



The Economic Impact of The Ohio State University



Table of Contents

Executive Summary	3
Overview of Ohio State	3
Economic Impact	3
Economic Impact Analysis	5
Introduction	5
Statewide Economic Impact of The Ohio State University	6
Industry Output Impact	6
Employment Impact	7
Labor Income Impact	7
State and Local Tax Impact	8
Statewide Economic Impact of the Wexner Medical Center	8
Industry Output Impact	8
Employment Impact	9
Labor Income Impact	9
State and Local Tax Impact	10
Statewide Economic Impact of Ohio State's Campuses	10
Industry Output Impact	10
Employment Impact	11
Labor Income Impact	11
State and Local Tax Impact	12
Regional Economic Impact of Ohio State's Columbus Campus	12
Industry Output Impact	12
Employment Impact	13
Labor Income Impact	13
State and Local Tax Impact	14
Regional Economic Impacts of Ohio State's Regional Campuses	14
Industry Output Impact	15
Employment Impact	16
Labor Income Impact	17
State and Local Tax Impact	18
Statewide Economic Impact of Ohio State Athletics	18
Industry Output Impact	19
Employment Impact	19
Labor Income Impact	20
State and Local Tax Impact	20
Statewide Economic Impact of the Ohio State Extension	21
Industry Output Impact	21
Employment Impact	21
Labor Income Impact	21
State and Local Tax Impact	22
Statewide Economic Impact of the Transportation Research Center	22
Industry Output Impact	22
Employment Impact	22
Labor Income Impact	23
State and Local Tax Impact	23
Methodology Appendix	24
Background	24
Estimation Procedures	25
Regional Geographies for Ohio State Campuses	27
Input Data	28
Analysis Assumptions	28

Executive Summary

This report presents an analysis of the regional and statewide economic impact of The Ohio State University as of 2019. The study is commissioned by the Enterprise for Research, Innovation and Knowledge at Ohio State in collaboration with units and colleges across the university.

OVERVIEW OF OHIO STATE

The Ohio State University was founded in 1870 as Ohio's land-grant university under the Morrill Act of 1862. From its roots as the Ohio Agricultural and Mechanical College 152 years ago, Ohio State has grown to be one of the prominent comprehensive public research universities in the United States, ranking in the top 50 among all U.S. universities and in the top 25 among all U.S. public universities on several major ranking indices.¹

Ohio State comprises campuses in Columbus, Lima, Mansfield, Marion, Newark, the Agricultural Technical Institute and Ohio Agricultural Research and Development Center in Wooster (Wooster), the Wexner Medical Center in Columbus, and other academic and research units including Ohio State University Extension, Transportation Research Center, Inc., Molly Caren Agricultural Center, and The Ohio State University Airport. Currently, the university employs approximately 7,800 faculty members and over 41,000 executive personnel, staff, and student employees with annual payroll exceeding \$3 billion.

A leader in talent generation in Ohio as well as nationally and internationally, Ohio State's 15 colleges offer more than 200 undergraduate majors, 162 master's degree programs, 104 doctoral degree programs, and nine professional degree programs. Ohio State's academic programs offer approximately 12,000 courses and serve almost 70,000 undergraduate, graduate, and professional students. Since its founding, Ohio State has granted over 800,000 degrees and currently boasts more than 550,000 alumni.

In 2020, the National Science Foundation ranked Ohio State 15th among U.S. public research universities based on research and development expenditures and 5th among all U.S. universities based on industry-sponsored research. Ohio State's research and development expenditures totaled \$1.236 billion in 2021 including \$581 million in federal research and development expenditures, a nearly 8 percent increase from the previous year.

ECONOMIC IMPACT

The economic impact estimates in this report are based on Fiscal Year (FY) 2019 (July 1, 2018 – June 30, 2019) financial data for Ohio State and Calendar Year (CY) 2019 economic data for the state of Ohio. The estimated economic impact of Ohio State is measured in terms of the additional industry output, employment, labor income, and state and local tax revenue supported by Ohio State's operational and capital spending, and student and visitor spending at the Columbus campus.²

FY 2019 was selected as the basis for this study because it was the most recent pre-pandemic year for which university financial data, student and visitor spending data, and industry sector economic data for Ohio was available. The research team concluded that FY 2020 and FY 2021 financial data, student and visitor spending data, and economic data would be idiosyncratic and biased due to the historic economic and social impacts of the pandemic and likely would not provide a valid representation of Ohio State's economic impact. Nevertheless,

¹ Ohio State's most recent ranking on four major platforms: ARWU/Shanghai, QS, Times Higher Education, and U.S. News and World Report.

² Student and visitor spending estimates were derived only for Ohio State's Columbus campus. Data were not available for purposes of deriving estimates of student and visitor spending occurring at Ohio State's campuses in Lima, Mansfield, Marion, Newark, and Wooster. It is assumed that these spending totals would not have a material effect on economic impact estimates for the university as a whole or for the individual campuses. Student spending estimates include only "new" spending and exclude spending that would occur in Ohio in the absence of the university.

it is indeterminable whether the FY 2019 analysis will provide a valid representation of Ohio State’s impact in the post-pandemic world due to evolving trends in delivery modalities of education, workplace, research funding landscape, economic, demographic, and geopolitical factors.

Spending Totals

The economic impact estimates are based on the following spending totals for FY 2019:

- \$7.9 billion in operational expenditures by Ohio State
- \$604.7 million in capital expenditures by Ohio State
- \$341.8 million in estimated spending by Ohio State students
- \$585.5 million in estimated visitor spending.

Spending Supported

The spending by Ohio State along with student and visitor spending in FY 2019 is estimated to have supported:

- \$19.6 billion of industry output in Ohio
- 116,819 jobs in Ohio
- \$7.5 billion of labor income in Ohio
- \$369.8 million of tax revenue to state government
- \$293.3 million of tax revenue to local governments.

The study also estimated the separate economic impacts of the Wexner Medical Center in Columbus, Ohio State’s Columbus, Lima, Mansfield, Marion, Newark, and Wooster campuses, Ohio State Athletics, and the Ohio State Extension.

Wexner Medical Center Supported

The statewide economic impact analysis suggests that the Wexner Medical Center’s operations in FY 2019 supported an estimated:

- \$9.4 billion of industry output in Ohio
- 52,294 jobs in Ohio
- \$4.0 billion of labor income in Ohio
- \$318.3 million of tax revenue to state and local government.

Ohio State Campuses Supported

Meanwhile, operational and capital spending by Ohio State’s campuses (exclusive of the Wexner Medical Center) in FY 2019 coupled with student and visitor spending generated at the campuses supported an estimated:

- \$9.7 billion of industry output in Ohio
- 61,243 jobs in Ohio
- \$3.1 billion of labor income in Ohio
- \$327.9 million of tax revenue to state and local government.

Athletics, Extension and the Transportation Research Center, Inc. Supported

Finally, the estimated statewide impacts of Ohio State Athletics, the Ohio State Extension, and the Transportation Research Center, Inc. are summarized below.

	Ohio State Athletics	Ohio State Extension	Transportation Research Center, Inc.
Industry output supported by	\$366.4 million	\$122.3 million	\$60.4 million
Employment supported by	1,890 jobs	1,126 jobs	291 jobs
Labor income supported by	\$114.4 million	\$64.3 million	\$16 million
State & local tax revenue supported by	\$11.3 million	\$4.6 million	\$1.5 million

Economic Impact Analysis

The economic impact analysis estimates the statewide economic impact and regional economic impacts of The Ohio State University.

INTRODUCTION

The economic impacts are measured relative to the additional industry output, employment, labor income, and state and local tax revenue supported by Ohio State’s operating and capital spending, and student and visitor spending at the Columbus campus. The economic impact estimates are based on operational and capital spending by Ohio State during FY 2019 (July 1, 2018 - June 30, 2019), estimates of student and visitor spending during this period, and industry sector-level economic data for CY 2019.

Four Impact Measures

The report presents estimates of four economic impact measures.

- **Output** impact or total economic impact equals the impact of Ohio State’s spending on the total value of what industry produces in Ohio during a calendar year. For industry sectors other than the wholesale and retail industry sectors, output equals annual gross revenues plus the net change in inventory. Output for wholesale and retail industry sectors is equal to their annual sales margin only, not their annual gross revenues. In more detail, output is the sum of: (1) non-durable goods and services used as production inputs; (2) employee wages, salaries, fringe benefits, and payroll taxes; (3) payments to self-employed individuals and unincorporated businesses; (4) payments to government such as taxes, license fees, duties, and assessments; (5) non-operating income such as dividends, royalties, interest income, corporate profits, and depreciation.
- **Employment** impact equals the impact of Ohio State’s spending on the annual average total full-time and part-time jobs in Ohio, including wage and salary employees and self-employed individuals.
- **Labor Income** impact equals the impact of Ohio State’s spending on employee compensation (wages and salaries, benefits, and payroll taxes) and income of self-employed individuals in Ohio during a calendar year.
- **State and Local Tax** impact equals the impact of Ohio State’s spending on annual revenues from taxes imposed by state and local government, including sales tax, personal income tax, property tax, and corporate taxes.

Economic Effects

The estimated value of each of the economic impact measures is the sum of the direct, indirect, and induced economic effects.

- **Direct Effects:** The additional industry output and employment produced by businesses that sell goods and services directly to Ohio State, the resultant additional labor income to households of the employees of these businesses, and the additional state and local tax payments made by businesses and households.
- **Indirect Effects:** The direct transactions lead to additional business-to-business input purchases throughout the supply chain which leads to additional industry output, employment, labor income, and taxes. These additional business-to-business purchases are the indirect effects.
- **Induced Effects:** The induced effects are the additional output, employment, labor income, and tax impacts that arise due to households spending additional labor income attributable to the direct and indirect effects.

Multiplier Effects

The report also presents estimates of the multiplier effects that play out through the supply chain as a result of Ohio State’s spending on goods and services from direct suppliers. Three multiplier effects are presented: output multipliers, employment multipliers, and income multipliers. These multipliers are calculated using the direct effect, indirect effect, and induced effect measures described above.

$$\text{Multiplier} = \frac{\text{Direct Effects} + \text{Indirect Effects} + \text{Induced Effects}}{\text{Direct Effects}}$$

The multiplier provides an estimate of the additional output, employment, or income in the economy supported by additional output, employment, or income by Ohio State's direct suppliers. Thus, it provides an estimate of the additional economic activity through the supply chain supported by Ohio State's spending on goods and services from its direct suppliers. For example, an output multiplier equal to 2.5 suggests that an additional \$1.00 of output by Ohio State's direct suppliers (supported by Ohio State's spending) potentially supports an additional \$1.50 of indirect and induced output in the state's economy.

STATEWIDE ECONOMIC IMPACT OF OHIO STATE

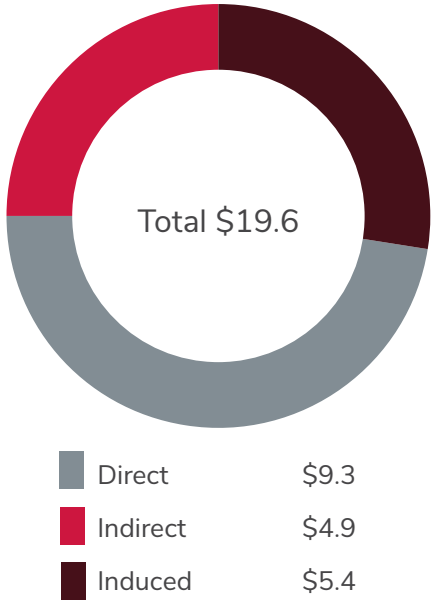
The economic impact analysis suggests that operational and capital spending by Ohio State as well as spending connected to Ohio State students and visitors have important impacts on the output of Ohio industry, employment by Ohio industry, income paid to workers in Ohio, and tax revenues paid to state and local government. In 2019, Ohio State employed 47,686 full-time and part-time employees and served 73,735 undergraduate, graduate, and professional students. Operational expenditures by Ohio State totaled \$7.9 billion in 2019³ and capital expenditures totaled another \$604.7 million. Additionally, student spending totaled an estimated \$341.8 million while spending by visitors to Ohio State totaled an estimated \$585.5 million.

