

THE ECONOMIC VALUE TO BRAZOS VALLEY OF TEXAS A&M UNIVERSITY

IN FISCAL YEAR OF ANALYSIS 2019–2020



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Texas A&M University (Texas A&M) creates value in a variety of ways. The university improves higher education delivery throughout the region and helps students increase their employability and potential. The university facilitates new research and company developments and also draws students and visitors to the region, generating new dollars and opportunities for Brazos Valley.

Texas A&M influences both the lives of students and also the regional economy. The university serves a range of industries in Brazos Valley,¹ supports regional businesses, and benefits society as a whole in Texas from an expanded economy and improved quality of life. The benefits created by Texas A&M extend as far as the state and local government through increased tax revenues and public sector savings.

This study investigates the economic impacts created by Texas A&M in Brazos Valley on the business community and the benefits that the university generates in return for the investments made by its key stakeholder groups—students, taxpayers, and society. The following two analyses are presented:

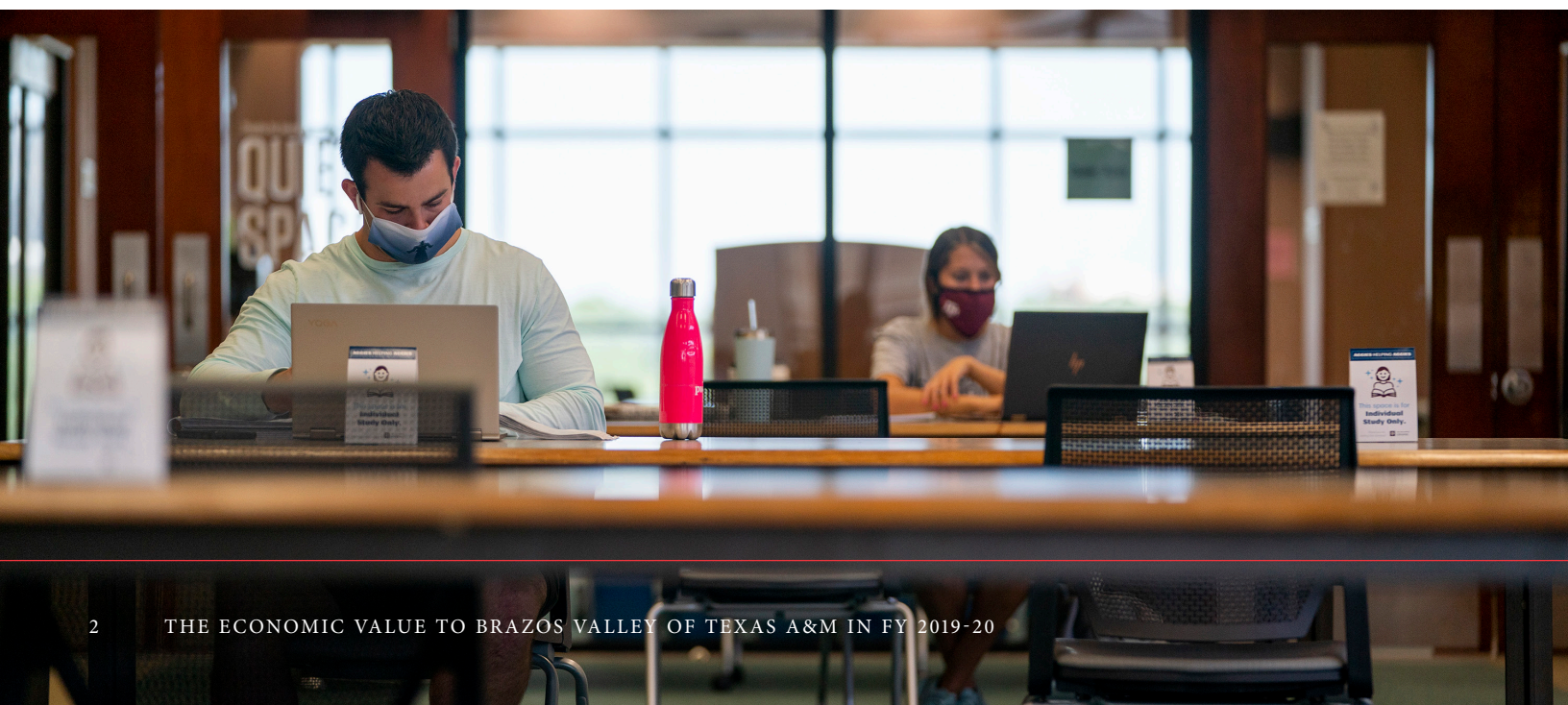
- **Economic impact analysis**
- **Investment analysis**

All results reflect student and financial data for Fiscal

¹ Brazos Valley consists of Brazos, Burleson, Grimes, Leon, Madison, Robertson, and Washington Counties in Texas.

