The Economic Impact of UT Health: 2021

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I. Executive Summary

UT Health San Antonio is an economic, academic and research engine that fuels San Antonio and Bexar County's economy and enhances the quality of life of its residents. In 2021, the institution's economic activity contributed $3.1 billion to San Antonio's local economy. This is a 12% increase since its 2018 study. Their societal contributions to nation's 7th largest city in the United States were significant, not only as one of the drivers of the health care and biotechnology industry in San Antonio but as a leader in public health.

As the COVID-19 pandemic raged through San Antonio and around the world, UT Health San Antonio was responsive – providing world class care to many who had become ill with COVID-19, conducting research on vaccines and treatments and vaccinating the community. UT Health kept the community abreast of the pandemic while continuing to train scientists, researchers and students who were dedicated to the health of San Antonio. The Institution's enrollment grew as did its academic goals. UT Health, with its sister institution, saw an opportunity to further enhance the health of the community through the investment and development of a new School of Public Health which will expand San Antonio's workforce of trained public health professionals.

UT Health San Antonio's contribution to the community goes beyond direct economic effects also extended to those suffering from many other diseases and illnesses who could not afford to pay for their care. UT Health San Antonio provided over $595.8 million in uncompensated care in 2021 alone.

While these aforementioned contributions have had profound impacts on the lives of many people and indirectly contributed to the recovery of the local economy from the pandemic-induced recession, UT Health San Antonio also continues to register substantial economic impacts as one of the leading universities in the country for those seeking careers in medical, dental, nursing, biomedical sciences and health professions fields,[1] as well as being a core institution in the health care and biotechnology industry in San Antonio. In 2021, the university had an enrollment of 4,058 students--a 2.6% increase since its 2018 study. Having the university in San Antonio retains many local students and their talents and attracts other students from

[1] The School of Dentistry at UT Health is consistently ranked among the best in the country.

around Texas, the U.S, and the world, which ultimately serves as a key source for the skilled human capital needed to keep one of the largest industries in San Antonio – health care and biotechnology – thriving. Additionally, the university spent $415.7 million on research, including extramural expenditures, in 2021. This research leads to groundbreaking biotechnology, pharmaceuticals, and treatments that not only improves the lives of people in San Antonio and around the world, but it also leads to the creation of new companies in the area. The UT Health San Antonio clinics and hospitals also provided care to 71,778 unique patients in 2021 from outside Bexar County. The ability to attract these patients from outside the county not only reflects the high quality of care provided by UT Health San Antonio, but it brings new dollars flowing into the local economy through the spending of these "medical tourists." An institution growing like UT Health San Antonio needs new facilities to support that growth. In 2021, there was $748 million of construction projects initiated. These facilities are planned to be completed by 2024 and include a new hospital, expansion of research facilities, and a new parking garage, among others. The spending on construction in 2021 was an estimated $187 million.

The economic impacts of all of this activity was calculated using the IMPLAN input-output model for Bexar County. The aggregate of all of these impacts are shown in Table 1.

Table 1. Total Economic Impacts of UT Health San Antonio in 2021

Impact	*Employment*	*Labor Income (2021 $)*	*Gross Regional Product (2021 $)*	*Output (2021 $)*
Direct	8,015	$807,562,282	$932,563,407	$1,741,164,514
Indirect	4,421	$226,209,618	$399,746,332	$669,566,048
Induced	5,273	$252,375,897	$429,897,696	$734,544,773
Total	17,710	$1,286,147,797	$1,762,207,435	$3,145,275,335

In 2021, UT Health supported 17,710 jobs with incomes, including benefits, amounting to about $1.3 billion. The economic activity added almost $1.8 billion to the gross regional product (i.e., value added) and output of $3.1 billion in the local economy.

The economic impacts by activity are shown in Table 2. The largest impacts are derived from the economic activity generated by the overall operations of the UT Health San Antonio accounting for about $1.9 billion of the overall economic impacts of $3.1 billion as measured by

output. The impacts associated with the spending by patients from out of town registers the smallest impacts at $7.5 million.

