



Economic Impact Study Augusta Technical College

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Forward:

The purpose of this report is to present an unbiased assessment of the economic impacts resulting from the presence of Augusta Technical College on the local economy. This report does not necessarily reflect the opinion of the School of Business, Middle Georgia State University, or the University System of Georgia. Any errors or omissions are the strictly the responsibility of the author, who reserves the right to update the results in the event new information is presented. Any correspondence concerning errors or questions should be addressed to Dr. Greg George at greg.george@mga.edu. The assessment is based on a review of budget information provided by Augusta Technical College, RIMS II multipliers provided by the Bureau of Economic Analysis, and interviews with key personnel.

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002	US Department of Commerce, Bureau of Economic Analysis <i>REGIONAL MULTIPLIERS</i> <i>RIMS II: An Essential Tool for Regional Developers and Planners</i> December 2013
003	Wayne P. Miller <i>Economic Multipliers: How Communities Can Use Them for Planning</i> University of Arkansas
004	Augusta Technical College Budget Report, February 28, 2021

Qualifications – About the Author

As founder and director of the Center for Economic Analysis and through extensive consulting, Dr. Greg George has over 20 years of experience in applied economic research. Additionally, Dr. George has conducted damage assessments and has generated numerous economic reports, impact studies and lost earnings calculations used in litigation, mediation, and by government agencies throughout the US and Canada. Furthermore, the author has produced economic studies for private firms, non-profit groups, municipal, state and Federal agencies, as well as the Federal Reserve Bank of Atlanta. Dr. George has published peer reviewed articles in edited trade books and economic journals and serves as the Chair of the Middle Georgia Economic Advisory Council. He earned his Bachelor of Science degree from the University of North Carolina at Chapel Hill (1990), and his Masters (Resource Management, 1997) and Ph.D. (Economics, 2002) from the University of South Carolina. He has taught courses in Applied Microeconomics, Principles of Micro- and Macroeconomics, Game Theory, Managerial Economics, International Economics and Quantitative Methods/Business Statistics. His Curriculum Vitae is available upon request.

1. EXECUTIVE SUMMARY

This report estimates the economic impacts of Augusta Technical College on the local economy. Specifically, I examine the College's impact on regional economic activity, employment, and household earnings. Overall, Augusta Technical College generates **\$58,655,563** of annual economic activity (in the current year), and an estimated **\$320,609,344** over the next five years after adjusting for inflation. Each year, Augusta Technical College directly employs **399** employees, generating **\$24,500,000** in direct household earnings and supports an additional **115** jobs in the local economy totaling **514** in total regional jobs impact. Additionally, Augusta Technical College enhances regional household earnings by **\$32,482,100** because of its presence. Over a five-year timeframe, total household earnings in the region are increased by **\$169,038,153** because of Augusta Technical College's operations. These estimates are to be considered conservative in that they do not capture all the quality of life and standard of living improvements that Augusta Technological College has on its graduates and the surrounding community. A summary of some of these qualitative impacts can be found below.

Table 1 summarizes the economic output, earnings, and employment impacts of Augusta Technical College on the surrounding Metropolitan Statistical Area (MSA). Total economic impacts are the combined short-term and long-term impacts identified above and are illustrated separately in Tables 2-4.

Table 1: Summary of Impacts								
	Expenditures/Revenue	Output Multiplier	Output	Earnings Multiplier	Total Household Earnings	Direct Employees	Employment Multiplier	Total Employment Impact
5-Year Totals								
Years 1-5	\$229,570,594	1.3966	\$320,609,344	1.3258	\$169,038,153	399	1.2870	514
Annual Data								
Year 1	\$42,000,000	1.3966	\$58,655,563	1.3258	\$32,482,100	399	1.2870	514
Year 2	\$43,871,767	1.3966	\$61,269,600	1.3258	\$33,131,742	399	1.2870	514
Year 3	\$45,826,951	1.3966	\$64,000,134	1.3258	\$33,794,377	399	1.2870	514
Year 4	\$47,869,270	1.3966	\$66,852,356	1.3258	\$34,470,264	399	1.2870	514
Year 5	\$50,002,606	1.3966	\$69,831,691	1.3258	\$35,159,670	399	1.2870	514

2. INTRODUCTION

This report was prepared at the request of Augusta Technical College to estimate the economic impact on the Augusta MSA on an annual basis and over a five-year time frame. Augusta Technical College provided the requisite information to carry out this economic impact analysis, which is based on current and projected future budgets based on standard estimates of inflation in higher education. I provide both quantitative impacts and several of the qualitative impacts that Augusta Technical College confers in the four-county region in which they operate four campuses.

