



Vital Stats

VANDERBILT UNIVERSITY'S CONTRIBUTIONS
TO THE ECONOMIC VIBRANCY OF TENNESSEE

Summary

TENNESSEE HAS REAPED ENORMOUS SOCIAL AND ECONOMIC BENEFITS FROM VANDERBILT UNIVERSITY AND MEDICAL CENTER SINCE ITS INCEPTION 140 YEARS AGO.

These gains manifest themselves in a number of ways. First, direct Vanderbilt spending on capital, faculty, staff and general procurement ripples through the local and state economies. Second, off-campus student spending and out-of-town visitors drawn to the area because of Vanderbilt inject additional money into local businesses. Vanderbilt also plays an important role in economic development, in terms of providing labor force, commercialization of academic research, and influencing the revitalization of parts of the community through the built environment (such as the Vanderbilt Health at One Hundred Oaks development). Finally, students, faculty, and staff of Vanderbilt provide thousands of hours of community service each year, enhancing health, literacy, education, culture, and overall quality of life in the region. While not all of these benefits are quantifiable, the following findings highlight Vanderbilt's importance:

- Vanderbilt employs 25,000 faculty, staff, and medical professionals who teach 12,800 students and provided healthcare services to approximately 1.6 million Tennesseans in its clinics and 57,000 Tennesseans in its hospitals last year.
- Vanderbilt is the largest private employer in the Nashville region and the second largest private employer based in the state.
- In 2012, Vanderbilt conferred 3,720 degrees and certificates. Since 2008, the university has awarded over 17,500 degrees.
- In 2012, Vanderbilt-related activity attracted more than 700,000 visitors.
- Vanderbilt operations, along with student and visitor spending, generated an economic impact of \$8.6 billion in economic activity, 58,000 jobs, and in excess of \$3.4 billion in labor income. This translates into \$221.6 million in tax revenue for the state of Tennessee.

ECONOMIC IMPACT OF VANDERBILT FY 2011-12

VANDERBILT UNIVERSITY AND MEDICAL CENTER	CONSTRUCTION SPENDING	STUDENT AND VISITOR	TOTAL
\$7,953,069,600 output	\$198,496,368 output	\$418,452,709 output	\$8,570,018,677 output
\$4,679,637,820 value added	\$108,237,679 value added	\$254,722,971 value added	\$5,042,598,469 value added
\$3,260,678,198 labor income	\$64,130,262 labor income	\$124,681,088 labor income	\$3,449,489,548 labor income
51,590 employment	1,657 employment	4,612 employment	57,860 employment

Source: TXP, Inc.



\$8.6 billion

Vanderbilt operations, along with student and visitor spending, generated an economic impact of \$8.6 billion in economic activity.



\$830 million

The total value of charity care, community benefits, and other unrecovered costs provided by Vanderbilt exceeded \$830 million.



700k

Vanderbilt-related activity attracted more than 700,000 visitors.



58,000

The increase in regional economic activity supported almost 58,000 total jobs with labor income in excess of \$3.4 billion.



Out-of-town visitors help support cultural institutions and entertainment attractions that improve the quality of life for local residents who do not directly interact with Vanderbilt.

Vanderbilt is the largest private employer in the Nashville area and the second largest private employer based in the state.

Introduction

VANDERBILT UNIVERSITY, LOCATED IN NASHVILLE, TENNESSEE, IS A PRIVATE RESEARCH UNIVERSITY AND MEDICAL CENTER OFFERING A FULL-RANGE OF UNDERGRADUATE, GRADUATE AND PROFESSIONAL DEGREES.

Founded in 1873, the school offers an invigorating atmosphere where students tailor their education to meet their goals and researchers collaborate to solve complex questions affecting health, culture and society.

Currently, Vanderbilt has an annual enrollment of approximately 6,800 undergraduate and 6,000 graduate and professional students. Consistently among the top-ranked universities in the nation, Vanderbilt draws students from all 50 states and more than 90 countries. Vanderbilt undergraduates can pursue one or more of 70 majors in four undergraduate schools and colleges: the College of Arts and Science, the School of Engineering, Peabody College of education and human development, and the Blair School of Music. A robust set of graduate programs are also offered by the undergraduate schools and colleges. Vanderbilt has six graduate and professional schools, including the Divinity School, Graduate School, Law School, School of Medicine, School of Nursing, and Owen Graduate School of Management.

