

# VU in TN

VANDERBILT UNIVERSITY'S CONTRIBUTIONS  
TO THE ECONOMIC VIBRANCY OF TENNESSEE

2017





# Introduction

As a vital engine in Tennessee’s economy, Vanderbilt injects billions of dollars into the state every year. In pursuing their joint mission to educate, discover, serve and cure, Vanderbilt University and Vanderbilt University Medical Center together generate an economic impact — \$9.5 billion in 2015-16 — that continually drives Tennessee forward.

Vanderbilt is an integral part of Tennessee’s strong economy — both in the traditional sense of jobs and spending but also as an incubator for competitive advantage in the state and across the nation. Vanderbilt develops human capital, supports innovation and entrepreneurship, and cultivates clusters in knowledge industries — all fostering a superior quality of life for Tennesseans.

Vanderbilt University is a Top 20 independent private research university associated with a top-ranked academic medical center and offers a full range of undergraduate, graduate and professional degrees. Founded in 1873, the university provides an invigorating atmosphere where a diverse student body becomes immersed in educational experiences that define their career goals, and researchers from all corners of campus collaborate to solve complex questions affecting health, culture and society.

Together the university and medical center provide a strong foundation for the economy of its hometown, Nashville, and the state of Tennessee. Here are some facts from the 2015-16 fiscal year.

and the second largest private employer based in the state, directly employed approximately 26,500 faculty, staff and medical professionals — 4,300 faculty and 22,200 staff.

- ★ The medical center delivered care through more than 2 million clinic and inpatient visits last year, and provided \$513 million in uncompensated care, community benefits and other unrecovered costs.
- ★ Vanderbilt University was awarded \$234.5 million in research funding, and VUMC was awarded \$458.3 million.
- ★ More than 12,500 undergraduate, graduate and professional students made up the Vanderbilt student community. For the academic year that ended in May 2016, Vanderbilt conferred 3,812 degrees and certificates. In the last decade, Vanderbilt has awarded 35,797 degrees and certificates.
- ★ Vanderbilt continually drives innovative technologies from its labs to the market. In 2016, those efforts earned more than \$6.5 million in revenues, 46 new U.S. patents and 75 licensing agreements, and created five startups.

**\$9.5 BILLION**  
TOTAL ECONOMIC IMPACT FROM OPERATIONS, STUDENT AND VISITOR SPENDING AND CONSTRUCTION

**\$513 MILLION**  
TOTAL VALUE OF UNCOMPENSATED CARE, COMMUNITY BENEFITS AND OTHER UNRECOVERED COSTS

**600,000**  
NUMBER OF VISITORS FOR VANDERBILT-RELATED ACTIVITIES

**63,500 / \$3.8 BILLION**  
TOTAL JOBS SUPPORTED BY VANDERBILT’S REGIONAL ACTIVITY / LABOR INCOME

**KNOWLEDGE ECONOMY**  
VANDERBILT AWARDED  
**35,797 DEGREES**  
IN THE LAST DECADE

Vanderbilt University draws students from all 50 states; 10 percent of its students are international. In 2016, university enrollment was 6,871 undergraduates and 5,716 graduate and professional students, for a total enrollment of 12,587. Vanderbilt comprises 10 schools and colleges: Blair School of Music, the College of Arts and Science, the Divinity School, the School of Engineering, the Graduate School, the Law School, the School of Medicine, the School of Nursing, Owen Graduate School of Management, and Peabody College of education and human development. In 2016, 3,812 students earned undergraduate, graduate and professional degrees.

Vanderbilt students and graduates increase the state's economic development competitiveness and productivity by gaining knowledge, learning to think analytically, improving technical skills, and commanding a higher salary when entering the job market. Additionally, the School of Medicine and the medical center trained 1,162 residents in FY 2015-16. Vanderbilt has the only accredited geriatric medicine training program in Tennessee. For the primary care disciplines in the state, Vanderbilt trains 43 percent of all pediatricians, 33 percent of all general surgeons, and 20 percent each of all the obstetricians and internists. The School of Nursing has one of the largest advanced practice nursing programs in the country, enrolling approximately 850 advanced practice master's students each year, as well as nearly 200 doctoral students.

