

ECONOMIC AND FISCAL CONTRIBUTION OF
LIBERTY
UNIVERSITY
ON THE LYNCHBURG MSA AND THE STATE OF VIRGINIA
IN ACADEMIC YEAR 2018-2019



Photo: Liberty University



4201 DOMINION BOULEVARD, SUITE 114
GLEN ALLEN, VIRGINIA 23060
804-346-8446

October 2020

MANGUMECONOMICS.COM

About Mangum Economics, LLC

Mangum Economics, LLC is a Richmond, Virginia based firm that specializes in producing objective economic, quantitative, and qualitative analysis in support of strategic decision making. Much of our recent work relates to IT & Telecom Infrastructure (data centers, terrestrial and subsea fiber), Renewable Energy, and Economic Development. Examples of typical studies include:

POLICY ANALYSIS

Identify the intended and, more importantly, unintended consequences of proposed legislation and other policy initiatives.

ECONOMIC IMPACT ASSESSMENTS AND RETURN ON INVESTMENT ANALYSES

Measure the economic contribution that businesses and other enterprises make to their localities.

WORKFORCE ANALYSIS

Project the demand for, and supply of, qualified workers.

CLUSTER ANALYSIS

Use occupation and industry clusters to illuminate regional workforce and industry strengths and identify connections between the two.

The Project Team

A. Fletcher Mangum, Ph.D.

Founder and CEO

Martina Arel, M.B.A.

Researcher and Economic Development Specialist



Table of Contents

Executive Summary.....	1
Introduction	4
Liberty University Profile.....	4
History and General Characteristics	4
Enrollment and Student Characteristics	5
Lynchburg MSA Economic Profile	11
Trend in Total Employment	11
Employment by Major Industry Sector	12
Unemployment	14
Economic and Fiscal Impact.....	15
Methods.....	15
Assessing Economic Impact	15
Assessing Fiscal Impact	16
Impact on the Lynchburg MSA in Academic Year 2018-19.....	16
Regional Economic Impact.....	16
Regional Fiscal Impact.....	18
Impact on the Commonwealth of Virginia in Academic Year 2018-19:.....	20
Statewide Economic and Fiscal Impact.....	20
Human Capital.....	22
Value Added.....	22
Statewide Economic Impact	27
Other Contributions	27
Community Involvement	28
Service and Volunteerism	28
Center for Engineering Research and Education	28
Economic Revitalization	28
Freedom Aviation.....	29
Recreational and Cultural Facilities.....	29
Tourism	30
Workforce Development	31



Demand for Graduates	32
Supply of Graduates.....	34
Percentage of Regional Occupation-Driven Demand for Graduates Met	34
Conclusion.....	35

Executive Summary

This report assesses the economic and fiscal contribution that Liberty University made to the Lynchburg MSA and the state of Virginia in academic year 2018-19. The principle findings from that assessment are as follows:

1. Liberty University is Virginia's largest and most rapidly growing institution of higher education:

- In 2018-19, Liberty had an unduplicated annual headcount of 111,084 students, making it the largest institution of higher education in Virginia and the fifth largest in the country.
- Between 1994 and 2019, Liberty University's fall headcount enrollment increased from 8,852 to 85,586, an increase of 76,734 students or 867 percent. In contrast, over that same period Virginia's other four-year private non-profit colleges and universities grew by 36 percent, and Virginia's four-year public colleges and universities grew by 38 percent.
- In 2018-19, Liberty University and its auxiliary enterprises were also Lynchburg's largest employer, providing jobs for 7,987 individuals in the Lynchburg MSA, 8,665 in Virginia, and 11,336 worldwide.

2. Liberty University makes a major economic and fiscal contribution to the Lynchburg MSA:

- In 2018-19, direct spending in the Lynchburg MSA by the university, its associated enterprises, students, and visitors totaled \$562.3 million. Our analysis shows that \$562.3 million in direct regional spending was responsible for generating \$984.7 million in overall economic activity in the Lynchburg MSA, which means that every \$1.00 of Liberty University's net local spending generated \$1.75 within the broader regional economy.
- Liberty University's 2018-19 regional spending was also responsible for supporting a total of 12,580 jobs within the Lynchburg MSA and generating \$428.3 million in labor income. Given that the location of most of this employment was in the City of Lynchburg, and that total employment in the City of Lynchburg was 52,414 in 2019, this means that approximately one out of every four jobs in the City of Lynchburg that year was either directly or indirectly attributable to Liberty University.
- Local taxes paid by the university itself, associated enterprises, employees, students, and visitors contributed approximately \$16.5 million in tax revenue to the Lynchburg MSA in 2018-19. Focusing exclusively on the city of Lynchburg, where most of Liberty University's campus is physically located, the university directly or indirectly generated approximately \$11.0 million in tax revenue for the city.
- More specifically, Liberty University directly or indirectly accounted for approximately: 7 percent of the city's total Real Property Tax revenue, 9 percent of its Personal Property Tax revenue, 6 percent of its Motor Vehicle License Fee revenue, 12 percent of its Restaurant

Food Tax revenue, 41 percent of its Hotel and Motel Room Tax revenue, and 5 percent of its local Sales Tax revenue

3. Liberty University makes a major economic and fiscal contribution to the state of Virginia as a whole:

- In 2018-19 Liberty University, along with its associated enterprises, students, and visitors were responsible for contributing \$659.2 million in direct spending to the state. Our analysis indicates that this \$659.2 million in statewide spending was responsible for generating over \$1.3 billion in economic activity, which means that every \$1.00 of Liberty University's state spending ultimately generated \$1.96 in overall economic activity within the state.
- In addition, that \$659.2 million in direct spending was also responsible for supporting a total of 13,831 jobs in the state, creating \$532.9 million in labor income, and generating \$90.2 million in federal, state, and local tax revenue.

4. Liberty University makes a major contribution to growing Virginia's human capital:

- The primary economic contribution of any educational institution is really the product it is in the business of creating – well educated and highly trained graduates. We estimate that the economic value of the enhanced labor productivity, or increased human capital, that Liberty University's 2018-19 graduates carried with them into Virginia's workforce was approximately \$48.2 million.
- Moreover, the discounted present value of the stream of economic benefits that enhanced productivity will generate over the entire time that those graduates are likely to be active in the workforce is approximately \$1.0 billion.

5. Liberty University also makes many other contributions to the Lynchburg MSA and the state of Virginia:

- Its students and employees provide more than \$3.5 million worth of volunteer service hours within the Lynchburg MSA each year.
- It has made significant regional investments in economic revitalization.
 - In 2008, the university acquired the Plaza shopping center and invested \$500,000 to upgrade and improve the property.
 - In 2010, it acquired Candler's Station shopping center and made similar improvements to that property.
 - The River Ridge Mall is the Lynchburg MSA's only mall and had deteriorated to the point that it was on the verge of closing. In 2017, the university acquired the mall expects to invest \$40 to \$60 million to renovate the property. In 2019 the center court was remodeled, the old Sears building was demolished to make way for a Dick's Sporting Goods, with other big-box retailers to follow, and the university partnered with a national operator to install an aquarium to aid in bringing families

back to the mall. It is now anticipated that the River Ridge Mall will once again be a successful regional enterprise and a source of increased local tax revenue.

- It has enhanced the quality of life within the Lynchburg MSA by adding to the region's recreational opportunities through investments in facilities such as the LaHaye Ice Center; the Liberty Mountain Snowflex Center, North America's only Snowflex synthetic ski slope; the Tower Theater, and the Liberty Mountain Skate Park, all of which are open to the public.
 - It plays a large role in attracting tourists to the Lynchburg MSA. In 2018-19, Liberty University's out-of-town visitors generated approximately 151,438 hotel room nights in the Lynchburg MSA and those hotel room nights in turn were associated with approximately \$16.5 million in local hotel revenue.
 - It makes a significant contribution to ensuring the Lynchburg MSA will have the trained graduates it needs to prosper in the future in key growth areas such as healthcare and education by meeting some or all of the region's demand for graduates in healthcare, education, business, engineering, software development, and many other industries.
- 6. In sum, Liberty University is a rapidly growing institution that has a significant economic and fiscal impact on the Lynchburg MSA and the state of Virginia as a whole, and plays a very active and positive leadership role within its community and the state.**

Introduction

This report assesses the economic and fiscal contribution that Liberty University, and its associated enterprises, students, and out-of-area visitors made to the Lynchburg MSA¹ and the state of Virginia in fiscal year (FY) 2018-19.²

Liberty University Profile

History and General Characteristics

Liberty University was founded in 1971 as a private, non-profit, Evangelical Christian institution of higher education. Liberty is situated on over 7,000 acres in the City of Lynchburg and in the counties of Amherst, Bedford, Campbell, and Prince Edward. Approximately 700 acres are developed and used for campus operations, while 6,300 acres have been preserved in their natural state and are used for various recreational purposes. The campus includes 253 buildings with over 8.7 million square feet of building space, and Liberty currently maintains over 290 classrooms.

Since its first class of 154 students, Liberty has experienced explosive enrollment growth. In academic year 2018-19, Liberty had an unduplicated annual headcount of 111,084 students, making it the fifth largest four-year institution of higher education in the country.³ In FY 2018-19, Liberty and its associated enterprises were also Lynchburg's largest employer, providing jobs for 7,987 individuals in the Lynchburg MSA, 8,665 in Virginia, and over 11,336 worldwide.⁴ Moreover, Liberty's rapid employment growth has provided much needed stability to a regional economy that, as will be shown in a subsequent section, has experienced uneven employment growth in recent years.

Liberty University is accredited by the Southern Association of Colleges and Schools Commissions on Colleges (SACSCOC). Liberty's 16 schools and colleges currently offer more than 600 unique programs of study from the certificate to the doctoral level. Liberty was a pioneer in distance education and started offering distance education courses in 1985. The University currently serves 95,250 students through these programs world-wide, including over 30,000 men and women serving in the U.S. military.

Liberty University also boasts a mature NCAA Division 1 athletic program with 20 teams, as well as over 40 intercollegiate Club Sports teams, and over 20 intramural sports. Campus facilities used to support these programs are also frequently used by the community. These facilities include the recently renovated 25,000 seat Williams Stadium, 9,547 seat Vines Center, 4,000 seat LaHaye Ice Center, 2,500 seat Liberty Baseball Stadium, 1,500 seat Liberty Track Complex, 1,414 seat Natatorium, 1,000 seat

¹ The Lynchburg MSA is comprised of the counties of Amherst, Appomattox, Bedford, and Campbell, and the City of Lynchburg.

² July 1 of 2018 through June 30 of 2019.

³ Data Source: National Center for Education Statistics.

⁴ Data Source: Liberty University.

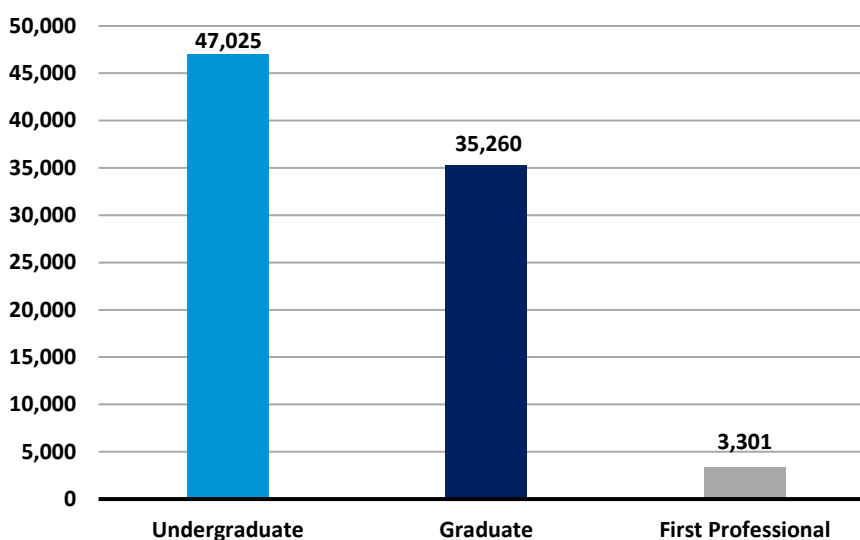
Kamphuis Field at Liberty Softball Stadium, 1,200 seat lacrosse facility, 1,000 seat soccer stadium, year-round skiing and snowboarding at the Liberty Mountain Snowflex Centre, and the LaHaye Student Union. The university has also begun construction of its new 125,000 square foot Liberty Arena. Located next to the Vines Center, this 4,000 seat arena will host men's and women's basketball games and women's volleyball games and will open in Fall 2000.

