

THE CONTRIBUTION OF ARIZONA STATE UNIVERSITY TO THE CITY OF TEMPE ECONOMY, FISCAL YEAR 2019

A Report from the Office of the University Economist

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SUMMARY

This report provides an assessment for fiscal year (FY) 2019 of the economic contribution of Arizona State University to the city of Tempe. Estimates are presented for the jobs and incomes that are supported in the Tempe economy by the spending of the university, its employees, and its students. This economic impact analysis estimates the contribution of the entire university, not just the Tempe Campus, to the city's economy and gives an indication of how much larger the city of Tempe economy is because of ASU.

In FY 2019, the total unduplicated headcount enrollment at all four metropolitan ASU campuses was 73,000 students, with a total enrollment of 111,000 including online students. The university employed 26,000 faculty, staff, and students with a total payroll of \$1.4 billion, and total nonpayroll expenditures by the university during FY 2019 were \$2.5 billion.

Based on this economic impact analysis, when all economic interdependencies are accounted for, the overall economic contribution to the city of Tempe of the combined impacts of spending by the university, its employees, and its students in FY 2019 totaled more than 26,000 jobs, \$1.6 billion in labor income, and \$2.2 billion in gross city product.

ECONOMIC IMPACT ANALYSIS

The purpose of an economic impact analysis of a university is to measure the contribution that the university makes to local area jobs and incomes through its own spending and the spending of students, faculty, staff, and visitors. What are referred to as "direct" impacts are the jobs and incomes provided by the university itself and by businesses that supply goods and services purchased by the university, its students, and its employees. In economic impact analysis, estimates are also made of so-called "multiplier effects" that arise through backward linkages between industries and from additional rounds of consumer spending generated throughout the economic impact process.

Estimates of the economic impact of ASU were made using a city of Tempe-specific version of IMPLAN, an input-output model used widely by researchers throughout the United States. Impacts refer to jobs and incomes generated somewhere in the city. Impacts are reported for three economic variables: gross city product, labor income, and employment. Gross city product (the local equivalent of gross domestic product) is a broad measure of income consisting of employee compensation, proprietor income (self-employed income), property income, and indirect business taxes. Labor income is the sum of employee compensation and proprietor income. Employment is a count of both full- and part-time jobs. Table 1 provides a summary of results of the analysis.

UNIVERSITY EXPENDITURES

The ASU Tempe Campus directly affected the Tempe economy with almost 15,000 full- and part-time employees and a payroll of \$1.1 billion in FY 2019. Another way in which ASU directly affects the city's economy is by purchasing goods and services from Tempe businesses. Nonpayroll expenditures associated with the Tempe Campus totaled \$654 million in FY 2019. These purchases directly accounted for 4,370 jobs, \$223 million in labor income, and \$337 million in gross city product.

**TABLE 1
THE CONTRIBUTION OF ARIZONA STATE UNIVERSITY TO THE
CITY OF TEMPE ECONOMY, FISCAL YEAR 2019**

	Gross City Product in Millions	Labor Income in Millions	Employment
University Payroll and Employment	\$1,263	\$1,089	14,970
University Nonpayroll Expenditures	538	347	6,530
Spending by Faculty and Staff	101	54	1,070
Student Spending	268	122	2,760
Visitor Spending	54	36	1,030
Total Economic Impact	\$2,224	\$1,648	26,360

Source: Center for Competitiveness and Prosperity Research, L. William Seidman Research Institute, W. P. Carey School of Business, Arizona State University.

University purchases induce secondary or multiplier effects in an economy. These effects occur when immediate suppliers of products to the university purchase intermediate goods and services from upstream suppliers and when all affected suppliers hire additional employees who, in turn, make consumer purchases and pay taxes that support government programs. The secondary effects affecting the city of Tempe economy of ASU nonpayroll expenditures were estimated to be 2,160 jobs, \$124 million in labor income, and \$201 million in gross city product. The total impact of university purchases on the city's economy was 6,530 jobs, \$347 million of labor income, and \$538 million in gross city product in FY 2019.

EMPLOYEE SPENDING

The university contributes to the Tempe economy not only by providing jobs for city residents, but also through the purchases of goods and services from local businesses by ASU employees. Consumer expenditures from ASU salaries earned by faculty and staff who were residents of Tempe were estimated to be \$139 million in FY 2019. This spending was directly responsible for 590 jobs, \$27 million in labor income, and \$57 million in gross city product for the city of Tempe.

As with institutional spending, consumer expenditures generate secondary or multiplier effects throughout an economy. Spending by ASU faculty and staff had a secondary impact on the Tempe economy of 480 jobs, \$27 million in labor income, and \$44 million in gross city product. In total, expenditures by ASU faculty and staff accounted for 1,070 jobs, \$54 million worth of labor income, and \$101 million in gross city product for the city of Tempe in FY 2019.