VUMC also plays an important part in improving Tennessee's overall quality of life and economic vitality beyond its direct role in the economy. The medical center, with 1,025 licensed hospital beds, hosted more than 2 million inpatient and clinic visits during the 2015-16 fiscal year and performed 57,421 surgical procedures. During the same period, the total value of uncompensated care, community benefits, and other unrecovered costs provided by VUMC was approximately \$513 million.

## Vanderbilt's Growing Economic Impact (in billions)



Source: Vanderbilt University, IPEDS, TXP Inc.

Vanderbilt's economic impact is manifested in a variety of ways. Direct institutional spending on payroll, construction and general procurement creates sales for companies located in Nashville and elsewhere throughout Tennessee. Off-campus spending by Vanderbilt's 12,500 students and 600,000 out-of-town visitors brings additional revenue to area businesses. Beyond these direct injections, Vanderbilt also plays an important role in economic development by providing a highly educated labor force and supporting research commercialization.

Finally, Vanderbilt students, faculty and staff contribute thousands of hours of community service each year, promoting health, literacy, education, culture and overall regional quality of life.

### Notes

- In spring 2016, Vanderbilt University Medical Center became a financially distinct nonprofit institution, positioning the medical center for future growth and investment while preserving its tightly woven connections to the university in research and teaching. Teaching and research collaboration and connections between the university and the medical center remain a strategic priority for both institutions. VUMC will continue to strive for excellence across its missions and to be one of the world's preeminent academic medical centers. As an independent entity, VUMC will have direct capital market access to assure it can compete effectively in the health marketplace. Its new flexible governance structure will also support the continued growth of the Vanderbilt Health Affiliated Network, the largest provider-organized network of doctors, regional health systems and other health care providers in Tennessee and surrounding states.
- For purposes of this economic impact analysis, the two institutions (Vanderbilt University and Vanderbilt University Medical Center) will continue to collectively constitute "Vanderbilt."
- The purpose of this report, developed by TXP Inc. of Austin, Texas, an independent economic analysis and public policy consulting firm, is to quantify the total annual economic and tax revenue impact of Vanderbilt. Building upon existing studies and data sets, this analysis highlights the importance of Vanderbilt in terms of jobs, wages and taxes for fiscal year 2015-16 (July 1, 2015-June 30, 2016).

# Economic and Tax Revenue Impact

Vanderbilt has a strong direct impact on Tennessee's economy, as the operations of the university and medical center support tens of thousands of direct and indirect jobs.

Vanderbilt plays an important role in regional economic development. Faculty and staff, for example, provide business support and other technical services to existing firms. Patents and business startups resulting from the commercialization of Vanderbilt academic research boost job creation throughout Tennessee. Vanderbilt students, faculty and staff also provide thousands of hours of community service each year, enhancing health, literacy, education, culture and overall quality of life in the region.

When evaluating Vanderbilt's economic impact, the challenge is to focus on core activities that are measureable while not overlooking important qualitative aspects. Some studies take a narrow approach that focuses on the operational impact of the institutions, while other analyses include a variety of impacts ranging from alumni income to estimating the media value of collegiate sports teams. This study takes a measured approach, but does make some subjective decisions regarding inputs.

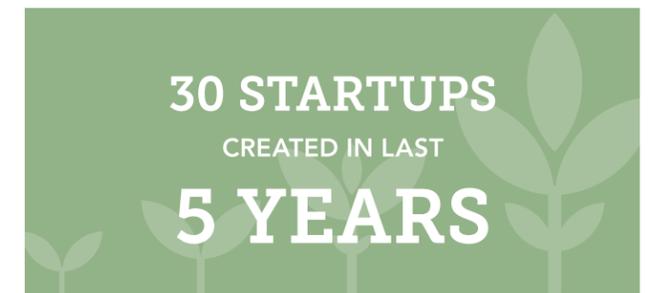


## Technology Transfer and Commercialization

Vanderbilt researchers and their innovations have helped to position the university as a world leader in numerous medical research sectors such as biomedical informatics, medical imaging, personalized medicine, and drug discovery and development. Vanderbilt's role in technology-related entrepreneurship has

grown substantially over the years, supported by the Vanderbilt Center for Technology Transfer and Commercialization.