The Georgia State Board of Education, in conjunction with the Richmond County Board of Education, established Augusta Area Vocational-Technical School in 1961. The School's planned capacity at that time was 350 students in ten full-time diploma programs. Recognizing the need for more technically trained employees in the service area, the state and county boards established the separate Richmond Area Vocational-Technical School in 1963, with a planned capacity of 250 students in ten full-time diploma programs. In 1966, the two vocational-technical schools were combined as the Augusta Area Technical School. Subsequently, the School expanded to three additional sites. In 1981, except for the health occupations programs that remained in a facility on Walton Way, all programs offered by the School were moved to the current Augusta Campus location. Augusta Technical college now serves over 5000 students each year and has conferred over 10,000 associate degrees, certificates, and diplomas in the last four and a half years.

Ongoing revenues from operation of the college (student tuition, fees, grants, state funding and Federal funding) are estimated at \$42,000,000 for FY 2021. This includes approximately \$24,500,000 in payroll and benefits.

The relevant dollar figures from the Augusta Technical College's annual budget, in conjunction with Bureau of Economic Analysis (BEA) RIMS II multipliers for the Augusta Metropolitan Statistical Area (MSA), were used to estimate the economic impact the college has on the surrounding four-county area.

3. METHODOLOGY

The BEA provides five sets of multipliers for industries in the Augusta MSA (see References above). The relevant activities at Augusta Technical College fall under the industry classification labelled Educational Services which includes junior colleges, colleges, universities, and professional schools (Industrial Code: 611A00), as well as other educational services (Industrial Code: 611B00).

The BEA divides RIMS II multipliers into five categories, three Final Demand categories and two Direct Effect categories.

The Final Demand multipliers utilized in this economic impact analysis are the:

Output Multiplier—shows the total dollar change that occurs in all industries in the state for each additional dollar of output produced by a company in a given industry. In layman’s terms, this multiplier shows the total economic impact on the state of each dollar spent by a company in a given industry.

Earnings Multiplier—shows the total dollar change in earnings of households in the state employed by all industries for each additional dollar of output produced by a company in a given industry.

Employment Multiplier—shows the total change in jobs that occurs in all industries in the region for each addition 1 million dollars of output produced by a company in a given industry.

The Direct Effect multipliers utilized in economic impact analyses are the:

Earnings multiplier—shows the total change in earnings of households in the region employed by all industries for each additional dollar of earnings paid directly to the households employed by a company in a given industry.

Employment Multiplier—shows the total change in the number of jobs in all industries in the region for each additional job in a given industry.

Following the methodology set forth in the BEA’s publication *RIMS II: An essential tool for regional developers and planners*, and the methodology described in *Economic Multipliers: How Communities Can Use Them for Planning*, I use the final demand output multiplier for output and the direct effect multipliers for earnings and employment effects. When the actual earnings and employment levels are provided, the direct effects multipliers produce a more accurate estimate of the economic impacts of the relevant business activity. I describe the meaning of multipliers and associated calculations in greater detail in the following sections. Data on revenues, earnings, and employment were provided by Augusta Technical College, and multipliers were provided by the U.S. Department of Commerce’s, Bureau of Economic Analysis.

