

The Economic Impact of University System of Georgia Institutions on their Regional Economies in FY2017

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Introduction

How much does a region benefit economically from hosting an institution of higher education? Traditionally, the benefits are discussed in broad, qualitative terms that often fail to satisfy those who demand tangible evidence of the economic linkages between the academic community and the community as a whole; however, this report quantifies the economic benefits that the University System of Georgia's institutions convey to the communities in which they are located.

The benefits are estimated for several important categories of college/university-related expenditures: spending by the institutions themselves for salaries and fringe benefits, operating supplies and expenses, and other budgeted

Methodology

Short-Term Economic Impact Of a College or University

The total annual economic impact of college- or university-related spending is defined to consist of the net changes in regional output, value added, labor income, and employment that are due to initial spending by the institution (for operations as well as personnel services) and its students. The total economic impact includes the impact of the initial round of spending and the secondary, or indirect and induced spending—or the multiplier effect—that occurs when the initial expenditures are re-spent. Figure 1 provides a schematic representation of impact relationships.

Indirect spending refers to the changes in inter-industry purchases as a region's industries respond to the additional demands triggered by spending by the college or university, its faculty and staff, and its students. It consists of the ripples of activity that are created when an institution and its employees and students purchase goods or services from other industries located in the host community. Induced spending is similar to indirect spending except that it refers to the additional demand triggered by spending by the region's households as their income increases due to changes in production. Basically, the induced impact captures the ripples of activity that are created when households spend more due to increases in their earnings that were generated by the direct and indirect spending.

The sum of the direct, indirect, and induced economic impacts is the total economic impact, which is expressed in terms of output (sales, plus or minus inventory), value added (gross regional product), labor income, or employment. Total industry output is gross receipts or sales, plus or minus inventory, or the value of production by industry (including households) for a given period of time. Total output impacts are the most inclusive, largest measures of economic impact. Because of their size, output impacts typically are emphasized in economic impact studies and receive much media attention. One problem with output as a measure of economic impact, however, is that it includes the value of inputs produced by other industries, which means that there inevitably is some double counting of economic activity. The other measures of economic activity (value added, labor income, and employment) are free from double counting and provide a much more realistic measure of the true economic impact of a college or university on its regional economy.

The regional economic areas are the host communities, including the surrounding counties from which employees and students commute. The effects of expenditures that go to people, businesses, or governments located outside the regions are not included in the value-added, labor income, and employment impact estimates.

The multiplier concept is common to most economic impact studies. Multipliers measure the response of the local economy to a change in demand or production. In essence, multipliers capture the impact of the initial round of spending plus the impacts generated by successive rounds of re-spending of those initial dollars. The magnitude of a particular multiplier depends upon what proportion of each spent dollar leaves the region during each round of spending. Multipliers therefore are unique to the region and to the industry that receives the initial round of spending.

Figure 2 illustrates the successive rounds of spending that might occur if a person buys an item locally. Assume that the amount spent is \$100 and that the appropriate regional output multiplier is 2.0. The initial injection of spending to the region is \$100, which creates a direct economic impact of \$100 to the regional economy. Of that \$100, only \$50 is re-spent locally; the rest flows out of the region through non-local taxes, non-local purchases, and income transfers. After the first round of spending, the total economic impact to the region is \$150. During the second round of re-spending, \$25 is re-spent locally and \$25 leaks out of the region, a 50 percent leakage. Now the total economic impact to the region is \$175. After seven rounds of re-spending, less than \$1 remains in the local economy, but the total economic impact has reached almost \$200. The induced (multiplier effect) impact to the region (\$100) equals the total impact (\$200) minus the direct impact (\$100).

The multiplier traces the flows of re-spending that occur throughout the region until the initial dollars have completely leaked to other regions. Obviously, multiplier effects within large, self-sufficient areas are likely to be larger than those in small, rural, or specialized areas that are less able to capture spending for necessary goods and services. Multiplier effects also vary greatly from industry to industry, but in general, the greater the interaction with the local economy, the larger the multiplier for that industry. For example, personal services, business services, and

entertainment industries have intricate relationships with local supporting industries, and therefore have relatively high multiplier values. Conversely, electric, gas, and sanitary services usually are less intertwined with local supporting industries, and their multipliers are lower.