Essential to carrying out the CTTC's mission is the ability to form collaborative and professional relationships with companies in a variety of industries, including space exploration, education, pharmaceuticals, health care and patient care, robotics, energy, environmental preservation and engineering.



In 2016 five new startups joined the dozens of companies created since the CTTC's inception. Among other benefits, these companies create well-paid jobs. Although specific salary information is not available, virtually all these companies focus on technology or life sciences and require highly skilled and trained professional and technical employees. Research from Life Science Tennessee, a trade group representing biotech employers in Tennessee, shows that the average biotech worker makes approximately \$79,000 per year.

The commercialization of these results is impressive. For FY 2016, overall CTTC efforts generated \$6.5 million in revenue. Inventors affiliated with the CTTC had 46 U.S. patents issued — 216 more were filed — and executed 75 licenses and options. Over the past five years, 226 U.S. patents have been issued to firms associated with the CTTC.

## Economic Impact of Vanderbilt, FY 2015-16

	OUTPUT	VALUE ADDED	LABOR INCOME	EMPLOYMENT
VANDERBILT UNIVERSITY	\$2,758,408,655	\$1,658,801,537	\$1,138,068,505	10,630
VUMC	\$5,983,420,292	\$3,458,422,832	\$2,468,242,986	47,515
CONSTRUCTION	\$371,718,906	\$155,777,301	\$75,663,260	1,536
STUDENT AND VISITOR	\$396,529,225	\$238,996,220	\$118,312,009	3,860
<b>TOTAL</b>	<b>\$9,510,077,078</b>	<b>\$5,511,997,890</b>	<b>\$3,800,286,760</b>	<b>63,541</b>

Source: TXP Inc. Note: See page 5 for definitions of economic impact terms used.

### Model Inputs and Assumptions

#### Direct spending

##### Normal operations and expenditures associated with Vanderbilt University and VUMC

During FY 2015-16, normal operations spending totaled \$3.8 billion, the largest input to the economic impact model. The econometric model was adjusted for each institution based on the following inputs. Each segment, for instance, has a different spending pattern for faculty and a different average wage level.

- **Operations:** expenditures related to general operations and plant operations and maintenance
- **Payroll:** salaries, wages and fringe benefits
- **Employment:** faculty and staff, including graduate teaching or research assistants

#### Construction spending

This includes spending on buildings and construction, excluding equipment. This input has the greatest variation from year to year, but is included because it generates a significant level of economic activity.

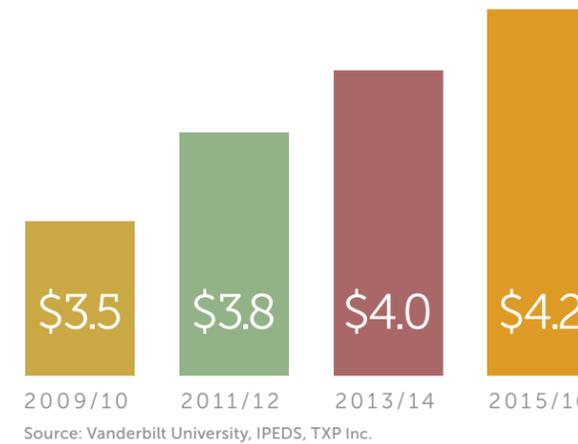
Total annual construction spending in fiscal 2008-09 surpassed \$181.5 million, fell to \$86.6 million in fiscal 2011-12, then rose to \$126.0 million in fiscal 2013-14.

Last year Vanderbilt University's construction spending was \$104.0 million, while VUMC spent \$92.9 million, for a total FY 2015-16 Vanderbilt-related construction spending of \$196.9 million.

#### Student and visitor spending

The university's academic quality and reputation draw undergraduate, graduate and professional students — and their associated spending — to the Nashville area. Enrolled students (graduate and undergraduate) have a positive impact on the local economy by supporting businesses such as rental housing, groceries, restaurants, music venues and other retail establishments. At the same time, visitors also inject funds into the local economy. Vanderbilt data indicate approximately 600,000 families, friends, conference attendees and sports fans visit campus each year. Out-of-town visitor counts were combined with the average expenditure per visitor and length-of-stay statistics published by the Nashville Convention and Visitors Bureau. Together, students and visitors accounted for \$190 million in direct spending last year in the local economy.