Liberty's athletic facilities have also hosted the Virginia High School League's Spring Jubilee, which serves as the state champion event for baseball, softball, soccer, tennis, and several state football and track events. As well as the Commonwealth Games, an annual Olympic style event that attracted 12,000 amateur athletes to Lynchburg in fiscal year 2019 to compete in over 50 individual events.

Enrollment and Student Characteristics

Figure 1 provides a breakdown of Liberty's fall 2019 enrollment by program level. As these data show, 47,025 or 55 percent of Liberty's student body was comprised of undergraduates that fall, while 35,260 or 41 percent was comprised of graduate students, and 3,301 or 4 percent was comprised of first professional students (*e.g.*, students at the Liberty University School of Law and School of Osteopathic Medicine). These data indicate that Liberty's program mix tends to be more heavily tilted toward graduate and first professional programs than is typical among Virginia's other four-year institutions of higher education. For example, where 45 percent of Liberty's student body was comprised of graduate or first professional students in fall 2019, the comparable average among other non-profit four-year colleges and universities in Virginia was 40 percent that fall, and among the state's public colleges and universities 21 percent.

Figure 1: Liberty University Fall 2019 Enrollment⁵



⁵ Data Source: State Council of Higher Education for Virginia.

Figure 2 depicts the growth in Liberty University's total fall headcount enrollment between 1994 and 2019. Overall, headcount enrollment increased from 8,852 in fall 1994 to 85,586 in fall 2019, an increase of 76,734 students or 867 percent. Breaking this total down by undergraduate, graduate, and first professional enrollment shows that undergraduate enrollment increased by 39,789 students or 550 percent over this period, graduate enrollment increased by 33,693 students or 2,150 percent, and first professional enrollment (*e.g.*, students at the Liberty University School of Law and School of Osteopathic Medicine) increased by 3,252 students or 6,637 percent.

Figure 2: Fall Headcount Enrollment – 1994 to 2019⁶

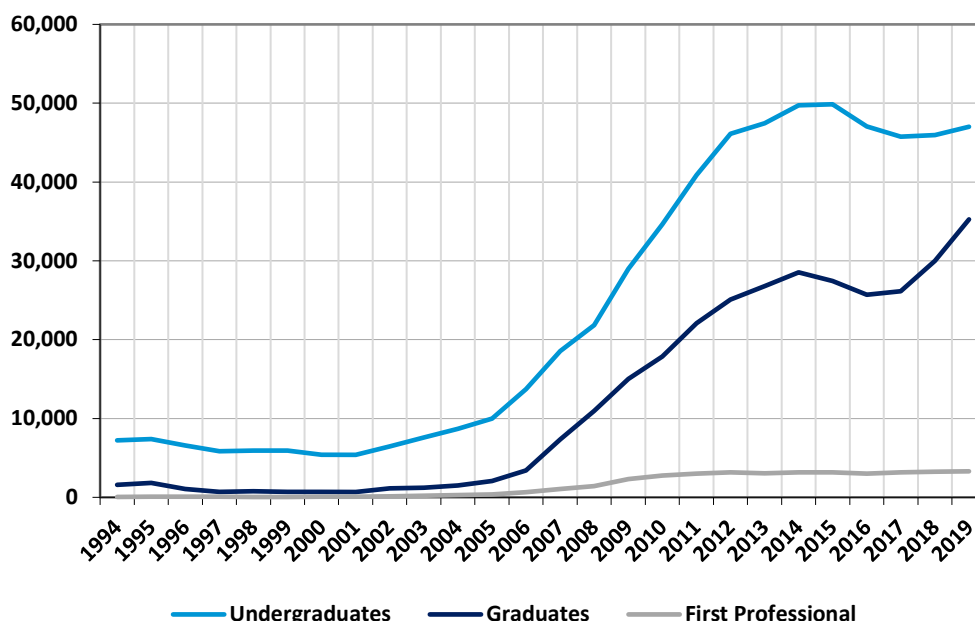
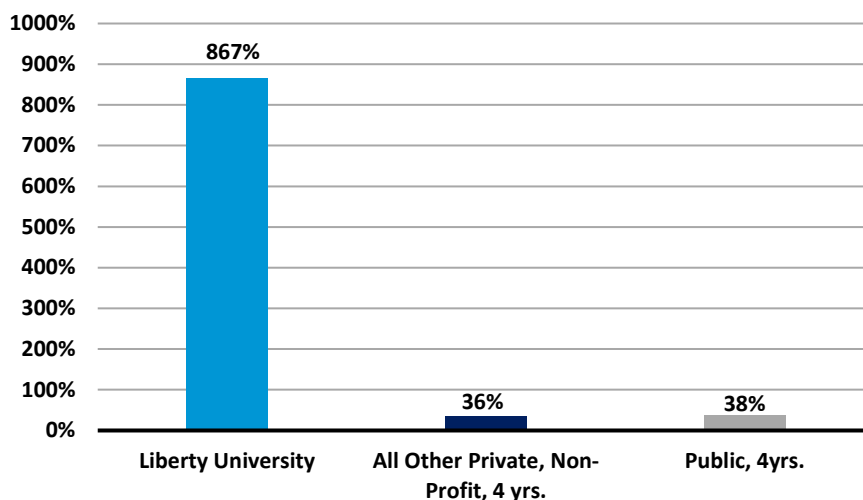


Figure 3 puts these truly remarkable growth rates in perspective by comparing Liberty University's growth in total fall headcount enrollment between 1994 and 2019 to that of Virginia's other private non-profit colleges and universities, as well as the state's public four-year institutions. As this chart demonstrates, in contrast to Liberty's 867 percent increase in enrollment over this period, Virginia's other four-year private non-profit colleges and universities grew by 36 percent, and Virginia's four-year public colleges and universities grew by 38 percent.

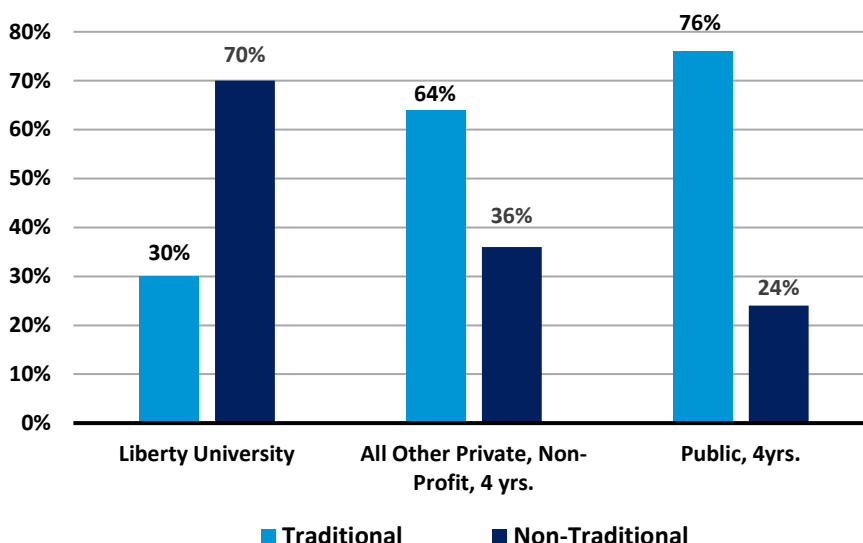
⁶ Data Source: State Council of Higher Education for Virginia.

Figure 3: Total Enrollment Growth – 1994 to 2019⁷



Figures 4 through 6 provide additional information on the characteristics of the students that Liberty University serves. As shown in Figure 4, driven by its large graduate enrollment, Liberty tends to serve a greater proportion of adult or non-traditional students (*i.e.*, students 25 years of age or older) than is typical among Virginia’s other four-year colleges and universities. In fall 2019, non-traditional students comprised 70 percent of Liberty’s headcount enrollment, as compared to 36 percent in Virginia’s other private non-profit colleges and universities, and 24 percent in the state’s public four-year institutions.

Figure 4: 2019 Fall Headcount Enrollment – Traditional and Non-Traditional Students⁸

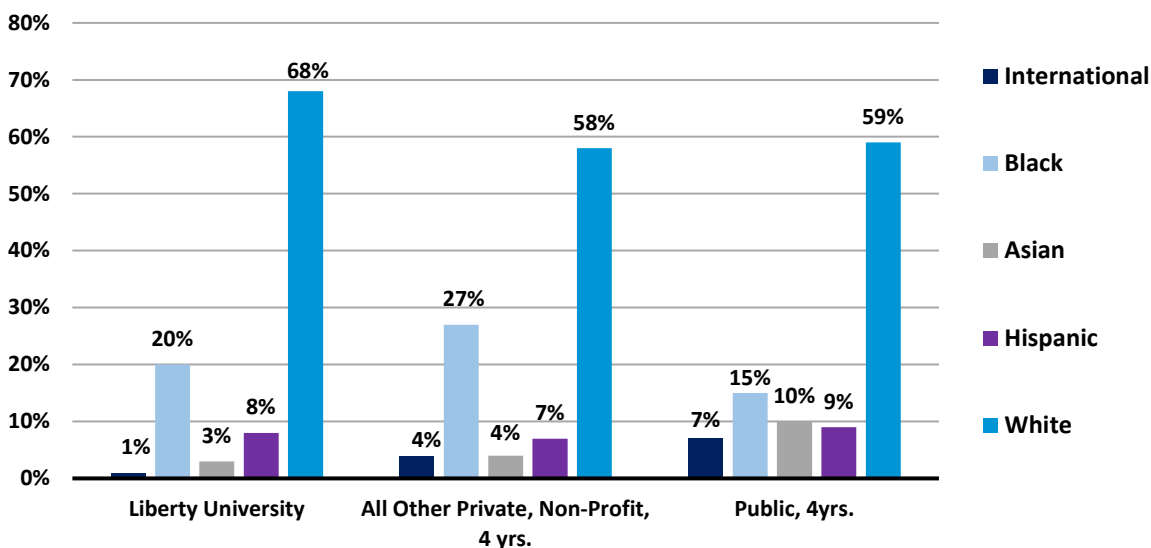


⁷ Data Source: State Council of Higher Education for Virginia.

⁸ Data Source: State Council of Higher Education for Virginia.

Figure 5 details the race/ethnicity distribution of Liberty University's student body and compares that distribution to the norm for other four-year colleges and universities in Virginia.⁹ As these data show, the distributions are comparable. In fall 2019, minority and foreign students comprised 32 percent of Liberty's enrollment, 42 percent of enrollment at other Virginia four-year non-profit colleges, and 41 percent of enrollment in the state's four-year public colleges and universities.

Figure 5: 2019 Fall Headcount Enrollment – Race and Ethnicity¹⁰



Finally, Figure 6 provides information on the relative proportions of in-state and out-of-state students at Liberty University as compared to the other institutional categories. As this chart demonstrates, Liberty's enrollment tends to be much more heavily comprised of out-of-state students (78 percent in fall 2019) than is typical for other Virginia non-profit colleges and universities (49 percent in fall 2019), or the state's public four-year institutions (24 percent in fall 2019). From an economic perspective, this means that Liberty functions much like an export industry, in that it draws out-of-state dollars and resources into the Lynchburg MSA's and Virginia's economies, thereby fueling economic expansion.

⁹ Data are only for those students for whom race/ethnicity was reported.

¹⁰ Data Source: State Council of Higher Education for Virginia.