Table 2. Economic Impacts of UT Health by Activity: 2021

Impact	*Employment*	*Labor Income (2021 $)*	*Gross Regional Product (2021 $)*	*Output (2021 $)*
Operations	10,645	$852,431,272	$1,082,088,478	$1,902,530,030
Research	4,018	$280,759,521	$431,771,060	$779,267,835
Construction	1,890	$102,685,330	$146,803,994	$296,224,436
Student Spending	1,065	$47,257,910	$97,225,671	$159,719,225
Patient Spending	91	$3,013,765	$4,318,233	$7,533,809
Total	17,710	$1,286,147,797	$1,762,207,435	$3,145,275,335

This economic activity generates tax revenues for various government agencies at the local, state, and federal levels. Since UT Health San Antonio is a state university, revenues derived from indirect business taxes, such as property and sales taxes, are removed from its direct spending activity. However, there is still a sizeable impact on local, state, and federal budgets even with this adjustment due to the array of economic activity generated as shown in Table 3. In total, the economic activity results in over $328.7 million in revenues flowing to government agencies at all levels. The cities, towns, and villages within Bexar County received almost $10.3 million in revenues, while the school districts and other special districts in the county received revenues of $20.3 million due to this economic activity. Bexar County also received about $7.7 million in revenues in 2021. The State of Texas and the U.S. government saw their revenues increase by $37.8 million and $252.5 million, respectively.

Table 3. Revenues to Government Agencies from Economic Activity of UT Health San Antonio: 2021

Government Agency	*Revenues*
Cities, Towns, and Villages	$10,313,537
School Districts and Other Special Districts	$20,269,703
Bexar County	$7,768,394
State	$37,813,579
Federal	$252,530,863
Total	$328,696,076

These numbers make it clear that UT Health San Antonio has a substantial impact on the San Antonio economy, and these figures do not include many of the other benefits and impacts they contribute to the San Antonio community through their numerous other efforts that are not captured in these figures, as discussed above. Lastly, it is worth noting that having such an expansive health care system in San Antonio, driven in large part by the workforce supplied by the university, is a vital component to the continued development of the local economy as it plays an important role in attracting skilled workers in all industries. Additionally, by providing access to outstanding health care, productivity throughout all sectors in San Antonio improves through a healthier workforce. The upshot is that health care is a foundational industry in that it has a profound impact on the productivity of all other industries, and the role and contributions of UT Health San Antonio were never more evident than in 2021.

The following sections will contain the discussion on the methodologies used to calculate the economic and fiscal impacts and will provide some detailed results.

II. Economic and Fiscal Impact Concepts and Methodologies

II.1. Data and Assumptions

There were five different components measured within the total economic impacts of UT Health San Antonio – (1) the operations of UT Health San Antonio, (2) research conducted by UT Health San Antonio, (3) construction, (4) spending by patients coming from outside Bexar County to receive care at a UT Health San Antonio facility, and (5) spending by the students attending UT Health San Antonio. In previous years, UT Health San Antonio hosted conferences and training events that attracted visitors to San Antonio and counted toward their economic impacts, but because of the COVID-19 pandemic, there were no conferences or training events held at UT Health San Antonio during 2021. The data, assumptions, and methodologies used to calculate these different economic activities and their total impacts on the local economy are discussed in the remainder of this section.

II.1.A. UT Health Operations

The main component of the economic impacts of UT Health San Antonio are its vast operations. The substantial size of its operations is indicated by its employment of 4,698.6 full-time equivalent faculty and staff and total personnel costs of $570,249,334 in 2021.

II.1.B. UT Health Research

UT Health San Antonio is also engaged in a substantial amount of research with total expenditures of $415,677,064. Of that amount, internal expenditures amounted to $203,336,799, which supported 1,342 researchers with total personnel costs of $142,490,313. The balance of the spending on research were extramural expenditures of $212,340,265.