As an independent, privately supported university employing almost 4,000- full and part-time faculty and 21,000 full- and part-time staff, Vanderbilt is the largest private employer in the Nashville area and the second largest private employer based in the state. Not only do Vanderbilt operations have a significant economic impact, but its students and graduates increase the state's economic development competitiveness and productivity

by gaining knowledge, improving technical skills, and commanding a higher salary when entering the job market. In Spring 2012, more than 3,700 students earned undergraduate, graduate, or professional degrees.

Vanderbilt University Medical Center also plays an important role in improving Tennessee's overall quality of life and economic vitality beyond its direct role in the economy. In fiscal year 2011-12, for example, the total value of charity care, community benefits, and other unrecovered costs provided by Vanderbilt exceeded \$830 million.

A wide variety of visitors, including prospective students, parents, graduates, sport fans, and business leaders, travel to Nashville to take advantage of conferences, alumni events, sporting events, and medical services. Out-of-town visitors help support cultural institutions and entertainment attractions that improve the quality of life for local residents who do not directly interact with Vanderbilt.

The purpose of this assessment is to quantify the total annual economic and tax revenue impact of Vanderbilt. Building upon existing studies and datasets, this analysis highlights the importance of Vanderbilt in terms of jobs, wages, and taxes for fiscal year 2011-12.

Economic and Tax Revenue Impact of Vanderbilt

VANDERBILT HAS A STRONG IMPACT ON THE ECONOMY, AS THE OPERATIONS OF THE SCHOOL SUPPORT THOUSANDS OF DIRECT AND INDIRECT JOBS.

Beyond these impacts, Vanderbilt plays an important role in economic development. Faculty and staff, for example, provide business support and other technical services to existing firms. In terms of job creation, patents and business start-ups resulting from the commercialization of Vanderbilt academic research are sources of economic development throughout Tennessee. Students, faculty, and staff of Vanderbilt also provide thousands of hours of community service each year, enhancing health, literacy, education, culture, and overall quality of life.

When evaluating the economic impact of Vanderbilt, the challenge is to focus on core activities that are measurable, 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.

Vanderbilt's impact also includes the operations of the Medical Center. [With 1,019 licensed hospital beds and 2,500 faculty that train approximately 1,600 health care professionals per year, the Medical Center is one of the nation's top academic health science centers.](#)

MODEL INPUTS & ASSUMPTIONS

Normal Operations and Expenditures Associated with Vanderbilt University and Medical Center — this represents 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 — spending on buildings and construction excluding equipment. This input has the greatest variation from year to year. Total annual construction spending in the 2008-09 fiscal year surpassed \$181.5 million but dropped to \$86.6 million in fiscal year 2011-12. Despite the fluctuations associated with construction spending, construction spending is included because it generates a significant level of economic activity.

Undergraduate Student & Visitor Spending — enrolled students (graduate and undergraduate) have a positive impact on the local economy by supporting businesses such as restaurants, music venues, rental housing, and other retail establishments. Because of Vanderbilt's academic quality and reputation, the assumption is that undergraduate students likely would attend college elsewhere if not for the presence of Vanderbilt. Because all undergraduates are required to live on campus, the estimated off-campus spending is lower than for similar universities. Graduate student spending, however, was excluded from the analysis because it is difficult to separate out which students specifically moved to the area to attend Vanderbilt versus those students already living in Nashville who decided to take advantage of an existing institution. This assumption is conservative and results in undercounting the economic and tax revenue impact of Vanderbilt's graduate student population.

According to Vanderbilt University, more than 700,000 parents and families, friends, conference attendees, and fans at sporting events visit the area 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.



Vanderbilt spent \$86.6 million on construction, building, and leasehold improvements. These expenditures supported hundreds of local jobs in the construction and building maintenance sector in fiscal year 2011-2012.