Figure 6: 2019 Fall Headcount Enrollment – In-State and Out-of-State Students¹¹

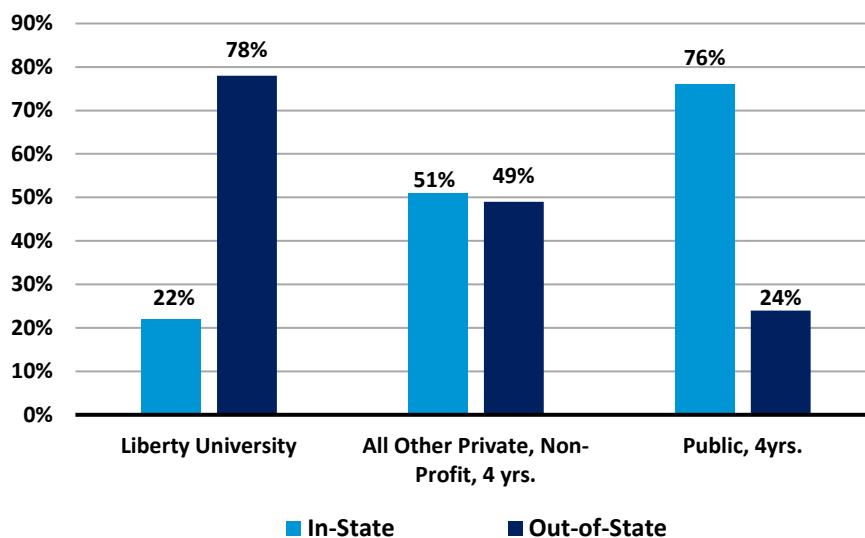
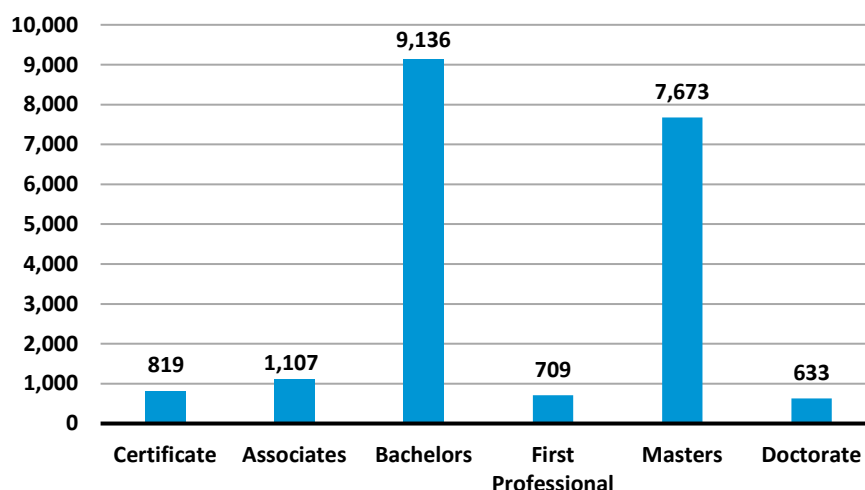


Figure 7 depicts the number of graduates that Liberty University produced in academic year 2018-19 by degree level. As these data indicate the largest number of completions were at the bachelor's level (9,136), followed closely by master's (7,673), then two-year associate's (1,107), certificates (819), first professional (709), and doctoral (633). Figure 8 further breaks these totals down according to major program. As this chart shows, the top five programs were: Business (3,787 awards), Education (2,554 awards), Health (2,466), Psychology (1,886 awards), and Multi-Disciplinary (1,875 awards).

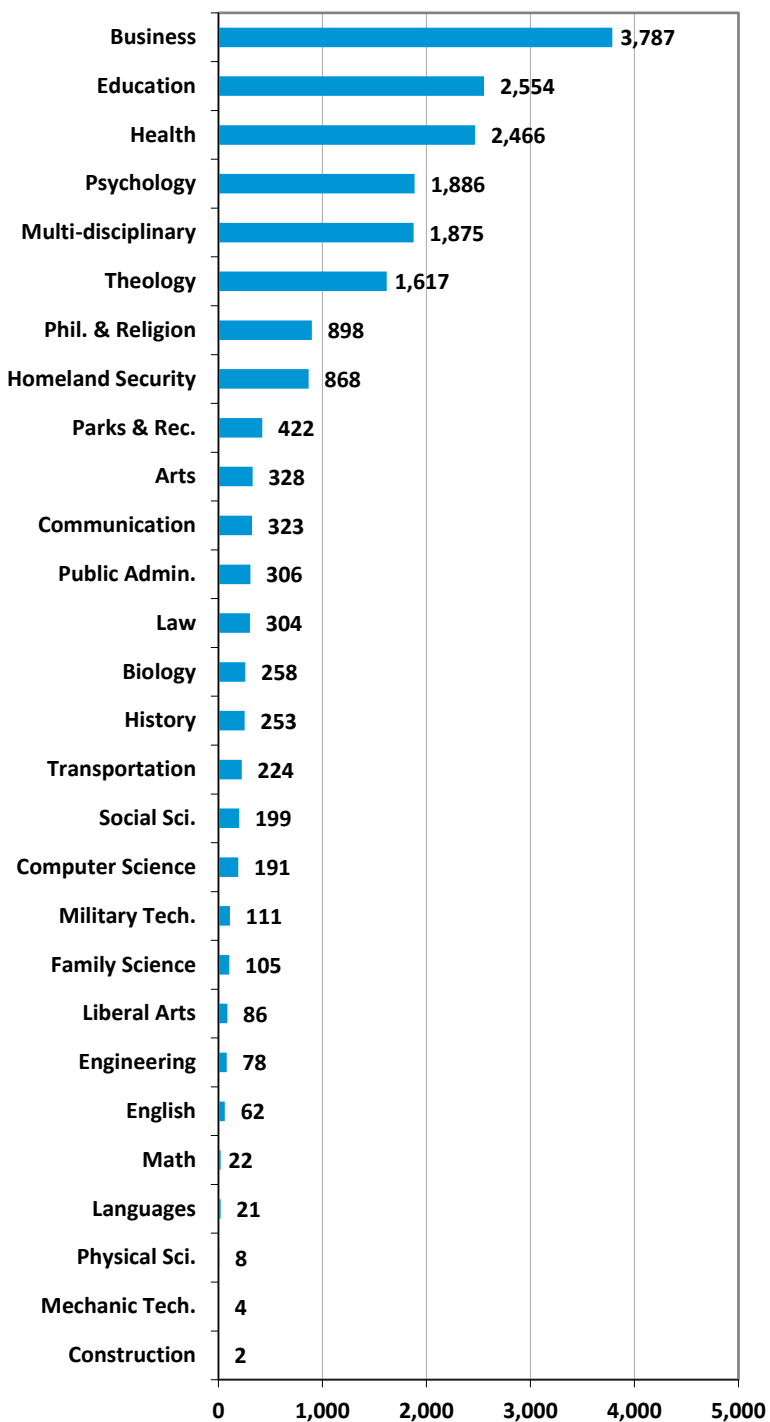
Figure 7: 2018-19 Completions by Degree Level¹²



¹¹ Data Source: State Council of Higher Education for Virginia.

¹² Data Source: State Council of Higher Education for Virginia.

Figure 8: 2018-19 Completions by Major Program¹³



¹³ Data Source: State Council of Higher Education for Virginia.



Lynchburg MSA Economic Profile

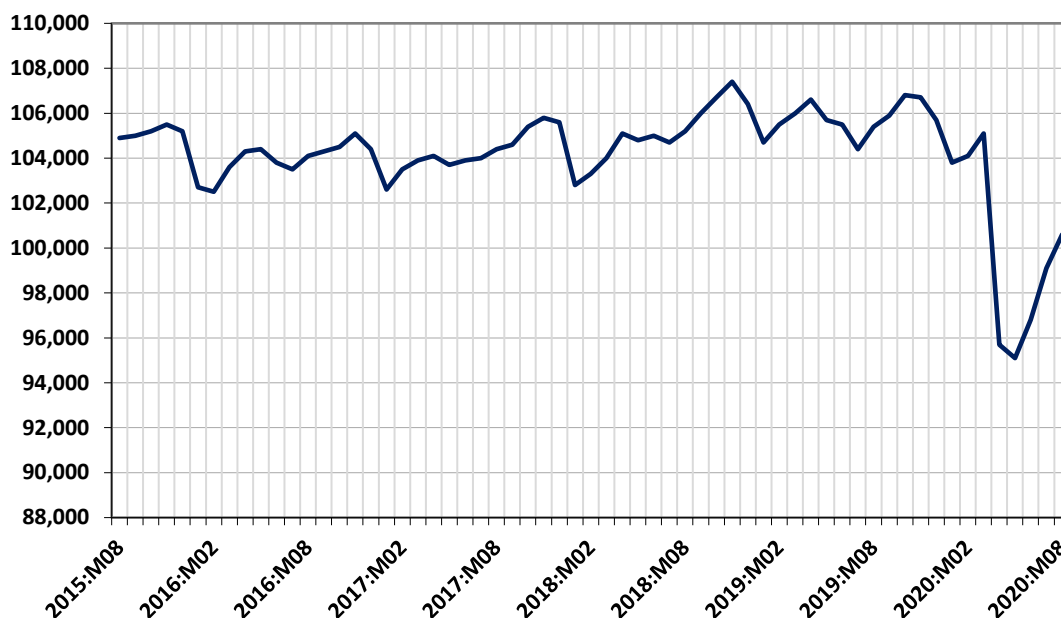
In this section, we provide context for the economic and fiscal impact assessments that follow by profiling the regional economy of the Lynchburg MSA.

Trend in Total Employment

Figure 9 depicts the trend in total nonfarm employment in the Lynchburg MSA from August 2015 to August 2020. As these data show, total nonfarm employment exhibited a slight upward trend through March of 2020 and then plummeted due to restrictions on economic activity mandated by the Governor in response to the Covid19 virus. Between March and April of 2020, total employment in the Lynchburg MSA fell from 105,100 to 95,700, a loss of 9,400 jobs or nearly one out of every ten jobs in the region.

As of August 2020, total employment in the Lynchburg MSA had partially recovered to 100,600 jobs. However, even with that partial recovery the change in total employment between August 2015 to August 2020 remained in negative territory at minus 4.1 percent. To put this number in perspective, over this same period, total statewide employment in Virginia declined by minus 0.8 percent.¹⁴

Figure 9: Total Employment in the Lynchburg MSA – August 2015 to August 2020¹⁵

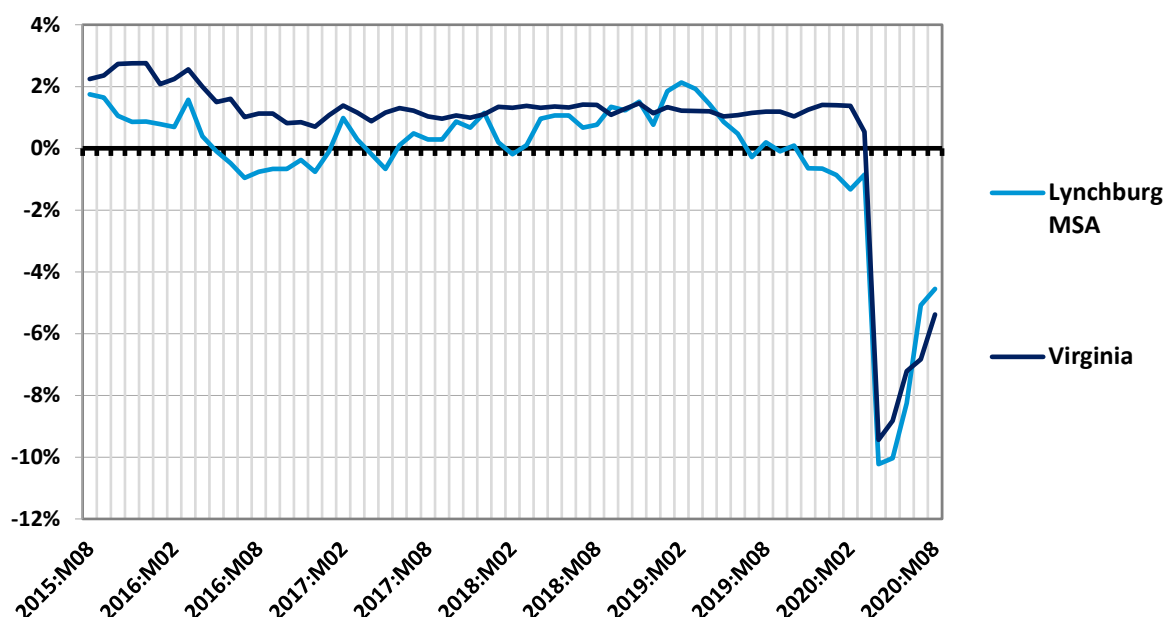


¹⁴ Data Source: Bureau of Labor Statistics.