II.1.C. Patient Spending

There were 71,778 unique patients who came from outside Bexar County to receive treatment at a UT Health San Antonio facility. In order to estimate the spending of these patients outside of their spending on their treatment, it was necessary to determine how many of these patients only came for the day and returned home the same day after receiving their care and how many stayed overnight and the length of those stays. In order to estimate the number of patients by their length of stay, data for all hospitals in Bexar County on outpatient visits, emergency department visits, hospital admissions, and the average length of stay in 2018 (the most recent data available) were pulled from the Texas Department of State Health Services.[2] There were 3,765,565 total visits with 3,506,074 or 93.11% of those visits being outpatient or emergency department visits. The remaining 259,491 or 6.89% of the visits were hospital admissions. It was assumed that the patients receiving care on an outpatient basis or in the emergency department were only day visitors, and those who were admitted to the hospital stayed for six days, based on the average length of stay of 5.9 days of admitted patients across all hospitals in Bexar County.

Multiplying 71,778 unique patients to UT Health San Antonio by 93.11% resulted in 66,832 of the patients being outpatient. The balance of the patients (4,946) were considered to be

[2] https://healthdata.dshs.texas.gov/dashboard/hospitals/texas-hospital-data

admitted to a hospital and stayed for six days on average. It was also assumed that the patients were accompanied by one other person regardless of their length of stay.

Only the spending of those who were outpatients and their accompanying visitor, as well as the accompanying visitor for those who were admitted to the hospital were counted toward the economic impacts. It was assumed that patients who were admitted to the hospital did not have any spending associated with meals and entertainment, lodging, and rental cars, since they will be in the hospital. It was assumed that these visitors spent $61 per person per day on meals. For those only coming to San Antonio for the day, it was assumed their only expenditures outside the cost of their health care was on meals. For those staying overnight, it was assumed that they stayed in accommodations similar to that of the typical overnight leisure visitor in San Antonio with 26% of them having stayed in a private accommodation, and the remaining 74% having stayed in a hotel with two people per room.[3] For those staying in a hotel, it was assumed they paid $124 per room. The spending amounts for meals and hotels are equivalent to the per diem rates of the U.S. General Services Administration for San Antonio in 2021.[4] It was also assumed that 20% of the overnight patients will rent cars with two people per car and pay a rate of $40 per day on average. On travel days for the visitors staying overnight, it was assumed they will only spend one-third of the full day amount on meals, and there will be no spending on hotels and rental cars on the day they leave town. These spending amounts are shown in Table 4. This resulted in $4,454,314 in total spending by these visiting patients (see Table 5).

Table 4. Spending Per Person Per Day of Visiting Patients to UT Health San Antonio

Type of Spending	*Full Day*	*Travel Day (Arriving)*	*Travel Day (Departing)*
Meals	$61.00	$20.33	$20.33
Lodging	$124.00	$124.00	$0
Rental car	$40.00	$40.00	$0

[3] Eslinger, J. (2017). Visit San Antonio overnight leisure profile. DK Shifflett. Report provided for Visit San Antonio, p. 47.
[4] https://www.gsa.gov/travel/plan-book/per-diem-rates/per-diem-rates-results/?action=perdiems_report&state=TX&fiscal_year=2021&zip=&city=San%20Antonio

Table 5. Total Spending Associated with Visiting Patients to UT Health San Antonio

Type of Spending	*Total Spending*
Meals	$3,220,698
Lodging	$1,134,689
Rental car	$98,927
Total	$4,454,314

II.1.D. Student Spending

It was assumed that the students attending UT Health engaged in spending activities equivalent to the under-25-year-old cohort in the Consumer Expenditure Survey for 2019-2020.[5] The 2019-2020 data are the most recent available, so it is assumed a similar pattern of spending occurred in 2021. This per person spending was multiplied by the enrollment at UT Health in 2021 of 4,058. While not all of these students are from outside Bexar County, it is assumed that even if they did reside in Bexar County before attending UT Health San Antonio that they would have left the area to attend a school outside the area. As such, the spending of all students, even those who were local before starting the pursuit of their degree, is counted towards the economic impacts. The education expenditures were not counted since that spending would be captured in the university's operations impact, and it was also assumed they would make no cash contributions. The annual spending by category is provided in Table 6.