QAnalytic Approach Q

Estimating the economic impact of the University System of Georgia institutions on their regional economies in FY 2017 involved four basic steps. First, initial spending (and employment) for each institution were obtained for Budget Unit “A” and “Budget Unit “B”; and then the institutional expenditures were allocated to industrial sectors recognized by the economic impact modeling system. Second, spending by students was estimated and then allocated to industrial sectors. Third, expenditures associated with capital projects (construction) funded were obtained for each institution and were allocated to the appropriate industrial sectors. Finally, the IMPLAN Online modeling system was used to build regional economic models that are specific to each institution.

The geographic areas corresponding to the regional models that were built for each institution, which include the labor force directly involved in their economic spheres, are reported in Appendix 1. These geographic areas are based on an analysis of commuting patterns data obtained from the U.S. Census Bureau. For analytical purposes, all dollar

Total Initial Spending

For each institution, total initial spending accruing to the institution's regional economy is the combination of three types of spending—spending by the institution for personnel services, spending by the institution for operating expenses, and spending by that institution's students. Estimates of initial spending for FY 2017 are reported in the first column of Tables 1 and 2. Spending by the institutions for capital projects is reported in Appendix 2.

For FY 2017, total initial spending for all 28 institutions was \$11.5 billion. Spending originating from personnel services accounted for 37 percent (\$4.3 billion) of initial spending, spending due to operating expenses accounted for 24 percent (\$2.7 billion) of initial spending, and students' personal expenditures accounted for 39 percent (\$4.5 billion) of initial spending.

Total Output Impact

The output impact was calculated for each category of initial spending, based on the impact of the first round of spending and the impacts generated by the re-spending of these amounts—the multiplier effect. Total output impacts are the most inclusive, largest measures of economic impact. Conceptualized as the equivalent of business revenue, sales, or gross receipts, total output is the value of productions by all industries, including households. Output impacts for FY 2017 are reported in the second column of Tables 1 and 2.

Measured in the simplest and broadest possible terms, the total economic impact of the 26 institutions of the University System of Georgia was \$16.8 billion in FY 2017 (Table 1). This amount represents the combined impact of all 26 institutions on their host communities. Of the FY 2017 output impact, \$11.5 billion (68 percent) was initial spending by the institutions and students, while \$5.3 billion (32 percent) was the induced/re-spending impact or multiplier effect (i.e., the difference between output impact and initial spending). The multiplier captures the regional economic repercussions of the flows of re-spending that take place throughout the region until the initial spending has completely leaked to other regions. The average multiplier value for all institutions in FY 2017 was 1.46, obtained by dividing the total output impact (\$16.8 billion) by initial spending (\$11.5 billion). On average, therefore, every dollar of initial spending generated an additional 46 cents for the economy of the region hosting the institution. Thus, for all institutions, the output impact was 1.462 times greater than their initial spending, but the multiplier varies among the individual USG institutions.

It is no surprise that estimates for the various institutions show differing outcomes, given the differences in budgets, staffing, enrollment, and regional economies. Institutions located in the largest metropolitan areas (e.g., Atlanta)—where multipliers are the highest, or institutions have the largest budgets, staffs, and enrollments—had the largest economic impacts. Thus, for the most part, institutions with large initial spending will rank highly on the various indicators of economic impact, including value-added, labor income, and employment impact described in the following subsections.

Total Value-Added Impact

Because value-added impacts exclude expenditures related to foreign and domestic trade, they provide a much more accurate measure of the actual economic benefits flowing to businesses and households in a region than the more inclusive output impacts. The value-added impacts for FY 2017 are reported in the third column of Tables 1 and 2.

The 26 institutions collectively generated a value-added impact of \$11.6 billion in FY 2017. For all institutions combined, the value-added impact equaled 69 percent of the \$16.8 billion output impact (with domestic and foreign trade comprising the remaining 31 percent of the output impact). The \$11.6 billion value-added impact reported for FY 2017 equals 2.2 percent of Georgia's 2017 gross domestic product.

