Output ($)	Total Employment
Pitt County	792,542,095	1,572,230,436	17,777
Local Area	16,472,153	63,313,876	432
Rest of Eastern N.C.	13,076,129	70,569,868	442
Rest of N.C.	35,434,455	114,835,022	609
Total Eastern N.C.	822,090,377	1,706,114,180	18,651
Total N.C.	857,524,832	1,820,949,202	19,261

Expenditures from Extramural Funds

The non-payroll operations reported above include research activities conducted by ECU faculty, students and other researchers. ECU's research activities boosted the state economy by employing people and through the purchase of equipment, supplies and services. They also enabled knowledge transfer to create economic development. In particular, ECU successfully leveraged state funds to bring in significant amount of extramural funds directly linked to faculty excellence, student success, and regional transformation.

In FY 18, ECU incurred research expenditures of $20.3 million from extramural funds, including federal and private grants, that met the National Science Foundation Higher Education Research and Development (NSF HERD) Survey's reporting criteria. Expenditures from extramural sources accounted for 51.9% of ECU's HERD expenditures from all sources in FY 18, which included both institutional and extramural funds. In other words, for every institutional dollar that ECU spent on research, researchers were able to match that with additional $1.08 awarded by non-institutional sources. The overall amount of research spending, including HERD and non-HERD extramural sources, was over $41.5 million in FY 18.

Table 8: Total Economic Impacts from University Expenditures of Extramural Research Funds on the Regional Economies of North Carolina

	Total Income ($)	Total Output ($)	Total Employment
Pitt County	37,950,659	75,877,626	853
Local Area	539,967	2,148,080	13
Rest of Eastern N.C.	587,660	3,241,741	20
Rest of N.C.	1,512,180	4,926,181	25
Total Eastern N.C.	39,078,286	81,267,447	887
Total N.C.	40,590,466	86,193,628	912

[7] The Higher Education Research and Development (HERD) Survey is the primary source of information on separately accounted for research and development expenditures within higher education institutions. HERD represents the component of Gross National Expenditure on Research and Development (GERD) incurred by the sector of higher education institutions. However, there are many research activities that are critical to university missions that do not qualify as HERD expenditures.

Capital Spending

There were several large capital projects in progress during FY 18 including $18.0 million for Clement Hall Phase II, $2.0 million for the Health Sciences Campus Student Services Building, $107.6 million for new Student Union and parking structure, $21.5 million for Dowdy-Ficklen Stadium Expansion, $2.6 million for Jones Hall, and $2.0 million for Greene Hall. The capital spending incurred during FY 18 was estimated using the net capital asset expenditures from the ECU financial statement provided to Office of the State Auditor.

Table 9: ECU Capital Spending in FY 18

Land and Permanent Easements	$1,851,000
Construction	$66,372,000
Buildings	$23,970,000
Machinery and Equipment	$11,286,000
General Infrastructure	$1,409,000
Computer Software	$15,000
Net Investment in Capital Assets	$104,903,000

We model the capital expenditure impacts by focusing on new constructions (IMPLAN Industry Codes 55 and 58), maintenance and repair of buildings (IMPLAN Industry Code 62), and maintenance and repair of infrastructure (IMPLAN Industry Code 64).

Purchases of land and permanent easements, machinery and equipment and computer software were not included in the calculations. We assumed that these items either offset university revenues or were purchased from outside North Carolina. We also assumed that the installation of the items were accomplished by vendor employees and university staff. Staff effort would be included in employee payroll, which falls under operations spending.

Table 10: Economic Impacts on Personal Income Originating from Capital Spending on the Regional Economies of North Carolina

	Direct ($)	Indirect ($)	Induced ($)	Total ($)
Pitt County	33,159,497	5,710,100	5,994,500	44,864,097
Local Area	0	1,116,044	288,821	1,404,865
Rest of Eastern N.C.	0	415,709	157,299	573,008
Rest of N.C.	0	3,202,811	1,230,616	4,433,427
Total Eastern N.C.	33,159,497	7,241,852	6,440,620	46,841,969
Total N.C.	33,159,497	10,444,663	7,671,236	51,275,396

Table 11: Economic Impacts on Total Output Originating from Capital Spending on the Regional Economies of North Carolina

	Direct ($)	Indirect ($)	Induced ($)	Total ($)
Pitt County	92,999,999	16,809,484	20,387,113	130,196,596
Local Area	0	4,671,511	1,049,402	5,720,913
Rest of Eastern N.C.	0	1,886,667	708,536	2,595,203
Rest of N.C.	0	11,343,326	3,888,161	15,231,486
Total Eastern N.C.	92,999,999	23,367,662	22,145,050	138,512,711
Total N.C.	92,999,999	34,710,987	26,033,211	153,744,197

Table 12: Economic Impacts on Employment Originating from Capital Spending on the Regional Economies of North Carolina

	Direct ($)	Indirect ($)	Induced ($)	Total ($)
Pitt County	609	138	172	918
Local Area	0	23	8	31
Rest of Eastern N.C.	0	10	5	15
Rest of N.C.	0	48	25	73
Total Eastern N.C.	609	171	185	964
Total N.C.	609	219	209	1,037

Table 13: Total Economic Impacts from University Capital Spending on the Regional Economies of North Carolina

	Total Income ($)	Total Output ($)	Total Employment
Pitt County	44,864,097	130,196,596	918
Local Area	1,404,865	5,720,913	31
Rest of Eastern N.C.	573,008	2,595,203	15
Rest of N.C.	4,433,427	15,231,486	73
Total Eastern N.C.	46,841,969	138,512,711	964
Total N.C.	51,275,396	153,744,197	1,037

Student Spending

Enrollment

When students come to ECU, they provide a spark to economic impacts associated with their spending. Enrollment counts were collected by Institutional Planning, Assessment and Research (IPAR) and reported by N.C. residents and out-of-state residents by degree level (undergraduate, graduate, dental, and medical).[8] For N.C. residents, IPAR also reported the county of residence. Enrollment totals were allocated to the regional specifications (Pitt County, local area, the rest of eastern N.C., and remainder of N.C.). Counts are reported in Table 14.

