Oregon's Technical and Regional Universities

Economic Contributions

January 2020

Prepared for:
Oregon Technical and Regional Universities

Final Report

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1 Introduction

The Technical and Regional Universities (TRUs) of Oregon play an important role in community and economic vitality throughout the state. These universities serve nearly 26,000 students, 82 percent of which are Oregonians and roughly half are first-generation college students. TRUs graduate over a thousand students each year, preparing them for the in-demand jobs of our local, regional and state economies. Together the universities help drive economic development through this combination of education, training, and partnerships with the communities and regions that each campus serves.

This report documents the economic contributions of the four TRUs (Eastern Oregon University, Oregon Institute of Technology, Southern Oregon University, and Western Oregon University) combined and each of university individually on the county and state economies with an eye to each university's operations, capital works, and student and visitor spending.

The most common approach for measuring economic contributions captures the short-run economic contributions associated with a university's current operations and capital spending, as well as spending by students and visitors to its campuses. This captures the benefits (in terms of dollars and jobs) to the local and regional businesses as students and visitors travel to campus and spend money at hotels, restaurants, apartments, grocery stores, etc.

This analysis reports the economic contributions by the types of impact associated with the four TRUs' student, payroll, and capital expenditures during the 2017-2018 academic year. We will use specific terminology to discuss the various economic contributions of the TRUs in their respective counties, along with their effect on the statewide economy.

The three terms of interest are as follows.

1. *Direct Effects* are those associated with payroll and employment. They also include the direct output of the activities associated with the college, which is estimated using an expenditure approach that sums labor and non-labor operating expenses.
2. *Indirect Effects* are often referred to as "supply chain" effects which are represented by the purchase of goods and services from businesses. These businesses will, in turn, purchase additional goods and services leading to additional rounds of indirect impacts.
3. *Induced Effects* or "consumption-driven effects" are purchases of goods and services from household incomes**.** Employees, for example, will use their income to purchase groceries or take their children to the doctors. These induced effects are often referred to as consumption-driven impacts.

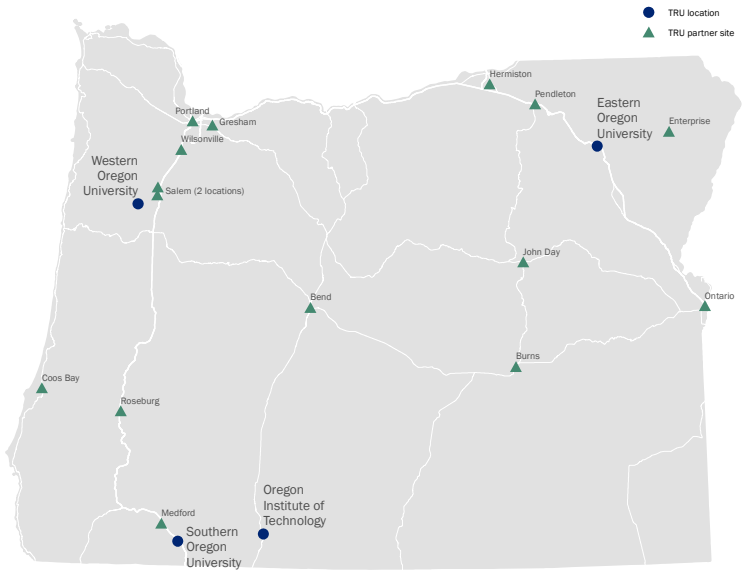
2 Role of Technical and Regional Universities in Oregon

2.1.1 TRUs serve less populous parts of the state

In Oregon, many communities are experiencing demographic and economic challenges. During 2019, 61 percent of counties in the state experienced a decline in prime-age workers (ages 25 – 54).[1] Such changes in a community's labor force can perpetuate economic decline and make it harder for them to rebound. The reasons for these demographic changes are complex, however, institutions such as Techincal and Regional Universities (TRUs) of Oregon help to stabilize these local economies by acting as anchors, facilitating human capital development, job creation and distributing economic activities to less populous parts of the state.

The four TRUs (Eastern Oregon University, Southern Oregon University, Oregon Institute of Technology, and Western Oregon University) are located primarily in Jackson, Klamath ,Polk, and Union counties but have satellite campuses and partner sites throughout the state. Together these universities offer a broad range of academic programs ranging from applied science and healthcare to arts and humanities. These academic programs and subsequently graduates of TRU institutions lay the foundation for economic growth and investment in the surrounding communities in which these universities serve.

Exhibit 1. TRU Campuses and Satellite Locations



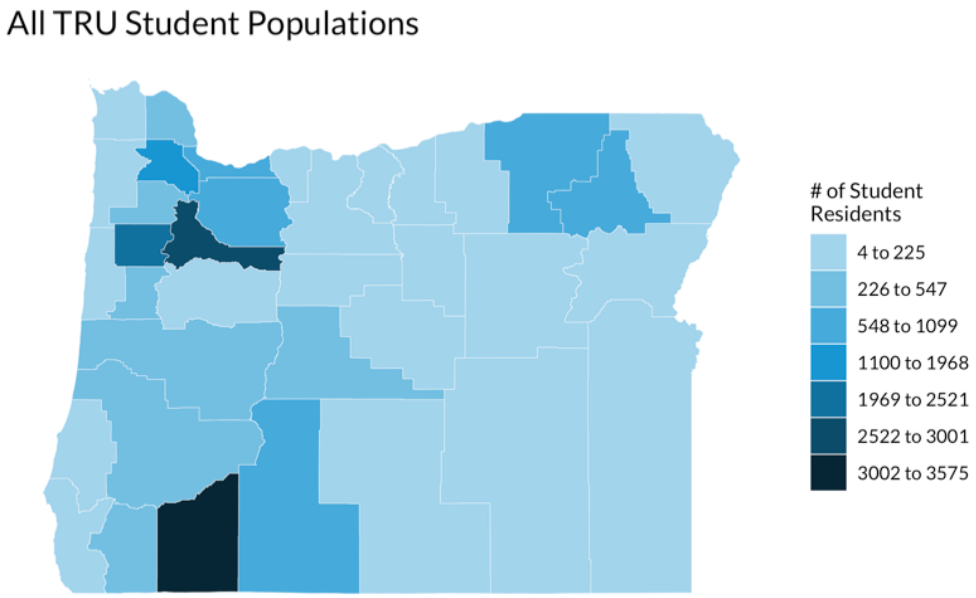
Source: ECONorthwest and TRU

[1] Economic Innovation Group, "From Managing Decline to Building the Future: Could a Heartland Visa Help Struggling Regions?" Available at: https://eig.org/wpcontent/uploads/2019/04/Heartland-Visas-Report.pdf

2.1.2 The entire state is represented on TRU campuses

In the academic year, 2017-2018 TRUs enrolled 26,600 students. 6,317 students came from out-of-state (primarily California, Washington, and Idaho) while 20,283 came from counties throughout Oregon. The majority of students came from the very same counties or adjacent counties where TRU's main campuses are located. Jackson (3,575), Marion (3,001), and Polk (2,521) counties were the three largest counties where in-state TRU students originated in the 2017-2018 academic year. Exhibit 2 illustrates the geographic origin of all enrolled TRU students for the 2017-2018 academic year.

Exhibit 2. County Origin of TRU Students for Academic Year 2017-2018



Top 3 states outside Oregon: 1. California, 2. Washington, 3. Idaho

2.1.3 TRUs Enable Economic Opportunity and Stronger Local Economies

Education is an important driver of economic prosperity in our state. A recent study by the State of Oregon Employment Department in Jackson County (location of Southern Oregon University) demonstrated that wages are higher on average with greater levels of education. As of 2018, the average monthly earnings for Jackson County residents with a bachelor's degree were $5,165 per month, compared to $3,812 for those with some college or an associate's degree and $3,474 for those with a high school or equivalent education level.[2]
With a large proportion of TRU students coming from and alumni settling in less populous parts of the state, many of whom are first-generation college students[3],

2 https://www.qualityinfo.org/-/how-education-pays-in-jackson-county?inheritRedirect=true&redirect=%2Frogue-valley

3 Technical and Regional University Governance. Oregon State Legislature, March 3, 2015. Available at: https://olis.leg.state.or.us/liz/2015R1/Downloads/CommitteeMeetingDocument/49990

TRUs help to enable upward mobility and stronger, more diverse local economies throughout Oregon.

2.1.4 Total Economic Contributions are Important to Many Parts of the State

These universities contribute to their local economies through a few key functions. Universities need to hire faculty and administrative staff to operate. Those positions are directly employed by the universities. Campuses often need to construct new buildings to accommodate growth or must make upgrades to existing buildings. This is done through capital spending, whereby the universities contract with a general contractor to make improvements. Since construction workers are not directly employed by the universities, these jobs are classified as indirect.