**TOTAL DIRECT ECONOMIC ACTIVITY RELATED TO VANDERBILT UNIVERSITY
(\$ MILLIONS)**

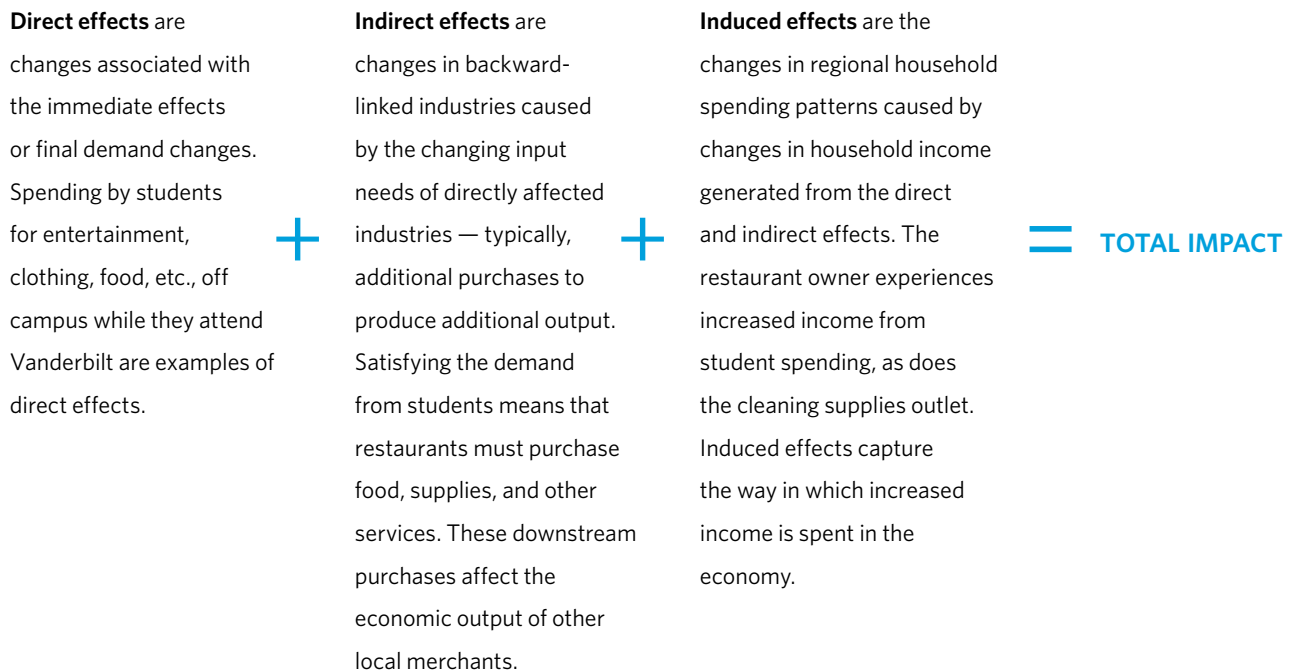
VANDERBILT UNIVERSITY OPERATIONS	CONSTRUCTION SPENDING	STUDENT AND VISITOR SPENDING
\$2,661.4 FY 2007-2008	\$175.3 FY 2007-2008	\$189.6 FY 2007-2008
\$2,875.7 FY 2008-2009	\$181.5 FY 2008-2009	\$202.5 FY 2008-2009
\$3,148.2 FY 2009-2010	\$114.9 FY 2009-2010	\$209.6 FY 2009-2010
\$3,399.3 FY 2010-2011	\$74.3 FY 2010-2011	\$213.0 FY 2010-2011
\$3,524.7 FY 2011-2012	\$86.6 FY 2011-2012	\$215.4 FY 2011-2012

Source: Vanderbilt University, IPEDS, TXP, Inc.

Economic Impact Methodology

ECONOMISTS USE A NUMBER OF STATISTICS TO DESCRIBE REGIONAL ECONOMIC ACTIVITY.

Four common measures are “Output,” which describes total economic activity and is generally equivalent to a firm’s gross sales or top-line; “Value Added,” which equals gross output of an industry or a sector less its intermediate inputs or purchases from other firms used in the production process; “Labor Income,” which corresponds to wages and benefits; and “Employment,” which refers to 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, indirect, and induced.