Industry Output Impact

Chart 1 reports the estimated total statewide industry output impact of Ohio State during 2019. Operational spending, capital spending, and employment by Ohio State plus spending by Ohio State students and visitors supported an estimated \$19.6 billion in industry output throughout Ohio. The estimated total output supported by Ohio State represented about 2.8% of the state's gross domestic product (GDP) in 2019 and included direct output estimated to total \$9.3 billion, indirect output from business-to-business purchases through the supply chain estimated at \$4.9 billion, and induced output related to household spending of labor income estimated at \$5.4 billion.

The multiplier effect is an estimate of the additional economic activity supported by the economic activity of firms from which Ohio State directly purchases goods and services. The output multiplier is equal to the ratio of the estimated total output impact to the estimated direct output impact. The estimated output multiplier for Ohio State is approximately 2.10.⁴ The estimated multiplier suggests that an additional \$1.00 of output by Ohio State's direct suppliers potentially supports an additional \$1.10 of indirect and induced output in the state's economy.

CHART 1: OHIO STATE STATEWIDE OUTPUT IMPACT (in billions)



³ Ohio GDP is estimated to total \$693.2 billion in 2019. Data extracted online on June 13, 2022, from U.S. Bureau of Economic Analysis, National Income and Product Accounts, GDP by state in millions of current dollars (SAGDP2).

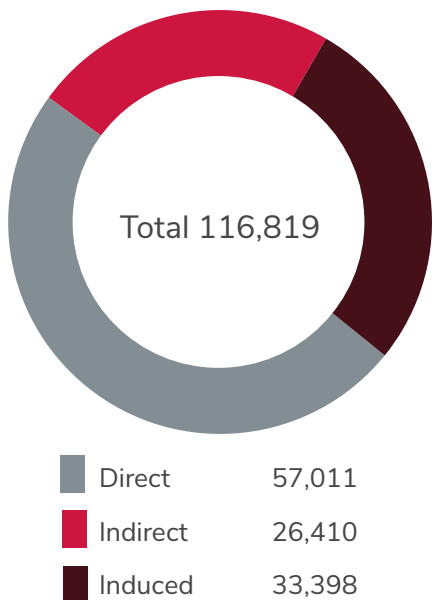
⁴ The calculation of the output multiplier is:
$$\frac{[\text{Direct Output Impact} + \text{Indirect Output Impact} + \text{Induced Output Impact}]}{[\text{Direct Output Impact}]}$$

Employment Impact

Chart 2 reports the estimated total statewide employment impact of Ohio State in 2019. Ohio State supported an estimated 116,819 full-time and part-time jobs across the state. The estimated total employment supported by Ohio State represented about 2.1% of Ohio’s total non-farm employment in 2019 and included an estimated 57,011 jobs from direct employment making a direct contribution to the overall workforce in Ohio, an estimated 26,410 indirect jobs resulting from business-to-business purchases through the supply chain, and an estimated 33,398 induced jobs related to household spending of labor income.

The estimated employment multiplier for Ohio State is approximately 2.05. The estimated multiplier suggests that each additional job created by Ohio State’s direct suppliers potentially supports an additional 1.05 indirect and induced jobs in the state’s economy.

CHART 2: OHIO STATE STATEWIDE EMPLOYMENT IMPACT

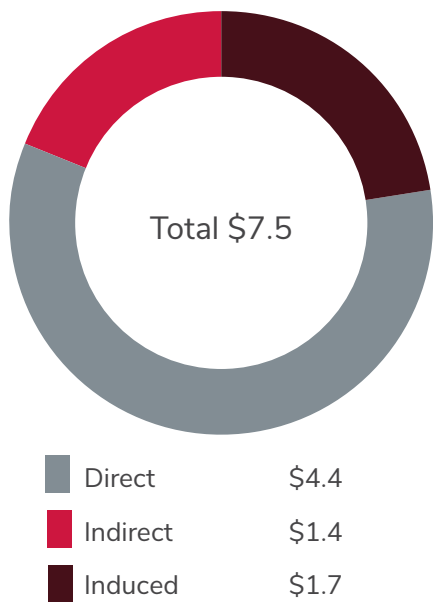


Labor Income Impact

Chart 3 reports the estimated impact of Ohio State on statewide total labor income in 2019. Ohio State supported an estimated \$7.5 billion of total labor income in Ohio. The estimated total labor income impact represented about 2.0% of the total compensation (wages, salaries, and benefits) paid to Ohio workers during 2019 . It includes direct labor income estimated at \$4.4 billion, as well as indirect labor income estimated at \$1.4 billion, and induced labor income estimated at \$1.7 billion.

The estimated labor income multiplier for Ohio State is approximately 1.70. The estimated multiplier suggests that an additional \$1.00 of labor income paid by Ohio State’s direct suppliers potentially supports an additional \$0.70 of indirect and induced labor income in the state’s economy.

CHART 3: OHIO STATE STATEWIDE INCOME IMPACT (in billions)



⁵ Ohio non-farm employment is estimated to total 5,595,000 in 2019. Data extracted online on June 13, 2022, from U.S. Bureau of Labor Statistics, Current Employment Statistics, Employment, Hours, and Earnings - State and Metro Area.

⁶ The calculation of the employment multiplier is:
$$\frac{[\text{Direct Employment Impact} + \text{Indirect Employment Impact} + \text{Induced Employment Impact}]}{[\text{Direct Employment Impact}]}$$

⁷ Compensation of employees in Ohio is estimated to total \$374.1 billion in 2019. Data extracted online on June 13, 2022, from U.S. Bureau of Economic Analysis, National Income and Product Accounts, Compensation of Employees by Industry (SQINC6).

⁸ The calculation of the labor income multiplier is:
$$\frac{[\text{Direct Income Impact} + \text{Indirect Income Impact} + \text{Induced Income Impact}]}{[\text{Direct Income Impact}]}$$

State and Local Tax Impact

In addition to Ohio State's impact on the private sector, Ohio State's operations are estimated to contribute significantly to state and local government tax bases. Due to Ohio State's payroll and support of jobs for university employees living in Ohio, capital project spending, and student and visitor spending, the university supported an estimated \$663.2 million in state and local tax revenues in 2019. The estimated state and local tax impact represented about 1.2% of total state and local tax revenue collected in 2019.⁹ Chart 4 reports the estimated state and local tax impacts indicating Ohio State supported \$369.9 million in state tax revenue and \$293.3 million in local tax revenues.

STATEWIDE ECONOMIC IMPACT OF THE WEXNER MEDICAL CENTER

Of Ohio State's various organizational units, the economic impact analysis suggests that The Ohio State University Wexner Medical Center has the most pronounced impact on Ohio's economy. The Wexner Medical Center comprises its lead institution, the Ohio State University Hospital, as well as The Ohio State University Comprehensive Cancer Center – Arthur G. James Cancer Hospital and Richard J. Solove Research Institute, the Ohio State Harding Hospital, the Richard M. Ross Heart Hospital, Ohio State East Hospital, and the Ohio State Brain and Spine Hospital. In 2019, the Wexner Medical Center employed 20,232 full-time and part-time employees. Total operational expenditures by the Wexner Medical Center in 2019 were about \$4.1 billion with about \$205.5 million in capital expenditures.

Industry Output Impact

The estimated total output impact of the Wexner Medical Center is prominent. Chart 5 reports the estimated total statewide industry output impact of Ohio State's Wexner Medical Center in 2019. Operational and capital spending plus employment by the Wexner Medical Center in 2019 supported an estimated \$9.4 billion in industry output throughout Ohio. This is approximately 48% of the estimated total output impact of Ohio State and represented about 1.4% of Ohio's GDP in 2019. The estimated total output impact includes estimated direct output totaling \$4.4 billion, indirect output estimated at \$2.1 billion, and induced output estimated at \$2.9 billion.

The estimated output multiplier for the Wexner Medical Center is approximately 2.13. The estimated multiplier suggests that an additional \$1.00 of output by direct suppliers of the Wexner Medical Center potentially supports an additional \$1.13 of indirect and induced output in the state's economy.

CHART 4: OHIO STATE TAX IMPACTS (in millions)

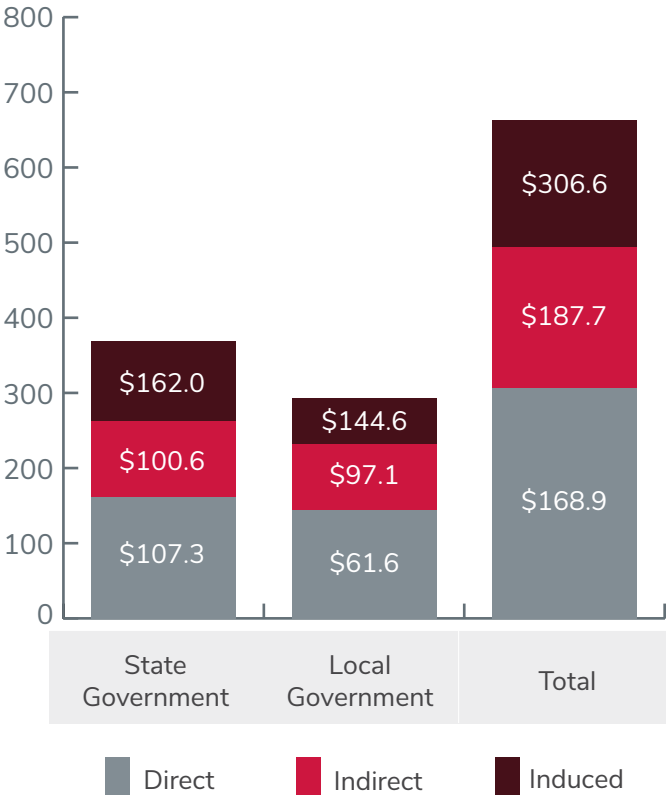
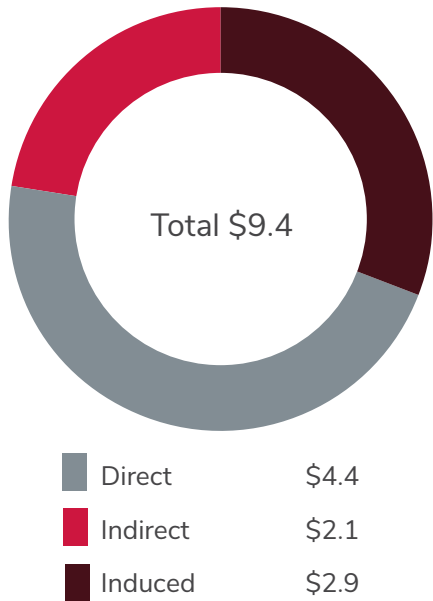


CHART 5: WEXNER MEDICAL CENTER STATEWIDE OUTPUT IMPACT (in billions)



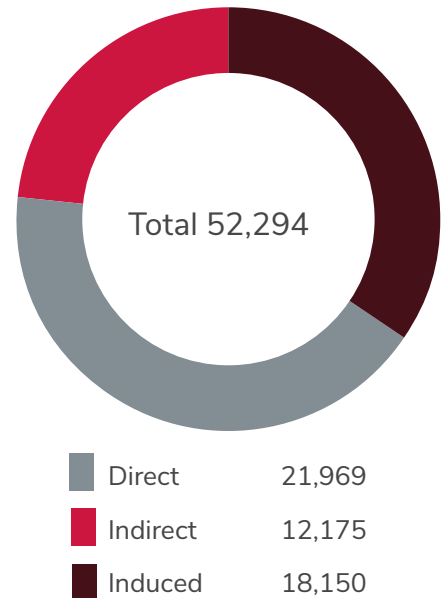
⁹ State and local tax revenue in 2019 is estimated to total \$55.9 billion. Data extracted online on June 13, 2022, from U.S. Bureau of Census, Annual Survey of State and Local Government Finances, 2019 State and Local Government Finance Historical Datasets and Tables.

Employment Impact

The Wexner Medical Center is also estimated to have a substantial employment impact in Ohio. As illustrated in Chart 6, the Wexner Medical Center in 2019 supported an estimated 52,294 full-time and part-time jobs across the state. This is roughly 45% of the total employment impact estimate for Ohio State and represented almost 1% of Ohio's total non-farm employment in 2019. This includes 21,969 jobs from direct employment which makes a direct contribution to the overall workforce in Ohio, another 12,175 indirect jobs resulting from business-to-business purchases through the supply chain, and 18,150 induced jobs related to household spending of labor income.