Table 14: Enrollment Counts of Students by Degree, Semester and Region of Students' Residence

Pitt County	Fall 2017	Spring 2018	Summer 2018
Undergraduate	3,185	2,927	1,097
Graduate	1,105	1,040	576
Medical	291	289	6
Dental	51	51	46
Local Area	**Fall 2017**	**Spring 2018**	**Summer 2018**
Undergraduate	1,723	1,607	717
Graduate	378	354	239
Medical	4	4	–
Dental	12	12	8
Eastern N.C.	**Fall 2017**	**Spring 2018**	**Summer 2018**
Undergraduate	2,311	2,191	934
Graduate	495	455	291
Medical	1	1	–
Dental	14	14	12
Total N.C.	**Fall 2017**	**Spring 2018**	**Summer 2018**
Undergraduate	13,577	12,589	4,964
Graduate	2,687	2,521	1,667
Medical	24	27	1
Dental	136	133	90
Out of State	**Fall 2017**	**Spring 2018**	**Summer 2018**
Undergraduate	2,469	2,289	695
Graduate	664	619	302

[8] Headcount not full-time equivalent (FTE).

Cost of Attendance

Enrollment counts were matched with cost of attendance (COA) tables. Expenditures vary by student level (undergraduate, graduate, dental, and medical). For undergraduate and graduate groupings, expenditures were reported for the academic year and summer. For medical and dental students, expenditures were reported by program year. Both enrollment and COA were for the Fall 2017, Spring 2018 and Summer 2018.

Table 15: Cost of Attendance for AY 17-18

	Resident Undergraduate Fall 2017 and Spring 2018 ($)	Nonresident Undergraduate Fall 2017 and Spring 2018 ($)	Undergraduate Summer 2018 ($)
Tuition and Fees	7,143	23,420	1,786
Room and Board	9,835	9,835	3,381
Books and Supplies	1,306	1,306	326
Personal	2,322	2,322	798
Transportation	1,314	1,931	452
Loan Fees	0	0	20
Health Insurance	80	80	–
Total	**22,000**	**38,894**	**6,763**
	Resident Grad Fall-17 and Spring-18 ($)	**Nonresident Grad Fall-17 and Spring-18 ($)**	**Grad Summer 2018 ($)**
Tuition and Fees	7,440	20,589	2,067
Room and Board	12,908	12,908	4,437
Books and Supplies	981	981	272
Personal	2,372	2,372	815
Transportation	1,314	1,726	452
Loan Fees	0	0	98
Health Insurance	215	215	–
Total	**25,230**	**38,791**	**8,141**
Dental	**Fall 2017 ($)**	**Spring 2018 ($)**	**Summer 2018 ($)**
Tuition and Fees	10,842	10,841	10,841
Room and Board	5,978	5,978	5,977
Books and Supplies	2,117	2,117	2,117
Personal	1,016	1,016	1,016
Transportation	939	938	938
Loan Fees	269	269	270
All Insurance	1,225	1,225	–
Total	**21,161**	**21,159**	**21,159**
Medical	**Fall 2017 ($)**	**Spring 2018 ($)**	**Total (12 Months)**
Tuition and Fees	11,472	11,472	22,944
Room and Board	8,966	8,966	17,932
Books and Supplies	707	707	1,414
Personal	1,318	1,318	2,636
Transportation	876	876	1,752
Loan Fees	404	404	808
All insurance	1,225	1,225	2,450
Total	**24,968**	**24,968**	**49,936**

[9] COA for current year available online. Historic COA retrieved by request to the Office of Student Financial Aid Enrollment Services.

[10] Academic year expenditures were equally distributed across the Fall and Spring semesters which were then applied to Fall and Spring enrollments.

[11] To describe a "typical" expenditure year, expenses specific to a particular year were excluded. For example, dental spending in Year 1 included program equipment purchases and Years 3 and 4 include extra travel costs. For both medical and dental students, the second program year was used because for both groups, as the second year had the fewest special expenses.

Enrollment data were matched with the appropriate costs of attendance expenditures. Tuition and fees were excluded because they went directly to the university and were included elsewhere. Loan fees and insurance were also excluded because they do not represent local Pitt County expenditures.

We assume personal student spending occurs in Pitt County (direct effects). Their spending sparked reactions through the supply chain (indirect effects) and through household spending (induced effects). We report the increased personal income in the region, the increased value of output, and employment attributable to student spending. The impacts of student spending on personal income in the regional economies of North Carolina are reported in Table 16. An important consideration in this model set up is that we assume that all these expenditures were new dollars injected.[12]

Student spending was combined into four general categories for its estimation: room, board, transportation, and other. The Implan sectors that were used to estimate the impacts included real estate (IMPAN Industry Code 42), restaurants (IMPAN Industry Codes 501, 502, and 503), and retail (IMPAN Industry Codes 402 and 406).