## Total Direct Economic Activity Related to Vanderbilt (in billions)



In total last year, the Vanderbilt-related direct spending footprint — operations, construction, and student and visitor spending — was \$4.2 billion, a figure that has grown 20 percent since 2009-10.

### Economic Impact Methodology

Economists use a number of statistics to describe regional economic activity. Four common measures of direct spending are:

- **Output:** total economic activity, generally equivalent to a firm's gross sales or top-line
- **Value Added:** the gross output of an industry or a sector less its intermediate inputs or purchases from other firms used in the production process
- **Labor Income:** wages and benefits
- **Employment:** jobs that have been created in the local economy.

In an input-output analysis of new economic activity, it is useful to distinguish three types of expenditure effects: direct, and then the indirect and induced effects as those direct expenditures ripple through the economy.

- **Direct effects:** changes associated with the immediate effects or final demand changes. An example of direct effects is spending by students for entertainment, clothing, food, etc., off campus while they attend Vanderbilt.
- **Indirect effects:** changes in backward-linked industries caused by the changing input needs of directly affected industries — typically, additional purchases to produce additional output. Satisfying the demand from students means that restaurants must purchase food, supplies and other services. These downstream purchases affect the economic output of other local merchants.
- **Induced effects:** changes in regional household spending patterns caused by changes in household income generated from the direct and indirect effects. The restaurant owner experiences increased income from student spending, as does the cleaning supplies outlet. Induced effects capture the way in which increased income is spent in the economy.

$$\text{Direct effects} + \text{Indirect effects} + \text{Induced effects} = \text{Total impact}$$

A multiplier reflects the interaction between different sectors of the economy. An output multiplier of 1.4, for example, means that for every \$1,000 injected into the economy, all other sectors produce an additional \$400 in output. The larger the multiplier, the greater the economic impact. Because Vanderbilt is located in the Nashville area, TXP used the RIMS II input-output multipliers produced by the U.S. Bureau of Economic Analysis for the Nashville-Davidson-Murfreesboro-Franklin MSA. This is a conservative approach, as MSA multipliers tend to be lower than statewide figures.

# Economic Impact Results

## Operations

### Vanderbilt University operations spending

In FY 2015-16, Vanderbilt University had direct operating expenditures of \$1.1 billion, wages and benefits of \$643.9 million, and approximately 6,300 full- and part-time employees. The estimated total economic output impact related to Vanderbilt operations that year was approximately \$2.8 billion. The increase in regional economic activity supported more than 10,600 total jobs with labor income of more than \$1.1 billion.

**\$3.8  
BILLION**  
VU/VUMC  
OPERATIONS  
SPENDING

HELPED  
SUPPORT  
**58,100  
JOBS**

INDUSTRY SECTOR	OUTPUT	VALUE ADDED	LABOR INCOME	EMPLOYMENT
AGRICULTURE	\$4,131,978	\$1,752,961	\$1,034,339	15
MINING	\$1,252,115	\$751,269	\$295,525	1
UTILITIES	\$44,825,706	\$24,165,813	\$8,126,950	29
CONSTRUCTION	\$24,165,813	\$13,522,839	\$9,013,526	57
DURABLE MFG.	\$33,181,039	\$11,519,455	\$7,240,374	49
NON-DURABLE MFG.	\$89,025,354	\$27,922,158	\$17,731,527	126
WHOLESALE TRADE	\$70,744,480	\$47,955,993	\$25,858,477	130
RETAIL TRADE	\$106,930,594	\$71,120,114	\$43,885,529	494
TRANS./WAREHOUSE	\$49,834,165	\$25,918,774	\$19,800,205	140
INFORMATION	\$69,617,577	\$39,817,247	\$16,106,137	106
FINANCE/INSURANCE	\$153,258,838	\$79,509,283	\$45,954,207	297
REAL ESTATE	\$383,021,883	\$268,077,754	\$70,482,820	841
PROF./TECH. SERVICES	\$77,505,899	\$49,583,742	\$38,861,597	214
MGMT. OF COMPANIES	\$28,548,215	\$17,153,971	\$13,889,696	61
ADMIN. SERVICES	\$60,977,985	\$39,566,824	\$31,030,172	363
EDUCATIONAL SERVICES	\$1,273,150,214	\$774,057,300	\$655,623,209	6,440
HEALTH CARE, ETC.	\$127,590,487	\$76,253,784	\$66,197,701	445
ARTS/RECREATION	\$16,653,125	\$9,891,706	\$7,535,899	86
ACCOMMODATION	\$20,659,892	\$13,021,993	\$6,797,085	73
EATING/DRINKING	\$47,955,993	\$25,292,717	\$18,470,341	320
OTHER SERVICES	\$75,377,304	\$40,568,516	\$32,507,799	297
HOUSEHOLDS	N.A.	\$1,377,326	\$1,625,390	46
<b>TOTAL</b>	<b>\$2,758,408,656</b>	<b>\$1,658,801,539</b>	<b>\$1,138,068,505</b>	<b>10,630</b>