3.1. TOTAL ECONOMIC IMPACT

The total economic impact of an enterprise represents the total new spending generated within the community due to a given facility’s “export sales.” In the context of economic impact modelling, “export sales” refers to revenues derived from outside of the studied region, not only any international “exports.” Revenues within the region should be excluded, to avoid double-counting. For example, consider the economic impact of a new

restaurant: it would be inappropriate to count all the sales of the new restaurant as new economic activity, as it is quite feasible (indeed probable) that some of the sales of the new restaurant would come at the expense of sales from existing restaurants. The only relevant number for analysis would be sales (revenues) that are either in excess of existing restaurant revenues, or revenue from sales to customers outside of the region. In order to properly estimate the economic activity due to export sales, I divided revenues into local and export sales. This was possible since revenue detail was provided that indicated the source of revenues. For example, Federal funding, general state funding and out of region tuition and fees all derive from external sources and do not come at the expense of other local sales. This allows me to use the Type II multipliers (used for export sales) for that portion of the overall revenue and the Type I multipliers for revenues derived from local sources.

Once the revenues are realized within the Augusta MSA, a certain percentage is spent within the area under study, whether as payment of salaries, purchases of materials, payment of utilities, maintenance, or repair, etc. The recipients of those funds also spend a certain portion locally creating further economic activity, and the process continues until the funds are exhausted. The total output multiplier generated by RIMS II shows how much economic activity is generated by an additional \$1 of revenue initially generated by the activities at Augusta Technical College. Once the multipliers are known, the calculation is straightforward:

TOTAL ECONOMIC IMPACT = GROSS EXPENSES/REVENUE (FINAL DEMAND) * OUTPUT MULTIPLIER

In the case of Augusta Technical College, I created a weighted average multiplier for educational services by allocating revenues proportionally between Type I and Type II as appropriate. The resulting weighted average multiplier was 1.3966, which means that every additional \$1 of expense on Educational Service in the MSA will result in \$1.3966 of economic activity in the region: \$1 spent (direct effect), and an additional \$0.3966 generated by other businesses in the region (indirect and induced effects).

Table 2 shows the total economic activity that will be generated as a result of on-going operations over the next five years.

Table 2: Final Demand Output from On-going Operations (Assumes a 4.46% Annual Increase for Higher Education)			
Year	Expenditures/Revenue A	Output Multiplier B	Output C = A x B
Year 1	\$42,000,000	1.3966	\$58,655,563
Year 2	\$43,871,767	1.3966	\$61,269,600
Year 3	\$45,826,951	1.3966	\$64,000,134
Year 4	\$47,869,270	1.3966	\$66,852,356
Year 5	\$50,002,606	1.3966	\$69,831,691
5-year Total	\$229,570,594	1.3966	\$320,609,344

3.2. EARNINGS IMPACT

As operations continue, companies pay out compensation to their employees. Employees spend part of their compensation locally, boosting the revenues of local businesses. Increased revenues of local businesses lead to higher earnings for their employees; those employees will spend portions of the increase locally, generating additional increases in revenue and related increases in earnings, and so on. As a result of the increased earnings related to Augusta Technical College's activity, total earnings in the MSA will increase more than the initial increase provided by direct operations of the College.

There are two methods for calculating the earnings effect. One is to use revenues as a base and multiply them by the final demand earnings multiplier. A shortcoming with this approach is that these multipliers represent national averages and might not accurately reflect local conditions (see the *BEA Handbook*). The preferred method is to use the direct effects multipliers along with actual payroll data. Since compensation data is available, I can use the preferred, direct effects earnings multiplier. The formula for this estimation is:

TOTAL EARNINGS IMPACT = TOTAL COMPENSATION * DIRECT-EFFECTS EARNINGS MULTIPLIER

The relevant multiplier for Augusta Technical College is 1.3258. This means that every \$1 spent on employees is expected to generate \$1.3258 of total earnings to employees in the MSA. Table 3 shows the total earnings that will be generated in the region.