¹⁵ Data Source: Bureau of Labor Statistics.

To control for seasonality and provide a point of reference, Figure 10 compares the year-over-year change in total employment in the Lynchburg MSA to that of the state of Virginia over the same five-year period. Any point above the zero line in this graph indicates an increase in employment, while any point below the zero line indicates a decrease in employment. As these data show, the Lynchburg MSA generally under-performed the statewide average throughout most of the period and was initially hit harder by the restrictions on economic activity mandated by the Governor in response to the Covid19 virus.

Figure 10: Year-Over-Year Change in Total Employment – August 2015 to August 2020¹⁶

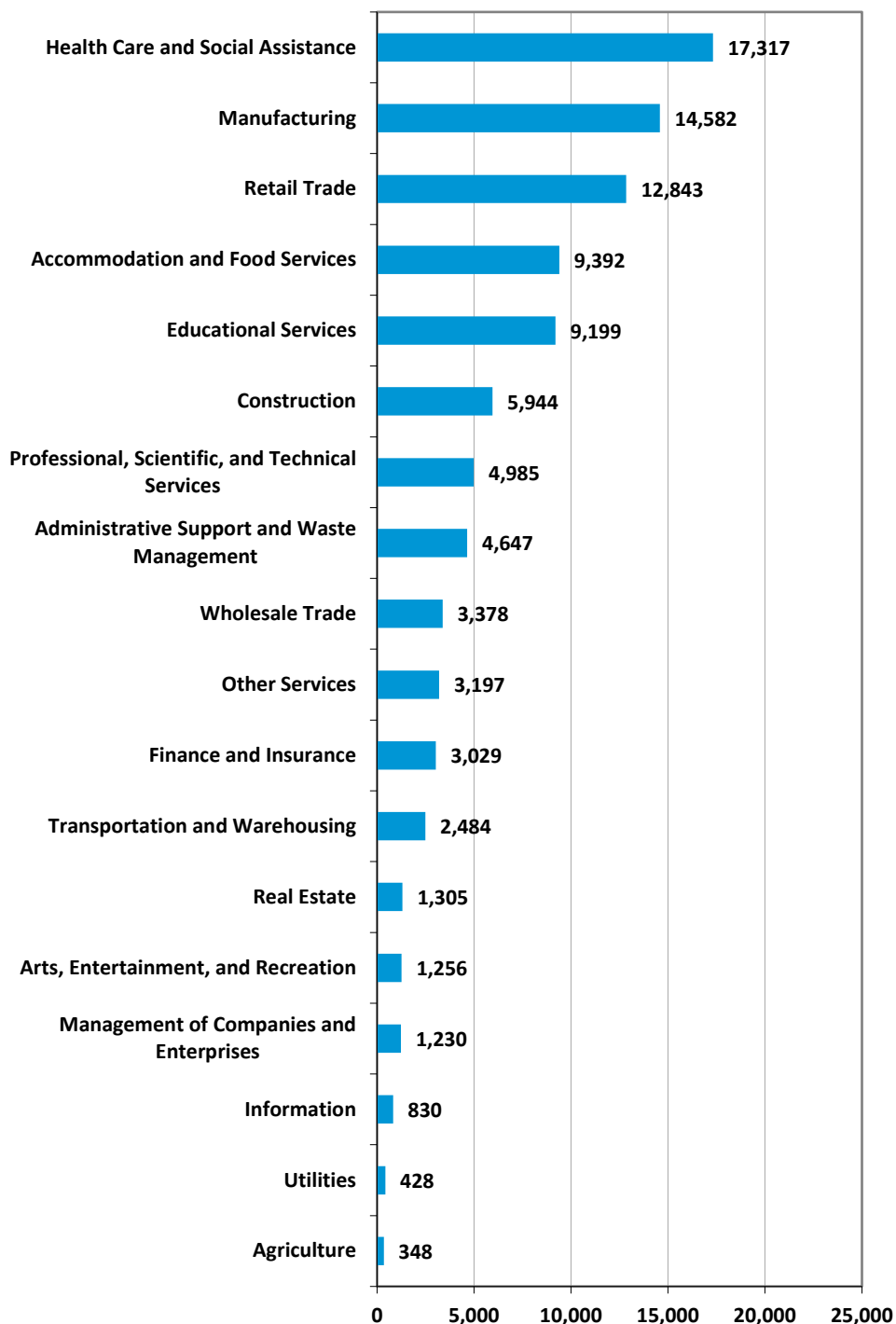


Employment by Major Industry Sector

To provide a better understanding of private sector employment in the Lynchburg MSA, Figure 11 provides an indication of the distribution of private sector employment across major industry sectors in the Lynchburg MSA in 2019. As these data indicate, the region's largest industry sector that year was Health Care and Social Assistance (17,317 jobs), followed by Manufacturing (14,582 jobs), and Retail Trade (12,843 jobs).

¹⁶ Data Source: Bureau of Labor Statistics.

Figure 11: Private Employment by Major Industry Sector in the Lynchburg MSA – 2019¹⁷

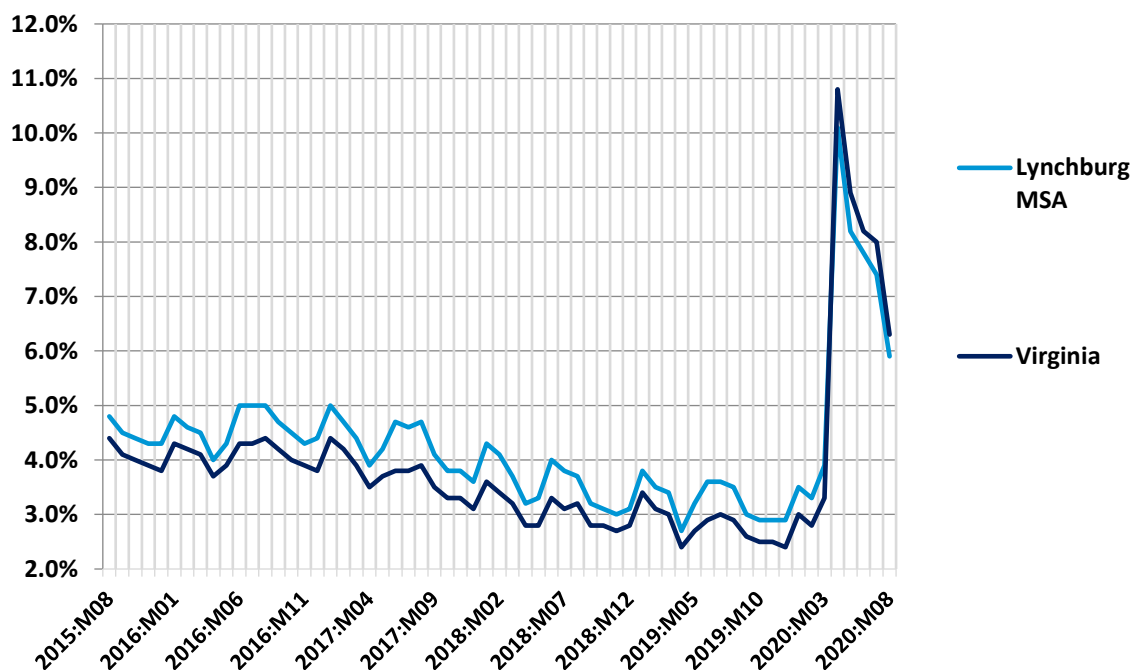


¹⁷ Data Source: Bureau of Labor Statistics. The industry category Educational Services does not include employment data for Liberty University, because as a non-profit institution the university is not required to report those data to the Virginia Employment Commission.

Unemployment

Figure 12 illustrates the trend in the Lynchburg MSA's unemployment rate over the five-year period from August 2015 through August 2020 and benchmarks those data against the statewide trend for Virginia. As these data show, unemployment rates in the Lynchburg MSA generally tracked about 0.5 percentage points above the statewide rate through March of 2020. However, the Lynchburg MSA has generally out-performed the state in the aftermath of restrictions on economic activity mandated in response to the Covid19 virus, and since April of 2020 has experienced an unemployment rate that is about 0.5 percentage points below the statewide rate. As of August 2020, unemployment stood at 5.9 percent in the Lynchburg MSA as compared to 6.3 percent in Virginia as a whole.

Figure 12: Unemployment Rate – August 2015 to August 2020¹⁸



¹⁸ Data Source: Bureau of Labor Statistics.

Economic and Fiscal Impact

In this section, we quantify the economic and fiscal contribution that Liberty University made to the Lynchburg MSA and the state of Virginia as a whole during the 2018-19 academic year.

Methods

Assessing Economic Impact

To empirically evaluate the economic impact attributable to Liberty University during the 2018-19 academic year, we employ a regional economic impact model called IMPLAN.¹⁹ The IMPLAN model is one of the most commonly used economic impact simulation models in the U.S., and in Virginia is used by UVA's Weldon Cooper Center, the Virginia Department of Planning and Budget, the Virginia Employment Commission, and other state agencies and research institutes. Like all economic impact models, the IMPLAN model uses economic multipliers to quantify economic impact.

Economic multipliers measure the ripple effects that an expenditure generates as it makes its way through the economy. For example, as when Liberty University purchases goods and services – or when employees hired by the university use their salaries and wages to make household purchases – thereby generating income for someone else, which is in turn spent, thereby becoming income for yet someone else, and so on, and so on. Through this process, one dollar in expenditures generates multiple dollars of income. The mathematical relationship between the initial expenditure and the total income generated is the economic multiplier.

One of the primary advantages of the IMPLAN model is that it uses regional and national production and trade flow data to construct region-specific and industry-specific economic multipliers, which are then further adjusted to reflect anticipated actual spending patterns within the specific geographic study area that is being evaluated. As a result, the economic impact estimates produced by IMPLAN are not generic. They reflect as precisely as possible the economic realities of the specific industry, and the specific study area, being evaluated.

In the analysis that follows, these impact estimates are divided into three categories. First round direct impact measures the direct economic contribution of the entity being evaluated (e.g., own employment, wages paid, goods and services purchased by Liberty University). Second round indirect and induced impact measures the economic ripple effects of this direct impact in terms of business to business, and household (employee) to business, transactions. Total impact is simply the sum of the preceding two. These categories of impact are then further defined in terms of employment (the jobs that are created), labor income (the wages and benefits associated with those jobs), and economic output (the total amount of economic activity that is created in the economy).

¹⁹ IMPLAN is produced by IMPLAN Group, LLC.

Assessing Fiscal Impact

Our estimates of fiscal impact are based on detailed data obtained from three sources: 1) surveys of Liberty University employees and students, 2) information on out-of-town attendees to Liberty University events, and 3) information on the economic activities of enterprises associated with Liberty University.

That fiscal impact comes from seven primary local revenue streams:

- Real Property Tax: The local tax that employees and students who own homes within the region pay on those properties.
- Personal Property Tax: The local tax that employees and students who own cars that are registered within the region pay on those vehicles.
- Motor Vehicle License Fee: The fee that employees and students who own cars pay to register those vehicles locally.
- Restaurant Food Tax: The tax that some localities add to meals purchased in restaurants.
- Hotel and Motel Room Tax: The tax that some localities add to hotel and motel room charges.
- Sales Tax: The one percent portion of the state sales tax that goes to localities.
- Other Local Taxes: Water and sewer, business license, and other fees paid by Liberty University and its associated enterprises to local governments in the Lynchburg MSA.