Source: TXP Inc.

### VUMC operations spending

In FY 2015-16, VUMC had direct operating expenditures of \$2.7 billion, wages and benefits of \$1.3 billion, and approximately 20,235 full- and part-time employees. The estimated total economic output impact related to Vanderbilt operations that year was approximately \$6.0 billion. The increase in regional economic activity supported more than 47,500 total jobs with labor income of \$2.5 billion.

INDUSTRY SECTOR	OUTPUT	VALUE ADDED	LABOR INCOME	EMPLOYMENT
AGRICULTURE	\$6,707,569	\$2,951,331	\$1,896,460	71
MINING	\$2,146,422	\$1,341,514	\$316,077	7
UTILITIES	\$63,319,456	\$35,147,664	\$11,378,761	107
CONSTRUCTION	\$33,269,545	\$18,781,195	\$12,326,991	219
DURABLE MFG.	\$68,953,814	\$25,220,461	\$15,171,682	278
NON-DURABLE MFG.	\$159,103,548	\$52,855,648	\$32,239,824	631
WHOLESALE TRADE	\$193,446,304	\$131,200,059	\$70,801,182	983
RETAIL TRADE	\$228,325,666	\$152,127,676	\$93,874,781	2,891
TRANS./WAREHOUSE	\$112,687,168	\$58,758,309	\$45,198,969	889
INFORMATION	\$149,981,254	\$85,320,284	\$35,716,668	651
FINANCE/INSURANCE	\$551,898,818	\$289,230,397	\$162,147,349	2,777
REAL ESTATE	\$533,385,926	\$374,282,378	\$99,248,085	3,208
PROF./TECH. SERVICES	\$238,789,474	\$158,566,943	\$127,378,912	1,968
MGMT. OF COMPANIES	\$77,807,806	\$46,684,684	\$37,929,205	463
ADMIN. SERVICES	\$189,153,460	\$130,126,848	\$106,201,773	3,382
EDUCATIONAL SERVICES	\$34,074,453	\$20,927,617	\$18,648,526	603
HEALTH CARE, ETC.	\$3,012,235,309	\$1,686,014,668	\$1,453,320,688	23,339
ARTS/RECREATION	\$30,854,820	\$17,976,286	\$13,275,222	437
ACCOMMODATION	\$35,147,664	\$22,269,131	\$11,378,761	342
EATING/DRINKING	\$114,565,287	\$60,368,125	\$44,566,815	2,111
OTHER SERVICES	\$147,566,529	\$85,320,284	\$71,749,412	1,885
HOUSEHOLDS	\$0	\$2,951,331	\$3,476,844	274
<b>TOTAL</b>	<b>\$5,983,420,292</b>	<b>\$3,458,422,833</b>	<b>\$2,468,242,987</b>	<b>47,516</b>

Source: TXP Inc.