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. Since the majority of Vanderbilt’s activity is 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, TN MSA. This is a conservative approach, since MSA multipliers tend to be lower than statewide figures.

Economic Impact Results



FISCAL YEAR
2011-2012

OPERATIONS

Vanderbilt had direct operating expenditures of \$3.5 billion, including wages of \$1.8 billion, and 25,000 full- and part-time employees. The estimated total economic output impact related to Vanderbilt operations that year was approximately \$8 billion. The increase in regional economic activity supported 51,600 total jobs with labor income of \$3.3 billion.

[See full chart on page 10](#)

CONSTRUCTION

Vanderbilt spent \$86.6 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 \$198.5 million. The increase in regional economic activity supported 1,700 total jobs with labor income in excess of \$64.1 million.

[See full chart on page 11](#)

STUDENT AND VISITOR SPENDING

Vanderbilt-related off-campus student and visitor spending was more than \$215 million. 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 \$418.5 million. The increase in regional economic activity supported 4,600 total jobs with labor income in excess of \$124.7 million.

[See full chart on page 12](#)

TOTAL ECONOMIC IMPACT

The aggregate economic impact of Vanderbilt was approximately \$8.6 billion. The increase in regional economic activity supported almost 58,000 total jobs with labor income in excess of \$3.4 billion.

[See full chart on page 13](#)

VANDERBILT ECONOMIC IMPACT FY 2011-12: OPERATIONS

OUTPUT	VALUE ADDED	LABOR INCOME	EMPLOYMENT
\$13,787,636 Agriculture	\$4,374,732	\$2,532,073	51
\$2,094,062 Mining	\$1,223,265	\$637,871	7
\$142,643,711 Utilities	\$88,177,967	\$37,254,428	224
\$41,881,357 Construction	\$20,857,749	\$18,722,927	274
\$404,694,096 Manufacturing	\$129,293,241	\$84,542,989	1,192
\$213,098,183 Wholesale trade	\$144,014,405	\$79,767,322	860
\$310,814,760 Retail trade	\$203,685,157	\$125,452,842	2,913
\$153,468,561 Transportation and warehousing	\$85,608,169	\$67,977,756	894
\$264,847,311 Information	\$145,941,753	\$72,514,919	913
\$454,913,375 Finance and insurance	\$266,549,603	\$149,797,461	2,117
\$943,515,054 Real estate and rental and leasing	\$712,938,815	\$105,667,691	4,526
\$222,863,190 Professional, scientific, and technical services	\$152,286,791	\$123,971,840	1,330
\$152,538,569 Management of companies/enterprises	\$94,629,060	\$70,715,303	747
\$199,270,027 Administrative services	\$134,415,746	\$103,646,085	2,964
\$1,708,942,910 Educational services	\$950,027,825	\$999,392,622	8,519
\$2,266,153,699 Health care and social assistance	\$1,297,953,819	\$1,043,895,124	19,843
\$39,331,210 Arts, entertainment, and recreation	\$23,532,382	\$17,008,997	478
\$51,708,851 Accommodation	\$33,359,876	\$18,761,748	392
\$138,685,642 Food services and drinking places	\$72,235,123	\$51,606,630	1,815
\$227,817,396 Other services	\$114,841,799	\$82,404,706	1,273
n/a Households	\$3,690,543	\$4,406,864	256
\$7,953,069,600 Total	\$4,679,637,820	\$3,260,678,198	51,590

Source: TXP, Inc.