Table 16: Economic Impacts on Personal Income Originating from Student Spending on the Regional Economies of North Carolina

	Direct ($)	Indirect ($)	Induced ($)	Total ($)
Pitt County	77,973,870	17,563,631	14,713,876	110,251,378
Local Area	–	1,878,437	588,795	2,467,232
Rest of Eastern N.C.	–	1,317,337	419,276	1,736,612
Rest of N.C.	–	3,337,965	1,772,173	5,110,138
Total Eastern N.C.	77,973,870	20,759,405	15,721,946	114,455,222
Total N.C.	77,973,870	24,097,370	17,494,119	119,565,359

In Pitt County, spending by student increased personal income by $110.3 million in AY 18. Most of the impacts from student spending was evident in Pitt County because that money was spent there. However, there were reverberating impacts though the supply chain and through household spending impacting regions beyond Pitt County. For example, the personal income for the local area, including ECU's contiguous counties, increased by $2.5 million; the rest of eastern N.C. income increased by $1.7 million; and the rest of the state benefited from $5.1 million in higher personal incomes. In total, the personal income in eastern N.C. increased by $114.5 million in AY 18 due to student spending in Pitt County. In the state, at large, personal income increased by $119.6 million.

Another way to measure the economic impacts from student spending is to use output as the economic metric. The impacts from student spending on the regional economies' output in AY 18 are reported in Table 17.

The output in Pitt County increased by $336.1 million as a result of the spending by students in the county. Across all the eastern N.C. counties output increased by $354.3 million. Output increased by $371.5 million throughout all of North Carolina as a result of student spending.

[12] This assumption represents an upper-bound assumption on these estimates. Footnotes 14 and 15 provide impact estimates with stricter spending assumptions.

Table 17: Economic Impacts on Output Originating from Student Spending on the Regional Economies of North Carolina

	Direct ($)	Indirect ($)	Induced ($)	Total ($)
Pitt County	227,958,879	58,117,268	50,042,042	336,118,189
Local Area	–	7,066,157	2,146,458	9,212,615
Rest of Eastern N.C.	–	7,137,676	1,856,956	8,994,632
Rest of N.C.	–	11,529,719	5,640,156	17,169,874
Total Eastern N.C.	227,958,879	72,321,101	54,045,456	354,325,436
Total N.C.	227,958,879	83,850,820	59,685,612	371,495,309

Spending by students in Pitt County supported employment in Pitt County and across the state's regional economies. Employment effects are reported in Table 18.

Table 18: Economic Impacts on Employment Originating from Student Spending on the Regional Economies of North Carolina

	Direct	Indirect	Induced	Total
Pitt County	3,176	503	421	4,101
Local Area	–	47	16	63
Rest of Eastern N.C.	–	45	13	58
Rest of N.C.	–	50	34	84
Total Eastern N.C.	3,176	595	450	4,222
Total N.C.	3,176	645	484	4,305

There were 4,101 jobs supported in Pitt County from student spending. Across eastern N.C., 4,222 jobs were supported; 4,305 jobs across the entire state were associated with ECU's student spending.

A summary of the total economic impacts of student spending in Pitt County on the regional economies is reported in Table 19.[13] In total, spending by students increased personal income in eastern NC by $114.4 million, increased output by $354.3 million, and supported 4,222 jobs in AY 17-18. If we consider the impacts on the state rather than the eastern region, student spending increased personal income in the state by $119.6 million, increased output by $371.5 million, and supported 4,305 jobs.[14]

[13] Because we assumed these were new injections, the resulting impacts are upper bounds of impacts from student spending. If we assumed that spending by students is substituted away from their counties of residence, their COA spending would not be new dollars. Thus, a lower bound estimate assumes that only the out-of-region students' spending sparks new economic impacts. When we account for substitution and only include injections of spending by students from outside the area (rest of N.C. and out of state), the economic impacts for eastern N.C. were $32.7 million in personal income, $100.8 million in output, and 1,319 jobs supported. Removing substitution effects for the state results in only out-of-state student spending sparking new economic impacts of $3.0 million in personal income for N.C., $8.7 million in output, and 97 jobs supported.

[14] It may be the case that distance students were geographically bound. With that assumption, their spending would not be shifted to Pitt County rather their spending would be the same as if they were not ECU students — spending remaining in their county of residence. IPAR provided a headcount of distance-only students for Fall 2017 and Spring 2018 semesters which was, on average, 24.25% of the total graduate and undergraduate student headcount. Removing substitution effects from in-region students as described in Footnote 13 and removing distance students, the economic impacts for eastern N.C. were $32.7 million in personal income, $100.8 million in output, and 1,319 in employment. At the state level, substitution-corrected, distance student removed economic impacts were $3.0 million in personal income, $8.7 million in output, and 97 jobs supported.