VUMC DELIVERED  
**\$513  
MILLION**  
IN UNCOMPENSATED CARE

**2 MILLION**  
PATIENT VISITS TO VUMC



## Construction

In fiscal year 2015-16, Vanderbilt spent \$196.9 million on construction, building and leasehold improvements. These expenditures supported hundreds of local jobs in the construction and building maintenance sector. The estimated total economic output impact of Vanderbilt-related construction spending that year was approximately \$371.7 million. The increase in regional economic activity supported approximately 1,500 total jobs with labor income of more than \$75.6 million.

VANDERBILT  
CONSTRUCTION  
SPENDING TOPPED

**\$196  
MILLION**

HELPED  
CREATE

**1,500  
JOBS**

INDUSTRY SECTOR	OUTPUT	VALUE ADDED	LABOR INCOME	EMPLOYMENT
AGRICULTURE	\$196,937	\$98,469	\$59,081	2
MINING	\$157,550	\$98,469	\$19,694	0
UTILITIES	\$2,638,958	\$1,437,641	\$393,874	4
CONSTRUCTION	\$1,378,560	\$768,055	\$433,262	8
DURABLE MFG.	\$237,644,082	\$76,549,478	\$35,133,591	585
NON-DURABLE MFG.	\$13,194,790	\$4,391,699	\$2,205,696	44
WHOLESALE TRADE	\$20,520,853	\$13,923,458	\$6,380,764	97
RETAIL TRADE	\$10,752,769	\$7,404,838	\$3,879,662	118
TRANS./WAREHOUSE	\$8,310,749	\$4,293,230	\$2,757,120	56
INFORMATION	\$5,474,853	\$3,111,607	\$1,142,236	23
FINANCE/INSURANCE	\$13,155,403	\$6,814,026	\$3,426,707	68
REAL ESTATE	\$16,700,272	\$11,619,293	\$2,638,958	93
PROF./TECH. SERVICES	\$7,424,531	\$4,824,961	\$3,210,076	55
MGMT. OF COMPANIES	\$7,109,432	\$4,273,537	\$2,934,364	39
ADMIN. SERVICES	\$5,140,060	\$3,328,238	\$2,225,390	78
EDUCATIONAL SERVICES	\$1,240,704	\$748,361	\$571,118	20
HEALTH CARE, ETC.	\$10,004,408	\$5,967,196	\$4,391,699	90
ARTS/RECREATION	\$1,181,623	\$689,280	\$433,262	16
ACCOMMODATION	\$1,358,866	\$866,524	\$374,181	12
EATING/DRINKING	\$3,603,950	\$1,910,291	\$1,161,929	62
OTHER SERVICES	\$4,529,555	\$2,560,183	\$1,792,128	53
HOUSEHOLDS	N.A.	\$98,469	\$98,469	9
<b>TOTAL</b>	<b>\$371,718,905</b>	<b>\$155,777,303</b>	<b>\$75,663,261</b>	<b>1,532</b>

Source: TXP Inc.

## Student and Visitor Spending

In fiscal year 2015-16, Vanderbilt-related off-campus student and visitor spending was almost \$190 million (\$156.4 million in visitor and \$33.1 million in student spending). The approach taken in this analysis was conservative and likely undercounted the impact of this spending. The estimated total economic output impact of Vanderbilt-related student and visitor spending that year was approximately \$396.5 million. The increase in regional economic activity supported approximately 3,900 total jobs with labor income exceeding \$118.3 million.

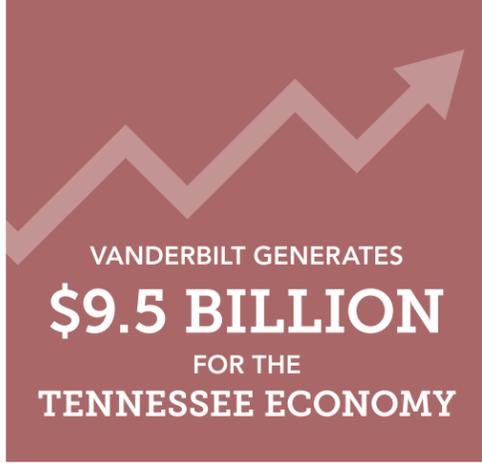
VANDERBILT DREW  
**600,000  
VISITORS** STUDENT  
AND VISITOR  
SPENDING  
**\$190  
MILLION**