[5] https://www.bls.gov/cex/tables/cross-tab/mean/reference-person-age-by-income-under-25-2020.pdf

Table 6. Annual Expenditures for UT Health Students: 2021

Category of Spending	*Expenditures*
Food at home	$10,899,788
Food away from home	$10,619,786
Shelter	$36,517,942
Utilities	$9,199,486
Household operations	$2,568,714
Housekeeping supplies	$1,294,502
Household furnishings	$5,429,604
Apparel and services	$5,307,864
Vehicle purchases	$14,730,540
Gasoline and motor oil	$6,062,652
Other vehicle expenses (repairs)	$2,467,264
Public transportation	$1,781,462
Health insurance	$3,928,144
Medical services	$1,152,472
Drugs	$564,062
Medical supplies	$223,190
Entertainment: fees and admissions	$986,094
Audio and visual equipment	$2,223,784
Pets, toys, hobbies, and playground equipment	$1,606,968
Other entertainment equipment	$616,816
Personal care products and services	$1,923,492
Reading	$194,784
Tobacco products	$840,006
Miscellaneous	$1,274,212
Personal insurance and pensions	$14,263,870

II.1.E. Construction Spending

There were numerous construction projects initiated by UT Health in San Antonio in 2021. Examples of these projects include construction of a new hospital, a project garage, and research facilities. The total cost to complete the construction of all of these projects is projected to be $748 million, and while the timing of the completion of each project varies, all of the projects will be done by 2024. It was assumed that the construction spending will occur equally over each year from 2021 to 2024 resulting in $187 million in construction spending in 2021.

II.2. Economic Impact Concepts

Economic impact is based on the concept that a new dollar flowing into the area causes an expansion of the economy. The economic activity of many businesses generates exports outside of the region[6], which brings this money flowing back into the local economy. These businesses use this revenue to pay their workers' salaries and benefits, purchase inputs from local suppliers, and pay government taxes and fees. The direct economic impact is derived from the production activity of the businesses and the salaries and benefits they are then able to pay their workers. As already alluded to, this also generates additional economic activity, often referred to as multiplier effects.

Multiplier effects can be separated into two effects: the indirect effect and the induced effect. The indirect effect results from the company purchasing inputs (physical goods or services) from its local suppliers. This then sets off additional spending by the supplier in its purchases of inputs and payment of salaries and benefits to its employees. The induced effect is derived from the spending of the employees of the company resulting from the incomes they receive. This is where the economic impact really begins to spread throughout the economy as workers spend their incomes to buy the various goods and services that they need and desire.

All of this economic activity also benefits the government at various levels as the spending by businesses, their employees, and others generates tax revenues and fees. For instance, these activities will generate excise, income, and property tax revenues; social security contributions; and various license fees.

Of course, not all of this economic activity is captured within the local economy. There are leakages as businesses and individual consumers purchase goods and services outside of the local economy, causing some money to leak or flow out of the local economy. This is also the case as federal and state taxes and fees are paid resulting from these activities. These leakages are accounted for in the model and are not counted as part of the economic impact. In fact, they reduce the impact of these activities.

[6] These exports include retail and hotel spending, for example, by visitors from outside the city. In this manner, many services are also exported.

II.3. The Model

In order to estimate these impacts, the direct economic activity of UT Health San Antonio discussed above was input into the IMPLAN input-output model for Bexar County. This model is based off the "Input-Output Study of the U.S. economy" by the U.S. Bureau of Economic Analysis,[7] and is adapted for Bexar County using data specific to the region from the Bureau of Economic Analysis. The IMPLAN model measures the interactions across 546 industries and commodities.