Impact on the Lynchburg MSA in Academic Year 2018-19

Regional Economic Impact

In academic year 2018-19, Liberty University, and its associated enterprises, students, and out-of-area visitors were directly responsible for contributing \$562.3 million in spending to the Lynchburg MSA. As shown in Figure 13:

- Liberty expenditures on goods and services accounted for 14 percent of that total (\$79.3 million),²⁰
- Liberty expenditures on salaries and wages accounted for 45 percent (\$251.9 million),²¹
- Liberty expenditures on capital construction projects and equipment accounted for 12 percent (\$65.8 million),²²

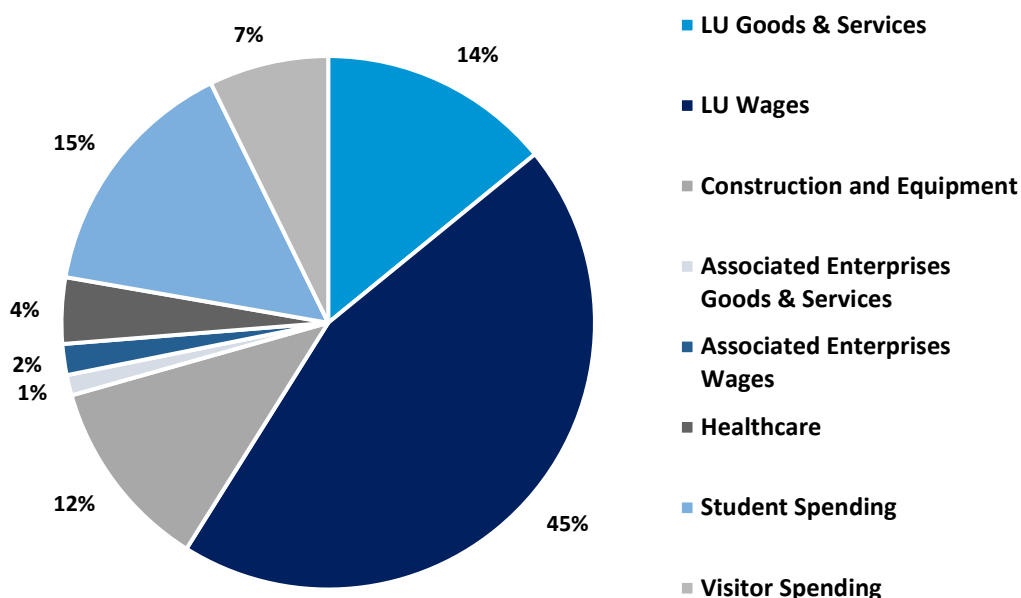
²⁰ Data Source: Liberty University.

²¹ Data Source: Liberty University.

²² Data Source: Liberty University.

- Expenditures on goods and services by enterprises associated with Liberty accounted for 1 percent (\$7.0 million),²³
- Expenditures on salaries and wages by enterprises associated with Liberty accounted for 2 percent (\$10.6 million),²⁴
- Employer expenditures for employee healthcare accounted for 4 percent (\$22.5 million),²⁵
- Student spending accounted for 15 percent (\$84.4 million),²⁶ and
- Visitor spending accounted for 7 percent (\$40.8 million),²⁷

Figure 13: Disposition of Liberty University's \$562.3 Million in Direct Spending in the Lynchburg MSA in Academic Year 2018-19



²³ Data Source: Liberty University. These enterprises include Airport Plaza Holdings, LLC; Burton Properties; Candler Station Holdings; Fairfield Inn and Suites; Freedom Aviation; G and J Thomas Holdings; Liberty Christian Academy; Liberty Mountain Medical Group; Morningstar Broadcasting; Plaza Holdings; Red Tie Music; River Ridge Mall; and Virginia Aviation.

²⁴ Data Source: Liberty University.

²⁵ Data Source: Liberty University.

²⁶ Data Source: Based on the findings from surveys of Liberty University students conducted in March 2010 and October 2015 and data from the Virginia Tourism Corporation's domestic travel profiles for 2018-19.

²⁷ Data Source: Based on data on out-of-area visitors to university events provided by Liberty University, findings from surveys of Liberty University students conducted in March 2010 and October 2015, and data from the Virginia Tourism Corporation's domestic travel profiles for 2018-19.

By feeding these data into the IMPLAN model, we obtain the following estimates of economic impact. As shown in Table 1, in academic year 2018-19 direct spending from Liberty University, and its associated enterprises, students, and out-of-area visitors directly supported approximately: 1) 9,150 jobs, 2) \$307.3 million in labor income, and 3) \$557.5 million in economic output in the Lynchburg MSA (in 2020 dollars).

Taking into account the economic ripple effects that direct spending would generate within the region, we estimate that in total Liberty University supported approximately: 1) 12,580 jobs, 2) \$428.3 million in labor income, and 3) \$984.7 million in economic output in the Lynchburg MSA in academic year 2018-19.

Table 1: Total Economic Impact of Liberty University on the Lynchburg MSA in Academic Year 2018-19 (2020 Dollars)

Economic Impact	Employment	Labor Income	Output
1st Round Direct Economic Activity	9,150	307,270,262	557,527,300
2nd Round Indirect and Induced Economic Activity	3,429	121,025,688	427,219,981
Total Economic Activity*	12,580	\$428,295,950	\$984,747,281

*Totals may not sum due to rounding.

Regional Fiscal Impact

As shown in Table 2, in academic year 2018-19 Liberty University, and its associated enterprises, students, and out-of-area visitors were directly responsible for contributing approximately \$16.5 million in local tax revenue to the Lynchburg MSA.

If we focus exclusively on the city of Lynchburg, where most of Liberty University's campus is physically located, what these data show is that in academic year 2018-19 Liberty University directly or indirectly generated approximately \$11.0 million in tax revenue for the city. More specifically, Liberty University was responsible for generating approximately:

- 7 percent of the city of Lynchburg's total *Real Property Tax* revenue,
- 9 percent of its *Personal Property Tax* revenue,
- 6 percent of its *Motor Vehicle License Fee* revenue,
- 12 percent of its *Restaurant Food Tax* revenue,
- 41 percent of its *Hotel and Motel Room Tax* revenue, and
- 5 percent of its local *Sales Tax* revenue.²⁸

²⁸ Derived from data on local tax revenue collected by the Virginia Auditor of Public Accounts. See "Comparative Report of Local Government Revenues and Expenditures, for the Fiscal Year Ended June 30, 2019," Virginia Auditor of Public Accounts.

Table 2: Total Fiscal Impact of Liberty University on the Lynchburg MSA in Academic Year 2018-19 (2020 Dollars)

Fiscal Impact	Amherst	Appomattox	Bedford	Campbell	Lynchburg	Total
Real Property²⁹	\$342,894	\$187,222	\$1,483,092	\$1,057,847	\$4,060,500	\$7,131,555
Personal Property³⁰	\$168,658	\$48,743	\$615,785	\$910,244	\$1,405,996	\$3,149,426
Motor Vehicle License Fee³¹	\$12,054	\$6,962	\$0	\$64,746	\$116,257	\$200,020
Restaurant Food Tax³²	\$31,650	\$17,062	\$139,042	\$0	\$1,727,525	\$2,051,085
Hotel and Motel Room Tax³³	\$5,698	\$3,099	\$31,558	\$12,730	\$1,076,988	\$1,130,072
Local Sales Tax³⁴	\$33,072	\$12,408	\$147,400	\$162,262	\$807,574	\$1,162,716
Other Local Taxes³⁵	\$0	\$0	\$3,089	\$18,629	\$1,792,833	\$1,814,551
TOTAL*	\$594,026	\$275,496	\$2,419,966	\$2,226,459	\$10,987,673	\$16,503,620

*Totals may not sum due to rounding.

²⁹ 2019 Real Property Tax Rates: Amherst County – \$0.61 per \$100 of assessed value, Appomattox County – \$0.65, Bedford County – \$0.52, Campbell County – \$0.52, and Lynchburg City – \$1.11.

³⁰ 2019 Personal Property Tax Rates: Amherst County – \$3.45 per \$100 of assessed value, Appomattox County – \$3.35, Bedford County – \$2.35, Campbell County – \$4.40, and Lynchburg City – \$3.80. Based on data from the State Council of Higher Education for Virginia on the location of domicile for first-time freshmen at Liberty University, we conservatively estimate that only 5.9 percent of university students who own vehicles actually pay personal property tax on those vehicles in the Lynchburg MSA.

³¹ 2019 Motor Vehicle License Fees: Amherst County – \$25.00, Appomattox County – \$35.00, Bedford County – none, Campbell County – \$27.00, and Lynchburg City – \$29.50. Conservatively assumes that only 5.9 percent of Liberty University students who own vehicles register those vehicles in the Lynchburg MSA.

³² 2019 Restaurant and Food Tax: Amherst County – 4.0%, Appomattox County – 8.0%, Bedford County – 4.0%, Campbell County – none, and Lynchburg City – 6.5%.

³³ 2019 Hotel and Motel Room Tax: Amherst County – 5.0%, Appomattox County – 5.0%, Bedford County – 7.0%, Campbell County – 2.0%, and Lynchburg City – 6.5%.

³⁴ One percent of retail sales in all localities.

³⁵ Comprised of water and sewer, business license, and other fees paid by Liberty University and its associated enterprises.

Impact on the Commonwealth of Virginia in Academic Year 2018-19:

Statewide Economic and Fiscal Impact

In academic year 2018-19, Liberty University was directly responsible for contributing \$659.2 million in spending to the Commonwealth of Virginia. As shown in Figure 14:

- Liberty expenditures on goods and services accounted for 14 percent of that total (\$92.4 million),³⁶
- Liberty expenditures on salaries and wages accounted for 41 percent (\$271.1 million),³⁷
- Liberty expenditures on capital construction projects and equipment accounted for 12 percent (\$76.4 million),³⁸
- Expenditures on goods and services by enterprises associated with Liberty accounted for 1 percent (\$8.4 million),³⁹
- Expenditures on salaries and wages by enterprises associated with Liberty accounted for 2 percent (\$11.0 million),⁴⁰
- Employer expenditures for employee healthcare accounted for 4 percent (\$23.2 million),⁴¹
- Student spending accounted for 20 percent (\$134.3 million),⁴² and
- Visitor spending accounted for 6 percent (\$42.4 million),⁴³

³⁶ Data Source: Liberty University.

³⁷ Data Source: Liberty University.

³⁸ Data Source: Liberty University.

³⁹ Data Source: Liberty University. These enterprises include Airport Plaza Holdings, LLC; Burton Properties; Candler Station Holdings; Fairfield Inn and Suites; Freedom Aviation; G and J Thomas Holdings; Liberty Christian Academy; Liberty Mountain Medical Group; Morningstar Broadcasting; Plaza Holdings; Red Tie Music; River Ridge Mall; and Virginia Aviation.

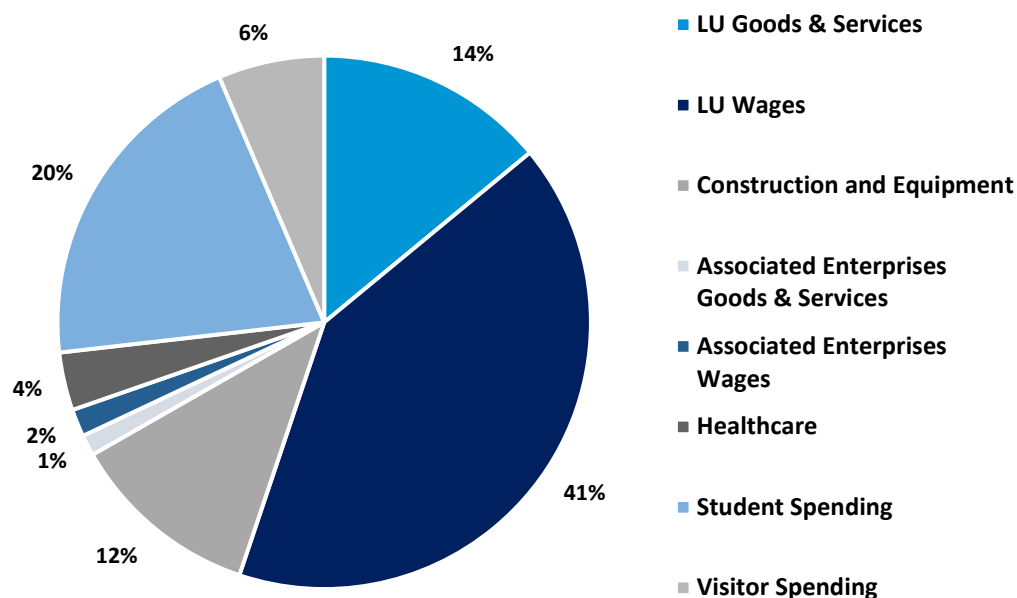
⁴⁰ Data Source: Liberty University.