In addition to operations and capital work, student and visitor spending in the surrounding communities supports local jobs. This form of contribution is considered the induced impact. Exhibit 3 below summarizes the total economic contribution of TRU universities in the four counties where the universities are located as well as additional economic effects that ripple throughout Oregon.

Exhibit 3. Total Contributions of TRUs

Type of Impact	Output	Labor Income	Jobs
Polk, Klamath, Jackson, Union counties			
Direct	$341,702,167	$216,510,783	2,630
Indirect	$122,702,586	$51,603,338	843
Induced	$502,715,111	$194,651,197	3,676
Total	$967,119,864	$462,765,318	7,149
Rest Oregon			
Direct	$0	$0	0
Indirect	$13,667,181	$5,347,113	64
Induced	$50,215,761	$20,002,800	265
Total	$63,882,942	$25,349,913	329
Oregon Total			
Direct	$341,702,167	$216,510,783	2,630
Indirect	$136,369,767	$56,950,450	907
Induced	$552,930,873	$214,653,997	3,941
Total	$1,031,002,806	$488,115,230	7,478

Source: ECONorthwest using inputs from TRU and the IMPLAN model

2.1.5 Campus Operations Support Quality Long-Term Jobs

The operations of TRU campuses provide a powerful, lasting impact on their surrounding communities. The campuses combined supported 2,630 direct university jobs, paying on average of $82,323 in wages and benefits and producing $341.7 million in direct economic output.

During the 2017-2018 academic year, operations spending from the TRU institutions supported 482 indirect jobs at local vendors and small businesses who contract with the universities. Additionally, the spending by university employees and subsequent spending by indirect employees, as well as students, and visitors to the university campuses supported a total of 3,562 induced jobs in Polk, Klamath, Jackson, and Union counties.

Exhibit 4. Total Operational, Student, and Visitor Contributions of TRUs

Type of Impact	Output	Labor Income	Jobs
Polk, Klamath, Jackson, Union counties			
Direct	$341,702,167	$216,510,783	2,630
Indirect	$56,070,613	$29,160,776	482
Induced	$487,691,436	$189,346,851	3,562
Total	$885,464,216	$435,018,410	6,674
Rest of Oregon			
Direct	$0	$0	0
Indirect	$5,318,917	$2,673,421	27
Induced	$47,195,738	$18,928,880	246
Total	$52,514,655	$21,602,301	273
Oregon Total			
Direct	$341,702,167	$216,510,783	2,630
Indirect	$61,389,530	$31,834,197	509
Induced	$534,887,175	$208,275,731	3,808
Total	$937,978,871	$456,620,711	6,948

Note: Operations contributions include student and visitor spending for ease of reporting
Source: ECONorthwest using inputs from TRU and the IMPLAN model

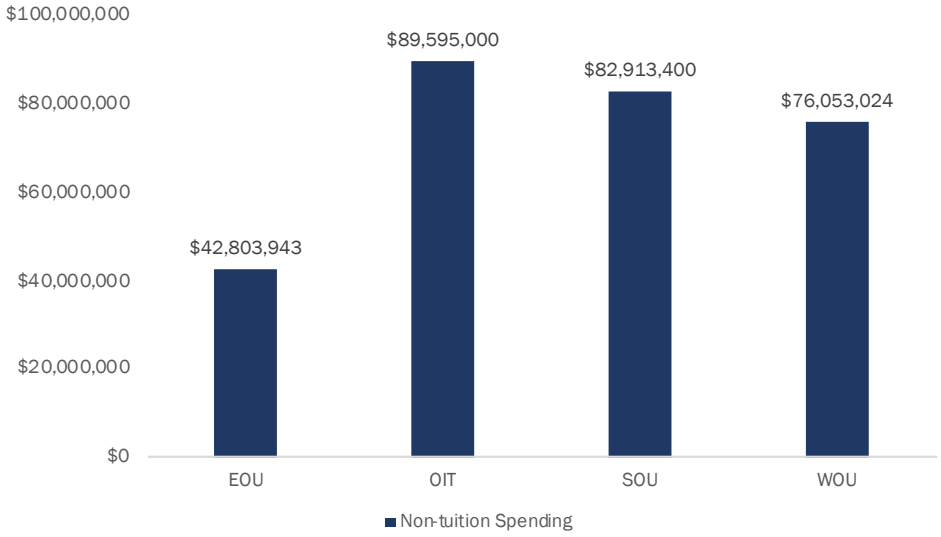
2.1.6 Students and Campus Activities Attract Visitors and Spending

Students the universities attract to the community also make a large contribution to these local economies. Students spend money on local services. During the academic year 2017-2018, these four universities enrolled 18,488 undergraduate students (26,600 including graduate and continuing education students) in programs and degrees ranging from liberal arts to applied sciences. Students must pay for daily living expenses while studying at college.

Across all TRU campuses, students during the 2017-2018 academic year spent an average of $15,749 on non-tuition expenses.[4] This includes housing, food, entertainment, and clothing. Based on this average spending, undergraduate non-tuition spending across all TRU campuses that year was $291.4 million.

[4] Cost of Attendance Sheet from each university's Office of Financial Aid.

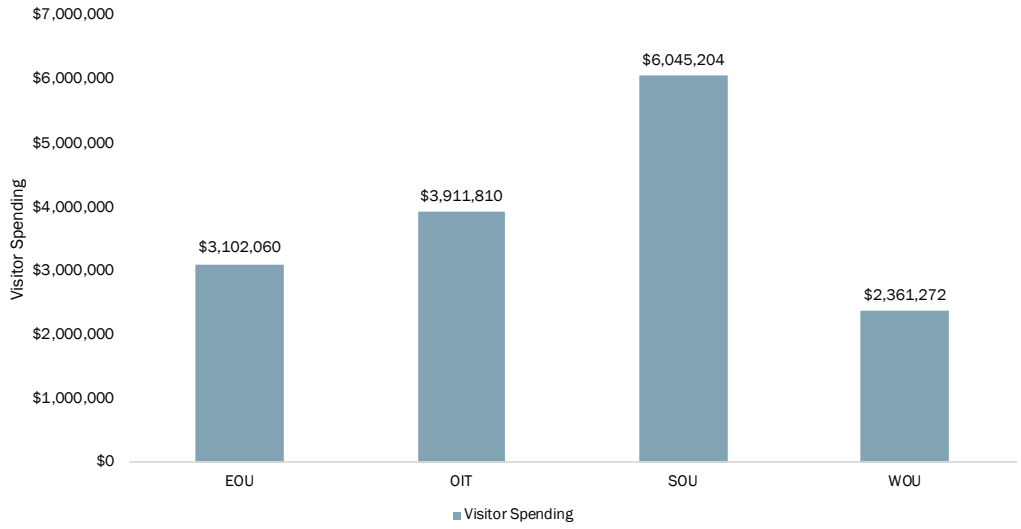
Exhibit 5. Undergraduate Student Non-Tuition Spending by University



Source: Cost of Attendance Sheets for all TRU campuses

Students and campus activities also attracted visitors. In 2018, TRUs had 188,053 visitors on campus many of whom slept in hotels in the area, dined at restaurants and shopped at local businesses. Campus visitors spent a total of $15.4 million in these local communities on food, lodging, and entertainment.[5]

Exhibit 6. Campus Visitor Spending by University



Source: TRU Universities and Dean Runyan Associates 2017 Oregon Travel Impacts

2.1.7 Construction is a One-Time Infusion of Investment and Jobs

Capital expenditures for on-campus expansion and reconstruction also help reinforce these local economies. During the 2017-2018 academic year, TRU

[5] The 2017 Oregon Travel Impacts report produced by Dean Runyan Associates estimated that visitors in the state spent on average $82 per day. ECONorthwest applied this to estimate the total TRU visitor spending figure of $15.4 million.

campuses spent 52.8 million on capital investment. This spending went to support 361 total indirect jobs (i.e. contractors and sub-contractors and local businesses who provided construction materials) in Polk, Klamath, Jackson, and Union counties. These are important jobs that pay a living wage for residents, averaging about $65,700 annually in wages and benefits.

In instances where a university has ongoing operations and conducts a capital expansion project, the capital project represents an alternative or tangential activity. In order not to confuse this activity with ongoing operations, the direct and indirect impacts associated with project spending are generally classified as indirect impacts.

However, like operations spending, construction investment produces important secondary impacts as well. To build or repair any physical structures, contractors need to purchase equipment and materials from local vendors (indirect impact). As workers involved in construction receive wages, they subsequently spend their earnings at local businesses on goods and services (induced impact). Exhibit 5 summarizes the construction impact at the county and the state level.