Year (FY) 2019-20 (September 1, 2019 to August 31, 2020). Texas A&M remained open and operational throughout 2020 and addressed the pandemic, by transferring learning, advising, support operations, and many other activities to hybrid, occupancy limited and/or virtual platforms. However, the pandemic led to the movement of many summer academic programs online and cancellation of many on-campus events from March to August 2020. Each of these substantially impacted areas such as the observed decrease in student spending impact during the fiscal year.

Impacts on the regional business community are reported under the economic impact analysis. Results are measured in terms of total income. The returns on investment to students, taxpayers, and society in Texas are reported under the investment analysis. Both analyses are described more fully in the following sections. An electronic version of the executive summary and fact sheet are available at: economicimpact.tamu.edu.





ECONOMIC IMPACT ANALYSIS

Texas A&M promotes economic growth in Brazos Valley through its direct expenditures and resulting expenditures of students, visitors, and regional businesses. The university serves as an employer and buyer of goods and services for its day-to-day, research, and construction operations. Numerous start-up and spin-off companies have formed as a result of programs and knowledge at Texas A&M. The university's reputation and activities attract students and visitors from outside Brazos Valley, whose expenditures benefit regional vendors. In addition, Texas A&M is a primary source of higher education to Brazos Valley residents and a supplier of trained workers to regional industries, enhancing overall productivity in the regional workforce.

OPERATIONS SPENDING IMPACT

Texas A&M is an important employer in Brazos Valley. In FY 2019-20, the university employed 15,156 full-time and part-time faculty and staff (less research). Of these, 70% lived in Brazos Valley. Total payroll at Texas A&M was \$770.2 million, much of which was spent in the region for groceries, dining out, clothing, and other household expenses. In addition, Texas A&M is a large-scale buyer of goods and services. In FY 2019-20, the

university spent \$590.1 million on day-to-day expenses related to facilities, supplies, and professional services (less research).

Texas A&M added \$864.9 million in total income to the region during the analysis year as a result of its day-to-day operations (less research). This figure represents the university's payroll, the multiplier effects generated by the in-region spending of the university and its employees, and a downward adjustment to account for funding that the university received from regional sources.



RESEARCH SPENDING IMPACT

Research activities impact the economy by employing people and requiring the purchase of equipment and other supplies and services. Over the last four years, Texas A&M received 629 invention disclosures, filed 677 new US patent applications, and produced 209 licenses. The university also generated license income over the same four-year time period, with \$6.5 million in license income in FY 2019-20.

In FY 2019-20, Texas A&M spent \$393.9 million on payroll to support research activities. This, along with \$495.8 million in other research spending, created a net total of \$708.7 million in total income for the regional economy.

TABLE 1: Texas A&M research developments

	Inventions	Patents	Licenses
2016-17	150	118	35
2017-18	152	167	49
2018-19	149	179	70
2019-20	178	213	55
Total	629	677	209

Source: Texas A&M.

CONSTRUCTION SPENDING IMPACT

Texas A&M commissioned contractors to build or renovate a number of facilities during the analysis year. The quick infusion of income and jobs that occurred in the regional economy as a result of this construction spending is only considered short-term due to the one-time nature of construction projects. Nonetheless, the construction spending had a substantial impact on the regional economy. In FY 2019-20, Texas A&M's construction spending generated \$81.9 million in total income.

START-UP AND SPIN-OFF COMPANY IMPACT

Texas A&M creates an exceptional environment that fosters innovation and entrepreneurship, evidenced by the number of Texas A&M start-up and spin-off companies created in the region. Start-up companies, created specifically to license and commercialize Texas A&M technology or knowledge, have a strong and clearly defined link to Texas A&M. Spin-off companies, created and fostered through university programs or faculty and former students, have a clear but weaker link to Texas A&M. The number of companies reported by Texas A&M includes faculty whose primary residence is in the Bryan-College Station area and who have joint appointments at Texas A&M and at Texas A&M System agencies.

In FY 2019-20, Texas A&M start-up and spin-off companies added \$81.4 million in income to the Brazos Valley economy. Of this total income, \$24.6 million was due to the start-up companies, with the remainder due to spin-off companies.