The estimated employment multiplier for the Wexner Medical Center is approximately 2.38. This suggests that each additional job created by direct suppliers of the Wexner Medical Center potentially supports an additional 1.38 indirect and induced jobs in the state's economy.

CHART 6: WEXNER MEDICAL CENTER STATEWIDE EMPLOYMENT IMPACT

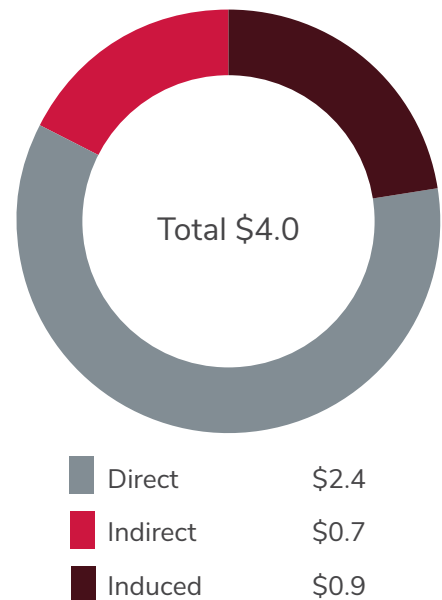


Labor Income Impact

Dovetailing with its estimated employment impact, the labor income impact of the Wexner Medical Center is also estimated to be substantial. Chart 7 reports the estimated impact of the Wexner Medical Center on statewide labor income in 2019. The Wexner Medical Center supported an estimated \$4.0 billion of total labor income in Ohio or about 54% of the total labor income impact estimated for Ohio State. It also represented almost 1.1% of the total compensation (wages, salaries, and benefits) paid to Ohio workers during 2019 and includes direct labor income estimated at \$2.4 billion, estimated indirect labor income totaling almost \$694.5 million, and induced labor income estimated at \$915.6 million.

The estimated labor income multiplier for the Wexner Medical Center is approximately 1.67. The estimated multiplier suggests that an additional \$1.00 of labor income paid by direct suppliers of the Wexner Medical Center potentially supports an additional \$0.67 of indirect and induced labor income in the state's economy.

CHART 7: WEXNER MEDICAL CENTER STATEWIDE LABOR INCOME IMPACT (in billions)



State and Local Tax Impact

The Wexner Medical Center also supports the generation of significant state and local tax revenues in Ohio. Due to the operational and capital spending and employment by the Wexner Medical Center, it supported an estimated \$318.4 million in state and local tax revenues in 2019. This is about 48% of Ohio State’s estimated state and local tax impact and represented about 0.6% of total state and local tax revenue collected in 2019. Chart 8 reports the estimated state and local tax impacts indicating the Wexner Medical Center supported \$180.0 million in state tax revenue and \$138.4 million in local tax revenues.

STATEWIDE ECONOMIC IMPACT OF OHIO STATE’S CAMPUSES (EXCLUSIVE OF THE WEXNER MEDICAL CENTER)

The Ohio State University operates six campuses in Columbus, Lima, Mansfield, Marion, Newark, and Wooster. These campuses encompass over 16,000 acres of land and over 1,300 buildings. In 2019, these six campuses served almost 74,000 students while employing just over 26,000 full-time and part-time employees. Operational expenditures by these six campuses totaled about \$3.7 billion in 2019 with a total of about \$390.9 million in capital spending. In addition, student spending and visitor spending at the Columbus campus in 2019 is estimated to total \$341.8 million and \$585.5 million, respectively.¹⁰ The estimated economic impacts described in this section do not include the estimated economic impact of the Wexner Medical Center.

Industry Output Impact

Chart 9 reports the estimated total statewide industry output impact in 2019 of Ohio State’s six campuses combined. The operational spending, capital spending, and employment at the six campuses, plus spending by students and campus visitors at the Columbus campus supported an estimated \$9.7 billion in industry output across Ohio. This total represented about 49.5% of the estimated total output impact for Ohio State and about 1.4% of Ohio’s GDP in 2019. The total direct output impact was an estimated \$4.7 billion, and indirect output from business-to-business purchases through the supply chain was estimated at \$2.7 billion. It also included induced output related to household spending of labor income estimated to total \$2.3 billion.

The estimated output multiplier for Ohio State’s six campuses combined is approximately 2.07. The estimated multiplier suggests that an additional \$1.00 of output by direct suppliers of Ohio State’s campuses potentially supports an additional \$1.07 of indirect and induced output in the state’s economy.

CHART 8: WEXNER MEDICAL CENTER TAX IMPACTS (in millions)

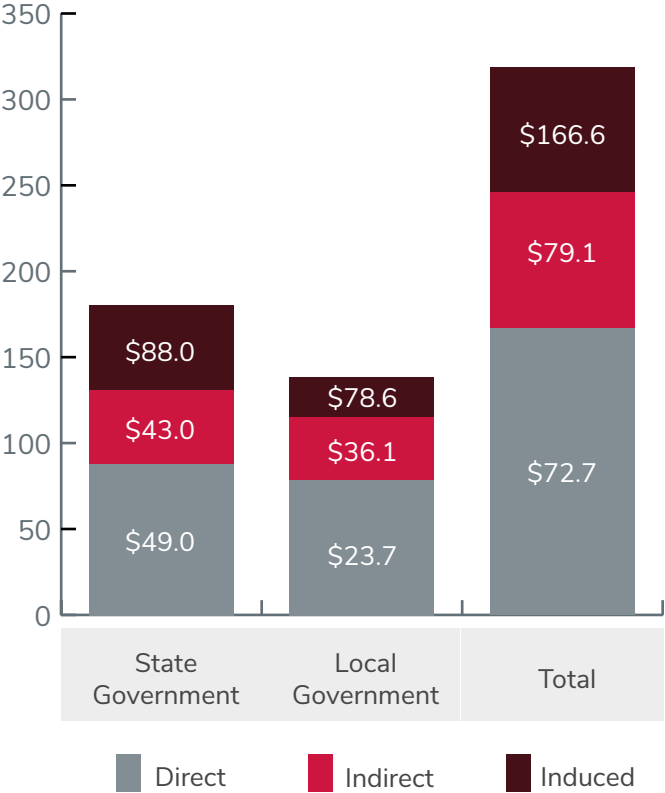
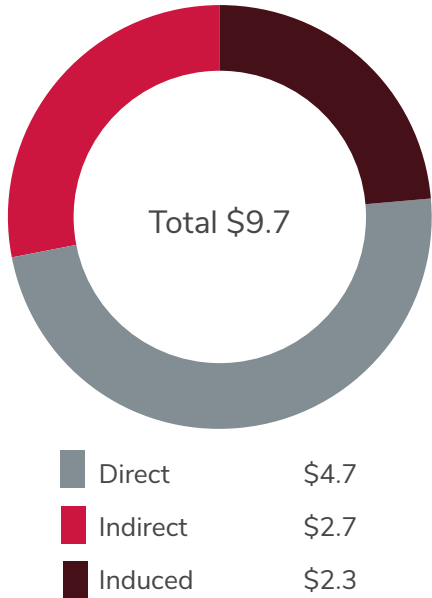


CHART 9: COMBINED CAMPUSES STATEWIDE OUTPUT IMPACT (in billions)



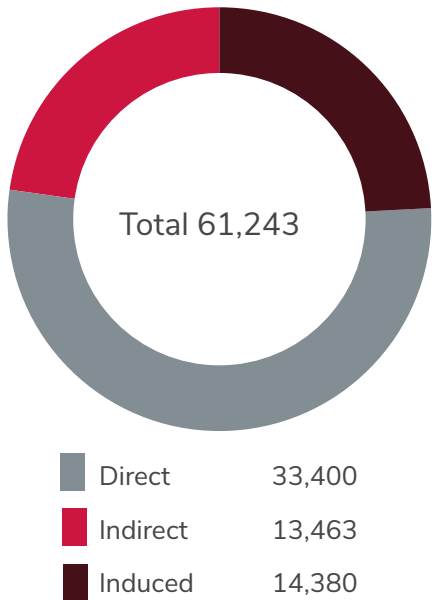
¹⁰ Student and visitor spending estimates were derived only for Ohio State’s Columbus campus. Data were not available for purposes of deriving estimates of student and visitor spending occurring at Ohio State’s campuses in Lima, Mansfield, Marion, Newark, and Wooster. It is assumed that these spending totals would not have a material effect on economic impact estimates for the university as a whole or for the individual campuses. Student spending estimates include only “new” spending and exclude spending that would occur in Ohio in the absence of the university.

Employment Impact

Chart 10 reports the estimated total statewide employment impact of Ohio State’s campuses in 2019. It is estimated that the six campuses supported an estimated 61,243 full-time and part-time jobs throughout Ohio or about 52.5% of the estimated total employment impact for Ohio State in 2019. The total also represented about 1.1% of Ohio’s total non-farm employment in 2019. The estimated total employment supported by Ohio State’s six campuses includes 33,400 jobs from direct employment contributing directly to the overall workforce in Ohio, another 13,463 indirect jobs resulting from business-to-business purchases through the supply chain, and 14,380 induced jobs related to household spending of labor income.

The estimated employment multiplier for Ohio State’s six campuses combined is approximately 1.83. This suggests that each additional job created by direct suppliers of Ohio State’s campuses potentially supports an additional 0.83 indirect and induced jobs in the state’s economy.

CHART 10: COMBINED CAMPUSES STATEWIDE EMPLOYMENT IMPACT

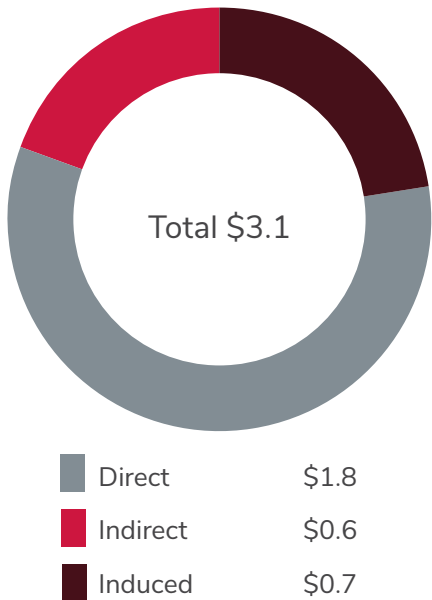


Labor Income Impact

Chart 11 reports the estimated impact of Ohio State’s six campuses on statewide labor income in 2019. Ohio State’s campuses supported an estimated \$3.1 billion of total labor income in Ohio or about 43% of the total impact estimated for Ohio State. This total also represented almost 0.9% of the total compensation (wages, salaries, and benefits) paid to Ohio workers during 2019. This includes the direct labor income impact of \$1.8 billion, as well as indirect labor income of almost \$634.6 million, and an induced labor income of almost \$725.4 million.

The estimated labor income multiplier for Ohio State’s six campuses combined is approximately 1.74. The estimated multiplier suggests that an additional \$1.00 of labor income paid by direct suppliers of Ohio State’s campuses potentially supports an additional \$0.74 of indirect and induced labor income in the state’s economy.

CHART 11: COMBINED CAMPUSES STATEWIDE LABOR INCOME IMPACT (in billions)



State and Local Tax Impact

With Ohio State's expenditures on employee compensation, capital project spending, and student and visitor spending, the university supported an estimated \$328.0 million in state and local tax revenues in 2019. This is about 49% of Ohio State's estimated state and local tax impact and represented almost 0.6% of total state and local tax revenue collected in 2019. Chart 12 reports the estimated state and local tax impacts indicating Ohio State supported \$180.5 million in state tax revenue and \$147.5 million in local tax revenues.

REGIONAL ECONOMIC IMPACT OF OHIO STATE'S COLUMBUS CAMPUS

In 2019, the Columbus campus enrollment totaled 66,243 undergraduate, graduate, and professional students and with an employment total of 24,223 full-time and part-time workers. In addition, operational expenditures for the Columbus campus totaled \$3.55 billion in 2019 while capital expenditures totaled \$373.8 million. Student and visitor spending¹¹ at the Columbus campus in 2019 was estimated to total \$341.8 million and \$585.5 million, respectively.

The regional impact of the Columbus campus is based on a seven-county region centered on Franklin County and including adjacent surrounding counties. Map 1 illustrates the Columbus campus region.