Exhibit 7. Construction Contributions of TRU

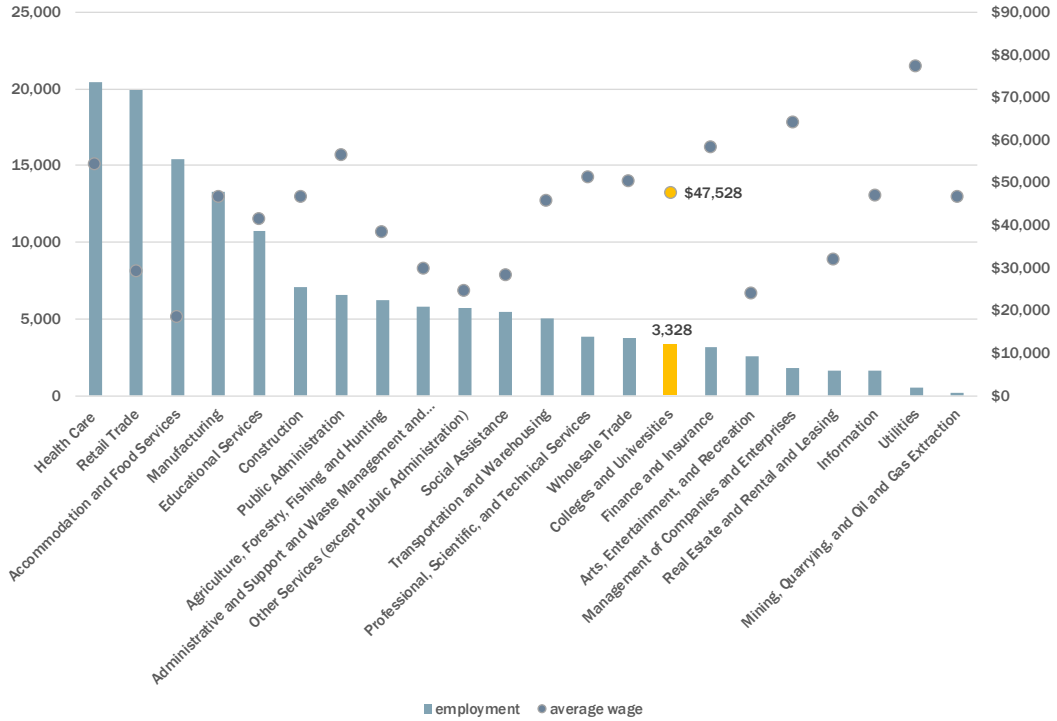
Type of Impact	Output	Labor Income	Jobs
Polk, Klamath, Jackson, Union counties			
Direct	$0	$0	-
Indirect	$66,631,973	$22,442,562	361
Induced	$15,023,675	$5,304,346	114
Total	$81,655,648	$27,746,908	475
Rest Oregon			
Direct	$0	$0	0
Indirect	$8,348,264	$2,673,692	37
Induced	$3,020,023	$1,073,920	19
Total	$11,368,287	$3,747,611	55
Oregon Total			
Direct	$0	$0	0
Indirect	$74,980,237	$25,116,253	398
Induced	$18,043,698	$6,378,266	133
Total	$93,023,935	$31,494,519	530

Source: ECONorthwest using inputs from TRU and the IMPLAN model

2.1.8 Colleges and Universities are an Important Employer

Colleges and universities are an important source of middle-income jobs in the four counties where the TRUs have their primary campuses (Jackson, Klamath, Polk, and Union counties). College and univerisity employment account for 3,328 direct jobs in these counties and pay on average $47,528, nearly equivalent to the average salary of the health care sector (the largest employer). In fact, for the College and university sector in Jackson, Klamath, Polk, and Union counties, the average wage is higher than the wage of eight of the top ten employment sectors in these counties.

Exhibit 8. Average Salary and Total Employment by Sector Jackson, Klamath, Polk, and Union Counties, 2017



Source: Oregon Employment Department

3 University Detailed Findings

This section details the economic contributions generated by operations, capital, students, and visitor spending for each TRU. For this study, ECONorthwest (ECONW) obtained financial information, student counts, and visitor counts from each school for the 2017-2018 academic year. We used information about the distribution of spending to build unique economic multipliers for each institution. These multipliers were built using the 2017 IMPLAN model. For this study, we calculate economic contributions to the four counties where TRU main campuses are located, i.e. Polk, Union, Klamath, and Jackson counties. We also use the Multi-Regional Input-Output, ("MRIO"), feature in IMPLAN, which allows us to calculate the economic contributions that spill over to other counties in Oregon. The total of the direct county effects with the spillover effects that occur in other Oregon counties sum to the total economic contributions for the state of Oregon.

The TRUs operations expenditures consist of the activities associated with each university's primary business activities in the local economy. This includes payroll for employees, or administrative services, and the purchase of goods and services, such as computers, or other educational supplies, both of which support the provision of educational services. Students and visitors of the universities also spend money in the local economy. Economic contributions from student and visitor spending are included in the operations table below.

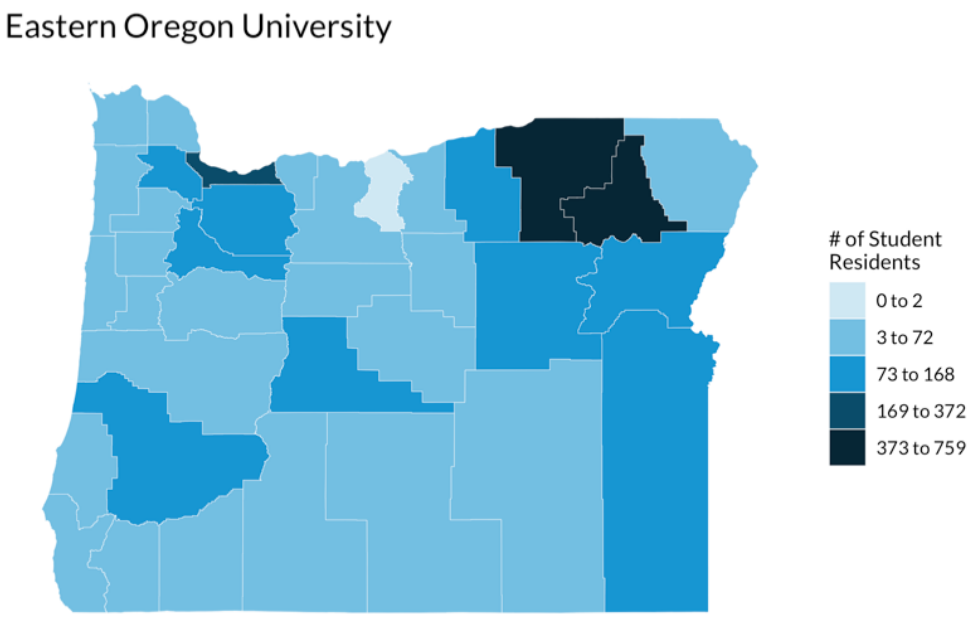
Capital spending are those expenditures used to expand or maintain assets such as buildings or equipment. In addition to being a labor-intensive industry, higher education is also capital intensive. Advances in new technology require purchasing new equipments and replacing older facilities. Constructing new buildings can help increase the efficiency of service and improve cost-controls.

3.1 Eastern Oregon University

Located in the heart of the Blue Mountain range between Portland and Boise in La Grande, Oregon, EOU was founded in 1929 as a state-funded teacher training school and has since evolved into a full-fledged university with nearly 5,000 students. EOU offers over 40 majors spanning the College of Arts, Humanities and Social Sciences, College of STM and Health Science, and the Colleges of Business and Education. Additionally, programs in Agriculture are offered in cooperation with Oregon State University, and the baccalaureate degree in Nursing through the Oregon Health & Sciences University is offered on EOU's campus.

EOU students were predominantly from the region, with the majority of students coming from Union County followed by Umatilla County.