STUDENT SPENDING IMPACT

Around 79% of credit-bearing students attending Texas A&M originated from outside the region in FY 2019-20. Some of these students relocated to Brazos Valley. These students may not have come to the region if the university did not exist. In addition, some in-region students, referred to as retained students, would have left the region if not for the existence of Texas A&M. While attending the university, these relocators and retained students spent money on groceries, rent accommodation, pay for transportation, and so on. A significant portion of these expenditures occurred in the region, generating \$361.7 million in total income in the regional economy during the analysis year.

VISITOR SPENDING IMPACT

More than a million visitors from outside Brazos Valley were attracted to Texas A&M during the analysis year to attend commencement, sports events, and other activities sponsored by the university.² These visitors stayed an average of three nights. While in the region, visitors spent money for lodging, food, transportation, and other personal expenses. The off-campus expenditures of the university's out-of-region visitors generated a net impact of \$218.6 million in total income for the regional economy in FY 2019-20.

TABLE 2: Impacts created by Texas A&M and its former students on the region in FY 2019-20

Total Income	Jobs
OPERATIONS SPENDING IMPACT	
\$864.9 MILLION	15,531
RESEARCH SPENDING IMPACT	
\$708.7 MILLION	13,577
CONSTRUCTION SPENDING IMPACT	
\$81.9 MILLION	1,368
START-UP AND SPIN-OFF COMPANY IMPACT	
\$81.4 MILLION	1,242
STUDENT SPENDING IMPACT	
\$361.7 MILLION	9,702
VISITOR SPENDING IMPACT	
\$218.6 MILLION	6,550
TOTAL TEXAS A&M IMPACT	
\$2.3 BILLION	47,970
FORMER STUDENT IMPACT	
\$218.7 MILLION	3,884
GRAND TOTAL IMPACT	
\$2.5 BILLION	51,854

2 Note that many events were cancelled due to COVID-19, decreasing the visitor spending impact.

TOTAL TEXAS A&M IMPACT ON THE BRAZOS VALLEY ECONOMY

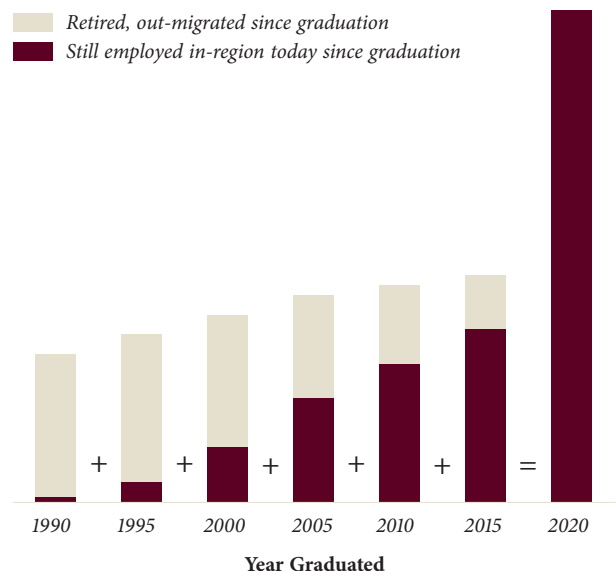
The total economic impact of all regional components of Texas A&M on the Brazos Valley economy amounted to \$2.3 billion in added income. This stems from the university's spending on operations, research, and construction, its entrepreneurial activities, and the spending of its students and visitors. This \$2.3 billion in total income is equivalent to supporting 47,970 jobs.

FORMER STUDENT IMPACT

Since the university was established, students have studied at Texas A&M and entered the workforce with new skills. Today, thousands of former students are employed in Brazos Valley (Figure 1).

During the analysis year, past and present students of Texas A&M generated \$218.7 million in total income for the region. This figure represents the higher wages that students earned during the year, the increased output of the businesses that employed the students, and the multiplier effects that occurred as students and their employers spent money at other businesses.

FIGURE 1: Texas A&M former students working in-region today



GRAND TOTAL IMPACT ON THE BRAZOS VALLEY ECONOMY

The overall impact of Texas A&M on the regional business community during the analysis year amounted to \$2.5 billion in total income, equal to the sum of the Texas A&M impact (includes the operations spending impact, the research spending impact, the construction spending impact, the impact from start-up and spin-off companies, the student spending impact, and the visitor spending impact) and the former student impact. The \$2.5 billion in total income was equal to approximately 17.0% of the GRP of Brazos Valley. By comparison, this contribution that the university provides on its own is significantly larger than any industry in the region.