Table 3: Direct Effects Output from On-going Operations (Assumes 2% Annual Wage Increase)			
Year	Total Compensation A	Earnings Multiplier B	Output C = A x B
Year 1	\$24,500,000	1.3258	\$32,482,100
Year 2	\$24,990,000	1.3258	\$33,131,742
Year 3	\$25,489,800	1.3258	\$33,794,377
Year 4	\$25,999,596	1.3258	\$34,470,264
Year 5	\$26,519,588	1.3258	\$35,159,670
5-year Total	\$127,498,984	1.3258	\$169,038,153

3.3. EMPLOYMENT (JOBS) EFFECTS

All the activity mentioned above ultimately leads to the creation of jobs. First, Augusta Technical College directly employs workers needed to carry out its operations. As these employees spend funds locally, other businesses face increased demand, and hire additional employees. Hence, jobs are supported both at the College (direct effect) and in other local businesses as the wages are spent - first by faculty and staff, and subsequently by businesses and employees benefiting from increased revenues from indirect and induced effects. Hence, the total number of jobs created in the region will exceed the number of employees directly employed by Augusta Technical College.

As with earnings, there are two methods for calculating total job creation. The first method involves using revenue as a base and multiplying it by the final-demand employment multiplier. As with the final-demand earnings multiplier, this method is based on national averages and used when direct jobs data are not available. Since the exact jobs data is available for the Augusta Technical College, I can use the preferred Direct Effects Multipliers.

The calculation is as follows:

$$\text{TOTAL JOBS SUPPORTED} = \text{DIRECT JOBS} * \text{DIRECT-EFFECTS EMPLOYMENT MULTIPLIER}$$

The relevant multiplier for Augusta Technical College is 1.287, which means that for every employee that works at Augusta Technical College, there will be an additional 0.287 full-time equivalent jobs supported in the area.

Table 4 shows the total number of jobs that are supported by Augusta Technical College's presence in the MSA:

Table 3: Direct Effects Employment Impact			
Current Year	Direct Employment A	Employment Multiplier B	Total Employment Impact $C = A \times B$
FY2021	399	1.287	514

4. OMITTED ECONOMIC AND QUALITATIVE IMPACTS

The economic impacts calculated above are those derived solely from the operations of the College, and do not include the related impacts derived from the past and future (past the five-year totals) activity of the graduates (increased employment and earnings), or new businesses attracted to the region as a result of the enhanced workforce. Moreover, investments in industries which develop specialized human capital, such as the targeted programs offered at Augusta Technical College, tend to return substantial economic benefits to a region that are not fully captured here. While these additional economic impacts are not estimated as part of the present study, a summary of related economic impacts and other qualitative impacts are summarized below.

- Workforce development is a prerequisite for attracting new businesses and investment into an MSA. Additionally, existing businesses need a pool of available workers to replace retiring workers and expand their operations. Augusta Technical College targets specific local industries with their academic programs and curricula to guarantee that local businesses have access to a qualified, work-ready employment pool.
- Many of Augusta Technical College's graduates are first generation college students. It has been documented repeatedly in the economics literature that educational attainment, not only benefits the graduate's lifetime earnings potential, but also has an impact on their children's and grandchildren's future educational attainment and earnings potential. This effect is the most pronounced with first generation college students.
- Augusta Technical college now serves over 5,000 students each year and has conferred over 10,000 associate degrees, certificates, and diplomas in the last four and a half years. Having served the community since 1961, Augusta Technical College has

had a profound and immeasurable impact on the local economy's human capital and enhanced the standard of living for tens of thousands of individuals.

- Growth sectors such as Cybersecurity, Information Technology, Healthcare Administration and Nursing are specifically targeted by Augusta Technical College and have produced a large portion of their graduates in recent years.

5. RESULTS

Based on the information provided, Augusta Technical College generates **\$58,655,563** of annual economic activity (in the current year), and an estimated **\$320,609,344** over the next five years after adjusting for inflation. Augusta Technical College directly employs **399** employees, generating **\$24,500,000** in direct household earnings and supports an additional **115** jobs in the local economy totaling **514** in total regional jobs impact. Additionally, Augusta Technical College enhances regional household earnings by **\$32,482,100** because of its presence. Over a five-year timeframe, total household earnings in the region are increased by **\$169,038,153** because of Augusta Technical College's operations. These estimates are to be considered conservative in that they do not capture all the quality of life and standard of living improvements that Augusta Technical College has on its graduates and the surrounding community.

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