Exhibit 9. EOU Map of Student Origin by County

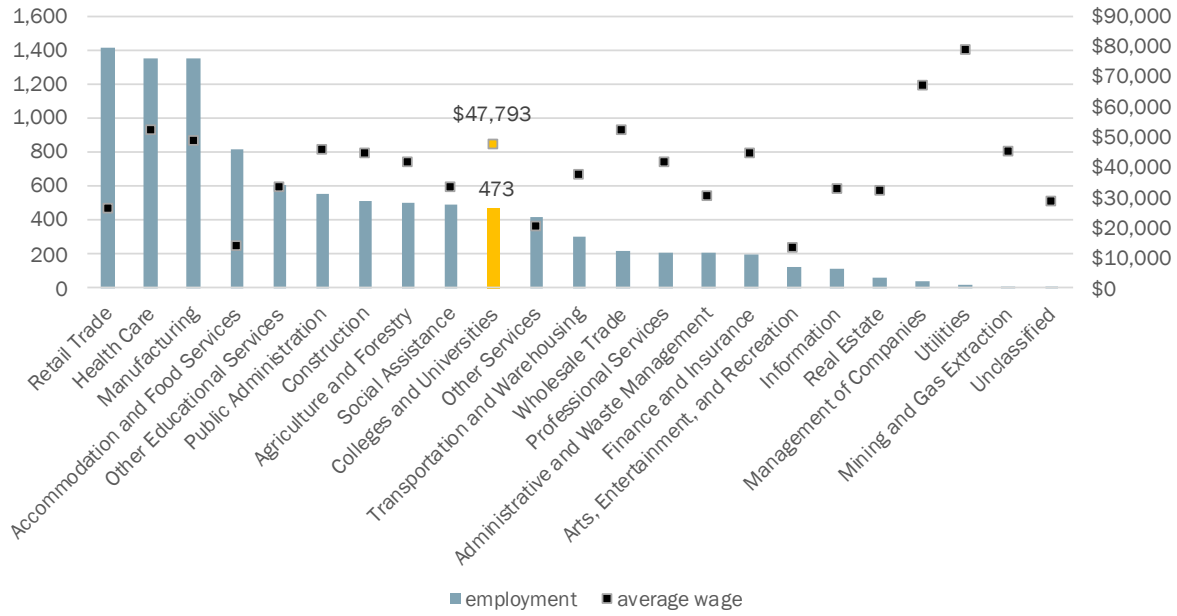


Top 3 states outside Oregon: 1. Washington, 2. Idaho, 3. California

3.1.1 Colleges and Universities are the 10th Largest Employment Sector

Colleges and Universities is an important economic driver in Union County where EOU is located. In 2017, the sector accounted for nearly 473 jobs, the tenth-largest sector of employment. The sector pays on average $47,077 in wages and benefits per year, the sixth-highest in the region and a meaningful source of middle-income jobs. Exhibit 10 illustrates the importance of the College and University sector to the regional economy in comparison to other sectors.

Exhibit 10. Average Wage and Total Employment by Sector in Union County, 2017



Source: ECONorthwest using QCEW data

3.1.2 EOU is One of the County's Largest Employers

EOU is the third-largest employer in Union County.[6] Of the 10,000 jobs in Union County, 439 of those are direct employees of the university. These jobs paid on average $87,274 in wages and benefits and produced $58.7 million in direct economic output.

Campus operations also supported important secondary impacts such as 98 local vendors and small business jobs who contract with EOU (indirect) as well as the spending by both direct and indirect employees in the local economy, which supported 633 jobs in the county. In total, EOU supported 1,169 jobs in Union County.

Exhibit 11. Operational, Student, and Visitor Contributions for Eastern Oregon University

Type of Impact	Output	Labor Income	Jobs
Polk County			
Direct	$58,688,571	$38,313,266	439
Indirect	$9,182,608	$4,521,824	98
Induced	$77,786,629	$31,577,701	633
Total	$145,657,808	$74,412,791	1,169

Note: Operations contributions include student and visitor spending for ease of reporting
Source: ECONorthwest using inputs from TRU and the IMPLAN model

[6] https://ucedc.org/about/economy/business-industry/

3.1.3 Capital Spending Further Supports Local Jobs

Capital spending on upgrades and repairs on EOU's campus supported additional economic activities. Ongoing construction projects such as the North Campus Restoration project and the Community Stadium upgrades went to support 25 direct construction jobs in 2018, paying on average $65,781 in wages and benefits.

Exhibit 12. Construction Contributions of Eastern Oregon University

Type of Impact	Output	Labor Income	Jobs
Union County			
Direct	$0	$0	0
Indirect	5,482,321	1,846,830	30
Induced	975,442	324,181	8
Total	$6,457,764	$2,171,011	38

Source: ECONorthwest using inputs from TRU and the IMPLAN model

3.1.4 Student and Visitor Spending Bolsters the Local Economy

EOU enrolled 2,737 undergraduates during the 2017-2018 academic year who on average spent $15,639 on non-tuition expenses such as housing, food, and entertainment.[7] This spending infused $42.8 million into the local economy. Additionally, the university attracted 37,830 visitors to the campus to either visit students or attend other campus activities. These visitors spent about $3.1 million in the county on food, lodging, and entertainment.[8]

[7] EOU Cost of Attendance.

[8] The 2017 Oregon Travel Impacts report produced by Dean Runyan Associates estimated that visitors in the state spent on average $82 per day. ECONorthwest applied this to estimate total visitor spending for each university.

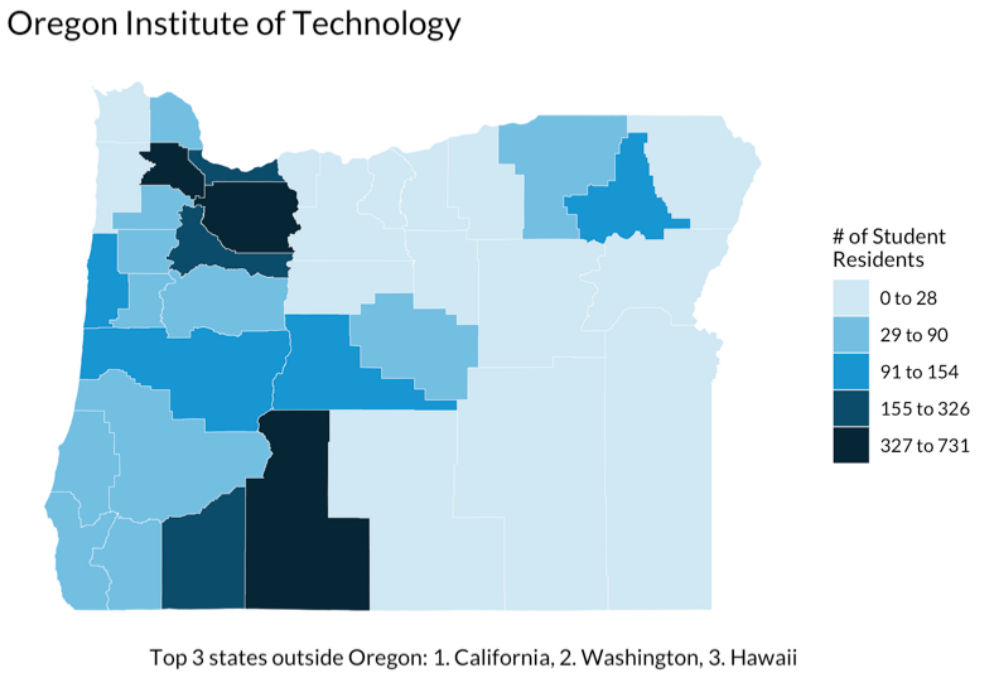
3.2 Oregon Institute of Technology

Oregon Institute of Technology is the only technical university in the Pacific Northwest, providing the state with roughly 700, career-ready graduates each year. Oregon Tech's campuses include a main campus in the rural Klamath Falls region, bringing STEM opportunities to the area, as well as an urban campus in Wilsonville, which provides opportunities for direct industry experience with the local tech sector.

Oregon Tech provides the state and the county with a wealth of high-skill graduates at a reasonable cost to students. Based on the U.S. Department of Education's College Scorecard, Oregon Tech's average annual enrollment costs to graduate salary ratio is the third lowest in the state among reported institutions (30 cents per dollar earned), with graduates earning 20 percent above the national average salary upon graduating.

Oregon Tech educates thousands of students in academic and technical programs each year. The University offers more than 40 degree programs and certificates in their Colleges of Engineering, Technology, and Management, and Colleges of Health, Arts, and Sciences. Most Oregon Tech students come from counties closest to where the university's campuses are located, such as Washington, Clackamas, and Klamath counties.