⁴¹ Data Source: Liberty University.

⁴² Data Source: Based on the findings from surveys of Liberty University students conducted in March 2010 and October 2015 and data from the Virginia Tourism Corporation's domestic travel profiles for 2018-19.

⁴³ Data Source: Based on data on out-of-area visitors to university events provided by Liberty University, findings from surveys of Liberty University students conducted in March 2010 and October 2015, and data from the Virginia Tourism Corporation's domestic travel profiles for 2018-19.

Figure 14: Disposition of Liberty University's \$659.2 Million in Direct Spending in the Commonwealth of Virginia in Academic Year 2018-19



By feeding these data into the IMPLAN model, we obtain the following estimates of economic impact. As shown in Table 3, in academic year 2018-19 direct spending from Liberty University, associated enterprises, students, and out-of-area visitors directly supported approximately: 1) 9,780 jobs, 2) \$337.4 million in labor income, and 3) \$655.5 million in economic output in the Commonwealth of Virginia (in 2020 dollars).

Taking into account the economic ripple effects that direct spending would generate within the state, we estimate that in total Liberty University supported approximately: 1) 13,831 jobs, 2) \$532.9 million in labor income, 3) \$1.3 billion in economic output, and 4) \$90.2 million in total government tax revenue (\$33.7 million of which was state and local) in the Commonwealth of Virginia in academic year 2018-19.

Table 3: Estimated Total Economic Impact of Liberty University on the Commonwealth of Virginia in Academic Year 2018-19 (2020 Dollars)

Economic Impact	Employment	Labor Income	Output
1st Round Direct Economic Activity	9,780	337,353,540	655,464,851
2nd Round Indirect and Induced Economic Activity	4,051	195,575,653	633,856,789
Total Economic Activity*	13,831	\$532,929,193	\$1,289,321,640
Fiscal Impact	State and Local	Federal	Total*
Tax Revenue	\$33,690,775	\$56,548,519	\$90,239,294

*Totals may not sum due to rounding.

Human Capital

In the previous section we quantified the regional and statewide economic and fiscal impact that Liberty University had in academic year 2018-19 in terms of the dollars that it injected into the economy. In this section, we look at the economic contribution that Liberty University made to Virginia in academic year 2018-19 from a different perspective – the value of the human capital it created through its most important product, its graduates.

Value Added

A significant and unique characteristic of higher education is that it generates externalities, or spillover effects, that exceed the private benefits to individuals. As a result, it is generally recognized that it is in the interest of the community at large to encourage higher levels of educational attainment. Some of these spillover effects take the form of greater civic responsibility, improved health, and reduced crime. From a purely economic perspective though, the largest spillover effect has to do with increased economic productivity.

As individuals increase their human capital through higher levels of educational attainment, not only do they become more productive, they also increase the productivity of the resources around them. A good example of this would be the difference between what can be accomplished by placing a computer in the hands of a trained user, and what can be accomplished when the computer is placed in the hands of an untrained user – same resource, very different result. Moreover, this difference in results has significant economic implications in the aggregate. Greater productivity translates into increased economic activity and higher incomes.

However, to measure the effect that Liberty University's educational services have on economic productivity and, therefore, Virginia's economy, we must first be able to quantify the relationship between educational attainment and productivity. One of the early leaders in this area of economics was Gary Becker, who was awarded a Nobel Prize in 1992 for his work in the economics of human

capital development. One of Becker's key insights was that, because education produces work skills that are valuable to all employers, in a competitive market employers will be forced to compensate workers for the full value of their skills, or otherwise risk losing them to other employers. A critical implication of this insight is that differences in wages provide a reasonable estimate of the economic value attributable to differences in educational attainment and skills training.

Table 4 presents data on average annual wages in Virginia by educational attainment level for those occupations that typically require a certain level of education as a prerequisite for employment. In the first row of this table, we provide estimates of average annual wages across all Virginia occupations.⁴⁴ In the second row of the table, we further refine our analysis to reflect only those occupations that Liberty University graduates are likely to enter, based on their program of study. To accomplish that task, we employ a crosswalk developed by the National Crosswalk Service Center (NCSC) that "maps" occupations into the prerequisite education and training program(s) necessary for entry into that occupation.⁴⁵ Using this tool, we are able to identify those occupations that Liberty University graduates are most likely to enter, and restrict the second set of average wage estimates to encompass only those occupations.

Table 4: Median Annual Wages in Virginia by Degree Level

	High School	Associates	Bachelors	Masters	Doctoral or Professional
Average Annual Virginia Wage: All Occupations	\$44,199	\$62,711	\$78,018	\$75,444	\$114,029
Average Annual Virginia Wage: Liberty Univ. Specific Occupations	N/A	\$75,539	\$80,489	\$75,538	\$92,455

Table 5 provides additional data on the number of students that Liberty University graduated at each degree level in academic year 2018-19, and the number of those graduates who were in-state residents of Virginia.⁴⁶

⁴⁴ Data Source: Derived using 2018 occupational wage data from the Virginia Employment Commission.

⁴⁵ The National Crosswalk Service Center (NCSC) is funded by the U.S. Department of Labor, Employment and Training Administration. The specific NCSC crosswalk used in this analysis is the 2010 Standard Occupational Classification Crosswalk to 2010 Classification of Instructional Programs. This crosswalk identifies the prerequisite instructional programs (classified according to the National Center for Educational Statistics' 2010 Classification of Instructional Program, or CIP, code) necessary for employment in specific occupations (classified according to the Bureau of Labor Statistics' 2010 Standard Occupational Classification, or SOC, code).

⁴⁶ Data Source: State Council of Higher Education for Virginia.

Table 5: Liberty University 2018-19 Graduates by Degree Level

	Associates	Bachelors	Masters	Doctoral or Professional
All Graduates	1,107	9,136	7,673	1,342
In-State Graduates	179	2,434	1,727	281

Based on these data, Table 6 presents our analysis of the economic value that was created through the increased labor productivity embodied in Liberty University's 2018-19 graduates. The first three rows of Table 6, compare likely average wages for Liberty University graduates against the benchmark wage across all Virginia occupations for that degree level, and compute the difference (*i.e.*, comparing average wages for Liberty University Associate and Bachelor degree graduates to the average wage for high school graduates, and comparing average wages for Liberty University Master's and Doctoral or Professional degree graduates to the average wage for Bachelors graduates). Based on Becker's research, this differential represents the "value added," in terms of increased labor productivity, associated with each Liberty University degree.

This value added differential is then multiplied by the number of in-state graduates from Liberty University in 2018-19 to determine the "Total Annual Value of Increased Labor Productivity."⁴⁷ We then further adjust that figure to account for: 1) average labor force participation rates by degree level,⁴⁸ and 2) selectivity bias, or the fact that individuals who pursue education tend to have higher than average innate abilities to start with,⁴⁹ to derive an adjusted final estimate. As shown in the "Adjusted Total Annual Value of Increased Labor Productivity" row of Table 5, across all graduate levels that estimate of the economic value of the additional human capital embodied in Liberty University's 2018-19 graduates is \$48.2 million.

⁴⁷ Data Source: State Council of Higher Education for Virginia. Virginia residents are used instead of all graduates because of the greater probability that these graduates will live and work in Virginia after graduation.

⁴⁸ Data Source: U.S. Bureau of Labor Statistics. Data are average labor force participation rates by educational attainment level in 2019.

⁴⁹ There is a substantial body of literature that indicates that not all of the difference in annual income between different educational attainment levels is attributable to educational attainment alone. The reason for this has to do with what is called selectivity bias – the tendency for those with greater innate abilities to go on to pursue higher levels of educational attainment. In other words, what you come out of the educational process with is partly attributable to what you had when you went into it. Although estimates differ, a frequently cited study by Larry L. Leslie and Paul Brinkman found that only about 79 percent of the difference in income between high school graduates and individuals with an undergraduate education is attributable to education alone. See, Larry L. Leslie and Paul Brinkman, *The Economic Value of Higher Education* (Phoenix: American Council of Education and the Oryx Press), 1993, pp.43-44.

Finally, it is important to realize that these estimates of the value of increased labor productivity are not one-time benefits. Rather, they are part of a stream of economic activity that continues over the entire time that the students Liberty University graduated in 2018-19 are active in the workforce. Based on analysis of the typical “work-life” of American men and women,⁵⁰ and the average age of Liberty University students, we estimate that time horizon to be approximately 26 years for graduates from Associate and Bachelor programs, and 21 years for graduates from Master’s and Doctoral or Professional programs. Using these figures, along with the estimates of “Adjusted Total Annual Value of Increased Labor Productivity” discussed above, we can determine the present value, or value in today’s dollars, of the stream of economic activity generated by the increased labor productivity embodied in Liberty University’s 2018-19 graduates. As shown in the bottom row of Table 5, that present value is estimated to be approximately \$1.0 billion.⁵¹

⁵⁰ See James Ciecka, Seth Epstein, and Jerry Goldman, “Work Life Estimates at Millennium’s End: Changes Over the Last Eighteen Years,” Illinois Labor Market Review, vol.6, no.2, Summer, 2000.

⁵¹ The discount rate used for this calculation was 1.5 percent and is a rounded approximation of the United States 30 Year Bond Yield.

Table 6: Median Annual Wages in Virginia by Degree Level

	Associates	Bachelors	Masters	Doctoral or Professional	Total
Average Annual Virginia Wage:					
Liberty U. Specific Occupations	\$75,539	\$80,489	\$75,538	\$92,455	
Benchmark Average Virginia Wage – All Occupations	\$44,199 ⁵²	\$44,199 ⁵³	\$78,018 ⁵⁴	\$78,018 ⁵⁵	
Differential	\$31,340	\$36,290	-\$2,480	\$14,437	
Estimated Liberty In-State 2018-19 Graduates	179	2,434	1,727	281	
Total Annual Value of Increased Labor Productivity	\$5,609,860	\$88,329,860	-\$4,282,960	\$4,056,797	\$93,713,557
Labor Force Participation	65.1%	65.1%	73.8%	73.8%	
Selectivity Bias	79%	79%	79%	79%	
Adjusted Total Annual Value of Increased Labor Productivity	\$2,885,095	\$45,427,164	-\$2,497,051	\$2,365,194	\$48,180,401
Typical Work-life	26	26	21	21	
Discounted Present Value	\$61,737,083	\$972,079,146	-\$44,697,560	\$42,337,292	\$1,031,455,961

⁵² Average wage across all occupations for high school graduates in Virginia.

⁵³ Average wage across all occupations for high school graduates in Virginia.

⁵⁴ Average wage across all occupations for graduates with a bachelors in Virginia.

⁵⁵ Average wage across all occupations for graduates with a bachelors in Virginia.

Statewide Economic Impact

In this portion of the section, we use the IMPLAN model to quantify the economic and fiscal impact attributable to the \$48.2 million increase in human capital associated with Liberty University's 2018-19 graduates. It is important to note that these estimates focus exclusively on the additional economic activity that is generated as Liberty University graduates turn the income they earn as a result of their enhanced skills and increased labor productivity into household consumption expenditures. As a result, they reflect the economic impact that comes from the second-round ripple effects generated by the "Adjusted Total Annual Value of Increased Labor Productivity" presented in Table 6.

As shown in Table 7, second round effects from the income that 2018-19 Liberty University graduates earn as a result of their enhanced skills and increased labor productivity are estimated to support approximately: 1) 340 additional jobs, 2) \$16.1 million in additional labor income, and 3) \$50.4 million in additional economic output annually in the Commonwealth of Virginia (in 2020 dollars). For a total annual economic and fiscal impact of approximately: 1) 340 jobs, 2) \$64.3 million in labor income, 3) \$98.5 million in economic output, and 4) \$6.9 million in total government tax revenue (\$2.8 million of which was state and local).