Labor Income Impact

Collectively, the 26 University System institutions generated a labor income impact of \$8.1 billion in FY 2017. The labor income received by residents of the communities that host University System institutions represents 70 percent of the value-added impact. Labor income for each institution is reported in the fourth column of Table 2.

Employment Impact

The economic impact of hosting an institution of the University System of Georgia probably is most easily understood in terms of its effects on employment. Collectively, the 26 institutions generated an employment impact of 163,754 jobs in FY 2017. Approximately 31 percent (50,541) of these positions are on-campus jobs at one of the institutions of the University System of Georgia, and 69 percent (113,213 jobs) are off-campus positions in either the private or public sectors. On average, for each job created on campus there are 2.2 off-campus jobs that exist because of spending related to the University System of Georgia.

The employment impact associated with the University System accounts for 3.7 percent of all the nonfarm jobs held by Georgians, or about one job in 27. For all institutions combined, 14 jobs were generated for each million dollars of initial spending in FY 2017.

Employment impacts in FY 2017 for the individual institutions are reported in the fifth column of Table 2. Table 3 shows a break out (by institution) of on- and off-campus jobs that exist due to institution-related spending.

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Summary

The fundamental finding of this study is that each of the University System of Georgia's institutions creates

Figure 1
Schematic Representation of Impact Relationship



Figure 2
How Multipliers Capture the Impact of Re-spending

Initial Direct or Indirect Impact	\$100	
First Round of Re-spending	\$50 re-spent locally	\$50 leakage*
Second Round of Re-spending	\$25 re-spent locally	\$25 leakage
Third Round of Re-spending	\$12.50 re-spent locally	\$12.50 leakage
Fourth Round of Re-spending	\$6.25 re-spent locally	\$6.25 leakage
Fifth Round of Re-spending	\$3.12 re-spent locally	\$3.12 leakage
Sixth Round of Re-spending	\$1.56 re-spent locally	\$1.56 leakage
Seventh Round of Re-spending	\$.78 re-spent locally	\$.78 leakage
Total Economic Impact	\$200	Total Leakage \$100

*Leakage indicates amounts spent outside area and not re-circulated locally.

Table 1

**Total Economic Impact of All Institutions of the University System of Georgia
on their Regional Economies in Fiscal Year 2017**

Total for All Institutions in 2017	Initial Spending (current dollars)	Output Impact (current dollars)	Value Added Impact (current dollars)	Labor Income Impact (current dollars)	Employment Impact (jobs)
System total	11,515,528,541	16,842,753,824	11,598,058,758	8,106,313,778	163,754
Personnel services	4,316,169,350	8,437,240,487	6,744,536,557	5,596,192,652	81,079
Operating expenses	2,716,573,201	2,044,285,589	1,085,232,019	681,433,984	16,436
Student spending	4,482,785,990	6,361,227,748	3,768,290,182	1,828,687,149	66,239

Notes:

The impacts of spending on Output, Value Added, Labor Income, and Employment were estimated using IMPLAN Online and production functions provided by IMPLAN.

Initial spending for personal services and operating expenses were obtained from the Board of Regents of the University System of Georgia. The author estimated initial spending by students.

Output refers to the value of total production, including domestic and foreign trade. Value added includes employee compensation, proprietary income, other property income, and indirect business taxes. Labor income includes both the total payroll costs (including fringe benefits) of workers who are paid by employers and payments received by self-employed individuals. Employment includes both full-time and part-time jobs.

Source: Selig Center for Economic Growth, Terry College of Business, University of Georgia (www.selig.uga.edu), 2018.