Table 19: Total Economic Impacts from Student Spending in Pitt County on the Regional Economies of North Carolina

	Total Income ($)	Total Output ($)	Total Employment
Pitt County	110,251,378	336,118,189	4,101
Local Area	2,467,232	9,212,615	63
Rest of Eastern N.C.	1,736,612	8,994,632	58
Rest of N.C.	5,110,138	17,169,874	84
Total Eastern N.C.	114,455,222	354,325,436	4,222
Total N.C.	119,565,359	371,495,309	4,305

Visitor Information

Event Visitors

The university attracted visitors to the area to attend sporting events, arts events, graduations, campus tours, and orientations.[15] As these visitors came to the area, they spent money on food, lodging, gasoline and other purchases. In this study, we match visitor counts from university sources with visitor spending estimates reported in the 2018 North Carolina Visitor Profile.[16]

For athletics, ticket sales for 2016-17 were pulled from the IPAR dashboard which included 471,475 tickets sold.[17] To allocate the total ticket sales across the regional economies, we matched a file of football ticket sales with zip codes to the counties of N.C. and out-of-state.[18] The proportional allocation from football ticket sales was applied to all the athletic ticket sales to achieve a regional distribution of ticket sales.

For the arts (non-dance), we counted the 6,606 ticket sales for 2016-17 reported on the IPAR dashboard.[19] The Central Ticket Office provided a zip code-matched ticket sales file for 2018.[20] The ticket sale distribution was estimated matching the zip codes to counties and then counties mapped to the regions as defined in this report.

Dance ticket sales were reported by Theatre Management in the School of Theater and Dance. The 13,757 tickets were reported for AY 17-18 with their associated regional specifications.[21]

Orientation data included 7,035 students and guests over the AY 17-18. There were 25,815 visitors who came for campus tours and an estimated 5,180 visitors who came to graduation ceremonies, not including the graduates.[22] Orientation, tour and graduation ceremony data were provided by the Office of Student Transitions.[23] To allocate the source these visitors from the different regional economies specified in this report, we imposed the student enrollment distribution on these total visitor counts.[24]

[15] We exclude visitor counts from events that were not university-sponsored even though they may have used university facilities. We did not include other visitor attractions to the campus such as summer camps and professional development programs.

[16] We used the 2018 North Carolina Visitor Profile which is a publication of Visit North Carolina, A Unit of the Economic Development Partnership of North Carolina (downloaded June 13, 2019).

[17] 2016-17 was the last data available at the time of this study. We assume that the quantity of tickets sold across all athletic events did not change significantly from 2016-17 to 2017-18.

[18] The zip-code matched football ticket sales were reported by the ECU Athletic Ticket Office, specifically Scott Lane. We used https://data.world/niccolley/us-zip code-to-county-state to assign the zip codes to counties. When there were duplications, we selected the county that was in the more local regional specification. For example, if a zip code in the football ticket file was affiliated with two counties, if one of the counties was in the counties was in the eastern NC region and the other county was in the local area, the tickets associated with that zip code would be assigned to the local area.

[19] This 2016-17 count represented the latest data available at the time of the study. We assume that the ticket sales numbers were not significantly different in 2017-18.

[20] Jeremy Jordan was the contact in Central Ticketing Office.

[21] Jeffery Woodruff was the contact in the School of Theatre and Dance.

[22] We have estimates of graduates at the university ceremony. We assume 2 visitors per graduate and 1.5 days of visiting for graduation ceremonies.

[23] Mary Beth Corbin was the contact in the Office of Student Transitions for both orientation and graduation counts.

[24] Geographic distribution of Fall 2017 undergraduates: Pitt 13.7%, local area 7.4%, rest of ENC 9.9%, rest of NC 58.4%, out of state 10.6%.

Medical (Referral) Visitors

Another large source of visitors to the area associated with the university included the patients who were served by ECU medical services. Referral counts from North Carolina counties were provided by ECU Physicians (ECUP). In fiscal year 2018, ECU Physicians had 345,889 outpatient referrals and 294,438 inpatient referrals.[25] These referral counts were distributed to the regional groupings using their counties of origin — where the referring physician was located — mapped to the different regions. Visitor counts from each economic region are reported in Table 20.

Table 20: Event and Medical Visitors to Pitt County

	Pitt County	Local Area	Rest of Eastern NC	Rest of NC	Out of State	Annual Visitors
Athletics	126,035	38,038	39,132	155,507	112,763	**471,475**
Arts (Non-Dance)	5,433	374	139	558	100	**6,606**
Arts (Dance)	9,464	2,242	337	1,349	365	**13,757**
Orientation	963	521	699	4,105	747	**7,035**
Campus Tours	3,534	1,912	2,564	15,065	2,740	**25,815**
Graduation Geremonies	877	431	579	3,331	642	**5,860**
Outpatient Referrals	81,487	120,626	135,200	8,576	–	**345,889**
Inpatient Referrals	69,366	102,683	115,089	7,300	–	**294,438**

All these visitors spent money when they came to ECU. The North Carolina Visitor Profile reported expenditures by categories for day visitors and overnight visitors.[26] Because expenditures were different depending on day-only or overnight visitors, we assumed day-only statuses for visitors from relatively local geographic areas (Pitt County, local area, and eastern N.C.). We assumed overnight stays for visitors from the rest of North Carolina and out of state. Visitor totals from Table 20 are combined with the expenditures listed below in Table 21 to estimate the total visitor spending by activity and by spending category.[27]

[25] Data and input were provided from ECUP by Robert LaGesse.

