



The Economic Value to Texas of the Texas A&M University Health Science Center

Fiscal year of analysis 2021-22



THE TEXAS A&M UNIVERSITY HEALTH SCIENCE CENTER (Texas A&M HSC) encompasses research, administration, and clinical services for the five Texas A&M colleges with a health sciences focus: Dentistry, Medicine, Nursing, Pharmacy, and Public Health. The Texas A&M HSC creates value in many ways. The Texas A&M HSC plays a key role in helping students increase their employability and achieve their individual potential.

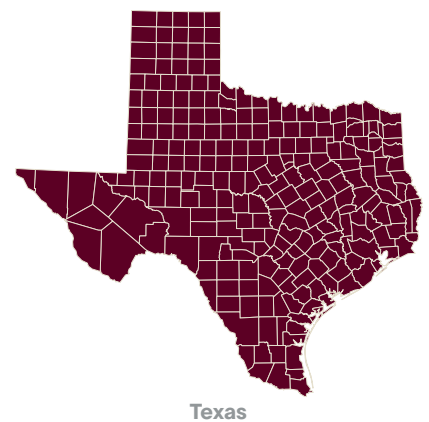
The Texas A&M HSC influences both the lives of its students and the state economy. The Texas A&M HSC supports a variety of industries in Texas, serves state businesses, and benefits society as a whole in Texas from an expanded economy and improved quality of life. Additionally, the benefits created by the Texas A&M HSC extend to the state and local government through increased tax revenues and public sector savings.

This study measures the economic impacts created by the Texas A&M HSC on the business community and the benefits the Texas A&M HSC 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 employee, student, and financial data, provided by the Texas A&M HSC, for fiscal year (FY) 2021-22 (September 1, 2021 to August 31, 2022). Impacts on the Texas economy are reported under the economic impact analysis and are measured in terms of added income. The returns on investment to students, taxpayers, and society in Texas are reported under the investment analysis. An electronic version of the executive summary and fact sheet are available at economicimpact.tamu.edu.



The Texas A&M HSC influences both the **lives of its students** and the **state economy**.



The Texas A&M HSC promotes economic growth in Texas through its direct expenditures and the resulting expenditures of students, visitors, and state businesses. The Texas A&M HSC 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 the Texas A&M HSC. The Texas A&M HSC's reputation and activities attract students and visitors from outside Texas, whose expenditures benefit state vendors. In addition, the Texas A&M HSC is one of the primary sources of higher education to Texas residents and a supplier of trained workers to state industries, enhancing overall productivity in the state workforce.

Operations spending impact



The Texas A&M HSC adds economic value to Texas as an employer of state residents and a large-scale buyer of goods and services. In FY 2021-22, the Texas A&M HSC employed 1,604 full-time and part-time faculty and staff (excluding research employees), 98% of whom lived in Texas. Total payroll at the Texas A&M HSC was \$136.1 million (excluding payroll from research employees), much of which was spent in the state for groceries, mortgage and rent payments, dining out, and other household expenses. In addition, the Texas A&M HSC spent \$108.4 million on day-to-day expenses related to facilities, supplies, and professional services (excluding research and construction expenditures).

The Texas A&M HSC's day-to-day operations spending added \$156.5 million in income to the state during the analysis year. This figure represents the Texas A&M HSC's payroll, the multiplier effects generated by the in-state spending of the Texas A&M HSC and its employees, and a downward adjustment to account for funding that the Texas A&M HSC received from state sources. The \$156.5 million in added income is equivalent to supporting 1,425 jobs in the state.

Research spending impact



Research activities impact the economy by employing people and requiring the purchase of equipment and other supplies and services. Over the last four years, the Texas A&M HSC received 100 invention disclosures, filed 102 new patent applications, and produced 22 licenses. Texas A&M HSC also generated license income over the same four-year time period, with \$123.1 thousand in license income in FY 2021-22.

In FY 2021-22, the Texas A&M HSC spent \$52.1 million on payroll to support research activities. This, along with \$61 million in other research spending,¹ created a net total of

¹ Excludes indirect costs because indirect costs are not necessarily spent during the analysis year.



\$133.2 million in added income for the state economy. This added income is equivalent to supporting 1,487 jobs.