Table 2 (continued)

Total Economic Impact of University System of Georgia
Institutions on their Regional Economies in Fiscal Year 2017

State Universities

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Table 2 (continued)

**Total Economic Impact of University System of Georgia
Institutions on their Regional Economies in Fiscal Year 2017**

<u>Institution</u>	<u>Initial Spending (current dollars)</u>	<u>Output Impact (current dollars)</u>	<u>Value Added Impact (current dollars)</u>	<u>Labor Income Impact (current dollars)</u>	<u>Employment Impact (jobs)</u>
South Georgia State College	58,953,058	68,484,448	40,667,247	27,520,019	806
Personal Services	12,843,308	20,322,191	16,801,815	14,800,978	263
Operating Expenses	13,024,708	7,629,446	3,276,112	2,056,779	78
Student Spending	33,085,042	40,532,811	20,589,320	10,662,262	465

Notes:

The impacts of spending on Output, Value Added, Labor Income, and Employment were estimated using IMPLAN Online and production functions provided by IMPLAN.

Initial spending for personal services and operating expenses were obtained from the Board of Regents of the University System of Georgia. The author estimated initial spending by students.

Output refers to the value of total production, including domestic and foreign trade. Value added includes employee compensation, proprietary income, other property income, and indirect business taxes. Labor income includes both the total payroll costs (including fringe benefits) of workers who are paid by employers and payments received by self-employed individuals. Employment includes both full-time and part-time jobs.

Expenditures and impacts for Augusta University do not include impacts associated with the AU Medical Center, Inc., which are reported in Appendix 3.

Source: Selig Center for Economic Growth, Terry College of Business, University of Georgia (www.selig.uga.edu), 2018.

Table 3

**On-Campus and Off-Campus Jobs that Exist
Due to Institution-Related Spending in Fiscal Year 2018**

<u>Institution</u>	Total Employment Impact	On-Campus Jobs	Off-Campus Jobs that Exist Due to Institution-Related Spending
System Total	162,886	50,941	111,945
Research Universities	122,152	28,935	93,217
Augusta University	16,521	5,716	10,805
Georgia College of Textile and Merchandising	1,000	1,000	0
Georgia State University	10,000	10,000	0
University of Georgia	94,631	12,229	82,402
Regional Universities	36,352	16,086	20,266
Georgia Southern University	28,000	16,086	11,914
Georgia State University	8,352	0	8,352

Notes: On-campus and off-campus jobs reported for Augusta University exclude employment impacts for the AU Medical Center, Inc., which are reported in Appendix 3. 16,886

Source: Selig Center for Economic Growth, Terry College of Business, University of Georgia (www.selig.uga.edu), 2018.

Appendix 1

Study Areas for Institutions

Research Universities

Augusta University – Richmond, Columbia, Burke, McDuffie, Lincoln, Jefferson, Jenkins, and Warren

Appendix 2

**Economic Impact of Capital Outlays
in Fiscal Year 2017**

<u>Institution</u>	<u>Initial Spending (current dollars)</u>	<u>Output Impact (current dollars)</u>	<u>Value Added Impact (current dollars)</u>	<u>Labor Income Impact (current dollars)</u>	<u>Employment Impact (jobs)</u>
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Notes: The impacts of spending on Output, Value Added, Labor Income, and Employment were estimated using IMPLAN Online and production functions provided by IMPLAN. Initial spending for capital projects were obtained from the Board of Regents of the University System of Georgia. Output refers to the value of total production, including domestic and foreign trade. Value added includes employee compensation, proprietary income, other property income, and indirect business taxes. Labor income includes both the total payroll costs (including fringe benefits) of workers who are paid by employers and payments received by self-employed individuals. Employment includes both full- and part-time jobs. Estimates for Augusta University exclude impacts associated with the AU Medical CIL-8 (ugusiA)49.9 (U Medica, imp Tm [(and pa)29.0 8 189.9963 626.9697 Tm ((current dollars))Tj ET EMC /Span <</4h

Appendix 3

Combined Economic Impact of Augusta University and AU Medical Center, Inc. in Fiscal Year 2017