MAP 1: COLUMBUS CAMPUS REGION



Powered by Bing
© GeoNames, TomTom

Industry Output Impact

Chart 13 illustrates the significant regional impact of Ohio State's Columbus campus. The operational and capital spending and employment at the Columbus campus as well as student and visitor spending supported an estimated \$9.7 billion of industry output in the seven-county region. This total represents an estimated direct output of \$4.7 billion, indirect output from business-to-business purchases through the supply chain estimated at \$2.7 billion, and estimated induced output related to household spending of labor income totaling \$2.3 billion in the seven-county region.

CHART 12: COMBINED CAMPUSES TAX IMPACTS (in millions)

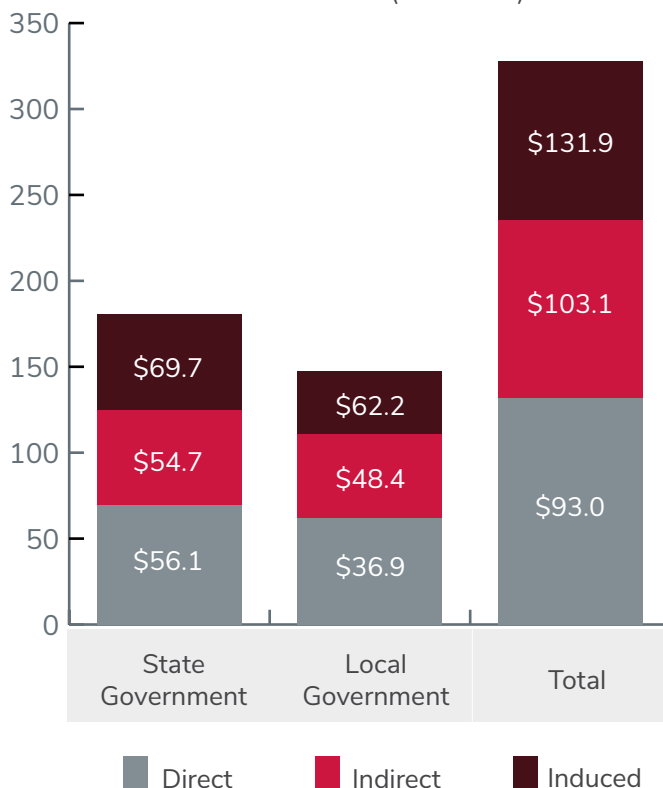
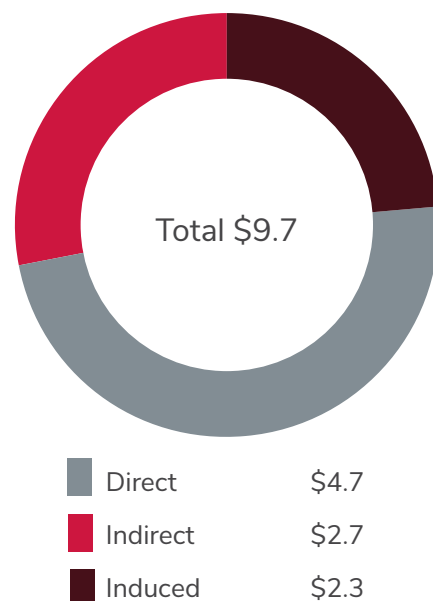


CHART 9: COMBINED CAMPUSES STATEWIDE OUTPUT IMPACT (in billions)

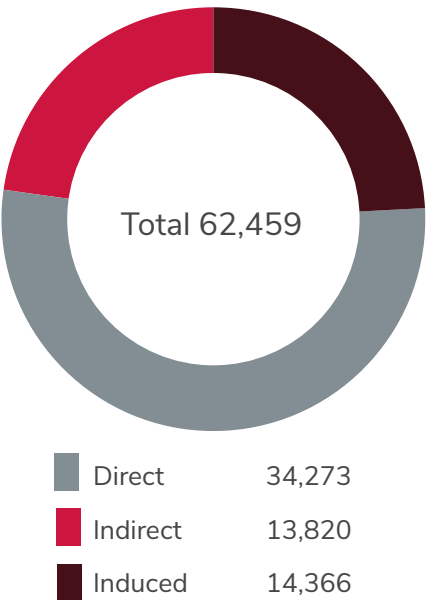


¹¹ Student spending estimates include only "new" spending and exclude spending that would occur in Ohio in the absence of Ohio State University.

Employment Impact

The Columbus campus is also estimated to have a substantial employment impact in the seven-county region. Chart 14 reports the estimated regional employment impact of the Columbus campus in 2019. The Columbus campus supported an estimated 62,459 full-time and part-time jobs in the seven-county region. This includes estimated direct employment totaling 34,273 jobs, an estimated 13,820 in indirect jobs resulting from business-to-business purchases in the supply chain, and an estimated 14,366 induced jobs related to household spending of labor income.

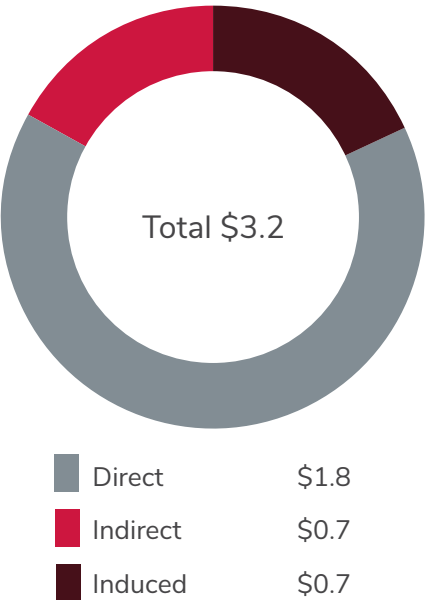
CHART 14: COLUMBUS CAMPUS
REGIONAL EMPLOYMENT IMPACT



Labor Income Impact

Coinciding with the estimated employment impacts, the Columbus campus is also estimated to support substantial labor income earned in the seven-county region. As illustrated in Chart 15, in 2019 the Columbus campus supported an estimated \$3.2 billion in labor income earned in the seven-county region. This represents direct labor income estimated at \$1.8 billion, as well as indirect labor income estimated to total \$657.3 million, and an induced labor income estimated to total \$724.7 million.

CHART 15: COLUMBUS CAMPUS
REGIONAL LABOR INCOME IMPACT
(in billions)



State and Local Tax Impact

Chart 16 illustrates the regional state and local tax revenue supported by operational and capital spending by Ohio State at the Columbus campus as well as student spending and visitor spending at the Columbus campus. It is estimated that the Columbus campus supported an estimated \$346.2 million in the seven-county region – comprising \$189.6 million in state taxes and \$156.6 million in local taxes.

REGIONAL ECONOMIC IMPACTS OF OHIO STATE’S REGIONAL CAMPUSES

In 2019, the regional campuses in Lima, Mansfield, Marion, Newark, and Wooster had a combined enrollment of 7,492 undergraduate and graduate students and employed 1,793. Operational expenditures for the regional campuses totaled \$109.3 million in 2019 while capital expenditures totaled \$17.1 million.¹² Individual enrollment, employment, and spending totals for each campus in 2019 are reported in Table 1.

CHART 16: COLUMBUS CAMPUS TAX IMPACTS (in millions)

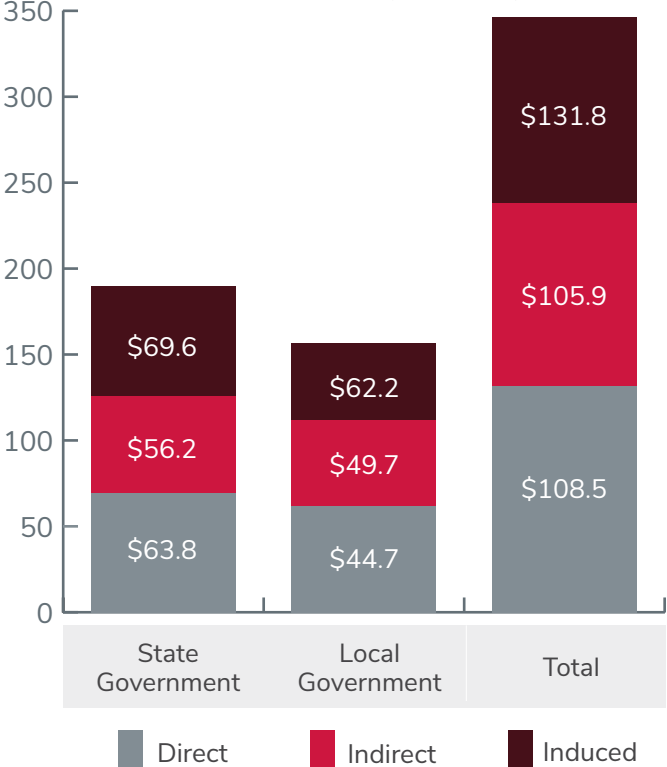
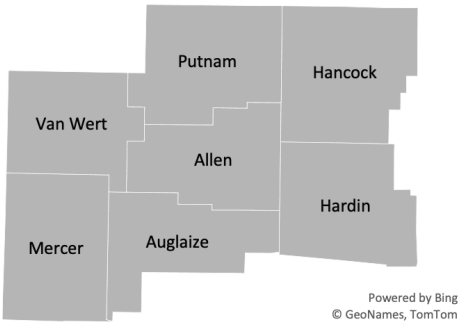


TABLE 1: REGIONAL CAMPUS QUICK FACTS

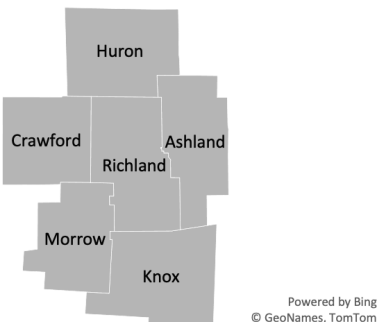
Campus	County Location	Enrollment	Employment	Operational Spending	Capital Spending
Lima	Allen	1,099	216	\$12.3 million	\$1.8 million
Mansfield	Richland	1,219	232	\$13.1 million	\$1.7 million
Marion	Marion	1,376	254	\$16.8 million	\$1.7 million
Newark	Licking	3,075	364	\$23.7 million	\$11.7 million
Wooster	Wayne	723	727	\$43.4 million	\$230,984

Maps 2-5 illustrate the multi-county regions for each regional campus centered on the home county of the campus identified in Table 1.

MAP 2: LIMA CAMPUS REGION

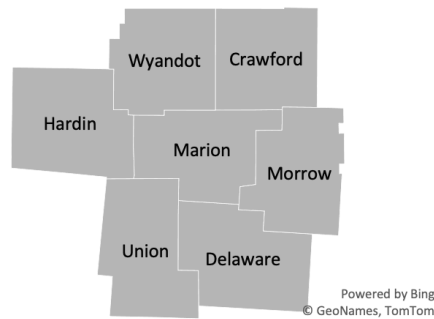


MAP 3: MANSFIELD CAMPUS REGION

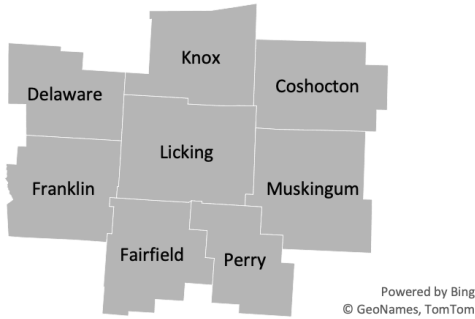


¹² Data were not available for purposes of deriving estimates of student and visitor spending occurring at Ohio State’s regional campuses in Lima, Mansfield, Marion, Newark, and Wooster. It is assumed that these spending totals would not have a material effect on economic impact estimates for the individual campuses.