Table 7: Estimated Annual Economic and Fiscal Impact from the Increased Labor Productivity Associated with Liberty University's 2018-19 Graduates (2020 Dollars)

Economic Impact	Employment	Labor Income	Output
1st Round Direct Economic Activity	0	\$48,180,401	\$48,180,401
2nd Round Indirect and Induced Economic Activity	340	\$16,088,219	\$50,367,510
Total Economic Activity*	340	\$64,268,620	\$98,547,911
Fiscal Impact	State and Local	Federal	Total*
Tax Revenue	\$2,824,509	\$4,110,726	\$6,935,235

**Totals may not sum due to rounding.*

Other Contributions

In this section we illuminate the many contributions that Liberty University makes to the Lynchburg MSA that go beyond the narrow confines of economic and fiscal impact. Among these contributions are community service, contributing to economic revitalization, enhancing the quality of life, generating higher levels of tourism, and ensuring that the Lynchburg MSA is developing the qualified workforce that it will need to be economically successful in the future.

Community Involvement

Liberty University, its employees, and students make several positive contributions to the greater Lynchburg community.

Service and Volunteerism

One of the unique characteristics of Liberty University is that its students are obliged to volunteer on campus and within the community as a requirement for graduation. Among the many local community organizations that benefit from this volunteer service are the Lynchburg Humane Society, Habitat for Humanity, Scaremare, TRBC, Waymaker Church, Salvation Army, HumanKind, Urban Mountain Adventures, and Jubilee Family Development Center. In 2018-19 alone, Liberty University students provided 487,565 hours of volunteer service to the Greater Lynchburg community.⁵⁶ If one were to quantify the value of this volunteer service by Liberty University students at simply the current minimum wage, their total annual contribution to the Lynchburg MSA was approximately \$3.5 million in 2018-19.

Center for Engineering Research and Education

The Center for Research and Education (CERE) is owned by Liberty University and is located in the New London Business and Technology Park in Bedford County. CERE is a 30,000 square foot multi-functional complex that houses numerous laboratories which have been designed based on industry needs and standards. These laboratories provide a space where industry, faculty, and students collaborate on a variety of research projects. CERE attracts industry partners to the Lynchburg MSA by providing needed equipment, facilities, trained operators, and certified training programs that were previously outsourced to outside of the region. Companies that have used CERE include: Belvac, Simplimatic, Framatone, Novatech, CyberKong, Commander's Concepts, Hendricks Motor Sports, and ICISI.

Economic Revitalization

In an effort to grow its endowment fund, Liberty University has also made significant property investments in the Lynchburg MSA and among these are two shopping centers and one regional mall. In 2008, Liberty acquired the Plaza shopping center and invested \$500,000 to upgrade and improve the property.⁵⁷ In 2010, Liberty acquired Candler's Station shopping center, and after similar improvements it is anticipated that Candler's Station will provide the university with double digit annual return on its investment, while also providing a continuing stream of tax revenue for the city.⁵⁸ Then, in 2017 Liberty University acquired the River Ridge Mall. The River Ridge Mall is the Lynchburg MSA's only mall and had deteriorated to the point that it was on the verge of closing. The university expects to invest \$40 to \$60 million to renovate the property and in 2019 the center court was remodeled, the old Sears building was demolished to make way for a Dick's Sporting Goods, with other big-box retailers to follow, and the university partnered with a national operator to install an aquarium to aid in bringing families back to

⁵⁶ Data Source: Liberty University.

⁵⁷ "At Liberty, the future is in land," Valley Business Front, April 2010.

⁵⁸ "At Liberty, the future is in land," Valley Business Front, April 2010.

the mall. It is now anticipated that the River Ridge Mall will once again be a successful regional enterprise and a source of increased local tax revenue.

Freedom Aviation

Like the Plaza and Candler's Station shopping centers, Freedom Aviation is a private enterprise that is associated with Liberty University. Freedom Aviation is the Fixed Base Operator (FBO) at the Lynchburg Regional Airport where it provides a broad range of services to the general aviation community that include hangar services, maintenance, flight instruction, charter flights, aircraft rentals, and fuel sales. In addition to generally contributing to the economic stability and growth of Lynchburg's only commercial airport, Freedom Aviation also enjoys the unique advantage of being associated with Liberty University's School of Aeronautics. Liberty's School of Aeronautics plays a critical role in meeting Virginia's demand for aviation personnel. In academic year 2018-19, there were a total of 287 graduates from aviation programs in Virginia colleges and universities.⁵⁹ Of that total, Liberty University's School of Aeronautics accounted for 241, or 84 percent.⁶⁰ This association also better positions Freedom Aviation to attract aeronautical conferences and events to Lynchburg, such as the 2016 Lynchburg Regional Airshow, which featured the Navy's Blue Angels and drew a large number of out-of-town spectators.

Recreational and Cultural Facilities

Liberty University has also contributed to the Lynchburg MSA's quality of life by significantly enhancing its recreational and cultural opportunities. The university's LaHaye Ice Center, Liberty Mountain Snowflex Center, Tower Theater, Liberty Mountain Skate Park, and the Center for Music and Worship Arts' Concert Hall are all open to the public.

The LaHaye Ice Center was newly renovated in 2015. In addition to providing a home for Liberty's figure skating, synchronized skating, and men's and women's hockey teams, the LaHaye Ice Center is also used to host a variety of community events such as youth hockey leagues, figure skating programs, public sessions, and private events.

The Liberty Mountain Snowflex Center opened in August of 2009 and is North America's only Snowflex synthetic ski slope. In 2013, the university also installed a separate 525 foot long tubing slope at the facility to accommodate the growing popularity of this alternative winter sport. The Snowflex Center has already received national attention and is expected to be significant point of destination for winter sports enthusiasts. As described on Virginia's official tourism website,

Winter sport enthusiasts now have something to cheer about every season... a year-round ski slope in Lynchburg, Virginia. Liberty University's Snowflex Centre, located on Liberty Mountain, is a synthetic ski slope featuring the most innovative technology in the snow sports industry, and it's the only one in the United States. ... Mountain ski resorts

⁵⁹ Data Source: State Council of Higher Education for Virginia.

⁶⁰ Data Source: State Council of Higher Education for Virginia.

are only accessible during winter, but Liberty Mountain Snowflex Centre will be accessible during all four seasons, day and night.⁶¹

The Tower Theater opened in 2010 and by 2014 was voted the number one entertainment venue in the Readers Choice 2014 Best of the Lynchburg Area awards. It is home to the Alluvian Stage Company and Liberty University's Department of Theater Arts. The Tower Theater is a 640 seat facility that boasts a Broadway-style fly tower and professional rigging system. The Tower Theater routinely stages productions such as Hair Spray, Mary Poppins, Peter Pan, and Les Miserables, and is also used to host summer youth and high school drama camps.

In 2011 Liberty University also opened an 8,600 square foot skate park in the Candler's Station Shopping Center. The facility is available to the public and features a foam pit for learning aerials, a half pipe, rails, boxes and an observation deck. The park can be used for skateboards, BMX bicycles, and rollerblades.

Finally, the Center for Music and Worship Arts' Concert Hall opened in 2016. The Concert Hall has just under 1,600 seats, and boasts a retractable telescoping choir loft that can also be used to provide an additional 300 seats, while the orchestra pit can be raised to serve as an extension of the stage. The Concert Hall is also equipped with the Meyer Sound Constellation Acoustic System that can be used to stage both acoustic and electronic presentations. This allows the Concert Hall to be used for a wide variety of performances, including classical orchestras, praise and worship, jazz and pop music shows, musical theater, and opera.

Tourism

As demonstrated in the earlier assessment of economic and fiscal impact, the university also contributes significantly to regional tourism. Through out-of-town visitors to Liberty University's employees and students, facilities such as the LaHaye Ice Center and Liberty Mountain Snowflex Center, and events such as commencement, fall family weekend, and spring family weekend the university plays a large role in attracting tourists to the Lynchburg MSA.

Based on information obtained from our surveys of Liberty University employees and students,⁶² along with data provided by Liberty University on out-of-town attendees to university events,⁶³ we estimate that in fiscal year 2018-19, Liberty University:

- employees had approximately 33,737 overnight out-of-town visitors,
- resident and commuter students had approximately 89,814 overnight out-of-town visitors,

⁶¹ Data Source: Virginia Tourism Corporation.

⁶² Data Source: Based on the findings from surveys of Liberty University students and employees conducted in March 2010 and October 2015.

⁶³ Data Source: Liberty University.

- intensive online students visited Liberty University's Lynchburg campus approximately 12,552 times, and
- facilities and events attracted 113,473 overnight out-of-town visitors.

Perhaps the most tangible way to gauge the effect that these visitors had on the regional tourism industry is to focus on the hotel stays that were generated. Using the data above in combination with other information from the surveys on the proportion of out-of-town visitors that stayed in hotels, we estimate that in fiscal year 2018-19 out-of-town visitors to Liberty University employees, students, facilities, and events generated approximately 151,438 hotel room nights in the Lynchburg MSA. Those hotel room nights in turn were associated with approximately \$16.5 million in hotel revenue within the Lynchburg MSA.⁶⁴

Workforce Development

In this section, we quantify the contribution that Liberty University makes to ensuring that the Lynchburg MSA is developing the qualified workforce that it will need to be economically successful in the future by looking at the degree to which the institution is meeting the region's occupation-driven demand for graduates. The method used to accomplish this analysis is not new and has been successfully employed in earlier studies conducted in several states.⁶⁵

⁶⁴ Data Source: Data on 2019 room rates are taken from "2020 Monthly and Year-to-Date August Lodging Report," Virginia Tourism Corporation.

⁶⁵ Similar methods are used in at least seven states (California, Georgia, Idaho, Illinois, New Jersey, Utah, and Virginia) to project anticipated education and training demands. For an excellent exposition of this method see, William J. Drummond and Jan L. Youtie, "Occupational Employment, Demand for College Graduates, and Migration: A Statewide View," a report to the Board of Regents, University System of Georgia, 1999. For an example of how this method has been used previously in Virginia see, A. Fletcher Mangum, "System-Wide Needs Assessment for Virginia Education," State Council of Higher Education for Virginia, March 28, 2002, p.90.

Demand for Graduates

To project the occupation-driven demand for graduates we start with projections of occupational employment. According to the most recent occupational employment projection for the Lynchburg MSA, between 2016 and 2026 the region will experience approximately 2,286 job openings each year.⁶⁶ As shown in Figure 15, breaking this number down according to major occupational group shows that the largest numbers of annual openings are projected to occur in Food Preparation and Serving (396 per year), Personal Care and Service (255 per year), Healthcare Practitioners and Technical (197 per year), Education, Training, and Library (192 per year), and Sales and Related (158 per year) occupations.

In the next step of the analysis, we use the National Crosswalk Service Center (NCSC) crosswalk described earlier to “map” these average annual opening by occupation into the prerequisite education and training program(s) necessary for entry into that occupation.⁶⁷ Through this process, we are able to use the occupational projection for the Lynchburg MSA to estimate the occupation-driven demand for graduates within the Lynchburg MSA.⁶⁸

⁶⁶ Data Source: Derived from Virginia Employment Commission occupational employment projections for 2016 to 2026. The Lynchburg MSA is comprised of the counties of Amherst, Appomattox, Bedford, and Campbell, and the City of Lynchburg.

⁶⁷ The National Crosswalk Service Center (NCSC) is funded by the U.S. Department of Labor, Employment and Training Administration. The specific NCSC crosswalk used in this analysis is the 2010 Standard Occupational Classification Crosswalk to 2010 Classification of Instructional Programs. This crosswalk identifies the prerequisite instructional programs necessary for employment in 623 specific occupations. Often, these are many-to-many relationships where a given instructional program can serve as an avenue into one of many jobs, or one of several instructional programs can serve as a prerequisite for a given job.