<u>Institution</u>	<u>Initial Spending</u> (current dollars)	<u>Output Impact</u> (current dollars)	<u>Value Added Impact</u> (current dollars)	<u>Labor Income Impact</u> (current dollars)	<u>Employment Impact</u> (jobs)
Augusta University	969,465,040	1,325,459,506	965,040,532	782,610,398	12,295
Personal Services	546,202,861	951,344,213	774,966,701	670,104,110	8,734
Operating Expenses	291,517,675	198,012,931	98,741,412	63,228,082	1,663
Student Spending	127,919,504	170,214,970	88,386,148	47,394,935	1,855
Capital Spending	3,825,000	5,887,391	2,946,271	1,883,271	43
AU Medical Center, Inc.	591,353,565	741,383,694	536,628,103	434,838,193	7,605
Wages & Salaries and Benefits	291,856,000	508,337,720	414,092,818	358,060,931	5,637
Other Operating Expenditures	267,247,000	185,682,508	99,488,306	61,727,003	1,638
Student Spending	0	0	0	0	0
Capital Spending	32,250,565	47,363,466	23,046,979	15,050,259	330

Grand Total Economic Impact of Augusta University and AU Medical Center, Inc.

	<u>Initial Spending</u> (current dollars)	<u>Output Impact</u> (current dollars)	<u>Value Added Impact</u> (current dollars)	<u>Labor Income Impact</u> (current dollars)	<u>Employment Impact</u> (jobs)
Grand Total	1,560,818,605	2,066,843,199	1,501,668,635	1,217,448,592	19,900
Wages & Salaries and Benefits	838,058,861	1,459,681,933	1,189,059,519	1,028,165,041	14,371
Operating Expenses	558,764,675	383,695,439	198,229,718	124,955,086	3,301
Student Spending	127,919,504	170,214,970	88,386,148	47,394,935	1,855
Capital Spending	36,075,565	53,250,857	25,993,250	16,933,530	373

Note: Output refers to the value of total production, including domestic and foreign trade. Value added includes employee compensation, proprietary income, other property type income, and indirect business taxes. Labor income includes both the total payroll costs of workers who are paid by employers and payment received by self-employed individuals. Employment includes both full-time and part-time jobs. Initial spending estimates are based on financial data obtained from AU Medical Center, Inc., (a component unit of AU Health Systems, Inc.) Financial Statements and Report of Independent Certified Public Accountants (June 30, 2017 and 2016). Other operating expenditures do not include \$70.4 million in purchased services (a transfer) and \$33.6 million in depreciation and amortization. The impacts of spending on Output, Value Added, Labor Income, and Employment were estimated using the IMPLAN Online, Type SAM multipliers, and consumption functions provided by IMPLAN.

Source: Selig Center for Economic Growth, Terry College of Business, University of Georgia, (www.selig.uga.edu), 2018.

Appendix 4

Appendix 5

Augusta University s Albany, Savannah, and Rome Clinical Campuses: Economic Impact of FY 2017 Expenditures

Augusta University has established clinical campuses in Albany, Savannah, and Rome, which generate economic impacts for their host communities. Appendix 5 documents the economic impact that the Albany, Savannah, and Rome clinical campuses had on their host communities in FY 2017.

Albany: In FY 2017, total expenditures at the Albany clinical campus were \$1,274,033, including \$770,570 personnel expense, \$181,823 operating expense, and \$321,640 in student spending (Assistant Vice Chancellor for Fiscal Affairs/Budget Director, Board of Regents, University System of Georgia provided the estimates for personnel and operating expenses as well as enrollment).

The economic impact accruing to Albany includes:

- Q\$1,274,033 in initial expenditures and 5 on-campus jobs,
- Q\$1,901,369 in output (sales),
- Q\$1,371,432 in gross regional product (value added),
- Q\$1,084,446 in income, and
- Q17 jobs.

Savannah: Total expenditures at the Savannah clinical campus were \$1,706,316, including \$769,598 personnel expense, \$323,358 operating expense, and \$613,360 in student spending (Assistant Vice Chancellor for Fiscal Affairs/Budget Director, Board of Regents, University System of Georgia provided the estimates for personnel and operating expenses as well as enrollment).

The economic impact accruing to Savannah includes:

- Q\$1,706,316 in initial expenditures and 5 on-campus jobs,
- Q\$2,373,668 in output (sales),
- Q\$1,679,504 in gross regional product (value added),
- Q\$1,244,933 in income, and
- Q20 jobs.