[26] ASSUMPTIONS: There is a regional profile which includes visitors to the coastal area stay, but trip attributes and spending levels indicate these are for beach vacationers rather than short term visitors as described here. We include only the spending categories for N.C. MODIFICATIONS: N.C. visitor information is calculated by trip and by trip group. To convert group and trip totals to per capita spending the totals were divided by the average group size. For day visitors that was 2 and for overnight visitors it was 2.2.

[27] Because inpatient referrals stay overnight, we assumed two (2) days of local travel for visitors from Pitt, local area, and eastern NC. We assume two (2) days of local travel for visitors from Pitt, local area, and eastern NC.

Table 21: Per Capita Visitor Expenditures

	Day Trip Visitors ($)	Overnight NC Visitors ($)
Lodging	–	29
Food, Beverage and Dining	20	17
Groceries	12	5
Shopping, Gifts and Souvenirs	23	7
Transportation and Gasoline	33	17
Entertainment and Admissions	7	4
Gaming*	3	5
Amenities*	1	1
Parking and Tolls*	1	–
Other	2	1
Total	101	86

* These values would not apply to visitor spending in Greenville and/or Pitt County.

Economic Impacts for Visitors

Visitor spending measures were combined into four general categories: lodging, food, transportation, and retail. The IMPLAN sectors were aligned including hotels and models (IMPLAN Industry Code 499), restaurants (IMPLAN Industry Codes 501, 502 and 503), transportation (IMPLAN Industry Code 402), and miscellaneous retail (IMPLAN Industry Code 406), respectively. Visitor spending impacts are reported in Tables 22-25.

Table 22: Economic Impacts on Personal Income from Visitors to Pitt County on the Regional Economies of North Carolina

	Direct ($)	Indirect ($)	Induced ($)	Total ($)
Pitt County	38,656,005	5,809,540	6,837,674	51,303,219
Local Area	–	574,731	231,895	806,625
Rest of Eastern N.C.	–	531,531	183,048	714,580
Rest of N.C.	–	1,265,942	741,771	2,007,713
Total Eastern N.C.	38,656,005	6,915,802	7,252,617	52,824,424
Total N.C.	38,656,005	8,181,744	7,994,388	54,832,137

Visitor spending in Pitt County increased personal income in the county at $51.3 million. This spending reverberated through the economy through the supply chains (indirect effects) and through household spending (induced effects). In total, the visitor spending in Pitt County increased the personal income across eastern North Carolina by $52.8 million and across the whole state, including eastern N.C., by $54.8 million.

Table 23: Economic Impacts on Output from Visitors to Pitt County on the Regional Economies of North Carolina

	Direct ($)	Indirect ($)	Induced ($)	Total ($)
Pitt County	82,782,689	19,266,930	23,255,363	125,304,982
Local Area	–	2,380,872	848,866	3,229,738
Rest of Eastern N.C.	–	2,790,505	818,023	3,608,528
Rest of N.C.	–	4,358,835	2,365,318	6,724,153
Total Eastern N.C.	82,782,689	24,438,307	24,922,251	132,143,247
Total N.C.	82,782,689	28,797,142	27,287,569	138,867,400

In Pitt County, the visitor spending increased output by $125.3 million. The visitor spending in Pitt County was spread through supply chains and household purchases across the region, increasing output in eastern N.C. by $132.1 million and across the state by $138.9 million.

Table 24: Economic Impacts on Employment from Visitors to Pitt County on the Regional Economies of North Carolina

	Direct ($)	Indirect ($)	Induced ($)	Total ($)
Pitt County	1,550	152	196	1,898
Local Area	–	13	6	20
Rest of Eastern N.C.	–	18	6	24
Rest of N.C.	–	19	14	33
Total Eastern N.C.	1,550	184	208	1,942
Total N.C.	1,550	203	221	1,975

If visitor spending is relatively stable over time, then the employment effects represented jobs consistently supported by visitors coming to Pitt County. In Pitt County, 1,898 full-time equivalent jobs were supported based on annual visitor expenditures; 1,942 across eastern N.C., and 1,975 across the whole state in AY 17-18.

In total, the visitors who come to Pitt County for various types of events and for medical services positively impact the economy. The total of the impacts measured as income, output and employment are reported in Table 25.

In total, the spending by visitors to ECU and Pitt County increased income in eastern N.C. by $52.8 million in AY 17-18. Of that total, $19.1 million resulted from visitors to events (athletic, arts and academics) and $33.7 million resulted from medical referral visitors. In the state at large, visitors increased total income by $54.83 million in AY 17-18 — $19.9 million was associated with events and $35 million was due to medical referral visitors. Output in eastern N.C. was increased by $132.1 million due to visitor spending at ECU and in Pitt County. Across N.C. output increased by $138.9 million. Another way to quantify the economic impact of visitor spending was to consider the number of jobs supported. Visitor spending supported 1,942 jobs in eastern N.C. and a total of 1,975 jobs in N.C. If the number of visitors is stable over time, these can be considered recurring impacts.