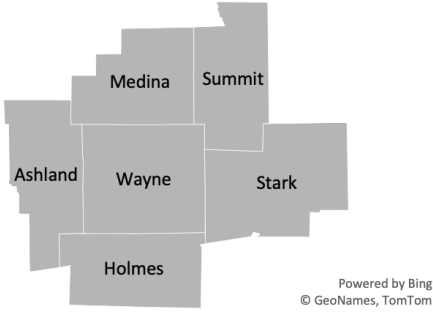
MAP 4: MARION CAMPUS REGION



MAP 5: NEWARK CAMPUS REGION



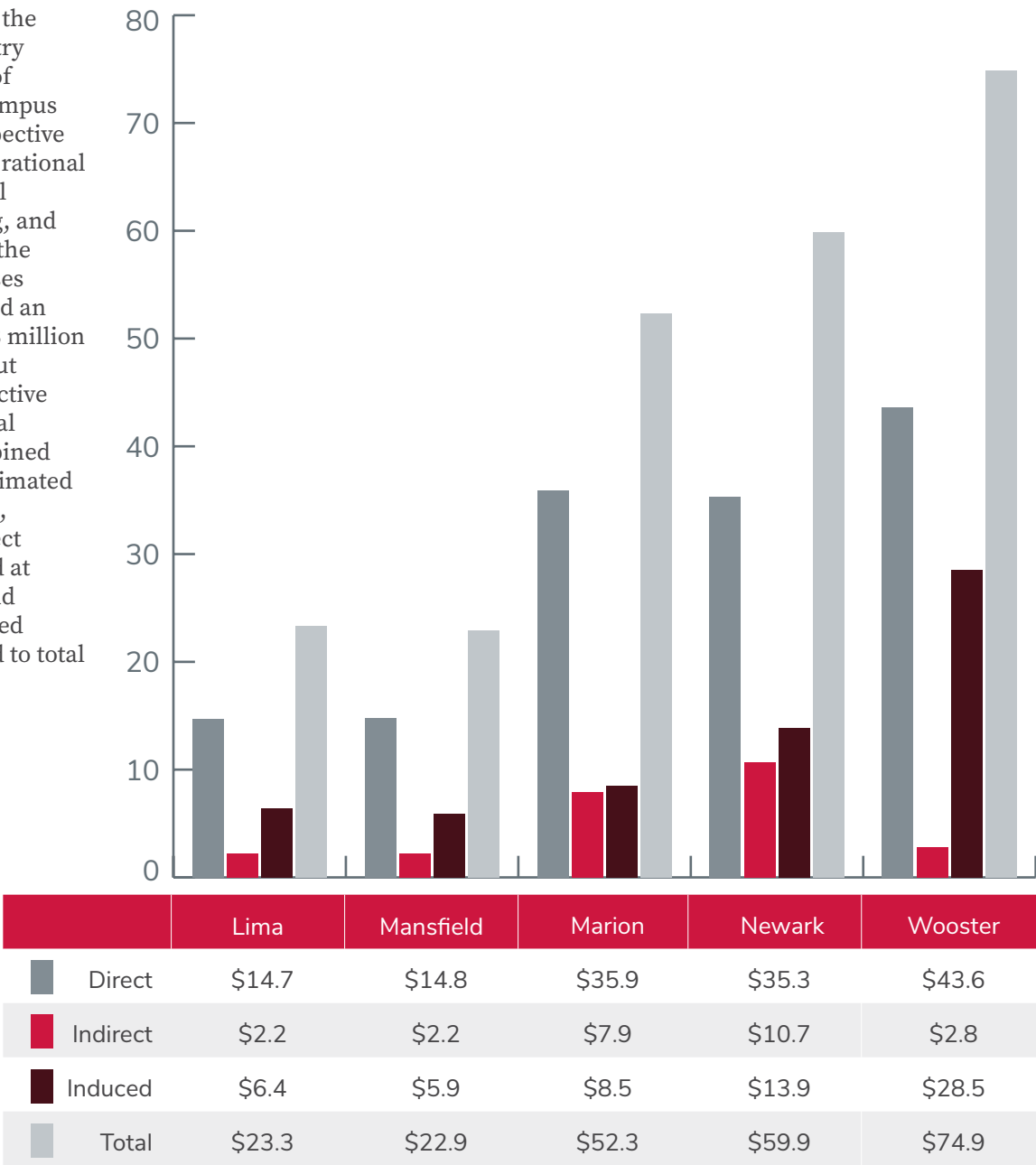
MAP 6: WOOSTER CAMPUS REGION



Industry Output Impact

Chart 17 reports the estimated industry output impacts of each regional campus within their respective regions. The operational spending, capital project spending, and employment by the regional campuses in 2019 supported an estimated \$233.3 million of industry output within the respective regions. This total represents combined direct output estimated at \$144.3 million, combined indirect output estimated at \$25.8 million, and combined induced output estimated to total \$63.2 million.

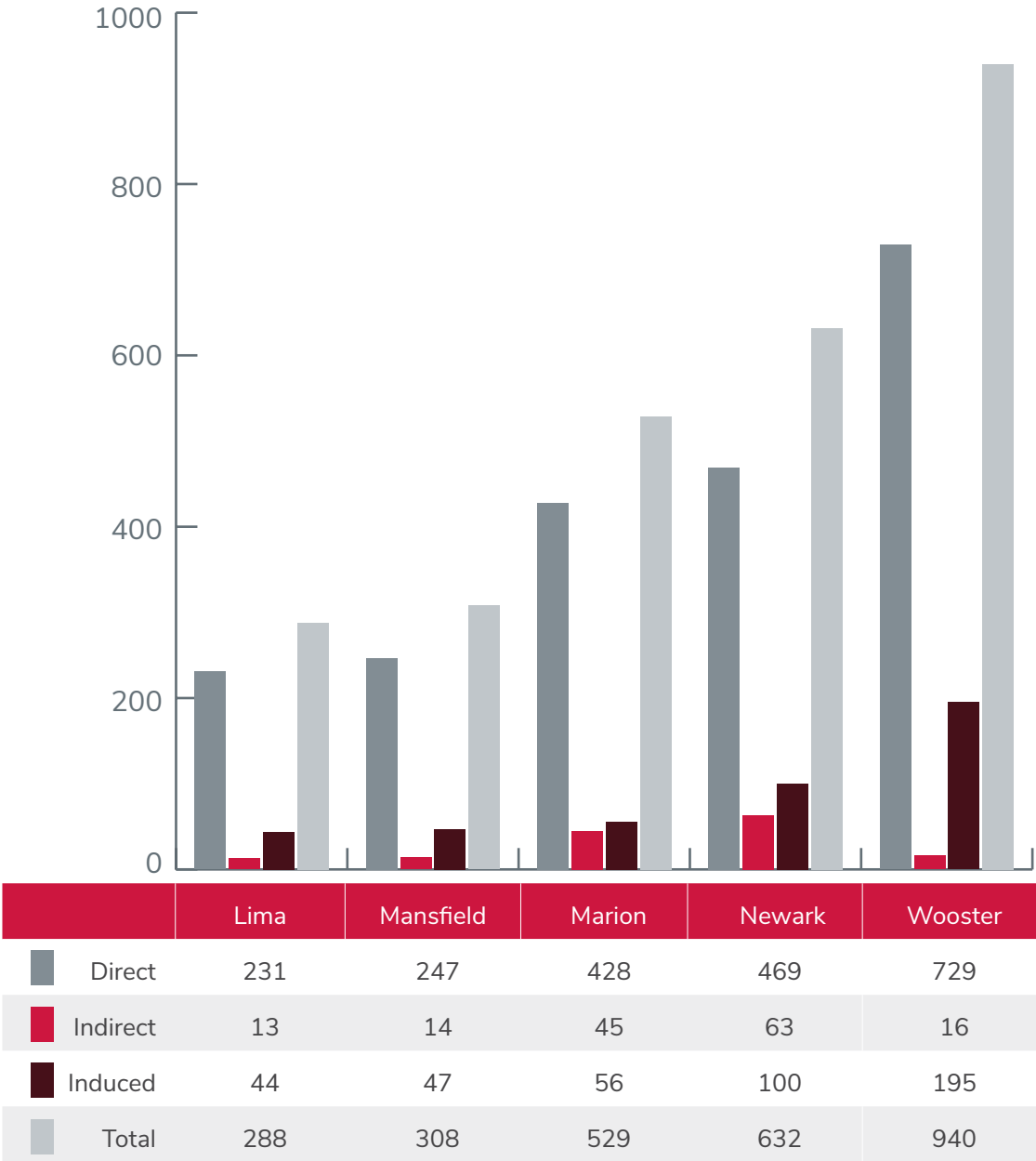
CHART 17: REGIONAL CAMPUS INDUSTRY OUTPUT IMPACTS (in millions)



Employment Impact

Chart 18 illustrates the employment impacts of each regional campus within their respective regions. Together, the regional campus operations in 2019 supported an estimated 2,697 full-time and part-time jobs within the respective regions. This total includes a combined direct employment impact estimated at 2,104 jobs, indirect employment estimated to total 151 jobs, and induced employment estimated at 442 jobs.

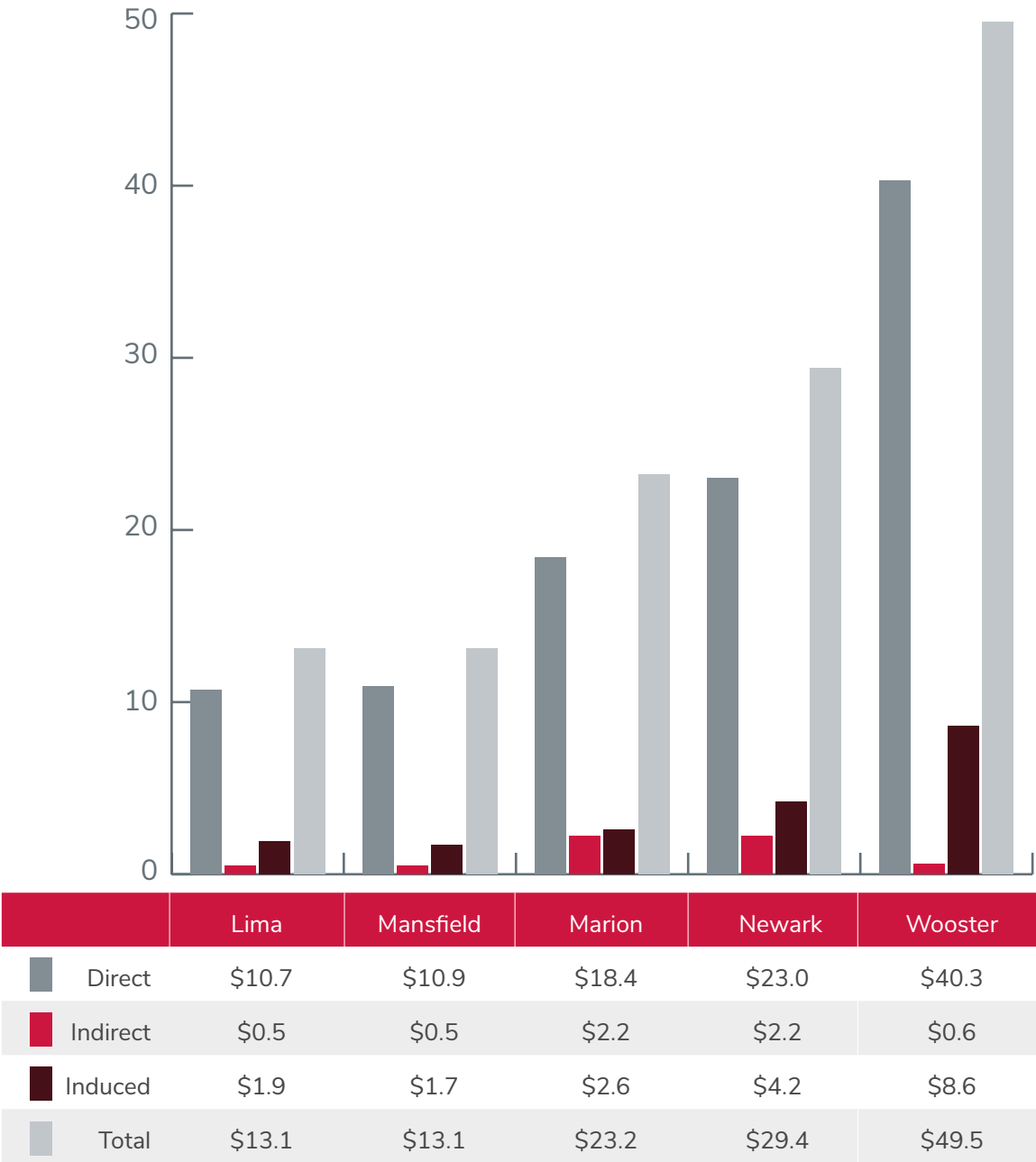
CHART 18: REGIONAL CAMPUS EMPLOYMENT IMPACTS



Labor Income Impact

Chart 19 illustrates the estimated labor income impacts of each regional campus within their respective regions. The regional campus operations in 2019 supported an estimated \$128.3 million in labor income within the respective regions. This total represents a combined direct income impact estimated to total \$103.3 million, indirect employment estimated to total \$6.0 million, and induced income estimated at \$19.0 million.