INDUSTRY SECTOR	OUTPUT	VALUE ADDED	LABOR INCOME	EMPLOYMENT
AGRICULTURE	\$592,831	\$248,334	\$142,293	6
MINING	\$187,038	\$116,397	\$25,433	1
UTILITIES	\$5,147,446	\$2,846,319	\$784,520	8
CONSTRUCTION	\$2,715,891	\$1,526,582	\$854,562	17
DURABLE MFG.	\$5,950,993	\$2,046,602	\$1,102,911	23
NON-DURABLE MFG.	\$14,167,943	\$4,534,070	\$2,442,906	53
WHOLESALE TRADE	\$12,065,631	\$8,181,177	\$3,751,413	57
RETAIL TRADE	\$23,890,450	\$15,727,566	\$8,080,297	292
TRANS./WAREHOUSE	\$8,757,888	\$4,672,828	\$3,049,643	65
INFORMATION	\$11,684,535	\$6,634,501	\$2,596,177	53
FINANCE/INSURANCE	\$25,489,195	\$13,261,592	\$6,471,664	125
REAL ESTATE	\$55,590,028	\$38,399,222	\$10,000,574	308
PROF./TECH. SERVICES	\$13,490,971	\$8,873,004	\$5,698,179	98
MGMT. OF COMPANIES	\$10,034,615	\$6,034,139	\$4,151,196	56
ADMIN. SERVICES	\$9,488,542	\$6,203,068	\$4,090,321	146
EDUCATIONAL SERVICES	\$2,467,504	\$1,510,109	\$1,144,414	41
HEALTH CARE, ETC.	\$19,913,021	\$11,898,451	\$8,758,200	179
ARTS/RECREATION	\$35,091,092	\$23,935,714	\$10,630,877	614
ACCOMMODATION	\$78,668,055	\$49,787,939	\$21,801,642	714
EATING/DRINKING	\$51,607,763	\$26,971,129	\$18,739,721	877
OTHER SERVICES	\$9,527,792	\$5,372,996	\$3,780,584	110
HOUSEHOLDS	N.A.	\$214,482	\$214,482	18
<b>TOTAL</b>	<b>\$396,529,224</b>	<b>\$238,996,221</b>	<b>\$118,312,009</b>	<b>3,861</b>

Source: TXP Inc.

## Total Economic Impact

For fiscal year 2015-16, Vanderbilt's aggregate economic impact was approximately \$9.5 billion. The increase in regional economic activity supported almost 63,500 total jobs with labor income of approximately \$3.8 billion.



VANDERBILT GENERATES  
**\$9.5 BILLION**  
FOR THE  
TENNESSEE ECONOMY

INDUSTRY SECTOR	OUTPUT	VALUE ADDED	LABOR INCOME	EMPLOYMENT
AGRICULTURE	\$11,629,316	\$5,051,094	\$3,132,173	93
MINING	\$3,743,125	\$2,307,648	\$656,729	9
UTILITIES	\$115,931,566	\$63,597,438	\$20,684,105	148
CONSTRUCTION	\$61,529,810	\$34,598,670	\$22,628,341	301
DURABLE MFG.	\$345,729,929	\$115,335,996	\$58,648,558	935
NON-DURABLE MFG.	\$275,491,636	\$89,703,574	\$54,619,953	854
WHOLESALE TRADE	\$296,777,268	\$201,260,686	\$106,791,836	1,268
RETAIL TRADE	\$369,899,479	\$246,380,194	\$149,720,269	3,796
TRANS./WAREHOUSE	\$179,589,968	\$93,643,141	\$70,805,938	1,149
INFORMATION	\$236,758,219	\$134,883,640	\$55,561,217	833
FINANCE/INSURANCE	\$743,802,253	\$388,815,297	\$217,999,928	3,267
REAL ESTATE	\$988,698,109	\$692,378,647	\$182,370,437	4,450
PROF./TECH. SERVICES	\$337,210,876	\$221,848,649	\$175,148,764	2,334
MGMT. OF COMPANIES	\$123,500,068	\$74,146,330	\$58,904,461	619
ADMIN. SERVICES	\$264,760,048	\$179,224,979	\$143,547,656	3,969
EDUCATIONAL SERVICES	\$1,310,932,875	\$797,243,387	\$675,987,266	7,104
HEALTH CARE, ETC.	\$3,169,743,225	\$1,780,134,100	\$1,532,668,287	24,052
ARTS/RECREATION	\$83,780,660	\$52,492,987	\$31,875,260	1,153
ACCOMMODATION	\$135,834,478	\$85,945,586	\$40,351,669	1,142
EATING/DRINKING	\$217,732,993	\$114,542,262	\$82,938,806	3,369
OTHER SERVICES	\$237,001,180	\$133,821,979	\$109,829,923	2,346
HOUSEHOLDS	N.A.	\$4,641,607	\$5,415,184	348
<b>TOTAL</b>	<b>\$9,510,077,081</b>	<b>\$5,511,997,891</b>	<b>\$3,800,286,760</b>	<b>63,539</b>