Input-output analysis was introduced by economist Wassily Leontief, who later received the Nobel Prize in economics in 1973.[8] An input-output model describes the economic interactions or trade flows among businesses, households, and governments and shows how changes in one area of the economy impacts other areas. The multipliers that result from these models are the expressions of these interactions.

III. Economic Impacts by Activity

The economic impacts, including multiplier effects, by activity are shown in Charts 1-4. As expected, the operations of the university and the clinics registered the largest impacts across each of the measures. The operations supported 10,645 jobs in the local economy with the workers earning about $852.4 million in income (including benefits). The operations generated almost $1.1 billion in gross regional product and $1.9 billion in output across the economy. The research activities of the university supported 4,018 jobs with incomes of $280.8 million. The research contributed $431.8 million to gross regional product and $779.3 million in output. The construction activity supported 1,890 jobs and wages and benefits of $102.7 million. As the effects of the construction rippled through the economy, it resulted in $146.8 million in gross regional product and $296.2 million in output. The spending by the students attending UT Health San Antonio also made substantial economic contributions. Their spending supported 1,065 jobs whose workers received pay of $47.3 million, as they created over $97.2 million in gross

[7] *IMPLAN Professional® Version 2.0 User's Guide*, p. 98.
[8] For an example of his seminal work, see: Leontief, Wassily et al., *Studies in the Structure of the American Economy: Theoretical and Empirical Explorations in Input-Output Analysis,* New York: Oxford University Press, 1953.

regional product and $159.7 million in output. The smallest impacts came from the spending associated with patients who came to UT Health San Antonio from out of town for their health care, but their impacts show that the impacts of UT Health San Antonio extend well beyond the local economy. The spending of these "medical tourists" supported 91 jobs with over $3.0 million flowing to these workers. It generated over $4.3 million in gross regional product and $7.5 million in output.