CHART 19: REGIONAL CAMPUS LABOR INCOME IMPACTS (in millions)



State and Local Tax Impact

Table 2 reports the estimated state and local tax revenue supported by each of the regional campuses within their respective regions. The combined regional campuses supported an estimated \$9.3 million in state and local tax revenue. This total represents state tax revenues totaling an estimated \$5.7 million and local tax revenues of almost \$3.6 million.

TABLE 2: REGIONAL CAMPUSES STATE AND LOCAL TAX IMPACT

Campus	Impact	IMPACT			
		Direct	Indirect	Induced	Total
Lima	Local Government	\$81,829	\$38,283	\$165,815	\$285,927
	State Government	\$201,117	\$53,665	\$230,764	\$485,546
	Total	\$282,946	\$91,948	\$396,579	\$771,473
Mansfield	Local Government	\$79,527	\$37,173	\$173,101	\$289,801
	State Government	\$208,050	\$48,125	\$220,976	\$477,151
	Total	\$287,577	\$85,298	\$394,077	\$766,952
Marion	Local Government	\$906,245	\$121,255	\$240,211	\$1,267,711
	State Government	\$1,197,607	\$157,568	\$290,693	\$1,645,868
	Total	\$2,103,852	\$278,823	\$530,904	\$2,913,579
Newark	Local Government	\$130,578	\$176,870	\$328,139	\$635,587
	State Government	\$453,460	\$306,536	\$570,040	\$1,330,036
	Total	\$584,038	\$483,406	\$898,179	\$1,965,623
Wooster	Local Government	\$321,881	\$47,149	\$728,451	\$1,097,481
	State Government	\$736,426	\$62,964	\$971,349	\$1,770,739
	Total	\$1,058,307	\$110,113	\$1,699,800	\$2,868,220

STATE AND LOCAL TAX IMPACT

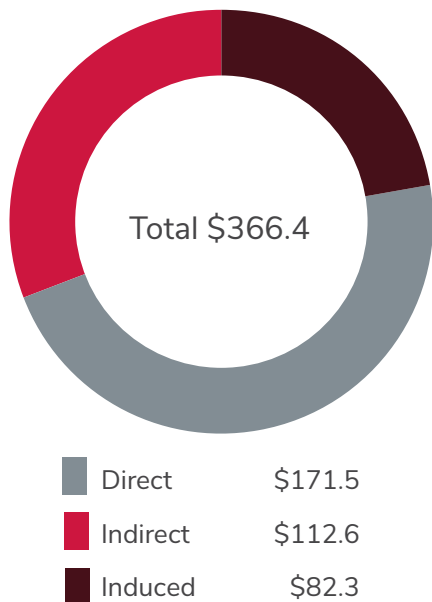
Statewide Economic Impact of Ohio State Athletics

Ohio State Athletics is recognized nationally as one of the premier intercollegiate athletics programs in the United States with a history of 80 team national championships (including the 2022 national champion women's hockey team), 386 individual national championships, and almost 3,000 All-Americans. In 2019, Ohio State Athletics fielded 17 men's sports teams, 17 women's sports teams, and 2 mixed sports teams with over 1,000 student-athletes. The 2019 operational expenditures by Ohio State Athletics totaled about \$155.9 million with capital expenditures totaling approximately \$8.4 million. Ohio State Athletics also employed a total of 729 full-time and part-time employees.

Industry Output Impact

As illustrated in Chart 20 the operational and capital spending plus employment by Ohio State Athletics in 2019 supported an estimated \$366.4 million in industry output throughout Ohio. This total includes direct output estimated to total \$171.5 million. It also includes indirect output from business-to-business purchases through the supply chain totaling an estimated \$112.6 million and induced output related to household spending of labor income estimated to total \$82.3 million.

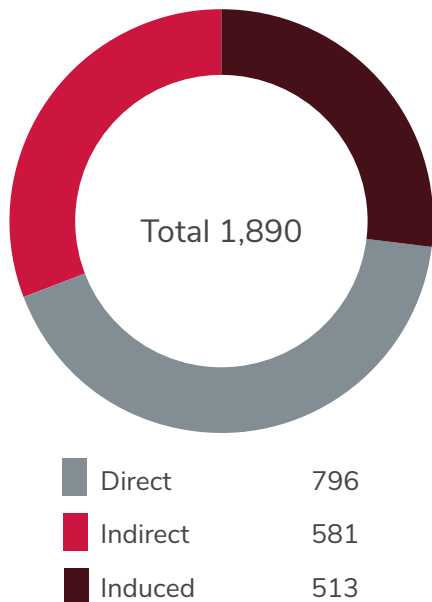
CHART 20: OHIO STATE ATHLETICS
STATEWIDE OUTPUT IMPACT
(in billions)



Employment Impact

Chart 21 reports the estimated statewide employment impact of Ohio State Athletics. The 2019 operational and capital spending and employment by Ohio State Athletics supported an estimated 1,890 full-time and part-time jobs across the state. This includes an estimated 796 jobs from direct employment which makes a direct contribution to the overall workforce in Ohio, another 581 indirect jobs resulting from business-to-business purchases in the supply chain, and 513 induced jobs related to household spending of labor income.

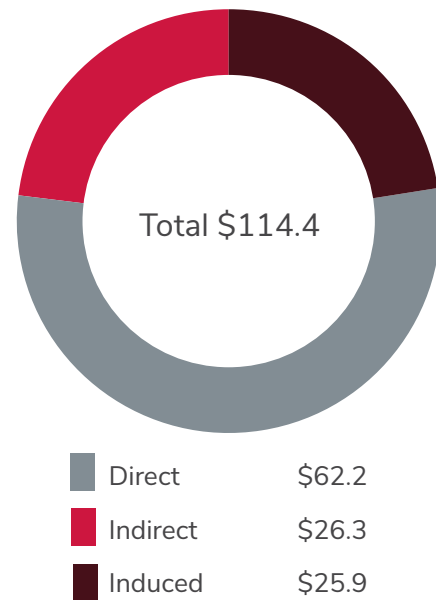
CHART 21: OHIO STATE ATHLETICS
STATEWIDE EMPLOYMENT IMPACT



Labor Income Impact

As illustrated in Chart 22, the 2019 operational and capital spending by Ohio State Athletics supported an estimated \$114.4 million in labor income across the state. The total labor income impact includes direct labor income estimated at \$62.2 million statewide, as well as an estimated \$26.3 million of indirect labor income, and an estimated \$25.9 million of induced labor income.

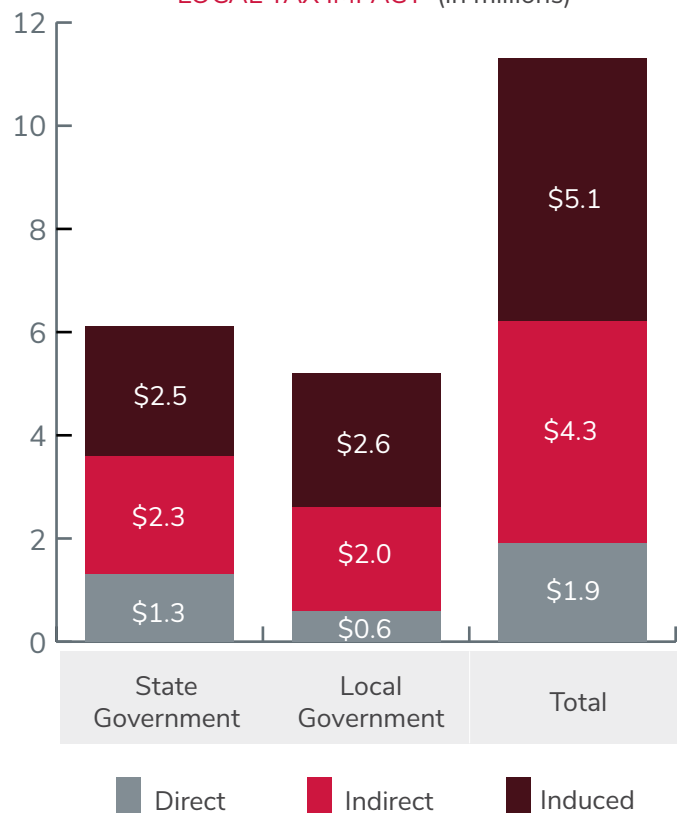
CHART 22: OHIO STATE ATHLETICS STATEWIDE LABOR INCOME IMPACT (in millions)



State and Local Tax Impact

Ohio State Athletics contributes significantly to state and local tax bases as illustrated in Chart 23. Due to the spending and employment by Ohio State Athletics in 2019, it contributed to a total of over \$11.3 million in state and local tax revenues. This total represents state tax revenues estimated at about \$6.1 million and local tax revenues estimated to total almost \$5.2 million.

CHART 23: OHIO STATE ATHLETICS STATE AND LOCAL TAX IMPACT (in millions)



STATEWIDE ECONOMIC IMPACT OF THE OHIO STATE EXTENSION

The Ohio State University Extension fulfills the land-grant mission of the university conducting programs in family and consumer sciences, 4-H youth development, community development, and agriculture and natural resources from its 88 county extension offices. In 2019, Ohio State Extension employed 761 full-time and part-time employees and had operational expenditures totaling about \$58.4 million.

Industry Output Impact

As illustrated in Chart 24, in 2019 the operational expenditures and employment by Ohio State Extension supported an estimated \$122.3 million in total industry output across Ohio. The total output supported by Ohio State Extension represents an estimated direct output of \$60.9 million, an indirect output estimate of \$15.2 million, and an induced output estimate of \$46.2 million.

CHART 24: OHIO STATE EXTENSION STATEWIDE OUTPUT IMPACT (in billions)

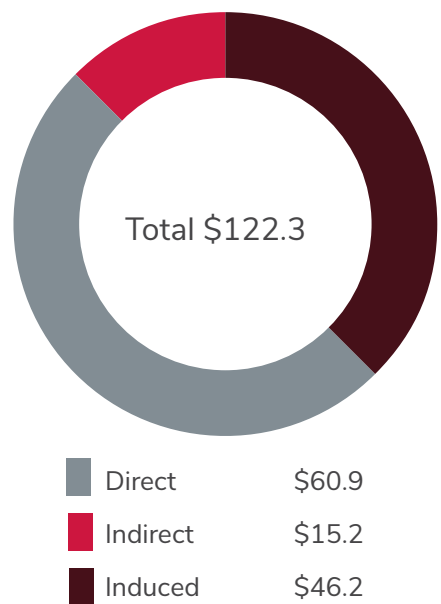
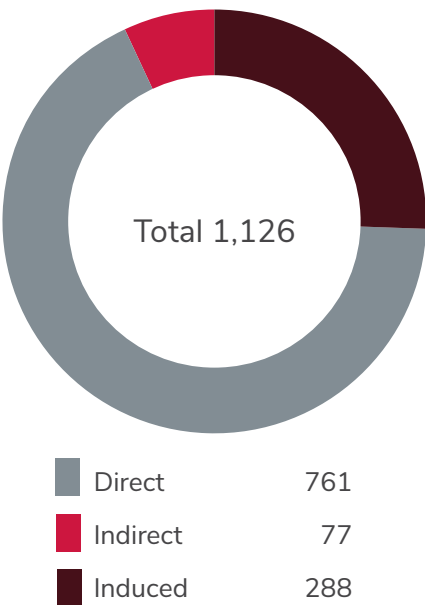


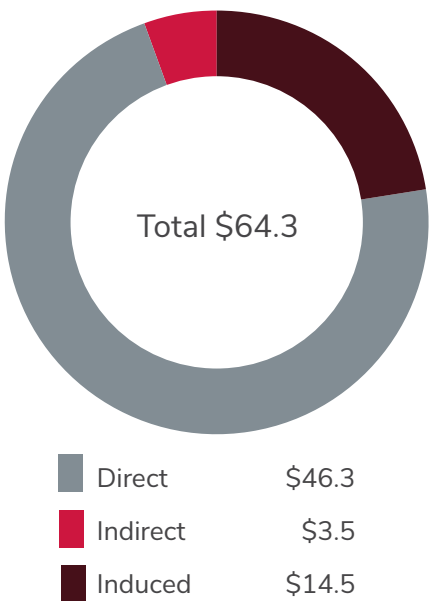
CHART 25: OHIO STATE EXTENSION STATEWIDE EMPLOYMENT IMPACT



Employment Impact

Chart 25 indicates that Ohio State Extension supported an estimated 1,126 full-time and part-time jobs throughout the state in 2019. This includes an estimated 761 jobs from direct employment which makes a direct contribution to the overall workforce in Ohio, another 77 indirect jobs resulting from business-to-business purchases in the supply chain, and an estimated 288 induced jobs related to household spending of labor income.