The total impact is also expressed in terms of the jobs supported by the total income; they are calculated by jobs-to-sales ratios specific to each industry. Overall, the \$2.5 billion impact supports 51,854 jobs. For perspective, this means that one out of every five jobs in Brazos Valley is supported by the activities of Texas A&M and its students.

A portion of the total \$2.5 billion is broken out into an industry-by-industry impact ordered by total income. Table 3 outlines the top industries impacted by Texas A&M. Because industries have different jobs-to-

TABLE 3: Top industries in the region impacted by Texas A&M

Industry	Total income (millions)	Jobs
Accommodation & Food Services	\$320.4	10,817
Retail Trade	\$166.1	3,919
Professional & Technical Services	\$187.0	3,314
Construction	\$98.0	1,633
Arts, Entertainment, & Recreation	\$30.6	1,305
Health Care & Social Assistance	\$84.7	1,277
All other industries	\$1,734.0	30,866
Total impact	\$2,536.0	51,854

**Numbers may not add due to rounding.*

sales ratios, the associated jobs supported by the Texas A&M impact differ by industry. Nonetheless, these are impacts that would not have been generated without the university's presence.



INVESTMENT ANALYSIS

Investment analysis is the process of evaluating total costs and measuring these against total benefits to determine whether or not a proposed venture will be profitable. If benefits outweigh costs, then the investment is worthwhile and considered profitable.

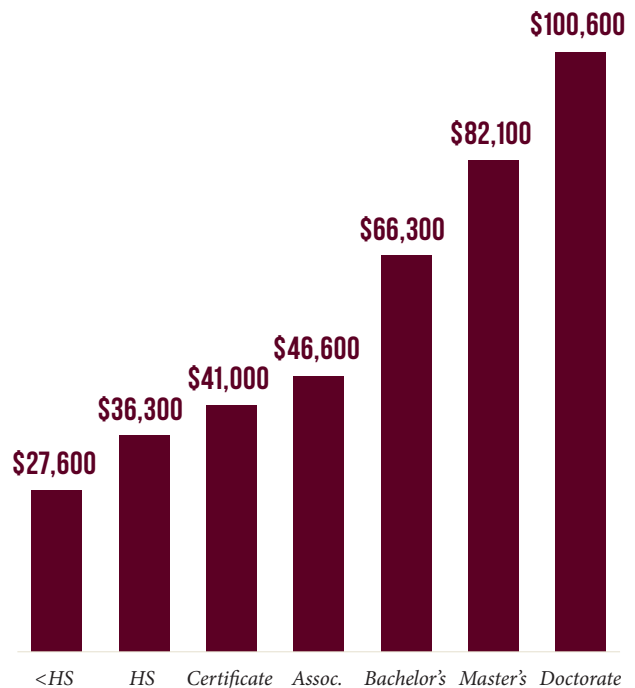
Texas A&M received a total of \$3 billion in FY 2019-20. Tuition and fees comprised 23% of total revenue, student aid from government sources comprised another 32%, and all other revenue comprised the remaining 46%. This study considers Texas A&M as an investment from the perspectives of those who provided these revenues—students, taxpayers, and society. The backdrop for the analysis is the entire Texas economy.

STUDENT PERSPECTIVE

In FY 2019-20, Texas A&M served 66,378 credit-bearing students and 16,455 non-credit students.³ In order to attend the university, students paid for tuition, fees, books, and supplies. They also took out loans and will incur interest on those loans. Additionally, students gave up money they would have otherwise earned had they been working instead of attending the university. The total investment made by Texas A&M's students in FY 2019-20 amounted to a present value of \$1.5 billion, equal to \$710.5 million in out-of-pocket expenses (including future principal and interest paid on student loans) and \$798.9 million in forgone time and money.