Table 25: Total Economic Impacts from Visitor Spending in Pitt County on the Regional Economies of North Carolina[28]

	Total Income ($)	Total Output ($)	Total Employment
Pitt County	51,303,219	125,304,982	1,898
Event Visitors	18,515,237	47,688,385	699
Medical Visitors	32,787,981	77,616,597	1,199
Local Area	806,625	3,229,738	20
Event Visitors	316,666	1,252,278	8
Medical Visitors	489,959	1,977,460	12
Rest of Eastern N.C.	714,580	3,608,528	24
Event Visitors	259,570	1,308,897	9
Medical Visitors	455,010	2,299,631	15
Rest of N.C.	2,007,713	6,724,153	33
Event Visitors	767,575	2,568,824	13
Medical Visitors	1,240,138	4,155,328	20
Total Eastern N.C.	52,824,424	132,143,247	1,942
Event Visitors	19,091,473	50,249,560	715
Medical Visitors	33,732,951	81,893,687	1,226
Total N.C.	54,832,137	138,867,400	1,975
Event Visitors	19,859,048	52,818,385	728
Medical Visitors	34,973,089	86,049,015	1,247

[28] Because we assume these are all new injections into the economy, the resulting impacts are upper bounds of economic impacts from visitor spending. If we account for substitution, that visitors may have spent their money in their home regions, our impact estimates are lower. Accounting for substitution, visitor spending impacted eastern N.C. by $13.8 million in income ($9.3 due to event visitors and $4.5 due to medical referrals). The substitution-included visitor output effects for eastern N.C. were $36.0 million ($24.2 million due to visitors and $11.9 due to medical referrals). In terms of employment, once substitution is included, 568.5 jobs were supported in eastern N.C. due to visitors (381.5 associated with visitors and 187 associated with medical referrals). At the state level, to account for substation, we only count event visitors from out of state. Out-of-state-only visitor spending generated $791,595 in personal income, $2.3 million in output and supported 22.2 jobs.

Alumni Dividend Effects: Impacts from Gains in Income from Earned Degrees

Each year, students enroll in the university to invest in their human capital. The degrees they receive from ECU increase their earning potential. In this section, we estimate the economic impacts of the increased earning potential from the degrees earned by the AY 17-18 graduates of ECU, which we call alumni dividend effects.

Graduates

To estimate the marginal contribution of a graduate's ECU degree on their earnings, we use the difference in income earned associated with the degree awarded by ECU and the earnings from their previously earned degrees. To calculate the spending associated with degree attainment, we first identified the marginal degree awarded at ECU. For example, most of the bachelor's degree recipients had previously earned high school degrees; however, some of them came to ECU with associate degrees or other bachelor degrees. We classify graduates into the following categories:

- High school degree to bachelor
- Associate degree to bachelor
- Bachelor to master/specialist
- Master to Ph.D.
- Bachelor to medical degree
- Bachelor to dental degree

To estimate the impacts of the degrees earned at ECU on the state of N.C., we also need to know what percentage of the graduates remained in the state to work. The percentage of graduates who remain in N.C. after degree completion were retrieved from NC Tower.[29]

Table 26: AY 17-18 Graduates (Count) and Percent Who Stayed in N.C.

	Number of Graduates	% of Graduates Stayed in NC
Bachelor[30]	4,627	77%
Post-Bachelor Certificate	52	90%
Master	1,352	78%
Doctoral-Research	64	69%
Doctoral-Practice Health and Related	204	77%[31]

To calculate the count of graduates who stay in North Carolina after graduation, we multiply the number of graduates by the percentage who remain in North Carolina. However, this value does not include their regional location within the state. To allocate the graduates to labor forces across the regional economies in N.C., we use the overall employment distribution by region which was calculated using county-level employment statistics for December 2017 reported by the Bureau of Labor Statistics.[32] County employment counts were aggregated into the regional employment counts, from which percentages of total employment by region were calculated. These percentages were applied to the graduates who stay in North Carolina totals to achieve an employment distribution of those graduates.

[29] NC Tower Data Retrieval site was used to collect the prior degree earned of graduates (which is slightly different than an alternative metric of degrees conferred).

[30] 88% of the bachelor's degree recipients had a high school degree (this includes students who transferred to ECU without a degree earned); 12% of the bachelor's degree recipients had an associate's degree (or another bachelor's degree)

[31] 48% medicine, 70% dentistry, 95% nursing, and 93% physical therapy.

[32] BLS employment by county for NC.

Income

To estimate the spending by graduates in their region of employment, we linked the additional degree earned at ECU upon graduation (Table 26) with the higher income associated with the additional degree. Earning by degree attainment (listed in Table 27) were collected from the Bureau of Labor Statistics.[33]

Table 27: Earnings by Degree Attainment

Degree Attained	Annual Earnings ($)
High School	37,960
Associate Degree	44,824
Bachelor Degree	62,296
Master Degree	74,568
Doctoral Degree	94,900
Dental Degree	151,850
Medical Degree	201,000
Nursing Degree	71,730

Table 28: Marginal Increased Earnings by ECU Graduates by Region of Employment[34]

	Pitt ($)	Local Area ($)	Rest of ENC ($)	Eastern NC ($)	NC ($)
Bachelor with HS Degree	1,038,516	1,999,093	3,622,947	6,660,556	57,509,435
Bachelor with Assoc. Degree	377,715	727,083	1,317,689	2,422,487	20,916,556
Post-Bachelor Certificate	20,552	39,563	71,699	131,814	1,138,126
Master	233,537	449,548	814,713	1,497,798	12,932,478
Doctoral Research	16,202	31,189	56,523	103,914	897,231
Doctoral Medicine	90,107	173,452	314,347	577,906	4,989,839
Doctoral Dentistry	61,087	117,589	213,106	391,782	3,382,767
Doctoral Nursing	9,592	18,464	33,463	61,519	531,180
Doctoral PT	12,906	24,843	45,023	82,772	714,686
Total	**1,860,214**	**3,580,824**	**6,489,510**	**11,930,548**	**103,012,298**