CHART 26: OHIO STATE EXTENSION STATEWIDE LABOR INCOME IMPACT (in millions)



Labor Income Impact

Chart 26 indicates that Ohio State Extension supported an estimated \$64.3 million of labor income across Ohio in 2019. This total included direct labor income estimated to total \$46.3 million, as well as indirect labor income estimated at \$3.5 million, and an induced labor income estimated at \$14.5 million.

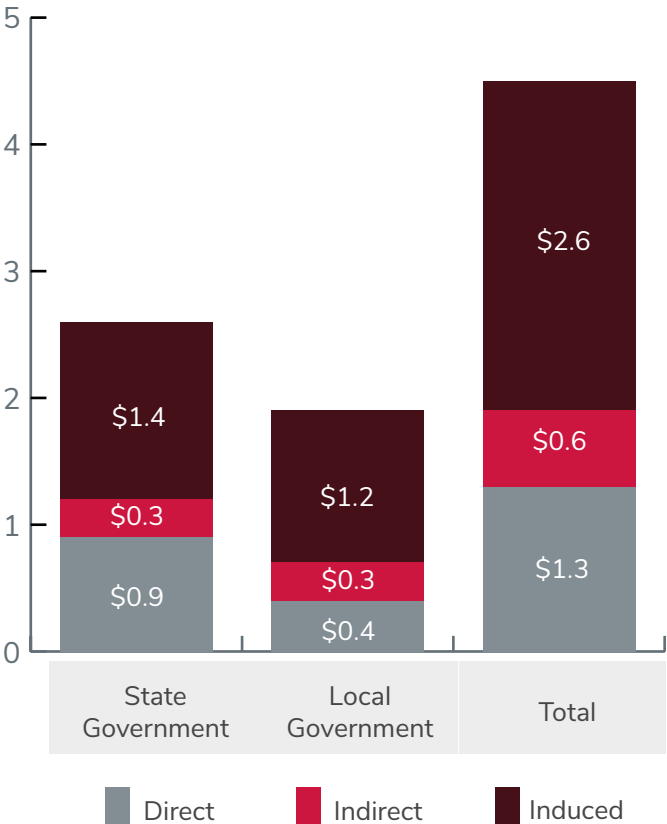
State and Local Tax Impact

It is estimated that 2019 operational spending and employment by Ohio State Extension supported almost \$4.5 million in state and local tax revenues. As illustrated in Chart 27, in 2019 Ohio State Extension supported an estimated \$2.6 million in state tax revenue and local tax revenue estimated at about \$1.9 million.

STATEWIDE ECONOMIC IMPACT OF THE TRANSPORTATION RESEARCH CENTER, INC.

The Transportation Research Center, Inc. (TRC) is the most comprehensive independent vehicle testing facility and proving grounds in the United States. The TRC is an affiliate of Ohio State, located on a 4,500-acre site in East Liberty, Ohio. The TRC conducts programs designed to test for safety and stability, fuel economy, durability, emissions, noise, crash simulation and crashworthiness as well as autonomous and connected mobility testing of passenger cars, trucks, buses, motorcycles, aircraft, off-road, tracked, alternative-fueled vehicles and vehicle systems. Ohio State’s operational expenditures relating to the TRC in 2019 totaled \$24.1 million. Ohio State reportedly made no capital expenditures for the TRC in 2019. The TRC also employed 87 during 2019.

CHART 27: OHIO STATE EXTENSION STATE AND LOCAL TAX IMPACT (in millions)



Industry Output Impact

Chart 28 illustrates the estimated statewide industry output impact of the Ohio State Transportation Research Center in 2019. The TRC’s operational spending and employment in 2019 supported an estimated \$60.4 million in total industry output throughout Ohio. This total represents direct output estimated at \$25.2 million, as well as indirect output estimated to total \$23.7 million, and induced output estimated at \$11.5 million.

CHART 28: TRC STATEWIDE OUTPUT IMPACT (in millions)

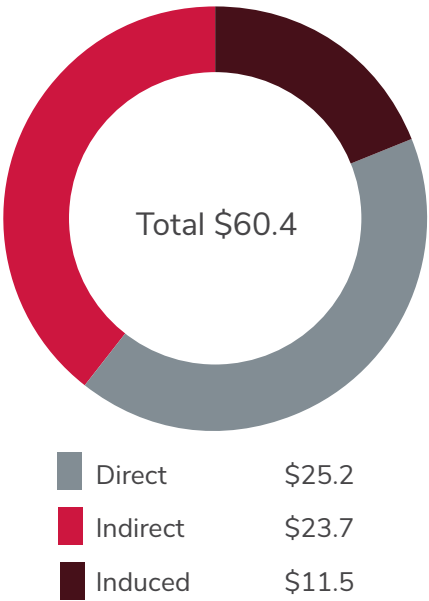
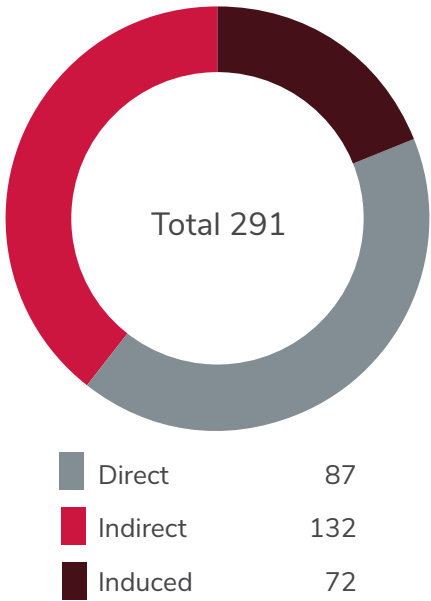


CHART 28: TRC STATEWIDE OUTPUT IMPACT (in millions)



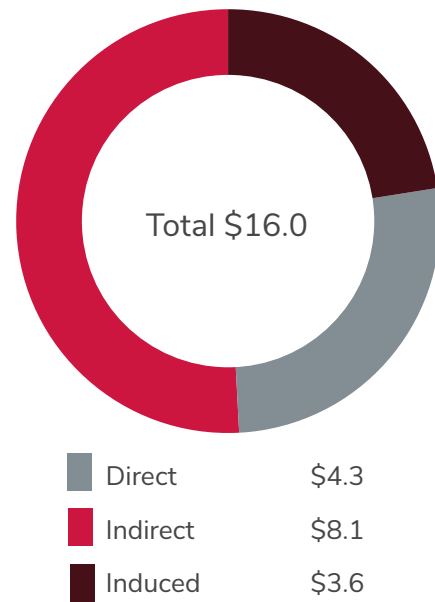
Employment Impact

As illustrated in Chart 29, in 2019 the TRC supported an estimated 291 full-time and part-time jobs throughout the state. This total includes an estimated 87 jobs from direct employment making a direct contribution to the overall workforce in Ohio. It also includes an estimated 132 indirect jobs resulting from business-to-business purchases in the supply chain and an estimated 72 induced jobs related to household spending of labor income.

Labor Income Impact

As illustrated in Chart 30, in 2019 the TRC supported an estimated \$16.0 million in labor income across Ohio. This includes estimated direct labor income of \$4.3 million, as well as indirect labor income estimated to total \$8.1 million, and induced labor income estimated at \$3.6 million.

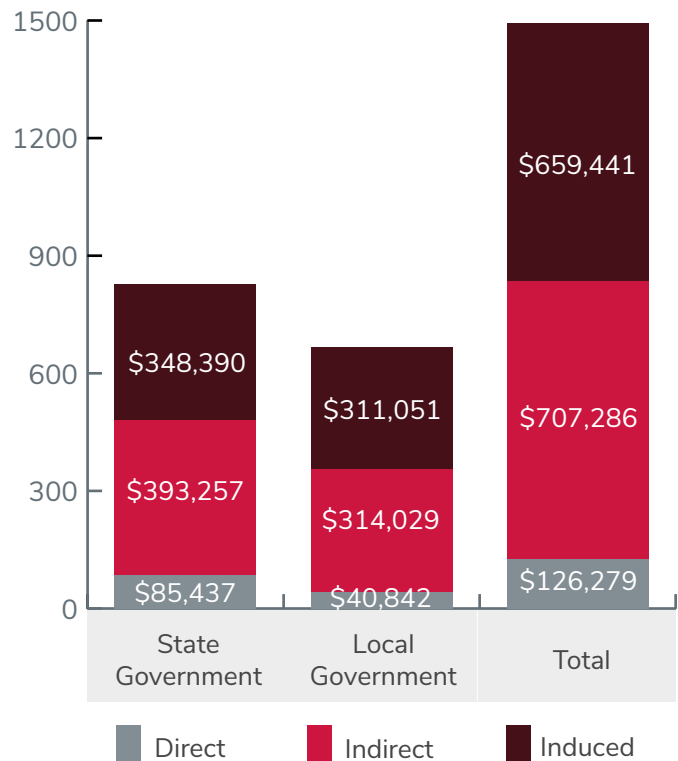
CHART 30: TRC STATEWIDE LABOR INCOME IMPACT (in millions)



State and Local Tax Impact

Chart 31 indicates that the TRC supported an estimated \$1.5 million in state and local tax revenue statewide. This total represented state tax revenue estimated at about \$827,000 and local tax revenue estimated at about \$666,000.

CHART 31: TRC STATE AND LOCAL TAX IMPACTS



Methodology Appendix

BACKGROUND

Nancy Bowen, Associate Professor and Extension Field Specialist, Community Economics, Ohio State Extension was contacted in July 2021 by Jim Landers, Associate Professor of Practice and Enarson Fellow, John Glenn College of Public Affairs at Ohio State to discuss participation in an internal analysis estimating the economic impact of The Ohio State University using IMPLAN. A series of meetings began involving Jim Landers, Nancy Bowen, and Jay Johnson, Interim Associate Vice President for the Office of Strategic and Competitive Intelligence within the Enterprise for Research, Innovation and Knowledge at Ohio State to frame the project, develop reasonable and verifiable assumptions, form the methodology, and begin collecting data.

The team met with IMPLAN staff in September 2021 to discuss the project and were told that a new event type was soon to be released and that the new Industry Impact Analysis (IIA) event would simplify the process by eliminating the need for detailed operations data. The new IIA event type was released in November 2021. This may be the first study to employ the new IIA event type for higher education.

From September 2021 through January 2022, detailed spending data was gathered by Jay Johnson and organized into an excel spreadsheet within four primary spending categories: (1) operations, (2) capital, (3) student spending, and (4) visitor spending.

From late January 2022 to February 2022, the Ohio State Extension IMPLAN User Group team began the data input and analysis process, including setup, running results, downloading tables and charts, describing results, and developing a report. The team included Nancy Bowen; Joe Lucente, Associate Professor and Extension Educator in Community Development; Amanda Osborne, Community Development Educator; Eric Romich, Associate Professor and Extension Field Specialist for Energy Development; and Gwynn Stewart, Community Development Educator. The team consulted with IMPLAN company research staff to review final setup procedures. The team produced a draft report of the impact analysis results dated March 28, 2022, which was subjected to a red team review process during April 2022. The red team consisted of the following members:

- Scott Osborne, Vice President of Innovation and Economic Development
- Ned Hill, Professor of Economic Development, John Glenn College of Public Affairs and the City and Regional Planning Section of the Knowlton School of Architecture
- Mark Partridge, Professor and C. William Swank Chair of Rural-Urban Policy and Professor, Department of Agricultural, Environmental, and Development Economics
- Joshua Hawley, Professor and Director of the Ohio Education Research Center, John Glenn College of Public Affairs

The red team members reviewed the following components of the impact analysis:

- FY 2019 university spending data (capital and operating) used for the IMPLAN modeling and analysis
- FY 2019 student spending estimates used for the IMPLAN modeling and analysis, including estimation methods and assumptions
- FY 2019 visitor and visitor spending estimates used for the IMPLAN modeling and analysis, including estimation methods and assumptions
- IMPLAN modeling procedures implemented by the Ohio State Extension IMPLAN User Group
- The draft report of the impact analysis results

The research team met with the red team and research staff from IMPLAN on April 29, 2022, to receive feedback and discuss potential methodological and reporting changes.