Texas A&M HSC research developments

Fiscal year	Inventions	Patents	Licenses
2018-19	18	24	2
2019-20	25	24	7
2020-21	24	36	9
2021-22	33	18	4
Total	100	102	22

Source: The Texas A&M HSC.

Construction spending impact



The Texas A&M HSC invests in construction each year to maintain its facilities, create additional capacities, and meet its growing educational demands. While the amount varies from year to year, these quick infusions of income and jobs have a substantial impact on the state economy. In FY 2021-22, the Texas A&M HSC's construction spending generated \$5.7 million in added income, which is equivalent to supporting 84 jobs.

Start-up and spin-off company impact



The Texas A&M HSC 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 state. Start-up companies, created specifically to license and commercialize Texas A&M HSC technology or knowledge, have a strong and clearly defined link to the Texas A&M HSC. Spin-off companies, created and fostered through programs by faculty or former students, have less direct link to the Texas A&M HSC. The number of companies reported by the Texas A&M HSC includes faculty whose primary residence is in the Bryan-College Station area and who have joint appointments at the Texas A&M HSC and at the Texas A&M HSC System agencies.

In FY 2021-22, Texas A&M HSC start-up and spin-off companies added \$399.8 million in income to the Texas economy, which is equivalent to supporting 5,277 jobs. Of this added income, \$30.2 million was due to the start-up companies, with the remainder due to spin-off companies.

Student spending impact



Around 12% of credit-bearing students attending the Texas A&M HSC originated from outside the state in FY 2021-22, and most of these students relocated to Texas to attend the Texas A&M HSC. These students may not have come to the state if the Texas A&M HSC did not exist. In addition, some in-state students, referred to as retained students, would have left Texas if not for the existence of the Texas A&M HSC. While attending the Texas A&M HSC, these relocated and retained

Impacts created by the Texas A&M HSC in FY 2021-22



Operations spending impact
\$156.5 million



Research spending impact
\$133.2 million



Construction spending impact
\$5.7 million



Start-up & spin-off company impact
\$399.8 million



Student spending impact
\$22.1 million



Visitor spending impact
\$2.5 million



Total income

\$719.7 million

OR

Total jobs supported

8,680



Former student impact
\$624.1 million



Grand total income

\$1.3 billion

OR


Grand total jobs supported

18,456




students spent money on groceries, accommodation, transportation, and other household expenses. This spending generated \$22.1 million in added income for the state economy in FY 2021-22, which supported 364 jobs in Texas.


Visitor spending impact

 Thousands of visitors from outside the state were attracted to the Texas A&M HSC during the analysis year to attend commencement, sports events, and other activities sponsored by the Texas A&M HSC. These visitors stayed an average of three nights. While in the state, visitors spent money for lodging, food, transportation, and other personal expenses. The off-campus expenditures of the Texas A&M HSC's out-of-state visitors generated a net impact of \$2.5 million in added income for the state economy in FY 2021-22. This \$2.5 million in added income is equivalent to supporting 43 jobs.


Total Texas A&M HSC impact on the Texas economy

 The total economic impact of all statewide components of the Texas A&M HSC on the Texas economy amounted to \$719.7 million in added income. This stems from the Texas A&M HSC's spending on operations, research, and construction, its entrepreneurial activities, and the spending of its students and visitors. This \$719.7 million in added income is equivalent to supporting 8,680 jobs.

Former student impact

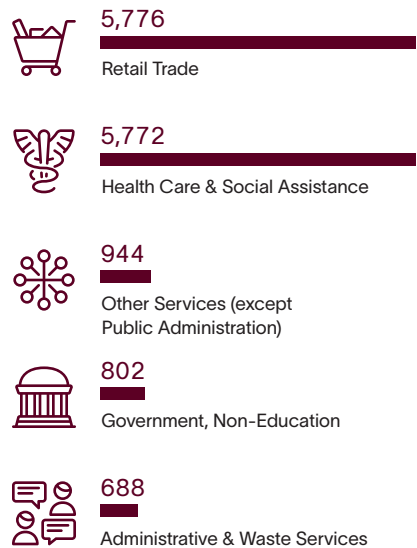
 Since the establishment of the Texas A&M HSC, students have studied at the Texas A&M HSC and entered the state workforce with greater knowledge and new skills. Today, thousands of former Texas A&M HSC students are employed in Texas. As a result of their education from the Texas A&M HSC, the students receive higher earnings and increase the productivity of the businesses that employ them. In FY 2021-22, Texas A&M HSC former students generated \$624.1 million in added income for the state economy, which is equivalent to supporting 9,776 jobs.