[33] For undergraduate and graduate degree earnings were calculated as the difference between degree earned and earnings for prior degree held using data from the BLS. BLS weekly earnings converted to annual by multiplying by 52. For graduates with medical, dental and nursing degrees, their earnings were collected from a more job-specific BLS site. More specifically:

- Dental graduate earnings are based on the onetonline category, Dentist (General) ;
- Medical graduates' earnings are based on the onetonline category, Family and General Practitioner; and
- Nursing graduates are based on the onetonline category, Nursing Clinical Specialist as nearly all have master's degrees.

[34] (# bachelors w/ HS degree)(earning differential$bach-$HS)(% stay in NC)(%employ by regioni) where i=Pitt County, local area, eNC, N.C.
(# bachelors w/ Assoc degree)(earning differential$bach-$Assoc)(% stay in NC)(%employ by regioni) where i=Pitt County, local area, eNC, N.C.
(# Masters degree)(earning differential$Masters-$Bach)(% stay in NC)(%employ by regioni) where i=Pitt County, local area, eNC, N.C.
(# PhDresearch)(earning differential$PhD research-$Masters)(% stay in NC)(%employ by regioni) where i=Pitt County, local area, eNC, N.C.
(# PhDmedical)(earning differential$PhD medical-$Masters)(% stay in NC)(%employ by regioni) where i=Pitt County, local area, eNC, N.C.
(# PhDdental)(earning differential$PhD dental-$Masters)(% stay in NC)(% employ by regioni) where i=Pitt County, local area, eNC, N.C.
(# PhDnursing)(earning differential$PhD nursing-$Masters)(% stay in NC)(% employ by regioni) where i=Pitt County, local area, eNC, N.C.
(# PhDphysical therapy)(earning differential$PhD PT-$Masters)(% stay in NC)(% employ by regioni) where i=Pitt County, local area, eNC, N.C.

ECU degrees earned and employed graduates locating in each region increased the income earned by the graduates in those regions. For example, the graduate who stayed in Pitt County earned $1.86 million more in income than they would have earned without the degree. Using IMPLAN, we estimate the economic impacts from their increased earnings on Pitt County, as well as spillover spending effects on the other regions. In eastern N.C., graduates earned incomes that were $11.9 million higher than they would have been without their ECU degree. Across the state of N.C., the incomes of graduates were $103 million higher than they would have been without their ECU degree.

Economic Impacts from Alumni Dividends

The alumni dividend was the increase in earnings from the additional education and was modeled as payroll as was done with ECU payrolls. Pay gains were modeled in each of the four regions using labor income change in IMPLAN Sector 500: Employee Compensation.

The economic impacts, measured as personal income, output, and employment were tracked based on the graduates' estimated higher level of income and distributed across the state based on N.C.'s employment distribution. These alumni dividends set off spending through the economy. Because the source of the impacts was from household spending, the impacts were all induced spending. The alumni dividend impacts on personal income are reported in Table 29.

Table 29: Economic Impacts on Personal Income from Alumni Dividends on the Regional Economies of North Carolina

	Total ($)*
Pitt County	307,719
Local Area	537,209
Rest of Eastern N.C.	899,083
Rest of N.C.	22,098,471
Total Eastern N.C.	1,744,011
Total N.C.	23,842,482

* Because all impacts are induced, there are no direct or indirect effects, thus total impact = induced impact.

Alumni dividends were spent across the state. These spending gains impacted the regions in which the ECU graduates worked and had spillover effects on the other regions in the state. For example, in total, the spending from the ECU graduates who stayed in the state to work after graduation increased the personal income in Pitt County by $307,719. This included the spending from graduates who were located in Pitt County and the sum of spillover effects to Pitt County from graduates who were located in other counties across N.C. The total personal income impacts from graduates' earnings (reported in Table 29 above) does not include the income earned by the graduates directly (reported in Table 28. It includes the impacts from spending of the alumni dividends. Effectively, personal income increased by another $11.9 million due to the higher earnings of ECU graduates in eastern N.C. — a total of $13.67 million.[35] Personal income increased another $103 in N.C. due to the higher earnings of ECU graduates — a total of $126.85 million.

[35] This value and the following value of $126.85 million come from summing the graduates' income gains listed in Table 28 with the income effects sparked by their spending listed in Table 29.

Table 30: Economic Impacts on Output from Alumni Dividends on the Regional Economies of North Carolina

	Total ($)*
Pitt County	1,045,146
Local Area	1,943,280
Rest of Eastern N.C.	3,375,156
Rest of N.C.	69,112,332
Total Eastern N.C.	6,363,582
Total N.C.	75,475,914

* Because all impacts are induced, there are no direct or indirect effects, thus total impact = induced impact.

Alumni dividends from graduates who located across the state increased output in eastern N.C. by $6.4 million and output in the state by $75.5 million.

Table 31: Economic Impacts on Employment from Alumni Dividends on the Regional Economies of North Carolina

	Total*
Pitt County	9
Local Area	16
Rest of Eastern N.C.	27
Rest of N.C.	484
Total Eastern N.C.	52
Total N.C.	535

* Because all impacts are induced, there are no direct or indirect effects, thus total impact = induced impact.