In return for their investment, Texas A&M's students will receive a stream of higher future wages that will continue to grow throughout their working lives. As shown in Figure 2, earnings levels increase as people achieve higher levels of education. For example, the

FIGURE 2: Texas earnings at career midpoint by education level for FY 2019-20 Texas A&M students

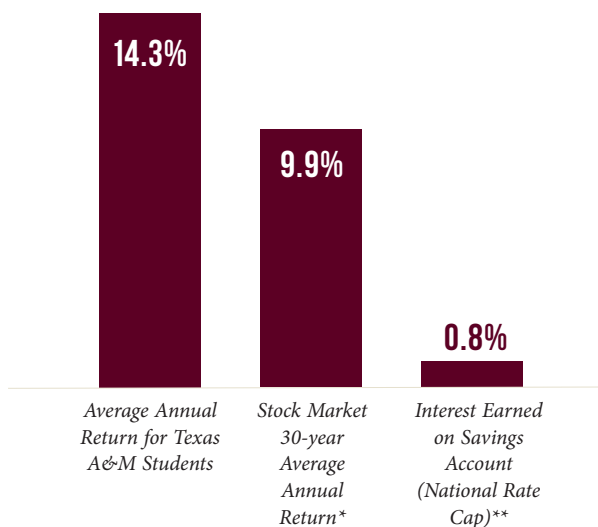


³ Note that a number of programs were discontinued because of COVID-19, affecting the number of non-credit students served.

average bachelor's degree completer from Texas A&M will see an increase in earnings of \$30,000 each year compared to someone with a high school diploma or equivalent working in Texas. Over a working lifetime, the increase in earnings amounts to an undiscounted value of \$1.4 million in higher earnings per graduate.

The present value of the cumulative higher future wages that Texas A&M's FY 2019-20 students will receive over their working careers is \$5.4 billion. Dividing this value by the \$1.5 billion in present value costs yields a benefit-cost ratio of 3.5. In other words, for every dollar students invest in Texas A&M in the form of out-of-pocket expenses and forgone time and money, they will receive a cumulative amount of \$3.55 in higher future wages. The average annual internal rate of return for students is 14.3%. This is an impressive return, especially when compared to the 30-year average 9.9% return to the U.S. stock market (Figure 3).

FIGURE 3: Student rate of return



*Forbes' S&P 500, 1989-2018.

**FDIC.gov, 6-2019.

TAXPAYER PERSPECTIVE

Texas A&M generates more in tax revenue than it takes. These benefits to taxpayers consist primarily of taxes that the state and local government will collect from the added revenue created in the state. As Texas A&M students will earn more, they will spend more resulting in higher tax revenues. Employers will also make higher tax payments as they increase their output and purchase more supplies and services. By the end of the FY 2019-20 students' working careers, the state and local government will have collected a present value of \$974.4 million in added taxes.

Benefits to taxpayers will also consist of the savings generated by the improved lifestyles of students and the corresponding reduced government expenditures. Education is statistically correlated with a variety of lifestyle changes that generate taxpayer savings across three main categories: 1) health, 2) crime, and 3) income assistance. Improved health habits lower students' demand for national health care services. Students are also less likely to interact with the criminal justice system, resulting in a reduced demand for law enforcement and victim costs. Students are also more employable, so the demand for welfare and unemployment benefits, such as earnings assistance and welfare benefits, is reduced. For a list of study

references to these statistical benefits, please contact Texas A&M Public Partnership and Outreach for a copy of the full technical report. All of these benefits will generate a present value of \$214.2 million in savings to state and local taxpayers.

Total taxpayer benefits amount to \$1.2 billion, equal to the sum of the added taxes and public sector savings. Comparing this to the taxpayer costs of \$591.5 million, equal to the funding that Texas A&M received from the state and local government during the analysis year—yields a benefit-cost ratio of 2.0. This means that for every dollar of public money invested in Texas A&M, taxpayers will receive a cumulative value of \$2.01 over the course of the students' working lives. The average annual internal rate of return is 5.8%, a solid investment that compares favorably with other long-term investments in both the private and public sectors (Figure 3).

SOCIAL PERSPECTIVE

Society as a whole within Texas benefits from the presence of Texas A&M in two major ways. The first and largest benefit that society receives is an increased state economic base. As discussed in the previous section, the higher student earnings and increased

business output, occurs across the state. This raises prosperity in Texas and expands the economic base for society as a whole.

Benefits to society also consist of the savings generated by the improved lifestyles of students. Similar to the taxpayer section above, education is statistically correlated with a variety of lifestyle changes that generate social savings. Note that these costs are avoided by the consumers and are distinct from the costs avoided by taxpayers outlined above. Health savings include avoided medical costs associated with smoking, alcohol dependence, obesity, drug abuse, and depression. Savings related to crime include reduced security expenditures and insurance administration, lower victim costs, and reduced expenditures by the criminal justice system. Income assistance savings include reduced welfare and unemployment claims. For a list of study references, to these statistical benefits, please contact Texas A&M Public Partnership and Outreach for a copy of the full technical report.