Grand total impact on the Texas economy

 The Texas A&M HSC added \$1.3 billion in income to the Texas economy during the analysis year, equal to the sum of the operations, research, and construction spending impacts; the start-up and spin-off company impact; the student and visitor spending impacts; and the former student impact.

The Texas A&M HSC's total impact can also be expressed in terms of jobs supported. The \$1.3 billion impact supported 18,456 state jobs, using the jobs-to-sales ratios specific to each industry in the state. In addition, the \$1.3 billion, or 18,456 supported jobs, stemmed from different industry sectors. For instance, among non-education industry sectors, the activities of the Texas A&M HSC and its former students in the Health Care & Social Assistance industry sector supported 5,772 jobs in FY 2021-22. If the Texas A&M HSC did not exist, these impacts would not have been generated in Texas.

Texas A&M HSC impacts by industry (jobs supported)



Investment analysis



An investment analysis evaluates the costs associated with a proposed venture against its expected benefits. If the benefits outweigh the costs, then the investment is financially worthwhile. The analysis presented here evaluates the Texas A&M HSC as an investment from the perspectives of students, taxpayers, and society in Texas.

Student perspective



In FY 2021-22, the Texas A&M HSC served 3,555 credit-bearing and 4,133 non-credit students. In order to attend the Texas A&M HSC, the 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 college. The total investment made by the Texas A&M HSC's students in FY 2021-22 amounted to a present value of \$162.8 million, equal to \$57.4 million in out-of-pocket expenses (including future principal and interest on student loans) and \$105.4 million in forgone time and money.

In return for their investment, the Texas A&M HSC's students will receive a stream of higher future earnings that will continue to grow throughout their working lives. For example, the average Texas A&M bachelor's degree graduate from FY 2021-22 will see annual earnings that are \$25,900 higher than a person with a high school diploma or equivalent working in Texas. Over a working lifetime, the benefits of the bachelor's degree over a high school diploma will amount to an undiscounted value of \$984.2 thousand in higher earnings per graduate. The present value of the cumulative higher future earnings that the Texas A&M HSC's FY 2021-22 students will receive over their working careers is \$1.1 billion.

The students' benefit-cost ratio is 6.8. In other words, for every dollar students invest in the Texas A&M HSC in the form of out-of-pocket expenses and forgone time and money, they will receive a cumulative value of \$6.80 in higher future earnings. Annually,

Students see a high rate of return for their investment in the Texas A&M HSC



Average annual return for Texas A&M HSC students
23.9%



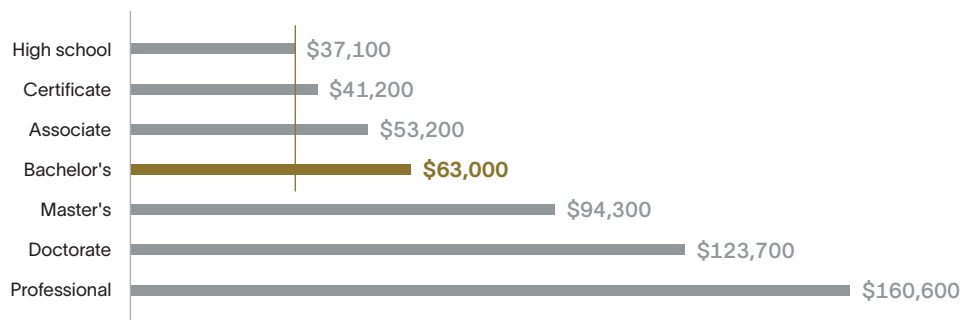
Stock market 30-year average annual return
10.5%



Interest earned on savings account (National Rate Cap)
0.8%

Source: Forbes' S&P 500, 1992-2021. FDIC.gov, 2-2022.