⁶⁸ More formally, the demand for education and training programs is calculated as:

$$DCIP_i = \sum DCip_{ji}$$

Where,

$$Dc_{ip_{ji}} = (SOC_j)(GCIP_i / \sum GCip_{ij})$$

and,

$DCIP_i$ = the annual demand for instructional program i

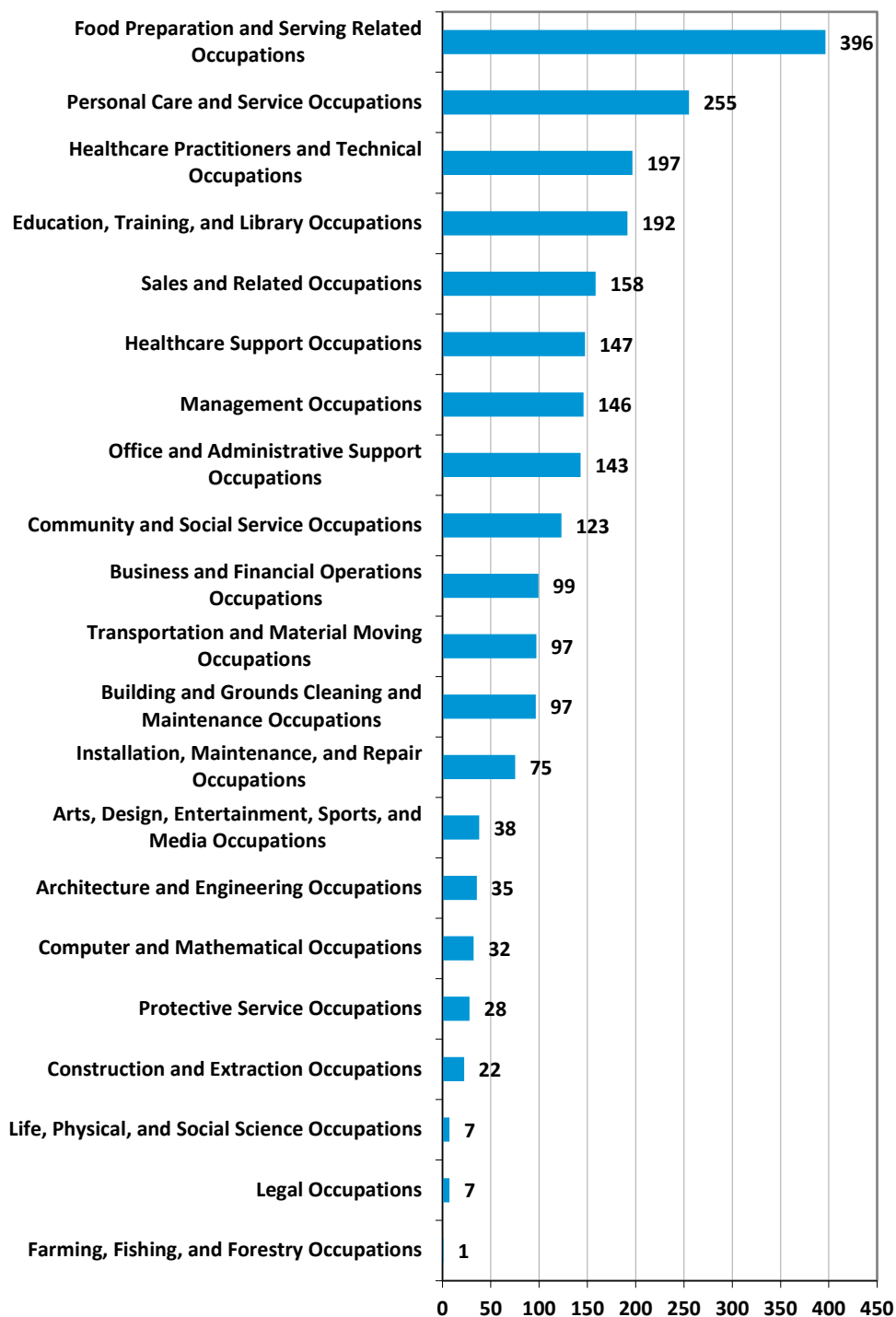
$\sum DCip_{ji}$ = the annual demand for instructional program i across all occupation(s) j

SOC_j = the projected annual openings for occupation j

$GCIP_i$ = Liberty University graduates from instructional program i

$\sum GCip_{ij}$ = Liberty University graduates from all instructional program(s) i related to occupation j

Figure 15: Projected Average Annual Openings in the Lynchburg MSA – 2016 to 2026⁶⁹



⁶⁹ Data Source: Derived from Virginia Employment Commission occupational employment projections for 2016 to 2026.

Supply of Graduates

To estimate the likely supply of graduates within those education and training programs identified in the demand analysis, we use data from the U.S. Department of Education's Integrated Postsecondary Education Data System (IPEDS) on completions from Liberty University in academic year 2018-19 by detailed program area.

Percentage of Regional Occupation-Driven Demand for Graduates Met

Table 8 details the results obtained from a comparison of the occupation-driven demand for graduates in the Lynchburg MSA and the supply of qualified graduates produced by Liberty University. As these data demonstrate, Liberty University is meeting a very substantial portion of the Lynchburg MSA's critical workforce needs.

Table 8: Occupation-Driven Demand for Graduates in the Lynchburg MSA met by Liberty University

	Estimated Average Annual Openings: 2016-2026	Estimated Annual Supply of Associated Graduates from Liberty University	Percentage of Need Met
Industrial Production Managers	112	2,156	100%
Registered Nurses	68	506	100%
Secondary School Teachers, Except Special and Career/Technic	31	504	100%
Elementary School Teachers, Except Special Education	25	482	100%
Mental Health Counselors	25	25	100%
General and Operations Managers	20	417	100%
Medical Assistants	19	72	100%
Mental Health and Substance Abuse Social Workers	19	40	100%
Accountants and Auditors	18	466	100%
Child, Family, and School Social Workers	15	32	100%
Managers, All Other	14	2,617	100%
Probation Officers and Correctional Treatment Specialists	14	29	100%
Mechanical Engineers	12	18	100%
Financial Managers	12	1	2%
Management Analysts	12	223	100%

Table 8: Occupation-Driven Demand for Graduates in the Lynchburg MSA met by Liberty University

	Estimated Average Annual Openings: 2016-2026	Estimated Annual Supply of Associated Graduates from Liberty University	Percentage of Need Met
Medical and Health Services Managers	12	449	100%
Middle School Teachers, Except Special and Career/Technical	12	52	100%
Market Research Analysts and Marketing Specialists	11	53	100%
Software Developers, Applications	11	123	100%
Electrical Engineers	11	23	100%

Conclusion

This report has assessed the economic contribution that Liberty University made to the Lynchburg MSA and the state of Virginia in academic year 2018-19. What that analysis has shown is that Liberty University is one of Virginia's most successful and fastest growing institutions of higher education. In 2018-19, Liberty had an unduplicated annual headcount of 111,084 students, making it the largest institution of higher education in Virginia and the fifth largest in the country. Between 1994 and 2019, Liberty University's fall headcount enrollment increased from 8,852 to 85,586, an increase of 76,734 students or 867 percent. In contrast, over that same period Virginia's other four-year private non-profit colleges and universities grew by 36 percent, and Virginia's four-year public colleges and universities grew by 38 percent.

In 2018-19, Liberty University and its auxiliary enterprises were also Lynchburg's largest employer, providing jobs for 7,987 individuals in the Lynchburg MSA, 8,665 in Virginia, and 11,336 worldwide.⁷⁰ Moreover, Liberty's rapid employment growth has provided much needed stability to a regional economy that has experienced uneven employment growth in recent years and was particularly hard-hit by restrictions on economic activity mandated by the Governor in response to the Covid19 virus earlier this year.

Our analysis has also shown that Liberty University makes a major economic contribution to its community. In 2018-19, direct spending in the Lynchburg MSA by the university, its associated enterprises, students, and visitors totaled \$562.3 million. Our analysis shows that \$562.3 million in direct regional spending was responsible for generating \$984.7 million in overall economic activity in the

⁷⁰ Data Source: Liberty University.

Lynchburg MSA, which means that every \$1.00 of Liberty University's net local spending generated \$1.75 within the broader regional economy.

In addition, Liberty University's 2018-19 regional spending was also responsible for supporting a total of 12,580 jobs within the Lynchburg MSA and generating \$428.3 million in labor income. Given that the location of most of this employment was in the City of Lynchburg, and that total employment in the City of Lynchburg was 52,414 in 2019, this means that approximately one out of every four jobs in the City of Lynchburg that year was either directly or indirectly attributable to Liberty University.

With regard to the fiscal contribution that Liberty University makes to its community, local taxes paid by the university itself, associated enterprises, employees, students, and visitors contributed approximately \$16.5 million in tax revenue to the Lynchburg MSA in 2018-19. Focusing exclusively on the city of Lynchburg, where most of Liberty University's campus is physically located, the university directly or indirectly generated approximately \$11.0 million in tax revenue for the city. More specifically, Liberty University directly or indirectly accounted for approximately: 7 percent of the city's total Real Property Tax revenue, 9 percent of its Personal Property Tax revenue, 6 percent of its Motor Vehicle License Fee revenue, 12 percent of its Restaurant Food Tax revenue, 41 percent of its Hotel and Motel Room Tax revenue, and 5 percent of its local Sales Tax revenue.

From the perspective of Virginia as a whole, in 2018-19 Liberty University, along with its associated enterprises, students, and visitors were responsible for contributing \$659.2 million in direct spending to the state. Our analysis indicates that this \$659.2 million in statewide spending was responsible for generating over \$1.3 billion in economic activity, which means that every \$1.00 of Liberty University's state spending ultimately generated \$1.96 in overall economic activity within the state. In addition, those expenditures were responsible for supporting a total of 13,831 jobs in the state, creating \$532.9 million in labor income, and generating \$90.2 million in federal, state, and local tax revenue.

Our analysis has also shown that Liberty University makes a major contribution to growing Virginia's human capital. For Liberty University, as with any education institution, its primary economic contribution is the product it is in the business of creating – well educated and highly trained graduates. We estimate that the economic value of the enhanced labor productivity, or increased human capital, that Liberty University's 2018-19 graduates carried with them into Virginia's workforce was approximately \$48.2 million. Moreover, the discounted present value of the stream of economic benefits that enhanced productivity will generate over the entire time that those graduates are likely to be active in the workforce is approximately \$1.0 billion.

In addition, Liberty University makes many other contributions to the Lynchburg MSA and Virginia that go beyond simple economic impact. For example, one of the unique characteristics of Liberty University is that its students are obliged to volunteer on campus and within the community as a requirement for graduation. In 2018-19 alone, Liberty University students provided 487,565 hours of volunteer service to the Greater Lynchburg community. If one were to quantify the value of this volunteer service by Liberty

University students at simply the current minimum wage, their total annual contribution to the Lynchburg MSA was approximately \$3.5 million in 2018-19.

Liberty University has also made significant property investments in the Lynchburg MSA that have aided in economic revitalization. In 2008, Liberty acquired the Plaza shopping center and invested \$500,000 to upgrade and improve the property. In 2010, Liberty acquired Candler's Station shopping center, and after similar improvements it is anticipated that Candler's Station will provide a continuing stream of tax revenue for the city. Then, in 2017 Liberty University acquired the River Ridge Mall. The River Ridge Mall is the Lynchburg MSA's only mall and had deteriorated to the point that it was on the verge of closing. The university expects to invest \$40 to \$60 million to renovate the property and in 2019 the center court was remodeled, the old Sears building was demolished to make way for a Dick's Sporting Goods, with other big-box retailers to follow, and the university partnered with a national operator to install an aquarium to aid in bringing families back to the mall. It is now anticipated that the River Ridge Mall will once again be a successful regional enterprise and a source of increased local tax revenue.

Liberty University has also contributed to the region's recreational attractions, with investments in facilities such as the LaHaye Ice Center; the Liberty Mountain Snowflex Center, North America's only Snowflex synthetic ski slope; the Tower Theater, and the Liberty Mountain Skate Park, all of which are open to the public. Moreover, through those recreational attractions, nationally recognized collegiate sporting events, and visitors to Liberty University students, employees, and events, the university also plays a major role in attracting tourists to the Lynchburg MSA. For example, in 2018-19, Liberty University's out-of-town visitors generated approximately 151,438 hotel room nights in the Lynchburg MSA and those hotel room nights in turn were associated with approximately \$16.5 million in local hotel revenue.

Finally, Liberty University also makes a significant contribution to ensuring the Lynchburg MSA will have the trained graduates it needs to prosper in the future in key growth areas such as healthcare and education by meeting some or all of the region's demand for graduates in healthcare, education, business, engineering, software development, and many other industries.

In sum, Liberty University is a rapidly growing institution that has a significant economic and fiscal impact on the Lynchburg MSA and the state of Virginia as a whole, and plays a very active and positive leadership role within its community and Virginia.