Exhibit 13. Oregon Tech Map of Student Origin by County

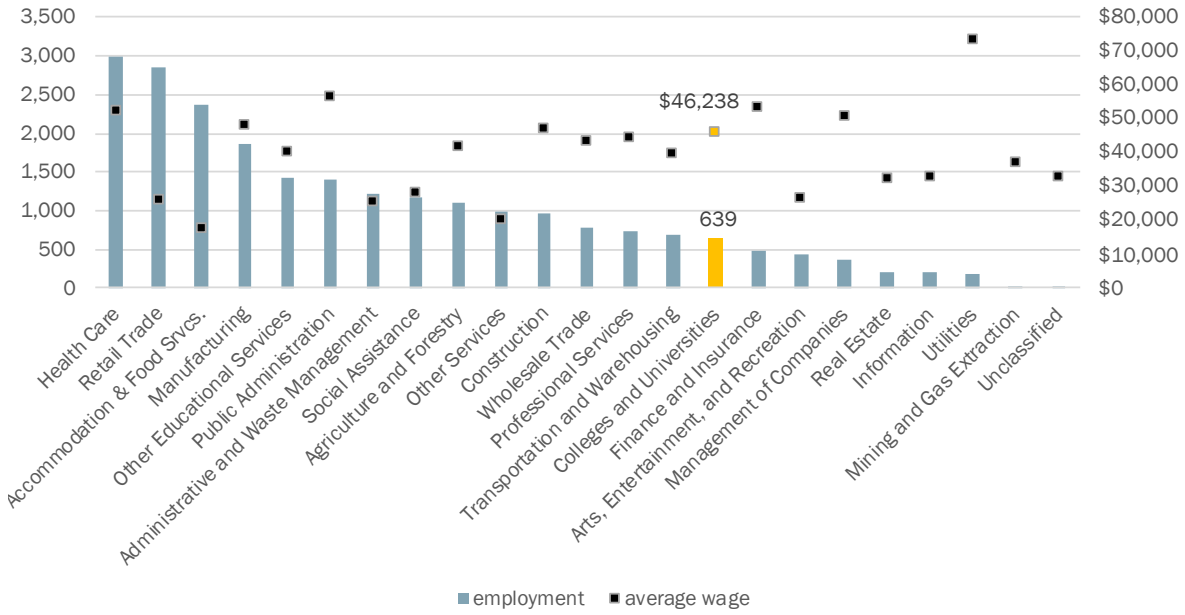


Top 3 states outside Oregon: 1. California, 2. Washington, 3. Hawaii

3.2.1 Oregon Tech's Place within the county

Jobs at Oregon Tech are predominantly categorized under the College and University job sector. In 2017, Klamath County had 639 jobs in the Colleges and University sector. These jobs are an important source of middle-income jobs in the county, paying on average $46,238 in annual wages, the eighth highest paying sector.

Exhibit 14. Average Wage and Total Employment by Sector in Klamath County, 2017



Source: ECONorthwest using QCEW data

3.2.2 Oregon Tech Supports High Paying Jobs that Benefit the Region

Oregon Tech supported 487 direct jobs, paying on average $107,462 in wages and benefits and producing $82.2 million in economic output. Campus operations also supported important secondary impacts such as 95 local vendors and small business jobs who contract with Oregon Tech (indirect) as well as the spending by both direct and indirect employees in the local economy, which supported 991 induced jobs in the county.

Exhibit 15. Operational, Student, and Visitor Contributions of Oregon Tech

Type of Impact	Output	Labor Income	Jobs
Polk County			
Direct	$82,207,000	$52,334,000	487
Indirect	$12,673,868	$6,877,838	95
Induced	$138,887,064	$55,002,506	991
Total	$233,767,931	$114,214,344	1,573

Note: Operations contributions include student and visitor spending for ease of reporting
Source: ECONorthwest using inputs from TRU and the IMPLAN model

3.2.3 University Upgrades Support Regional Jobs

Capital spending on Oregon Tech's main campus supported additional economic activities. Ongoing construction projects such as the Center for Excellence in Engineering and Technology and Cornett Hall Renovation project went to support 53 direct construction jobs in 2018, paying on average $65,829 in wages and benefits.

Exhibit 16. Construction Contributions of Oregon Tech

Type of Impact	Output	Labor Income	Jobs
Klamath County			
Direct	$0	$0	-
Indirect	$12,290,211	$4,222,555	66
Induced	$2,573,387	$902,614	19
Total	$14,863,597	$5,125,169	86

Source: ECONorthwest using inputs from TRU and the IMPLAN model

3.2.4 Student and Visitor Spending Converge on Campus

Oregon Tech enrolled 5,500 undergraduates in 2017 who on average spent $16,290 on non-tuition expenses such as housing, food, and entertainment.[9] Combined this spending injected $89.6 million into the local economy. Conversely, the university attracted 47,705 visitors to the campus to either visit students or attend other campus activities. Such visitors spent about $3.9 million in Klamath county on food, lodging, and entertainment.[10]

[9] Oregon Tech Cost of Attendance.

[10] The 2017 Oregon Travel Impacts report produced by Dean Runyan Associates estimated that visitors in the state spent on average $82 per day. ECONorthwest applied this to estimate total visitor spending for each university.

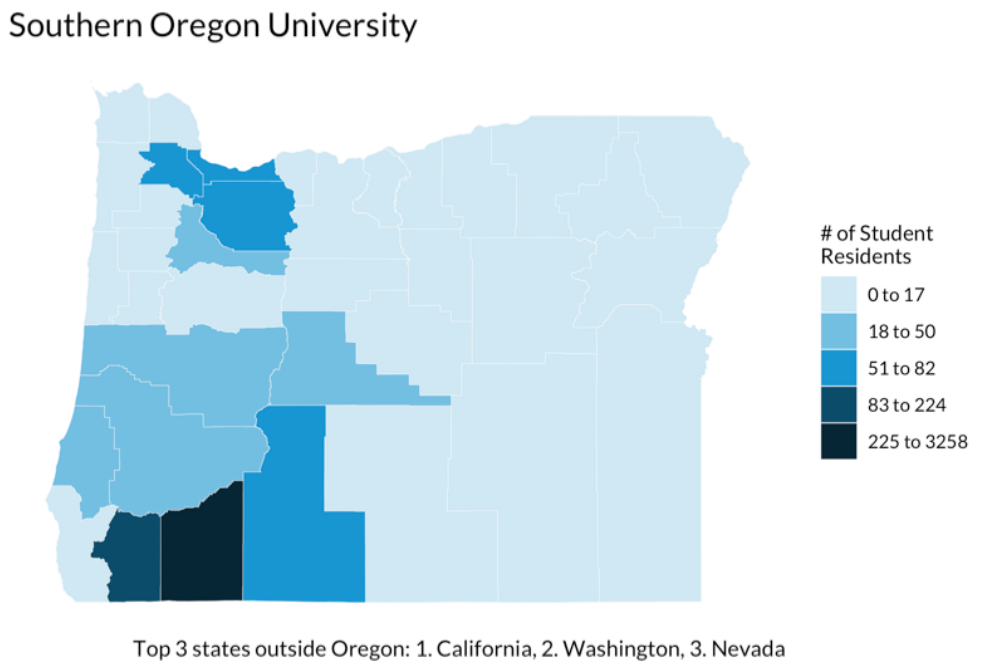
3.3 Southern Oregon University

Based in Ashland with an additional satellite campus in downtown Medford, Southern Oregon University (SOU) is an important driver of the regional economy in the Southern Oregon. The university consists of seven Academic Divisions: Oregon Center for the Arts, STEM, Education/Health & Leadership, Business/Communication & the Environment, Social Sciences, Humanities & Culture, and Undergraduate Studies. A satellite campus of Oregon Health Science University is also located on the main campus of SOU.

SOU has the most affordable tuition of any four-year public university in Oregon. Students pay 44 percent less than the state average tuition for publicly funded institutions.[11] This provides an important benefit to students once they begin their careers. Based on the U.S. Department of Education's College Scorecard, SOU average annual enrollment costs to graduate salary ratio is the lowest in the state among reported institutions (23 cents per dollar earned), with graduates earning slightly less than the national average salary of $47,060.

The University offers 37 degree programs offered within the seven Academic Divisions. Most SOU students come from counties closest to where the university's campuses are located (Jackson and Josephine).