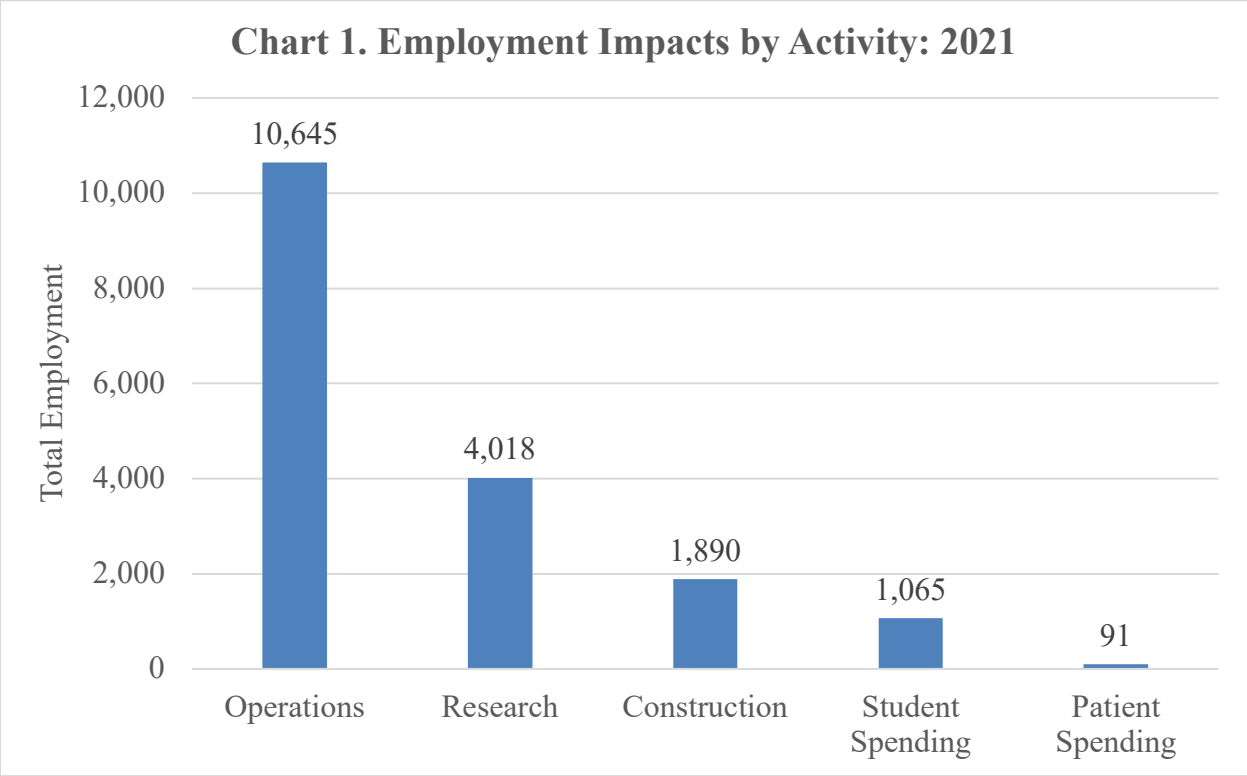


Chart 2. Impacts to Labor Income by Activity: 2021