STUDENT SPENDING

More than 110,000 students were enrolled at ASU during the 2018-19 academic year. Because of their sheer number, ASU students exert an enormous influence on the local economy. The student population at ASU's four metropolitan campuses was directly responsible for \$1.2 billion worth of spending, excluding tuition. The direct impact of spending by students who lived in Tempe on the city's economy produced 1,680 jobs, \$61 million in labor income, and \$167 million in gross city product.

The secondary effect of ASU student expenditures on the city's economy was an additional 1,080 jobs, \$61 million in labor income, and \$101 million of gross city product. The total economic contribution to the Tempe economy of spending by the ASU student population was 2,760 jobs, \$122 million worth of labor income, and \$268 million in gross city product.

VISITOR SPENDING

Athletic events, cultural activities, conferences and other programs draw large numbers of visitors to Arizona State University campuses each year. In addition, parents and friends visit students, and prospective students and their families make evaluation visits to the Metro Phoenix area. While many of those who attend ASU activities are local residents, it is estimated that out-of-town visitors spent an estimated \$72 million on lodging, food, entertainment and other goods and services during FY 2019. Much of this visitor activity is centered on the Tempe Campus, providing the city with 1,030 jobs, \$36 million in labor income and \$54 million in gross city product.

TOTAL ECONOMIC IMPACT

The total employment impact of ASU for the city of Tempe, including university employees and all other jobs indirectly induced, was 26,360 jobs. The total labor income for the Tempe economy associated with these jobs was estimated to be \$1.6 billion, and ASU's overall contribution to FY 2019 gross city product was \$2.2 billion.

APPENDIX

The estimates of the contribution of ASU to the city of Tempe economy for FY 2019 were based directly on the results of the latest annual update (*Fiscal Year 2019 Update*) of the Office's 2016 economic impact analysis (ASU Office of the University Economist, *The Contribution of Arizona State University to the Arizona Economy Fiscal Year 2016*, January 2017, <https://economist.asu.edu/arizona-universities>). Unless otherwise indicated, all primary employment and expenditure data refer to FY 2019 and are valued in terms of 2019 dollars. University employment, payroll, and expenditure data by campus refer to the four metropolitan campuses — Tempe, West, Polytechnic, and Downtown Phoenix.

Data on ASU employment and expenditures were derived from university administrative records. The employment figures by campus used in this report are not equivalent to the total job figure in the overall ASU impact study — the individual campus figures sum to 20,510 versus 18,564 reported in the overall study. A special tabulation of ASU budget accounts provided the information on university expenditures by campus. The labor income component (salary and wages plus employee-related expenditures) by campus used in this report are not equivalent to the total labor income figure in the overall ASU impact study — the individual campus figures sum to \$1,413 million versus \$1,364 million in the overall study.

This report treated the employee-related expenditures component of university expenditures differently than the approach in the overall ASU impact analysis. The university's employee-related expenditures consist of multiple categories that include payroll (FICA) taxes, contributions to retirement plans, various types of insurance, and several programs that provide payments to employees. Although employee-related expenditures are formally part of

economists' definition of payroll (and were so treated in the overall ASU impact study), this analysis included university expenditures associated with employee insurance and retirement programs as part of nonpayroll expenditures. Only those components that actually resulted in payments to employees were treated as part of payroll. The FICA tax component was not included in the analysis since those funds flow to the federal government and so do not directly affect the local economy.

For descriptions of how faculty and staff and student expenditures were estimated, see the January 2017 report. The faculty and staff and student expenditures were allocated to the city of Tempe based upon zip code analyses of employee and student databases.

The visitor spending calculations were based on the figures for ASU included in the Arizona Board of Regents' 2019 report on the economic impact of the state's public universities (Elliott D. Pollack & Company and The Maguire Company, *The Economic and Fiscal Impact of the Arizona Public University Enterprise*, January 2019, <https://www.azregents.edu/sites/default/files/reports/Economic-Impact-Report-FY17.pdf>). Visitor expenditures were estimated for each campus and included an additional in-state but nonlocal component that was not included in the Board of Regents' report since it was a statewide analysis.

Estimates of the economic impact of ASU were produced using a city of Tempe-specific version of IMPLAN, an input-output model used widely by researchers throughout the United States. The specific model used was based on IMPLAN's 2018 database, with the study area constructed of all zip codes in the city of Tempe. In building the model, trade flows were calculated using IMPLAN's "regional purchase coefficients," which are econometrically derived estimates of the percentage of demand for a commodity that is satisfied by local producers. Full SAM (Social Accounting Matrix) multipliers were used. These multipliers allow for a recycling of income through the consumer spending of households, the spending of governments out of tax revenues and the capital spending of firms out of profits.

A nonstandard feature of this analysis was the estimation of impacts on the Tempe economy from ASU-associated expenditures that occurred outside of the city's boundaries. For each expenditure category, a portion of the multiplier effects of non-Tempe spending was allocated to the city of Tempe based on industry/commodity-specific estimates of the city of Tempe's share of economic activity in the overall Phoenix metropolitan area from the IMPLAN model.