Source: TXP Inc.

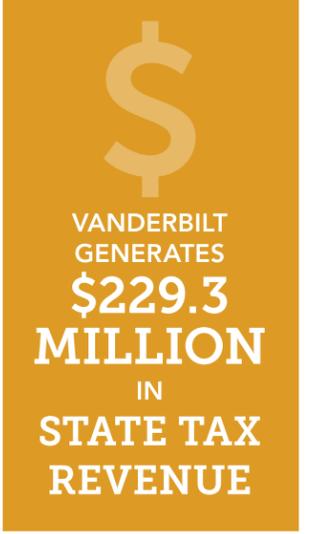


## State of Tennessee tax revenue impact

As nonprofit institutions, Vanderbilt University and VUMC are not subject to state and local taxes. However, tax revenue does accrue from activity associated with the indirect and induced economic effects described and measured in this report. To provide an “order of magnitude” estimate for state tax revenue attributable to Vanderbilt, the analysis used the ratio of state government tax collections to state GDP. Two data sets were used to derive the ratio: 1) U.S. Department of Commerce Bureau of Economic Analysis GDP estimates by metropolitan area; and 2) the U.S. Census Bureau State Government Tax Collections (STC) report. A brief description of the STC data collection methodology follows:

In this survey, “taxes” are defined as all compulsory contributions exacted by a government for public purposes, except employer and employee assessments for retirement and social insurance purposes, which are classified as insurance trust revenue. Outside the scope of this collection are data on the unemployment compensation “taxes” imposed by each of the state governments. However, all receipts from licenses and compulsory fees, including those that are imposed for regulatory purposes, as well as those designated to provide revenue, are included.

Over the past six years, the average state tax revenue as a percent of state GDP was 4.2 percent. Applying this percentage to total value added (or GDP) attributable to the total economic impact associated with Vanderbilt, the state received approximately \$229.3 million in tax revenue for FY 2015-16.



VANDERBILT  
GENERATES  
**\$229.3**  
MILLION  
IN  
STATE TAX  
REVENUE



## Conclusion

Vanderbilt is a foundational element of the local and state economy. Vanderbilt and its operations contribute more than \$9.5 billion to the Tennessee economy annually.

Tens of thousands of Tennesseans are employed, directly or indirectly, because of its presence. People across the state and throughout the region receive high quality medical care through the medical center and its network. The impact extends far beyond these calculations, as the university has a direct role in creating new products and companies. Vanderbilt researchers and their innovations have helped to position the university as a world leader in numerous medical research sectors such as biomedical informatics, medical imaging, personalized medicine, and drug discovery and development. The commercialization of these results is impressive: 213 patent applications filed, 75 licenses and options executed, 46 U.S. patents issued, \$6.5 million in revenue, and five startups created in 2016 alone.

More broadly, Vanderbilt is a cornerstone of the modern Tennessee economy not just through traditional measures but also by developing a knowledge economy, which fosters a superior quality of life across the state. The principal determinant of modern economic success is the ability to acquire, process and apply knowledge. Vanderbilt is a laboratory where this key element of the state and nation's competitive advantage is incubated, both in terms of preparing the future labor force and via research that ultimately leads to new or improved products and services. Tennessee remains fortunate to have such a strong asset in its economic development portfolio.



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