EXECUTIVE SUMMARY

THE ECONOMIC VALUE OF TEXAS A&M HEALTH SCIENCE CENTER TO THE TEXAS ECONOMY IN FY 2014-15

CORRECTED JANUARY 2017

Emsi
Texas A&M Health Science Center (HSC) creates value in a variety of ways. The center improves higher education delivery throughout the state and helps students increase their employability and potential.

The value of Texas A&M HSC influences both the lives of students and also the state economy. The center serves a range of industries in Texas, supports state 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 HSC 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 HSC in Texas on the business community and the benefits that the center generates in return for the investments made by their key stakeholder groups—students, society, and taxpayers.

The following two analyses are presented:

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

All results reflect student and financial data for Fiscal Year (FY) 2014-15. Impacts on the state business community are reported under the economic impact analysis. Results are measured in terms of total income. The return on investment to students, taxpayers, and society are reported under the investment analysis. Both analyses are described more fully in the following sections.
ECONOMIC IMPACT ANALYSIS

Texas A&M HSC promotes economic growth in Texas through its direct expenditures and resulting expenditures of students, visitors, and state businesses. The center serves as an employer and buyer of goods and services for its general and research operations. Numerous start-up companies have formed through programs and knowledge at Texas A&M HSC. The center’s reputation and activities attract students and visitors from outside Texas, whose expenditures benefit state vendors. In addition, Texas A&M HSC is a primary source of education to Texas residents and a supplier of trained workers to state industries, increasing overall productivity in the state workforce.

OPERATIONS SPENDING IMPACT

Texas A&M HSC is an important employer in Texas. In FY 2014-15, the center employed 1,221 full-time and part-time faculty and staff (less research). Of these, 98% lived in Texas. Total payroll at Texas A&M HSC was $117.7 million, much of which was spent in the state for groceries, dining out, clothing, and other household expenses. In addition, Texas A&M HSC is a large-scale buyer of goods and services. In FY 2014-15 the center spent $133.6 million to cover its expenses for facilities, professional services, and supplies (less research).

Texas A&M HSC added $172.2 million in total income to the state during the analysis year as a result of its day-to-day operations (less research). This figure represents the center’s payroll, the multiplier effects generated by the spending of the center and its employees, and a downward adjustment to account for funding that the center received from state and local 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 HSC received 94 invention disclosures, filed 21 new US patent applications, and produced 21 licenses. The university also generated license income over the same four-year time period, with $182.7 thousand in license income in FY 2014-15.

In FY 2014-15, Texas A&M HSC spent $36 million on payroll to support research activities, creating a net total of $86.2 million in total income for the state economy.

START-UP COMPANY IMPACT

Texas A&M HSC creates an exceptional environment that fosters innovation and entrepreneurship, evidenced by the number of Texas A&M HSC start-up 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 Texas A&M HSC. The number of companies reported by Texas A&M HSC includes faculty whose primary residence is in the Bryan-College Station area and who have joint appointments at Texas A&M HSC and at Texas A&M System agencies. However, the number of companies may be significantly undercounted due to limited data availability, especially regarding student spin-off companies.

In FY 2014-15, Texas A&M HSC start-up companies added $27.1 million in total income to the Texas economy.

STUDENT SPENDING IMPACT

Around 5% of students attending Texas A&M HSC originated from outside the state in FY 2014-15. Some of these students relocated to Texas. These students would not have come to the state if the center did not exist. In addition, a number of in-state students would have left the state for other education opportunities if not for the existence of Texas A&M HSC. While attending the center, these relocator and retained students spent $13.2 million to purchase groceries, rent accommodation, pay for transportation, and so on. A significant portion of these expenditures occurred in the state, generating $14.6 million in total income in the state economy during the analysis year.

VISITOR SPENDING IMPACT

Thousands of visitors from outside the state were attracted to Texas A&M HSC during the analysis year to attend commencement, sports events, conferences, meetings, and other activities sponsored by the center. While in the state, visitors spent money for lodging, food, transportation, and other personal expenses. The off-campus expenditures of the center’s out-of-state visitors generated a net impact of $165,700 in total income for the state economy in FY 2014-15.

FORMER STUDENT IMPACT

The education and training Texas A&M HSC provides for state residents results in the greatest impact. Since the center was established, students have studied at Texas A&M HSC and entered the workforce with new skills. Today, thousands of former students are employed in Texas (Figure 1, on the next page).

During the analysis year, past and present students of Texas A&M HSC generated $207.9 million in total income for the state. 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.

| TABLE 1: Research Developments created by Texas A&M HSC |
| Inventions | Patents | Licenses |
| 2011-12 | 20 | 6 | 4 |
| 2012-13 | 15 | 5 | 6 |
| 2013-14 | 29 | 5 | 3 |
| 2014-15 | 30 | 5 | 8 |
| total | 94 | 21 | 21 |
The overall impact of Texas A&M HSC on the state business community during the analysis year amounted to $508.1 million in total income, equal to the sum of the operations spending impact, the research spending impact, the impact from start-up companies, the student spending impact, the visitor spending impact, and the former student impact.

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 $508.1 million impact supports 5,861 jobs.