VANDERBILT ECONOMIC IMPACT FY 2011-12: **CONSTRUCTION**

OUTPUT	VALUE ADDED	LABOR INCOME	EMPLOYMENT
\$259,812 Agriculture	\$95,264	\$43,302	2
\$987,286 Mining	\$528,284	\$251,152	6
\$1,740,740 Utilities	\$1,099,871	\$372,397	5
\$87,392,096 Construction	\$43,596,454	\$32,467,840	807
\$19,182,786 Manufacturing	\$6,876,358	\$3,819,236	90
\$6,928,320 Wholesale trade	\$4,676,616	\$2,191,081	38
\$11,284,501 Retail trade	\$7,387,321	\$3,827,897	143
\$4,780,541 Transportation and warehousing	\$2,450,893	\$1,584,853	36
\$5,655,241 Information	\$3,109,084	\$1,247,098	28
\$10,738,896 Finance and insurance	\$6,417,356	\$2,961,857	65
\$14,757,322 Real estate and rental and leasing	\$10,695,594	\$1,169,154	63
\$9,076,099 Professional, scientific, and technical services	\$6,010,318	\$3,931,822	66
\$2,728,026 Management of companies/enterprises	\$1,688,778	\$1,117,192	15
\$3,732,632 Administrative services	\$2,494,195	\$1,654,136	65
\$1,039,248 Educational services	\$588,907	\$424,360	15
\$8,443,890 Health care and social assistance	\$5,178,919	\$3,931,822	83
\$892,021 Arts, entertainment, and recreation	\$536,945	\$320,435	15
\$1,125,852 Accommodation	\$727,474	\$337,756	12
\$3,057,121 Food services and drinking places	\$1,593,514	\$952,644	55
\$4,693,937 Other services	\$2,398,931	\$1,437,626	41
n/a Households	\$86,604	\$86,604	8
\$198,496,368 Total	\$108,237,679	\$64,130,262	1,657

Source: TXP, Inc.

VANDERBILT ECONOMIC IMPACT FY 2011-12: **STUDENT AND VISITOR SPENDING**

OUTPUT	VALUE ADDED	LABOR INCOME	EMPLOYMENT
\$620,693 Agriculture	\$214,302	\$105,502	3
\$110,522 Mining	\$52,160	\$22,734	1
\$5,967,930 Utilities	\$3,832,049	\$1,302,091	16
\$2,523,612 Construction	\$1,260,675	\$937,986	23
\$21,841,934 Manufacturing	\$7,174,723	\$3,935,714	95
\$10,955,477 Wholesale trade	\$7,397,274	\$3,458,211	59
\$23,464,597 Retail trade	\$15,377,224	\$7,967,346	297
\$9,074,615 Transportation and warehousing	\$5,162,333	\$3,476,963	74
\$16,346,019 Information	\$8,799,856	\$3,924,801	89
\$26,635,429 Finance and insurance	\$15,741,317	\$7,330,646	157
\$55,319,259 Real estate and rental and leasing	\$37,820,882	\$6,924,797	235
\$14,357,383 Professional, scientific, and technical services	\$9,883,928	\$6,640,924	119
\$11,962,809 Management of companies/enterprises	\$7,422,392	\$4,898,310	64
\$9,955,231 Administrative services	\$6,482,768	\$4,232,070	170
\$2,320,750 Educational services	\$1,325,887	\$946,800	34
\$18,815,993 Health care and social assistance	\$11,539,439	\$8,744,212	186
\$37,727,807 Arts, entertainment, and recreation	\$26,183,181	\$13,905,930	945
\$83,753,691 Accommodation	\$54,204,193	\$25,036,408	929
\$55,816,524 Food services and drinking places	\$29,046,486	\$17,378,544	1,005
\$10,882,434 Other services	\$5,612,135	\$3,321,334	92
n/a Households	\$189,765	\$189,765	18
\$418,452,709 Total	\$254,722,971	\$124,681,088	4,612

Source: TXP, Inc.