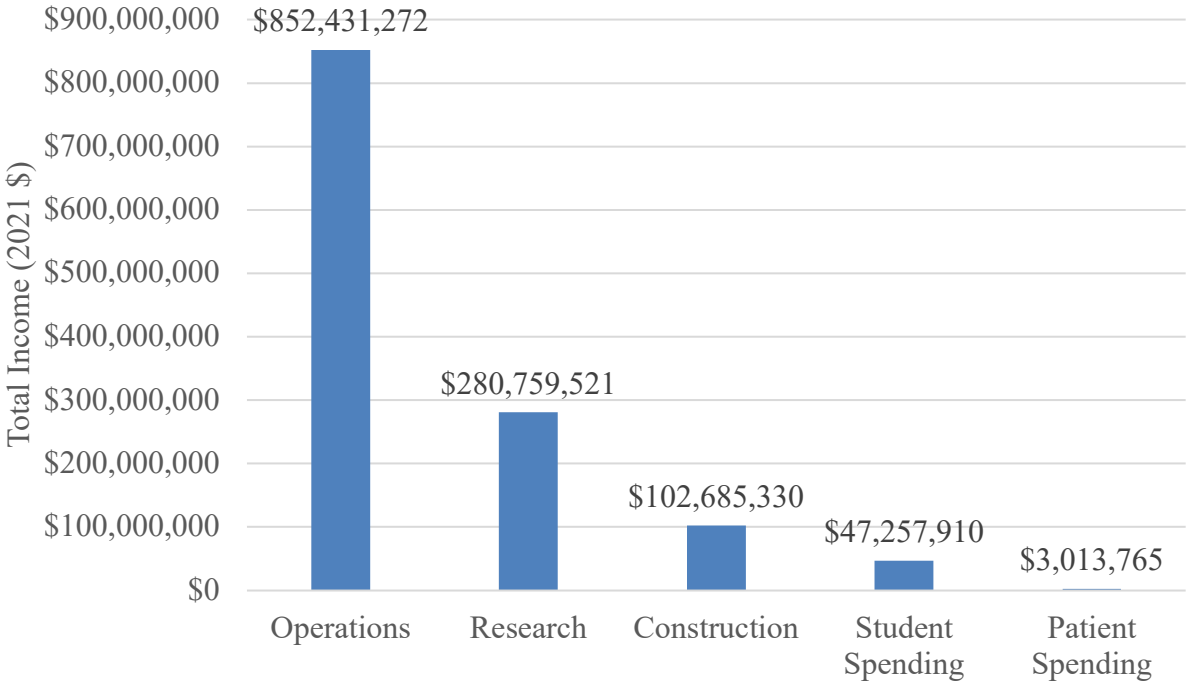
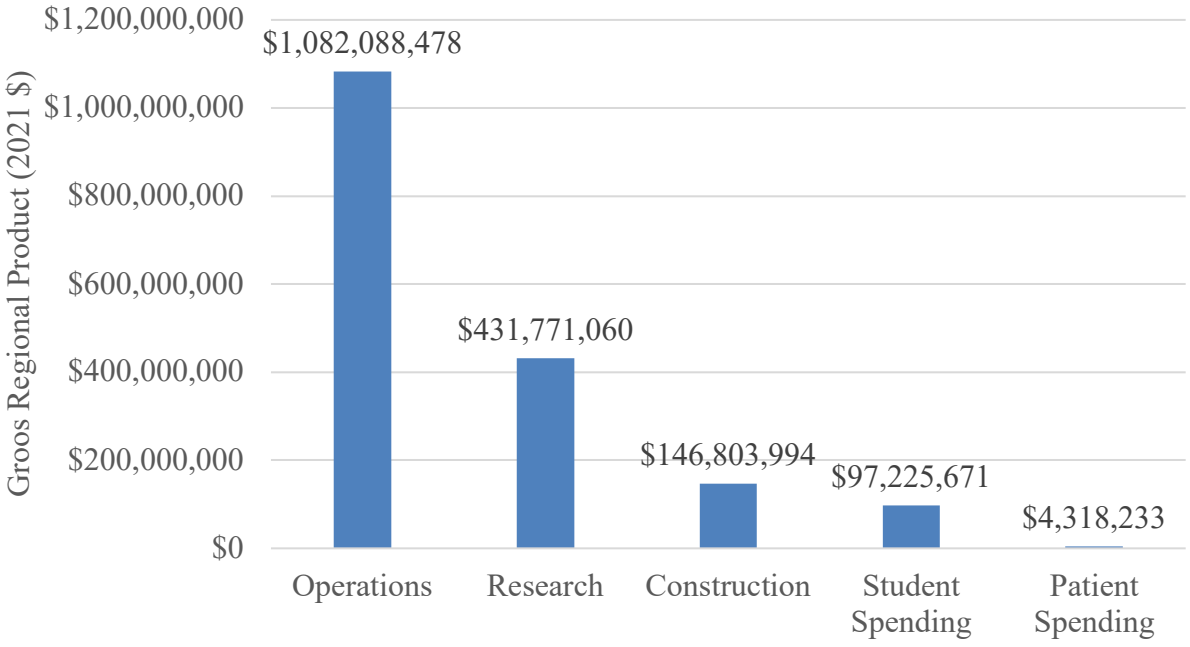
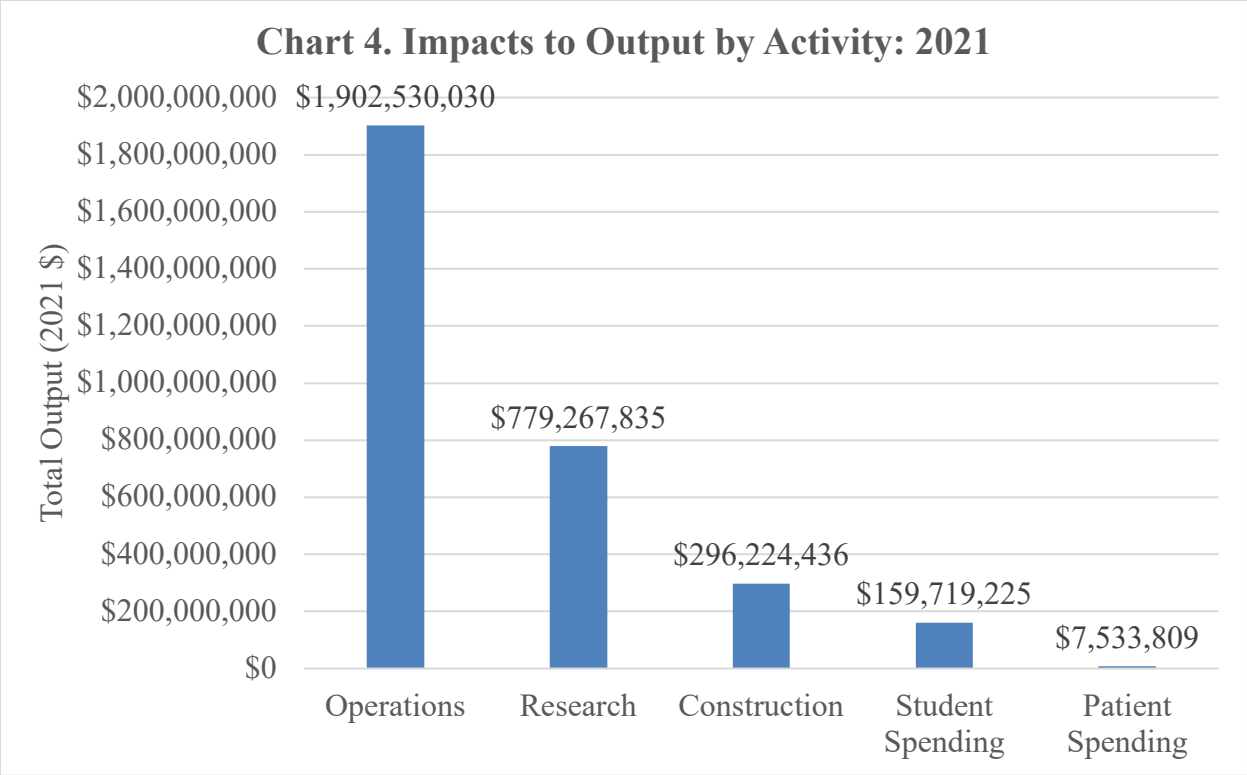