Exhibit 17. Southern Oregon University Student Origin by County

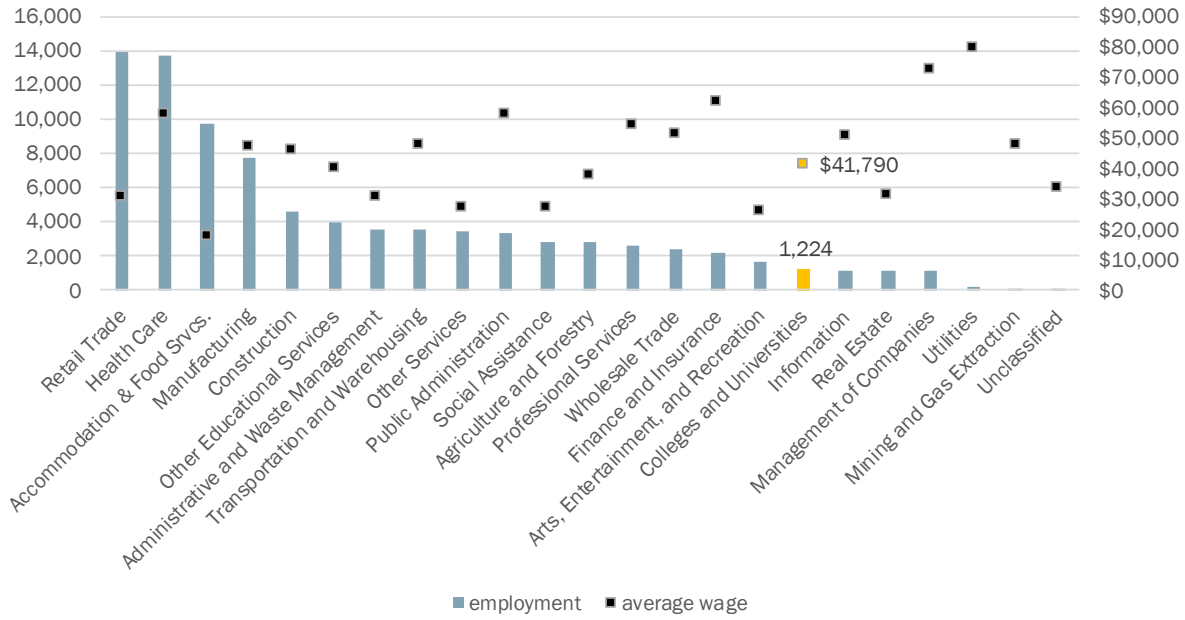


[11] U.S. Department of Education College Score Card

3.3.1 Southern Oregon's place within the county

As with other TRUs in Oregon, the College and University sector plays an important role in the regional economy. According to the Quarterly Census of Employment and Wages, the sector is the fifteenth largest in Jackson County with 1,224 employees and falls in the middle of the spectrum for pay, averaging $41,790 per year. This indicates that the College and University employment sector is an important source of middle-income jobs in the county. Exhibit 18 illustrates the employment and average pay by sector in Jackson County.

Exhibit 18. Average Wage and Total Employment by Sector in Jackson County, 2017



Source: ECONorthwest using QCEW data

3.3.2 SOU Contributes to a Robust Job Sector

Of the 1,224 jobs in the Colleges and universities sector, 63 percent of those are direct SOU operations jobs. During the 2017-2018 academic year, SOU operations supported 775 direct jobs, which includes salaried professors and administrators. These jobs paid on average about $79,259 in salaries and benefits and produced $92.7 million in economic output.

Exhibit 19. Operational, Student, and Visitor Contributions of Southern Oregon

Type of Impact	Output	Labor Income	Jobs
Jackson County			
Direct	$92,726,595	$61,426,422	775
Indirect	$19,499,912	$11,364,705	156
Induced	$170,224,461	$69,256,288	1,215
Total	$282,450,969	$142,047,415	2,146

Note: Operations contributions include student and visitor spending for ease of reporting
Source: ECONorthwest using inputs from TRU and the IMPLAN model

3.3.3 Renovation and Upgrades Further Support the Region

Capital spending on SOU's main campus supported additional economic activities. Ongoing construction projects such as the Britt Seismic Renovation, the Student Health, and Wellness lobby remodel project and boiler replacement went to support 154 direct construction jobs in 2018, paying on average $65,676 in wages and benefits and contributing $29.9 million in direct economic output to the region.

Exhibit 20. Construction Contributions of Southern Oregon

Type of Impact	Output	Labor Income	Jobs
Jackson County			
Direct	$0	$0	0
Indirect	40,332,300	13,508,287	218
Induced	10,296,749	3,750,261	78
Total	$50,629,049	$17,258,548	296

Source: ECONorthwest using inputs from TRU and the IMPLAN model

3.3.4 Student and Visitor Spending

SOU enrolled 5,475 undergraduates in 2017 who on average spent $15,144 on non-tuition expenses such as housing, food, and entertainment.[12] Combined this spending injected $82.9 million into the local economy. Additionally, the university attracted 73,722 visitors to the campus to either visit students or attend other campus activities. Such visitors spent about $6 million in Jackson county on food, lodging, and entertainment.[13]

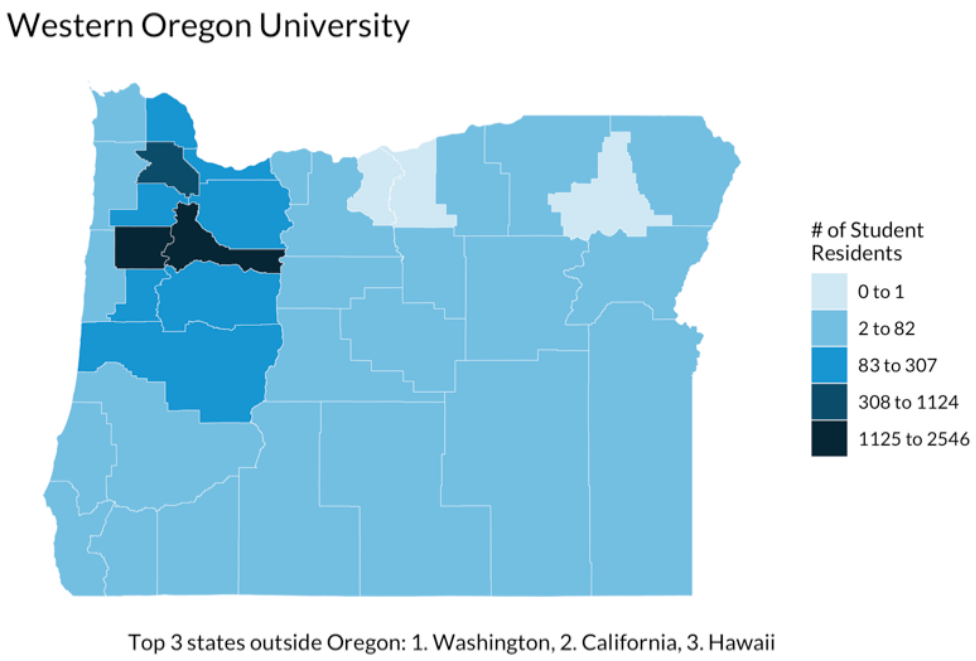
[12] Southern Oregon University Cost of Attendance.

[13] The 2017 Oregon Travel Impacts report produced by Dean Runyan Associates estimated that visitors in the state spent on average $82 per day. ECONorthwest applied this to estimate total visitor spending for each university.

3.4 Western Oregon University

Western Oregon University (WOU) is located in Monmouth, a town of roughly 10,500, in Polk County. The University was founded in 1865 as a private university. However, in 1882, the Oregon Legislature approved the university's request to become a state-supported institution, making it a public university. During the 2017-2018 academic year, WOU had 8,917 graduate and undergraduate students enrolled across its two colleges: The College of Education and the College of Liberal Arts and Sciences, offering 55 bachelor's degrees. These students largely came from the region, with the majority of students coming from Polk County followed by those adjacent counties closest in proximity to the university.

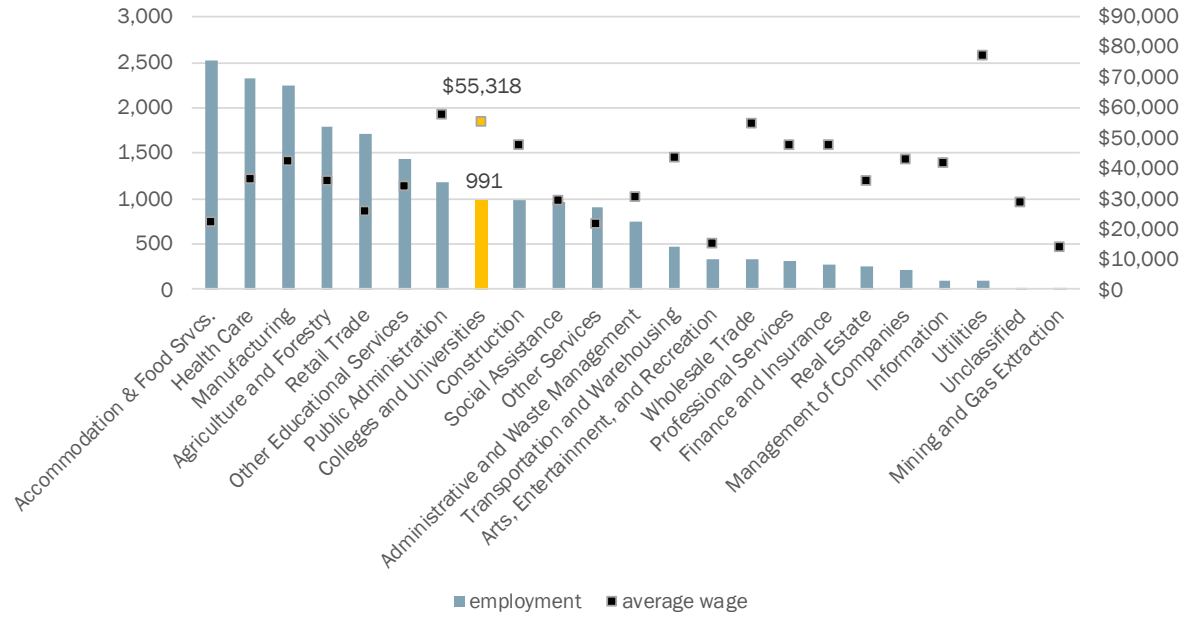
Exhibit 21. WOU Map of Student Origin by County