Rome: Total expenditures at the Rome clinical campus were \$989,038, including \$505,780 personnel expense, \$243,898 operating expense, and \$239,360 in student spending (Assistant Vice Chancellor for Fiscal Affairs/Budget Director, Board of Regents, University System of Georgia provided the estimates for personnel and operating expenses).

Appendix 6

Augusta University and UGA Medical Partnership s Athens Campus: Economic Impact of FY 2017 Expenditures

In partnership, Augusta University and the University of Georgia opened a new campus in Athens in FY 2011, which generates significant economic impacts for Athens' regional economy. Appendix 6 documents the economic impact that the Athens campus had on its host community in FY 2017.

In FY 2017, initial expenditures at the Athens campus (including St. Mary's) were \$16,289,037, including \$10,051,656 personnel expense, \$1,966,875 operating expense, and \$2,460,920 in student spending, and 1,809,586 in capital outlays (Assistant Vice Chancellor for Fiscal Affairs/Budget Director, Board of Regents, University System of Georgia provided expense data for personnel and operations as well as enrollment data).

The economic impact accruing to Athens includes:

- Q\$16,289,037 in initial expenditures and 70 on-campus jobs,
- Q\$26,523,769 in output (sales),
- Q\$19,326,971 in gross regional product (value added),
- Q\$15,021,831 in income, and
- Q229 jobs.

Source: Selig Center for Economic Growth, Terry College of Business, University of Georgia, (www.selig.uga.edu), 2018.

Appendix 7

Combined Economic Impact of UGA's Griffin Campus (Budget Unit A and Budget Unit B) On Its Regional Economy in Fiscal Year 2017

<u>UGA's Griffin Campus</u>	Initial Spending (current dollars)	Output Impact (current dollars)	Value Added Impact (current dollars)	Labor Income Impact (current dollars)	Employment Impact (jobs)
Total	24,730,713	44,896,581	33,756,596	25,991,872	454
Personnel Services	16,981,479	36,613,347	28,866,677	23,310,396	379
Operating Expenses	5,038,482	4,137,308	2,327,321	1,453,833	34
Student Spending	2,710,752	4,145,926	2,562,597	1,227,643	41

Notes: The impacts of spending on Output, Value Added, Labor Income, and Employment were estimated using IMPLAN Online and production functions provided by IMPLAN. Initial spending for personal services and operating expenses were obtained from the Board of Regents of the University System of Georgia. The author estimated initial spending by students. Output refers to the value of total production, including domestic and foreign trade. Value added includes employee compensation, proprietary income, other property income, and indirect business taxes. Labor income includes both the total payroll costs (including fringe benefits) of workers who are paid by employers and payments received by self-employed individuals. Employment includes both full-time and part-time jobs. The total employment impact of 454 jobs consists of 244 on-campus jobs (expressed on a FTE basis) and 210 off-campus jobs. For each FTE job created on the Griffin campus, there are 0.9 off-campus jobs that exist because of spending related to UGA at Griffin.

Source: Selig Center for Economic Growth, Terry College of Business, University of Georgia (www.selig.uga.edu), 2018.

Appendix 8

Total Economic Impact of Information Technology Services in Athens

Appendix 9

**Total Economic Impact of the Shared Services Center in Sandersville
On the Regional Economy in Fiscal Year 2017**

<u>SSC Sandersville</u>	<u>Initial Spending (current dollars)</u>	<u>Output Impact (current dollars)</u>	<u>Value Added Impact (current dollars)</u>	<u>Labor Income Impact (current dollars)</u>	<u>Employment Impact (jobs)</u>
Total	9,244,289	7,027,523	5,016,006	4,170,597	83
Personnel Services	3,188,457	4,734,409	4,015,726	3,574,959	57
Operating Expenses	6,055,832	2,293,114	1,002,280	595,638	26

Notes: The impacts of spending on Output, Value Added, Labor Income, and Employment were estimated using IMPLAN Online and production functions provided by IMPLAN. Initial spending for personal services and operating expenses were obtained from the Board of Regents of the University System of Georgia. Output refers to the value of total production, including domestic and foreign trade. Value added includes employee compensation, proprietary income, other property income, and indirect business taxes. Labor