A portion of the total $508.1 million is broken out into an industry-by-industry impact ordered by total income. Table 3 outlines the top industries impacted by Texas A&M HSC. Because industries have different jobs-to-sales ratios, the associated jobs supported by the Texas A&M HSC impact differ by industry. Nonetheless, these are impacts that would not have been generated without the center’s presence.

**TOTAL IMPACT ON THE TEXAS ECONOMY**

The overall impact of Texas A&M HSC on the state business community during the analysis year amounted to $508.1 million in total income, equal to the sum of the operations spending impact, the research spending impact, the impact from start-up companies, the student spending impact, the visitor spending impact, and the former student impact.

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 $508.1 million impact supports 5,861 jobs.

A portion of the total $508.1 million is broken out into an industry-by-industry impact ordered by total income. Table 3 outlines the top industries impacted by Texas A&M HSC. Because industries have different jobs-to-sales ratios, the associated jobs supported by the Texas A&M HSC impact differ by industry. Nonetheless, these are impacts that would not have been generated without the center’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 HSC received a total of $369.8 million in FY 2014-15. Tuition and fees comprised 9% of total revenue, student aid from government sources comprised another 60%, and all other revenue comprised the remaining 31%. This study considers Texas A&M HSC as an investment from the perspectives of those whom provided these revenues - students, taxpayers, and society. The backdrop for the analysis is the entire Texas economy.

STUDENT PERSPECTIVE

In FY 2014-15, Texas A&M HSC served 2,754 credit students and 4,650 non-credit students. In order to attend the center, students paid for tuition, fees, books, and supplies. They also gave up money that they would have otherwise earned had they been working instead of attending the center. The total investment made by Texas A&M HSC’s students in FY 2014-15 amounted to $154.1 million, equal to $37.2 million in out-of-pocket expenses plus $116.9 million in forgone time and money.

In return for their investment, Texas A&M HSC’s students will receive a stream of higher future wages that will continue to grow through their working lives. As shown in Figure 2, earnings levels increase as people achieve higher levels of education. For example, the average bachelor’s degree completer from Texas A&M HSC will see an increase in earnings of $29,500 each year compared to someone with a high school diploma or equivalent. Over a working lifetime, this increase in earnings amounts to an undiscounted value of approximately $1,180,000 in higher earnings.

The present value of the higher future wages that Texas A&M HSC’s students will receive over their working careers is $475.6 million. Dividing this value by the $154.1 million in student costs yields a benefit-cost ratio of 3.09. In other words, for every $1 students invest in Texas A&M HSC in the form of out-of-pocket expenses
and forgone time and money, they receive a cumulative of $3.09 in higher future wages. The average annual rate of return for students is 14.5%. This is an impressive return, especially when compared to the 10-year average 7.2% return to the US stock market (Figure 3).

FIGURE 3: Student rate of return

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>14.5%</td>
<td>9.1%</td>
<td>7.2%</td>
</tr>
</tbody>
</table>

* RealityTrac’s Q3 2014 study of 586 counties nationwide.

**SOCIAL PERSPECTIVE**

Society as a whole within Texas benefits from the presence of Texas A&M HSC 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, alcoholism, obesity, drug abuse, and mental disorders. Crime savings include reduced security expenditures and insurance administration, lower victim costs, and reduced criminal justice system expenditures. Unemployment savings...
include the reduced employer contributions towards unemployment claims. For a list of study references to these statistical benefits, please contact the center for a copy of the main 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 2014-15 student population at Texas A&M HSC. Higher earnings amount to a present value of $1.5 billion due to the increased lifetime earnings of students and associated increases in business output. Social savings amount to $222.3 million, the sum of health, crime, and unemployment savings in Texas. Altogether, total benefits to society equal $1.8 billion (in present value terms).

Society invested $452.7 million in educations obtained at Texas A&M HSC during the analysis year. This includes all expenditures by Texas A&M HSC, 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 $3.91 in benefits, equal to the $1.8 billion in benefits divided by the $452.7 million in costs. These benefits will occur for as long as Texas A&M HSC’s FY 2014-15 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 HSC’s major stakeholder groups—students, society, and taxpayers. As shown, students receive great value for their educational investment. At the same time, the investment made by state and local taxpayers to the center 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 HSC creates value from multiple perspectives. The center benefits state businesses by increasing consumer spending in the state and supplying a steady flow of qualified, trained workers into the workforce. It enriches the lives of students by raising their lifetime earnings and helping them achieve their individual potential. It benefits state and local taxpayers through increased tax receipts across the state and a reduced demand for government-supported social services. Finally, it 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 2014-15 academic and financial reports from Texas A&M HSC, industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau, outputs of Emsi’s Mutli-Regional Social Accounting Matrix (MR-SAM) model, and a variety of studies and surveys relating education to social behavior. The study applies a conservative methodology and follows standard practice using only the most recognized indicators of investment effectiveness and economic impact. For a full description of the data and approach used in the study, please contact Texas A&M HSC for a copy of the technical report.

ABOUT EMSI

Economic Modeling Specialists International, a CareerBuilder company, is a leading provider of economic impact studies and labor market data to educational institutions, workforce planners, and regional developers in the U.S. and internationally. Since 2000, Emsi has completed over 1,200 economic impact studies for educational institutions in four countries. Visit www.economicmodeling.com for more information about Emsi’s products and services. The center facilitates new research and company developments and also draws visitors to the state, generating new dollars and opportunities for Texas.