ESTIMATION PROCEDURES

The economic impact analysis was conducted using the IMPLAN input-output (I-O) modeling system.¹³ The IMPLAN I-O model describes the movement of goods and services (buy-sell relationships) between industry, government, and households in an economy (e.g., regional or state economy) during a particular year. The I-O model comprises all monetary transactions among industries and between industries and final consumer as well as industry-specific multipliers and other structural coefficients that represent the buy-sell relationships between the different industry sectors in an economy. The model can be used to determine the economic effects of a policy change or an activity like the economic activity of and related to Ohio State. Consequently, the IMPLAN model can be used to estimate the effect of a specific year's spending by Ohio State, Ohio State students, and visitors to Ohio State on Ohio's economy. The economic impact analysis is based on IMPLAN's CY 2019 I-O model and FY 2019 input data from Ohio State comprising university capital and operating expenditures, student spending estimates, and visitor spending estimates.

The methodology used follows guidelines for IMPLAN's new event type, Industry Impact Analysis (IIA), which is described in IMPLAN's article *Analyzing a Public College using Industry Impact Analysis*.¹⁴ This event type replaces the Analysis by Parts (ABP) technique by using one event for labor income and another for intermediate inputs instead while still allowing editing multiple events through the Spending Pattern. The IIA event type uses whatever values are entered and then imputes the remaining values based on the relationship between them mathematically, considering all the pieces of the Leontief Production Function (LPF). IMPLAN experts touted the IIA event type as a one-stop shop for modeling complex analyses and strongly suggested using IIA event type for the project.

The economic impact analysis estimates the statewide economic impact and regional economic impacts of Ohio State measured relative to the additional industry output, employment, and labor income generated by Ohio State's economic activities. The three impact measures are described in more depth below.

- **Output** impact or total economic impact equals the impact of Ohio State's spending on the total value of what industry produces in Ohio during a calendar year. For industry sectors other than the wholesale and retail industry sectors, output equals annual gross revenues plus the net change in inventory. Output for wholesale and retail industry sectors is equal to their annual sales margin only, not their annual gross revenues. In more detail, output is the sum of: (1) non-durable goods and services used as production inputs; (2) employee wages, salaries, fringe benefits, and payroll taxes; (3) payments to self-employed individuals and unincorporated businesses; (4) payments to government such as taxes, license fees, duties, and assessments; (5) non-operating income such as dividends, royalties, interest income, corporate profits, and depreciation.
- **Employment** impact equals the impact of Ohio State's spending on the annual average total full-time and part-time jobs in Ohio, including wage and salary employees and self-employed individuals.
- **Labor Income** impact equals the impact of Ohio State's spending on employee compensation (wages and salaries, benefits, and payroll taxes) and income of self-employed individuals in Ohio during a calendar year.
- **State and Local Tax** impact equals the impact of Ohio State's spending on annual revenues from taxes imposed by state and local government, including sales tax, personal income tax, property tax, and corporate taxes.

The estimated value of each of the economic impact measures is the sum of the direct, indirect, and induced economic effects.

- **Direct Effects:** The additional industry output and employment produced by businesses that sell goods and services directly to Ohio State, the resultant additional labor income to households of the employees of these businesses, and the additional state and local tax payments made by businesses and households.
- **Indirect Effects:** The direct transactions lead to additional business-to-business input purchases throughout the supply chain which leads to additional industry output, employment, labor income, and taxes. These additional business-to-business purchases are the indirect effects.
- **Induced Effects:** The induced effects are the additional output, employment, labor income, and tax impacts that arise due to households spending additional labor income attributable to the direct and indirect effects.

¹³ For a more in-depth discussion of the IMPLAN I-O model see <https://support.implan.com/hc/en-us/articles/360038285254-How-IMPLAN-Works#:~:text=IMPLAN%20is%20an%20I%20O%20modeling,past%20or%20existing%20economic%20activity>.

¹⁴ The article is accessible at <https://support.implan.com/hc/en-us/articles/4409063559835-College-Analyzing-a-Public-College-using-Industry-Impact-Analysis-Detailed>.

Output multipliers, employment multipliers, and income multipliers are calculated using the formula below:

$$\text{Multiplier} = \frac{\text{Direct Effects} + \text{Indirect Effects} + \text{Induced Effects}}{\text{Direct Effects}}$$

The analysis was initiated by grouping primary spending “centers” which were analyzed separately and then combined. The twelve centers are listed in the table below. The final spending center is the aggregation of the Columbus campus, Wexner Medical Center, five regional campuses, Ohio State Athletics, Ohio State Extension, and the Transportation Research Center.

SPENDING CENTERS

Spending Center	Geography	Sector	Input Data
Columbus Campus	Columbus region	481	Operations, capital, student, and visitor spending
Lima Campus	Lima region	481	Operations and capital
Mansfield Campus	Mansfield region	481	Operations and capital
Marion Campus	Marion region	481	Operations and capital
Newark Campus	Newark region	481	Operations and capital
Wooster Campus	Wooster region	481	Operations and capital
Combined Campuses	Ohio	481	Operations, capital, student, and visitor spending
Athletics	Ohio		Operations and capital
Extension	Ohio	481	Operations
Transportation Research Center	Ohio	464	Operations
Wexner Medical Center	Ohio	490	Operations and capital
Total Combined	Ohio	(all)	Operations, capital, student, and visitor spending

Within each of the centers are four spending categories: (1) capital expenditures, (2) operations (including payroll), (3) student spending, and (4) visitor spending. Industry codes were assigned to the values for spending items within each of the categories as they were entered into IMPLAN. Below is a table of the spending items within the four categories, assigned industry codes and descriptions.

SPENDING CATEGORIES

Capital		Operations		Visitor Spending		Student Spending	
#	Description	#	Description	#	Description	#	Description
53	Construction of educational buildings	481	Colleges and universities	507	Lodging	511	Food/beverage
		481	Scientific research	509	Restaurants	448	Housing
		481	Hospitals	412	Retail	409	Clothing
				408	Transportation	408	Transportation
						407	Personal
						519	Laundry
						442	Loan fees
						410	Books

REGIONAL GEOGRAPHIES FOR OHIO STATE CAMPUSES

Ohio State's campuses are analyzed separately using regional geographies. Within IMPLAN, the geography used influences spending pattern coefficients for each industry, thus impacting the economic analysis results. For purposes of this analysis, regions are defined as the campus home county and adjacent counties to account for commuting students and where most of the student and visitor spending takes place. Only how and where money is spent is important in the analysis, not where the funds originate. The counties included for each campus are listed in the table below.

Campus	Counties
Columbus	Franklin, Delaware, Fairfield, Licking, Madison, Pickaway, Union
Lima	Allen, Auglaize, Hancock, Hardin, Mercer, Putnam, Van Wert
Mansfield	Richland, Ashland, Crawford, Huron, Knox, Morrow
Marion	Marion, Crawford, Delaware, Hardin, Morrow, Union, Wyandot
Newark	Licking, Coshocton, Delaware, Fairfield, Franklin, Knox, Muskingum, Perry
Wooster	Wayne, Ashland, Holmes, Medina, Stark, Summit

INPUT DATA

The input data sources for the economic impact analysis are summarized below.

1. Operational expenditures (non-employee and non-capital expenditures), pay and benefits to faculty, staff, and student employees in FY 2019 were obtained from Ohio State audited financial reports.
2. Capital expenditures in FY 2019 were obtained from Ohio State audited financial reports.
3. Student enrollment counts for FY 2019 are from the Ohio State Office of Student Academic Success. These data are unduplicated enrollment counts from fall 2018, spring 2019, and summer 2019.
4. Cost of attendance data for FY 2019 were obtained from the Ohio State Office of Student Academic Success/ Student Financial Aid. These data include estimated reasonable expenses by student spending category. The estimates are developed annually using direct costs established by the university, internal surveys, data from the U.S. Bureau of Labor Statistics, internal surveys, and the Ohio State Undergraduate Student Government Renter's Guide.
5. Visitor data was obtained from the Ohio State Department of Athletics, Venues/Sales and Marketing Consortium, and Department of Public Safety.
6. Daily visitor spending estimates were obtained from Longwood International, a tourism research organization. Industry sector distribution of visitor spending was obtained from the U.S. Bureau of Labor Statistics, Consumer Expenditure Survey.

ANALYSIS ASSUMPTIONS

Analysis assumptions were developed to avoid double counting expenditures and to assure only new spending is applied to the study areas. The assumptions are summarized below.

Categories included as new spending to the state:

1. Spending by all professional degree students at the Columbus campus is assumed to be new spending to the state. It is assumed that these students would enroll in professional degree programs outside of Ohio in the absence of Ohio State's professional degree programs.
2. Spending by non-resident undergraduate and graduate degree students at the Columbus campus is assumed to be new spending to the state. It is assumed that these students would enroll in undergraduate and graduate degree programs outside of Ohio in the absence of Ohio State's undergraduate and graduate degree programs.

Categories excluded as new spending to the state:

1. Resident undergraduate and graduate student spending at the Columbus campus is not counted as new spending since it is considered substitutive rather than new spending to the state.
2. Student spending for tuition, on-campus housing, sporting event tickets or books purchased from campus-owned bookstores at the Columbus campus are excluded since these amounts are already included in university operating revenues.
3. Spending by students at regional campuses is not included due to the likelihood that it would not have a material impact on the economic impact estimates.
4. Spending by visitors to regional campuses was not estimated due to insufficient data and due to the likelihood that it would not have a material impact on the economic impact estimates.

Additional assumptions:

1. Non-resident graduate students at the Columbus campus comprise 47% of the total graduate enrollment on the Columbus campus. This ratio is used to estimate the new spending by spending category for graduate students.
2. Non-resident undergraduate students at the Columbus campus comprise 25% of the total undergraduate enrollment on the Columbus campus. This ratio is used to estimate the new spending by spending category for undergraduate students.
3. Professional and graduate student spending impacts for the Columbus campus are based on eight categories: (a) books and supplies; (b) housing; (c) meals; (d) laundry; (e) clothing; (f) transportation; (g) personal expenses; and (h) loan fees. Professional and graduate students are assumed to be living off campus.
4. Undergraduate student spending impacts for the Columbus campus are based on nine categories: (a) books and supplies; (b) housing (off-campus students only); (c) meals (off-campus students only); (d) laundry; (e) clothing; (f) in-state transportation; (g) out-of-state travel; (h) personal expenses; and (i) loan fees.

5. Visitor spending impacts for the Columbus campus are based on three spending categories: (a) out-of-state overnight visitors spending \$369 per day; (b) in-state overnight visitors living at least 100 miles from Columbus spending \$369 per day; and (c) in-state daytrip visitors living within 100 miles of Columbus but outside the Columbus region defined as Franklin County and adjacent counties.
6. Columbus campus visitor spending is distributed to four spending categories (lodging, transportation, entertainment, and food & beverage) based on ratios developed from U.S. Bureau of Labor Statistics Consumer Expenditure Survey data.
7. Operations and capital impacts in addition to student and visitor spending, where applicable, are summarized together in this summary report, but are modeled separately within IMPLAN. Using IMPLAN's filter tags, more detail can be derived for each of these spending categories.

Student and Visitor Spending Estimates:

Student and visitor spending estimates were derived only for Ohio State's Columbus campus. Data were not available for purposes of deriving estimates of student and visitor spending occurring at Ohio State's regional campuses in Lima, Mansfield, Marion, Newark, and Wooster. It is assumed that these spending totals would not have a material effect on economic impact estimates for the university as a whole or for the individual campuses. Student spending estimates include only "new" spending and exclude spending that would occur in Ohio in the absence of the university.