The average bachelor's degree graduate from the Texas A&M HSC will see an increase in earnings of **\$25,900** each year compared to a person with a high school diploma or equivalent working in Texas.



Source: Lightcast employment data.

the students' investment in the Texas A&M HSC has an average annual internal rate of return of 23.9%, which is impressive compared to the U.S. stock market's 30-year average rate of return of 10.5%.

Taxpayer perspective



The Texas A&M HSC generates more in tax revenue than it receives. 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 HSC students will earn more, they will make higher tax payments throughout their working lives. Students' employers will also make higher tax payments as they increase their output and purchases of goods and services. By the end of the FY 2021-22 students' working lives, the state and local government will have collected a present value of \$297 million in added taxes.

Benefits to taxpayers will also consist of savings generated by the improved lifestyles of Texas A&M HSC students and the corresponding reduced government services. Education is statistically correlated with a variety of lifestyle changes. The education that Texas A&M HSC students receive will generate savings in three main categories: 1) healthcare, 2) justice system, and 3) income assistance. Improved health will lower students' demand for national health care services. In addition, costs related to the justice system will decrease. Texas A&M HSC students will be more employable, so their reduced demand for income assistance such as welfare and unemployment benefits will benefit taxpayers. For a list of study references, contact the Texas A&M Public Partnership and Outreach for a copy of the main report. Altogether, the present value of the benefits associated with an education from the Texas A&M HSC will generate \$32.2 million in savings to state and local taxpayers.

Total taxpayer benefits amount to \$329.2 million, the present value sum of the added taxes and public sector savings. Taxpayer costs are \$183 million, equal to the amount of state and local government funding the Texas A&M HSC received in FY 2021-22. These benefits and costs yield a benefit-cost ratio of 1.8. This means that for every dollar of public money invested in the Texas A&M HSC in FY 2021-22, taxpayers will receive a cumulative present value of \$1.80 over the course of the students' working lives. The average annual internal rate of return for taxpayers is 3.3%, which compares favorably to other long-term investments in the public and private sectors.

For every dollar of public money invested in the Texas A&M HSC, taxpayers will receive a cumulative value of **\$1.80** over the course of the students' working lives.

Social perspective



Society as a whole in Texas benefits from the presence of the Texas A&M HSC in two major ways. Primarily, society benefits from an increased economic base in the state. This is attributed to the added income from students' increased lifetime earnings (added student income) and increased business output (added business income), which raise economic prosperity in Texas.

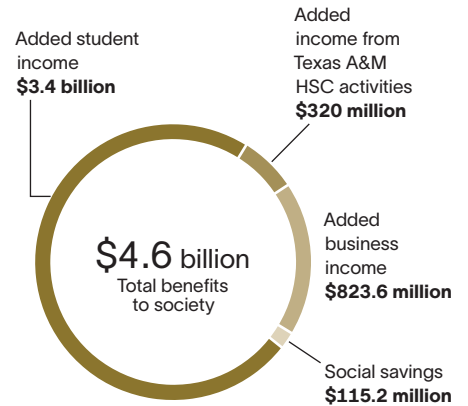


Benefits to society also consist of the savings generated by the improved lifestyles of Texas A&M HSC students. As discussed in the previous section, education is statistically correlated with a variety of lifestyle changes that generate social savings. Note that these costs are avoided by the consumers but are distinct from the costs avoided by the taxpayers outlined above. Healthcare savings include avoided medical costs associated with smoking, alcohol dependence, obesity, drug abuse, and depression. Justice system savings include avoided costs to the government and society due to less judicial activity. 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 main report.

Altogether, the social benefits of the Texas A&M HSC equal a present value of \$4.6 billion. These benefits include \$3.4 billion in added student income, \$823.6 million in added business income, \$320.0 million in added income from Texas A&M HSC activities, as well as \$115.2 million in social savings related to health, the justice system, and income assistance in Texas. People in Texas invested a present value total of \$476.5 million in the Texas A&M HSC in FY 2021-22. The cost includes all the Texas A&M HSC and student costs.

The benefit-cost ratio for society is 9.7, equal to the \$4.6 billion in benefits divided by the \$476.5 million in costs. In other words, for every dollar invested in the Texas A&M HSC, people in Texas will receive a cumulative value of \$9.70 in benefits. The benefits of this investment will occur for as long as the Texas A&M HSC's FY 2021-22 students remain employed in the state workforce.