VANDERBILT ECONOMIC IMPACT FY 2011-12: **TOTAL**

OUTPUT	VALUE ADDED	LABOR INCOME	EMPLOYMENT
\$14,668,140 Agriculture	\$4,684,298	\$2,680,877	56
\$3,191,869 Mining	\$1,803,709	\$911,756	14
\$150,352,382 Utilities	\$93,109,886	\$38,928,917	245
\$131,797,066 Construction	\$65,714,877	\$52,128,753	1,104
\$445,718,816 Manufacturing	\$143,344,322	\$92,297,940	1,377
\$230,981,980 Wholesale trade	\$156,088,295	\$85,416,614	956
\$345,563,858 Retail trade	\$226,449,703	\$137,248,085	3,353
\$167,323,716 Transportation and warehousing	\$93,221,396	\$73,039,572	1,004
\$286,848,571 Information	\$157,850,692	\$77,686,817	1,030
\$492,287,700 Finance and insurance	\$288,708,276	\$160,089,964	2,339
\$1,013,591,635 Real estate and rental and leasing	\$761,455,291	\$113,761,642	4,824
\$246,296,672 Professional, scientific, and technical services	\$168,181,037	\$134,544,586	1,515
\$167,229,403 Management of companies/enterprises	\$103,740,230	\$76,730,804	826
\$212,957,891 Administrative services	\$143,392,710	\$109,532,292	3,199
\$1,712,302,908 Educational services	\$951,942,619	\$1,000,763,781	8,569
\$2,293,413,583 Health care and social assistance	\$1,314,672,177	\$1,056,571,158	20,112
\$77,951,038 Arts, entertainment, and recreation	\$50,252,508	\$31,235,362	1,438
\$136,588,394 Accommodation	\$88,291,542	\$44,135,912	1,334
\$197,559,287 Food services and drinking places	\$102,875,123	\$69,937,818	2,875
\$243,393,766 Other services	\$122,852,865	\$87,163,666	1,407
n/a Households	\$3,966,911	\$4,683,233	283
\$8,570,018,677 Total	\$5,042,598,469	\$3,449,489,548	57,860

Source: TXP, Inc.

State of Tennessee Tax Revenue Impact

THE MOST COMPLEX PART OF ANY ECONOMIC IMPACT STUDY IS TO EVALUATE THE TAX REVENUE IMPLICATIONS IN TERMS OF RETURN ON INVESTMENT (ROI) AND NET FISCAL IMPACT.

For a single business or industry sector, the tax revenue calculations are straightforward. The public sector costs such as those for K-12 education and public safety, however, are more subjective based on location, existing infrastructure, workers drawn to the region because of the project, and wage levels. Too often, the tax revenue estimates are overly aggressive to show a positive return.

As a not-for-profit, Vanderbilt itself is 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 above. 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 datasets 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 five years, the average state tax revenue as a percent of state GDP was 4.4 percent. Applying this percentage to total value added (or GDP) attributable to Vanderbilt’s activities, the state received approximately \$221.6 million in tax revenue for fiscal year 2011-12.

TENNESSEE TAX REVENUE AS A PERCENT OF STATE GDP

TAX REVENUE (\$M)	GDP (\$M)	TAX REV AS % GDP
\$11,390.0 2007	\$242,220 2007	4.7% 2007
\$11,538.4 2008	\$247,961 2008	4.7% 2008
\$10,433.1 2009	\$244,995 2009	4.3% 2009
\$10,513.8 2010	\$256,194 2010	4.1% 2010
\$11,235.4 2011	\$266,527 2011	4.2% 2011

Source: U.S. Department of Commerce Bureau of Economic Analysis and U.S. Census Bureau

Conclusion

VANDERBILT IS A SUBSTANTIAL FACTOR IN THE ECONOMY, AS TENS OF THOUSANDS OF TENNESSEE WORKERS OWE THEIR LIVELIHOODS, DIRECTLY OR INDIRECTLY, TO ITS INFLUENCE.

However, Vanderbilt's impact extends well beyond these calculations. Traditional economic development has focused on attracting and retaining new production facilities or company headquarters. While these elements remain a crucial piece of the puzzle, other factors play an increasing role in the mix — namely, a highly capable workforce, innovation and entrepreneurship, clusters in knowledge industries, and superior quality of life. Vanderbilt makes essential, irreplaceable contributions to all of these factors. In sum, the principal determinant of economic success in a modern economy is the ability to acquire, process, and apply knowledge. Vanderbilt is a “factory” where this key element of the comparative advantage of the state and nation is refined, both in terms of preparing the future labor force and in the research that ultimately leads to new or improved products and services. Tennessee is fortunate to have such a strong asset in its economic development portfolio.



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VANDERBILT  UNIVERSITY

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