Chart 3. Contributions to Gross Regional Product by Activity: 2021





The impacts of the economic activities of UT Health San Antonio are not isolated to education and health care. An institution of this size and scope can be an important catalyst to the growth of many businesses across a wide range of industries. In order to provide a sense of these impacts, the top twenty industries most affected by the economic activities of UT Health San Antonio as measured by the impacts on their employment levels are shown in Table 7.[9] It is clear from these figures that the impacts extend well beyond the different sectors of health care as the growth of restaurants, retail and wholesale trade, legal services, and various other industries are boosted by the economic activity catalyzed by UT Health San Antonio.

[9] Colleges and universities are the top industry impacted, but they are excluded from the table because the impacts are directly by the employment at UT Health.

Table 7. Top 20 Industries Impacted by UT Health San Antonio by Employment: 2021 (Excludes universities and colleges)

Industry	*Employment Impacts*
Scientific research and development services	1,465
Real estate	1,385
Construction of new health care structures	1,173
Full-service restaurants	500
Limited-service restaurants	474
Employment services	394
Management consulting services	278
Wholesale trade	262
Services to buildings	249
Hospitals	233
Other educational services	208
Monetary authorities and depository credit intermediation	207
All other food and drinking places	195
Other financial investment activities	186
Retail - Food and beverage stores	183
Personal care services	182
Legal services	175
Marketing research and all other misc. professional, scientific, and tech. services	169
Retail - General merchandise stores	166
Offices of physicians	154

IV. Conclusion

This analysis has documented many of the economic and fiscal impacts of UT Health San Antonio. As shown, these are substantial, but they do not capture the entirety of the effects of UT Health San Antonio on the local economy and the quality of the people living in the area or who are fortunate enough to be able to travel to receive care at one of their clinics or hospitals. This was never more evident than in 2021 with numerous contributions UT Health San Antonio made to help the community through the COVID-19 pandemic. In fact, through its research and other efforts, it positively impacted the global response to the pandemic. The university and its clinics,

hospitals, and vast research continue to improve the lives of thousands of people and serve as a catalyst to the San Antonio economy and beyond.