The alumni dividend spending supported nine (9) jobs in Pitt County, 52 jobs in eastern N.C., and 535 jobs in the state of North Carolina. These numbers do not include any change in employment due to the graduates directly, it only includes employment supported by the spending of their higher incomes.

Students invested in their human capital by earning their degrees which increased their earning potential. We assumed that the ECU graduates who stayed in state were dispersed across the economy based on the overall employment rates by region. As they locate in these regions, their alumni dividends were spent in the regional economies in which they work. These spending impacts positively impacted both their local economies and had spillover effects on the other regional economies. The total of the spending impacts and spillover impacts are reported in Table 32 (summary of Tables 29-31).

Table 32: Total Economic Impacts from the Spending from Alumni Dividends on the Regional Economies of North Carolina

	Total Income ($)	Total Output ($)	Total Employment
Pitt County	307,719	1,045,146	9
Local Area	537,209	1,943,280	16
Rest of Eastern N.C.	899,083	3,375,156	27
Rest of N.C.	22,098,471	69,112,332	484
Total Eastern N.C.	1,744,011	6,363,582	52
Total N.C.	23,842,482	75,475,914	535

Alumni dividends from AY 17-18 graduates reverberated through eastern N.C. and increased total income by $1.7 million, increased total output by $6.4 million and supported an additional 52 jobs. In the state, the higher income earned by ECU graduates increased personal income of other households by $23.8 million, increased state output by $75.5 million and supported 535 jobs.

Summary

ECU impacts the local, regional and state economies in many ways. This report tracks the economic impacts of spending associated with university operations, payroll, student spending, visitor spending, and alumni dividends. Operations, payroll, student, and visitor spending occurred within Pitt County while alumni dividends occurred where graduates were employed.

These spending categories represented injections into the economy (direct effect) and set off additional spending through the supply chains (indirect effects) and through household spending (induced effects). In this study we quantified economic impacts in three ways: increased personal income, increased output and increased employment.

The degree to which the spending by the university, students, visitors, and graduates are consistent over time, the impacts reported below can be considered recurring annual impacts. In this case, we are tracking university operational and payroll spending and medical referral visitors over FY18 and event visitor and graduate spending over the AY 17-18.

Table 1 is repeated below to provide a summary of the economic impacts of the different university and university-related activities on the 29 counties of eastern North Carolina.

Table 1 (Repeated): Total Economic Impacts of East Carolina University on Eastern North Carolina

	Total Income ($)	Total Output ($)	Total Employment
University Operations	822,090,377	1,706,114,180	18,651
Student Spending	114,455,222	354,325,436	4,222
Visitor Spending	52,824,424	132,143,247	1,942
Alumni Dividend	1,744,011	6,363,582	52
Capital Expenditures	50,593,976	139,928,500	1,055
Total	**1,041,708,010**	**2,338,874,945**	**25,922**

University operations increased personal income in eastern N.C. by $822.1 million and student spending increased personal income in the region by $114.5 million. In total, across the different university and university-related activities, personal income in eastern N.C. increased by $1.0 billion. This value does not include the income earned by ECU graduates directly which would increase personal income gain to $983.8.[36]

Another way to quantify economic impacts is to consider the effects of these spending categories on the output or gross regional product of eastern N.C. For example, the university operations increased output in eastern N.C. by $1.7 billion. In total, output in eastern N.C. was $2.3 billion higher due to ECU's university and university-related activities.

[36] This comes from adding the $11,930,548 higher earnings from ECU graduates in eastern N.C. (Table 28).

The university directly created jobs through its hiring of employees. In addition, the spending of the university, its employees, students, visitors, and graduates also created and supported jobs across eastern N.C. For example, university operations supported 18,651 jobs. In eastern N.C., there were 25,922 jobs that were supported by ECU's operations, student and visitor spending, alumni dividends, and capital expenditures.

The university also positively impacted the whole state of North Carolina. Table 2 is repeated as a summary of the total economic impacts from the university and university-related expenditures on the state of North Carolina.

Table 2 (Repeated): Total Economic Impacts of East Carolina University on North Carolina

	Total Income ($)	Total Output ($)	Total Employment
University Operations	857,524,832	1,820,949,202	19,261
Student Spending	119,565,359	371,495,309	4,305
Visitor Spending	54,832,137	138,867,400	1,975
Alumni Dividend	23,842,482	75,475,914	535
Capital Expenditures	50,593,976	139,928,500	1,055
Total	**1,106,358,786**	**2,546,716,325**	**27,131**

The university operations increased personal income in the state by $857.5 million. Student spending increased N.C.'s personal income by $119.6 million. In total, the state of N.C.'s personal income was $1.1 billion higher as a result of ECU operations, its visitors and alumni dividends. If we include the additional earnings of the graduates, personal income in the state increased by $1.2 billion.[37] North Carolina's output or gross state product was $2.5 billion higher as a result of ECU's activities and spending by students, visitors and graduates. Another way to quantify economic impacts is by the number of jobs supported annually. In total, 27,131 jobs were supported in N.C. in 2018 due to the operations, student and visitor spending, alumni dividends, and capital expenditures.

[36] This comes from adding the $103,012,298 higher earnings from ECU graduates in NC (Table 28).