3.4.1 WOU is a Major Source of Good Paying Jobs in the County

WOU is an important employer in Polk county. In 2017, Colleges and Universities accounted for 991 jobs in this county. It was the eighth largest employment sector, paying on average $55,318 annually in wages, which is the third-highest. This indicates that WOU is one of the most important sources for middle-income jobs in the county. Exhibit 22 illustrates the importance of Colleges and Universities sector in comparison to all other sectors in the regional economy.

Exhibit 22. Average Wage and Total Employment by Sector in Polk County, 2017



Source: ECONorthwest using QCEW data

3.4.2 WOU is an Important Employer in the County

WOU makes up a large share of the total Colleges and University jobs in the region. During the 2017-2018 academic year, the university supported 929 direct university jobs, paying on average $69,362 in wages and benefits and produced $108 million in economic output. Campus operations also supported important secondary impacts such as 133 local vendors and small business jobs who contract with WOU (indirect) as well as the spending by both direct and indirect employees in the local economy, which supported an additional 724 jobs in the county.

Exhibit 23. Operational, Student, and Visitor Contributions of Western Oregon University

Type of Impact	Output	Labor Income	Jobs
Polk County			
Direct	$108,080,000	$64,437,094	929
Indirect	$14,714,225	$6,396,410	133
Induced	$100,793,283	$33,510,356	724
Total	$223,587,508	$104,343,860	1,786

Note: Operations contributions include student and visitor spending for ease of reporting
Source: ECONorthwest using inputs from TRU and the IMPLAN model

3.4.3 Renovation and Upgrades Further Support the Region

Capital spending on WOU's campus supported additional economic activity beyond operations. Ongoing construction projects such as the Natural Science building renovation, solar panel installation on the Education Center and the third

phase of the Instructional Technology Center. These renovations, upgrades, and expansions supported 39 direct construction jobs during the 2017-2018 academic year, paying on average $65,800 in wages and benefits.

Exhibit 24. Construction Contributions of Western Oregon University

Type of Impact	Output	Labor Income	Jobs
Polk County			
Direct	$0	$0	0
Indirect	$0	$0	0
Induced	$51,085,340	$14,015,032	370
Total	$51,085,340	$14,015,032	370

Source: ECONorthwest using inputs from TRU and the IMPLAN model

Students and Visitors Provide Ancillary Economic Contributions

In 2017, WOU enrolled 4,776 undergraduates who on average spent $15,924 on non-tuition expenses such as housing, food, and entertainment. This was equal to an infusion of $76.1 million into the local economy that otherwise would not occur without the university. The university also attracted 28,796 visitors to the campus to either visit students or attend other campus activities. Campus visitors spent about $2.4 million in the county on food, lodging, and entertainment.[14]

[14] The 2017 Oregon Travel Impacts report produced by Dean Runyan Associates estimated that visitors in the state spent on average $82 per day. ECONorthwest applied this to estimate total visitor spending for each university.

Appendix A: IMPLAN Software

Overview of Economic Modeling

Economists have developed several approaches to measure the contributions or economic contributions of companies on the communities in which they operate. The most common method estimates the economic and fiscal impacts associated with the company's spending on payroll, goods and services, and capital projects. This method is oftentimes referred to as the "expenditure approach."

Input-Output Modeling Framework

The expenditure approach is typically conducted within an input-output modeling framework. Input-output models are mathematical representations of the economy that show how different parts (or sectors) are linked to one another. The strengths of the input-output modeling framework include:

- a double-entry accounting framework that results in a model structure that is well ordered, symmetric, and where, by definition, inputs must be equal to outputs;
- a reasonably comprehensive picture of the economic activities within a region, with mathematical equations that describe the flow of commodities between producing and consuming sectors, the flow of income between businesses and institutions, and the trade-in commodities between regions;
- model construction using secondary source data that are gathered and vetted by government agencies; and
- the ability to cost-effectively create input-output models for any region.

Input-output models that rely on surveys or primary source data are expensive to construct. As a result, special modeling techniques have been developed to estimate the necessary empirical relationships. These techniques use a combination of national technological relationships and state- and county-level measures of economic activity, and have been packaged into IMPLAN.

The IMPLAN Input-Output Model

IMPLAN has been developed and distributed by the Minnesota IMPLAN Group, Inc., since 1993. The IMPLAN modeling system is widely used and well respected—there are currently more than 1,500 public and private users of the IMPLAN modeling software.

In general terms, the IMPLAN model works by tracing how spending associated with an industry circulates through an economy or study area. That is, changes in one sector or multiple sectors trigger changes in demand and supply throughout the economy. Initial changes in the model propagate through the economy via supply- and demand-chain linkages, altering the equilibrium quantities of inputs and outputs and associated jobs, income, and value-added. These *multiplier*

effects (described in Appendix B) continue until the initial change in final demand leaks out of the economy in the form of savings, taxes, and imports.

Classifying Economic Contributions

Depending on the activity being analyzed, economic contributions can be classified by phases, types, and measures.

Impacts by Expenditure Category

This analysis shows the impacts associated with the following four major expenditure categories:

1. *Operating expenditures* include college payroll and purchases of goods and services.

2. *Capital expenditures* consist of building renovations, new construction, and seismic stabilization.

3. *Student spending* consists of all non-college, non-tuition spending.

4. *Visitor spending* includes spending at cultural and athletic events; academic events and graduation; and other events.

Type of Economic Effects

Economic contributions analysis employs specific terminology to identify the different types of economic effects associated with university and student spending. We provide a more detailed definition.

1. *Direct Effects* are those associated with payroll and employment. They also include the direct output of the activities associated with the college, which is estimated using an expenditure approach that sums labor and non-labor operating expenses.

2. *Indirect Effects* are the goods and services purchased for operations. This spending generates the first round of indirect impacts. Suppliers will also purchase additional goods and services; this spending leads to additional rounds of indirect impacts. Because they represent interactions among businesses, these indirect effects are often referred to as supply-chain impacts.

3. *Induced Effects* are the purchases of goods and services from household incomes**.** The direct and indirect increases in employment and income enhance the overall purchasing power in the economy, thereby inducing further consumption- and investment-driven stimulus. Employees at the organization, for example, will use their income to purchase groceries or take their children to the doctors. These induced effects are often referred to as consumption-driven impacts.

Measuring Economic Activity

The IMPLAN model reports the following measures of economic effects:

1. *Output* represents the value of goods and services produced and is the broadest measure of economic activity. Output can roughly be thought of as sales. Additionally, for businesses to provide output, they must purchase intermediate goods and labor services. (Payments to labor are described below. Personal income is a subset of output and the two should not be added together.)

2. *Employee compensation* includes workers' wages and salaries, as well as other benefits such as health, disability, and life insurance; retirement payments; and non-cash compensation.

3. *Jobs*, according to IMPLAN's methodology, are measured in terms of full-year-equivalents (FYE). One FYE job equals work over twelve months in a given industry (this is the same definition used by the Bureau of Labor Statistics (BLS). For example, two jobs that last six months each in 2012 count as one FYE job in 2012. A job can be full-time or part-time, seasonal or permanent; IMPLAN counts jobs based on the duration of employment, not the number of hours per week worked. Job impacts from operations are for one year of normal operations.

4. *State and local taxes and fees* include production business taxes; personal income taxes; social insurance (employer and employee contributions) taxes; and various other taxes, fines, licenses, and fees paid by businesses and households.

Appendix B: Economic Multipliers

The main report describes the gross contributions of the TRUs to Oregon's economy. Another way to describe the economic activity supported by TRUs is to look at their economic multipliers. Economists use economic multipliers as a shorthand way to better understand the linkages between an activity and other sectors of the economy.Multipliers measure how marginal changes in a specified industry will result in changes in the overall economy. While useful, these multipliers should be interpreted with caution.