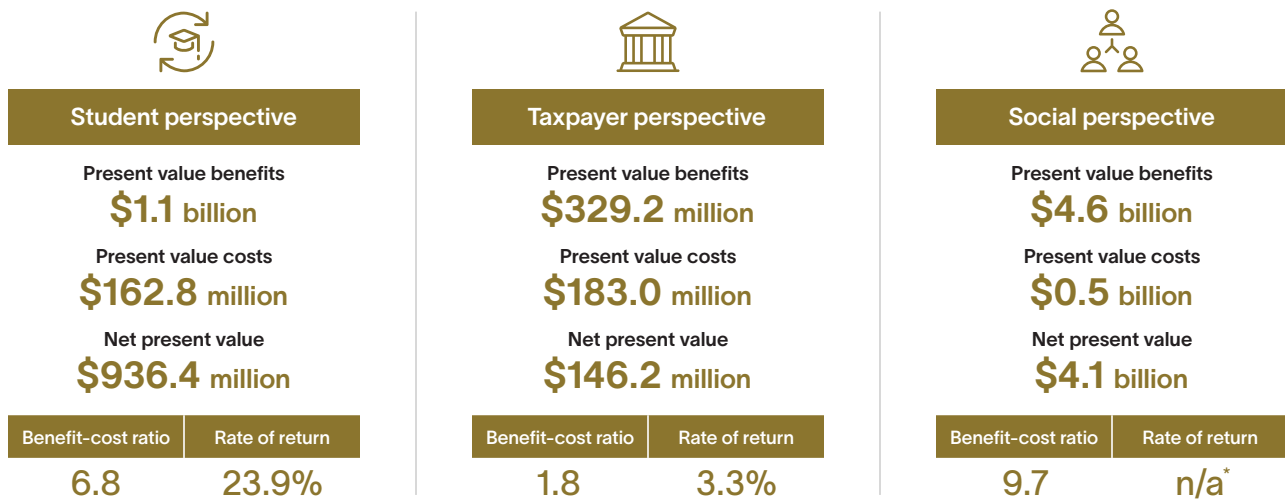
Social benefits in Texas from the Texas A&M HSC



Source: Lightcast impact model.

Summary of investment analysis results

The results of the analysis demonstrate that the Texas A&M HSC is a strong investment for all three major stakeholder groups—students, taxpayers, and society. As shown, students receive a great return for their investments in an education from the Texas A&M HSC. At the same time, taxpayers' investment in the Texas A&M HSC returns more to government budgets than it costs and creates a wide range of social benefits throughout Texas.



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

Conclusion



The results of this study demonstrate that the Texas A&M HSC creates value from multiple perspectives. The Texas A&M HSC benefits state businesses by increasing consumer spending in the state and supplying a steady flow of qualified, trained workers to the workforce. The Texas A&M HSC enriches the lives of students by raising their lifetime earnings and helping them achieve their individual potential. The Texas A&M HSC benefits state and local taxpayers through increased tax receipts and a reduced demand for government-supported social services. Finally, the Texas A&M HSC 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 2021-22 academic and financial reports from the Texas A&M HSC, industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau, outputs of Lightcast's Multi-Regional Social Accounting Matrix model, and a variety of studies and surveys relating education to social behavior. Lightcast's methodology for this study adheres to the Association of American Universities (AAU) and the Association of Public and Land-grant Universities (APLU) guidelines. 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 the Texas A&M Public Partnership and Outreach for a copy of the main report.

The results of this study demonstrate that Texas A&M HSC creates value from **multiple perspectives.**



Lightcast provides colleges and universities with labor market data that help create better outcomes for students, businesses, and communities. Our data, which cover more than 99% of the U.S. workforce, are compiled from a wide variety of government sources, job postings, and online profiles and résumés. Hundreds of institutions use Lightcast to align programs with regional needs, drive enrollment, connect students with in-demand careers, track their former students' employment outcomes, and demonstrate their institution's economic impact on their region. Visit lightcast.io/solutions/education to learn more or connect with us.