Figure 4 shows the present value of the higher earnings and social savings that will occur in Texas over the working lifetime of the FY 2019-20 student population at Texas A&M. Higher wages amount to a present value of \$15.4 billion due to the increased lifetime wages of students and associated increases in business output. Social savings amount to \$641.5 million, the sum of health, crime, and unemployment savings in Texas.

FIGURE 4: Present value of higher earnings and social savings in Texas

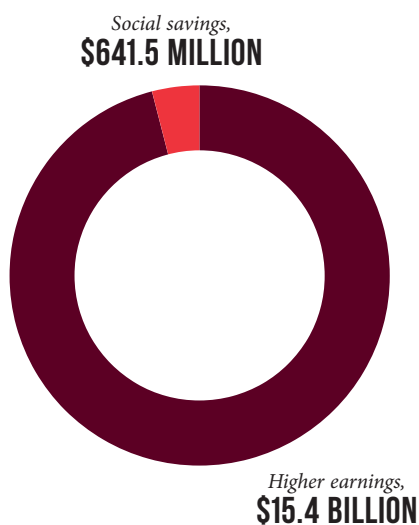


TABLE 4: Summary of investment analysis results

STUDENT PERSPECTIVE	
\$5.4 BILLION	Present value benefits
\$1.5 BILLION	Present value costs
\$3.8 BILLION	Net present value
3.5	Benefit-cost ratio
14.3%	Rate of return

TAXPAYER PERSPECTIVE	
\$1.2 BILLION	Present value benefits
\$591.5 MILLION	Present value costs
\$597.1 MILLION	Net present value
2.0	Benefit-cost ratio
5.8%	Rate of return

SOCIAL PERSPECTIVE	
\$16.1 BILLION	Present value benefits
\$3.3 BILLION	Present value costs
\$12.7 BILLION	Net present value
4.8	Benefit-cost ratio
NA	Rate of return*

* The rate of return is not reported for the social perspective because the beneficiaries of the investment are not necessarily the same as the original investors.

Altogether, total benefits to society equal \$16.1 billion (in present value terms).

Society invested a present value of \$3.3 billion in educations obtained at Texas A&M during the analysis year. This includes all expenditures by Texas A&M, all student expenditures, and all student opportunity costs. For every dollar of this investment, society as a whole in Texas will receive a cumulative value of \$4.80 in benefits, equal to the \$16.1 billion in benefits divided by the \$3.3 billion in costs. These benefits will occur for as long as Texas A&M's FY 2019-20 students remain employed in the state workforce.

SUMMARY OF INVESTMENT ANALYSIS RESULTS

Table 4 presents the results of the investment analysis for all three of Texas A&M's major stakeholder groups—students, taxpayers, and society. As shown, students receive great return for their educational investment. At the same time, the investment made by state and local taxpayers to the university creates a wide range of benefits to society and returns more to government budgets than it costs.





CONCLUSION

The results of this study demonstrate that Texas A&M creates value from multiple perspectives. The university benefits regional businesses by increasing consumer spending in the region and supplying a steady flow of qualified, trained workers into the workforce. Texas A&M enriches the lives of students by raising their lifetime earnings and helping them achieve their individual potential. The university benefits state and local taxpayers through increased tax receipts across the state and a reduced demand for government-supported social services. Finally, Texas A&M benefits society as a whole in Texas by creating a more prosperous economy and generating a variety of savings through the improved lifestyles of students.

ABOUT THE STUDY

Data and assumptions used in the study are based on several sources, including the FY 2019-20 academic and financial reports from Texas A&M, industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau, outputs of Emsi's Multi-Regional Social Accounting Matrix model, and a variety of studies and surveys relating education to social behavior. Emsi's methodology for this study adheres to the Association of American Universities (AAU) and the Association of Public and Land-grant Universities (APLU) guidelines, published in December 2014. The study applies a conservative methodology and follows standard practice using only the most recognized indicators of economic impact and investment effectiveness. For a full description of the data and approach used in the study, please

contact Texas A&M Public Partnership and Outreach (Dr. Suzanne Droleskey) for a copy of the full technical report.

ABOUT EMSI

Emsi is a labor market analytics firm that integrates data from a wide variety of sources to serve professionals in higher education, economic development, workforce development, talent acquisition, and site selection. Emsi is a leading provider of economic impact studies and labor market data to educational institutions in the U.S. and internationally. Since 2000, Emsi has completed over 2,200 economic impact studies for institutions across three countries. For more information about Emsi's products and services, visit www.economicmodeling.com.