The size of the multiplier is not a measure of the amount of activity or the importance of a given industry for the economy. It is an estimation of what would happen if that industry's sales to final demand ratio increased or decreased. In other words, output multipliers can be used to gauge the interdependence of sectors: the larger the output multiplier, the greater the interdependence of the sector on the rest of the regional economy.

Additionally, the multipliers do not account for the relative efficiency of spending and should not be interepreted as a measure of economic well-being or changes in social welfare associated with that spending. As such, they should not be confused with the results of a benefit-cost analysis.

Below, we present the economic multipliers for each institution. These multipliers account for changes in gross economic activity associated with each institutions ongoing operations. Student spending and construction are not included in these multipliers. Construction activities often have short-run economic impacts that end when the construction phase is complete, and non-institutional student spending is not dependent of the institutions operating budget. As such, the most accurate representation of an institution's "ongoing" linkages in the economy are based on its operations spending.

Exhibit B1. Operations Multipliers for TRUs

Institution	Output	Labor Income	Jobs
Eastern Oregon University	1.84	1.61	1.89
Oregon Tech	1.74	1.59	1.87
Southern Oregon	1.80	1.65	1.69
Western Oregon	1.68	1.49	1.58
TRUs	**1.42**	**1.24**	**1.46**

Source: ECONorthwest using inputs from TRU and the IMPLAN model

Using the the TRU multipliers as the basis for comparison, economic multipliers for can be interpreted as follows:

- **Output:** An output multiplier of 1.42 means that every million dollar change (increase or decreae) in final demand by the TRUs, another $420,000 in final demand changes in other sectors of the economy.

- **Labor Income:** A labor income multiplier of 1.24 suggest that for every million dollar change in labor income is linked to another $240,000 change in other sectors of Oregon's economy.
- **Jobs:** A job multiplier of 1.46 suggests that every 10 jobs associated with the TRUs are linked, on average, to another 4.6 jobs in other sectors in Oregon.

In order to calculate these multipliers, ECONorthwest surveyed each institution about their labor income, non-labor spending, and other relevant information. That data was used to build spending patterns unique to each institution, based on the distribution of spending during the 2017-2018 academic year.

Appendix C: Detailed Results

Exhibit C1. Eastern Oregon Operational, Student, and Visitor Contributions

Type of Impact	Output	Labor Income	Jobs
Polk County			
Direct	$58,688,571	$38,313,266	439
Indirect	$9,182,608	$4,521,824	98
Induced	$77,786,629	$31,577,701	633
Total	$145,657,808	$74,412,791	1,169
Rest of Oregon			
Direct	$0	$0	0
Indirect	$1,341,718	$600,382	7
Induced	$12,374,667	$4,825,881	63
Total	$13,716,385	$5,426,264	70
Oregon Total			
Direct	$58,688,571	$38,313,266	439
Indirect	$10,524,326	$5,122,206	104
Induced	$90,161,295	$36,403,582	696
Total	$159,374,193	$79,839,055	1,239

Source: ECONorthwest using inputs from TRU and the IMPLAN model

Exhibit C2. Eastern Oregon Construction Contributions

Type of Impact	Output	Labor Income	Jobs
Union County			
Direct	$0	$0	0
Indirect	5,482,321	1,846,830	30
Induced	975,442	324,181	8
Total	$6,457,764	$2,171,011	38
Rest of Oregon			
Direct	$0	$0	0
Indirect	1,056,523	330,640	5
Induced	401,370	141,783	2
Total	$1,457,893	$472,424	7
Oregon Total			
Direct	$0	$0	0
Indirect	$6,538,845	$2,177,470	35
Induced	$1,376,812	$465,965	11
Total	$7,915,656	$2,643,435	45

Source: ECONorthwest using inputs from TRU and the IMPLAN model

Exhibit C3. Oregon Tech Operational, Student, and Visitor Contributions

Type of Impact	Output	Labor Income	Jobs
Polk County			
Direct	$82,207,000	$52,334,000	487
Indirect	$12,673,868	$6,877,838	95
Induced	$138,887,064	$55,002,506	991
Total	$233,767,931	$114,214,344	1,573
Rest of Oregon			
Direct	$0	$0	0
Indirect	$779,004	$335,030	4
Induced	$9,666,341	$3,412,389	51
Total	$10,445,345	$3,747,420	56
Oregon Total			
Direct	$82,207,000	$52,334,000	487
Indirect	$13,452,872	$7,212,869	100
Induced	$148,553,404	$58,414,895	1042
Total	$244,213,276	$117,961,763	1,629

Source: ECONorthwest using inputs from TRU and the IMPLAN model

Exhibit C4. Oregon Tech Construction Contributions

Type of Impact	Output	Labor Income	Jobs
Klamath County			
Direct	$0	$0	0
Indirect	12,290,211	4,222,555	66
Induced	2,573,387	902,614	19
Total	$14,863,597	$5,125,169	86
Rest Of Oregon			
Direct	$0	$0	0
Indirect	1,934,458	576,910	8
Induced	616,831	215,630	4
Total	$2,551,289	$792,540	12
Oregon Total			
Direct	$0	$0	0
Indirect	$14,224,669	$4,799,465	75
Induced	$3,190,217	$1,118,244	23
Total	$17,414,886	$5,917,709	98

Source: ECONorthwest using inputs from TRU and the IMPLAN model

Exhibit C5. Southern Oregon Operational, Student, and Visitor Contributions

Type of Impact	Output	Labor Income	Jobs
Jackson County			
Direct	$92,726,595	$61,426,422	775
Indirect	$19,499,912	$11,364,705	156
Induced	$170,224,461	$69,256,288	1,215
Total	$282,450,969	$142,047,415	2,146
Rest of Oregon			
Direct	$0	$0	0
Indirect	$776,739	$353,221	3
Induced	$8,152,680	$3,034,094	35
Total	$8,929,419	$3,387,314	39
Oregon Total			
Direct	$92,726,595	$61,426,422	775
Indirect	$20,276,651	$11,717,925	159
Induced	$178,377,141	$72,290,382	1251
Total	$291,380,387	$145,434,729	2,185

Source: ECONorthwest using inputs from TRU and the IMPLAN model

Exhibit C6. Southern Oregon Construction Contributions

Type of Impact	Output	Labor Income	Jobs
Jackson County			
Direct	$0	$0	0
Indirect	40,332,300	13,508,287	218
Induced	10,296,749	3,750,261	78
Total	$50,629,049	$17,258,548	296
Rest of Oregon			
Direct	$0	$0	0
Indirect	2,950,562	920,135	12
Induced	1,173,195	412,039	7
Total	$4,123,757	$1,332,174	19
Oregon Total			
Direct	$0	$0	0
Indirect	$43,282,862	$14,428,422	230
Induced	$11,469,944	$4,162,300	84
Total	$54,752,807	$18,590,722	315

Source: ECONorthwest using inputs from TRU and the IMPLAN model

Exhibit C7. Western Oregon Operational, Student, and Visitor Contributions

Type of Impact	Output	Labor Income	Jobs
Polk County			
Direct	$108,080,000	$64,437,094	929
Indirect	$14,714,225	$6,396,410	133
Induced	$100,793,283	$33,510,356	724
Total	$223,587,508	$104,343,860	1,786
Rest of Oregon			
Direct	$0	$0	0
Indirect	$2,421,455	$1,384,788	13
Induced	$17,002,051	$7,656,516	96
Total	$19,423,506	$9,041,304	109
Oregon Total			
Direct	$108,080,000	$64,437,094	929
Indirect	$17,135,680	$7,781,197	146
Induced	$117,795,334	$41,166,872	820
Total	$243,011,014	$113,385,164	1,895

Source: ECONorthwest using inputs from TRU and the IMPLAN model

Exhibit C8. Western Oregon Construction Contributions

Type of Impact	Output	Labor Income	Jobs
Polk County			
Direct	$0	$0	0
Indirect	8,527,141	2,864,890	46
Induced	1,178,097	327,290	9
Total	$17,320,937	$5,761,933	94
Rest of Oregon			
Direct	$0	$0	0
Indirect	2,406,721	846,006	12
Induced	828,628	304,467	5
Total	$3,235,348	$1,150,473	17
Oregon Total			
Direct	$0	$0	0
Indirect	$10,933,862	$3,710,897	58
Induced	$2,006,724	$631,757	14
Total	$20,556,286	$6,912,406	111

Source: ECONorthwest using inputs from TRU and the IMPLAN model