Economic Impacts of Utah Valley University

Fiscal Year 2014

Prepared by Jack Faucett Associates, Inc.
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Executive Summary

Utah Valley University (UVU) is the largest institution in the Utah System of Higher Education. During the 2013-14 school year, more than 35,000 students attended the University. UVU offered 67 associate degrees, 67 bachelor degrees, and master degrees in education, nursing, and business administration. More than eight in ten UVU students come from within state. About two-thirds of UVU students come from the three in-state counties that comprise UVU's service region: Utah, Wasatch, and Summit Counties. However, the University attracts students from across Utah, the U.S., and the world. The Northwest Commission on Colleges and Universities accredits UVU.

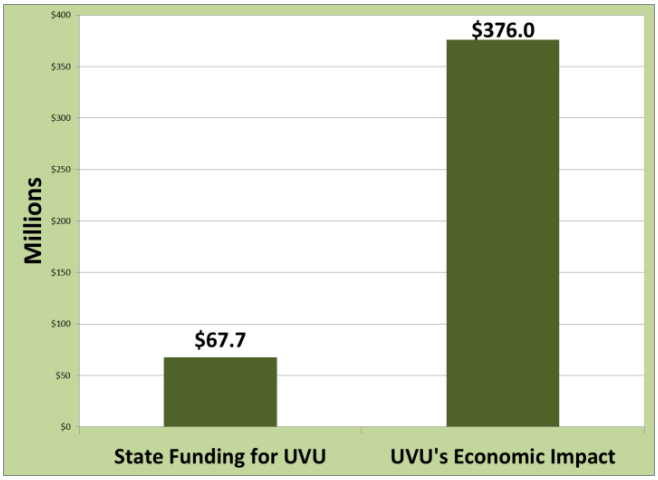
Purpose of the Study

The purpose of this study is to estimate the economic impact of UVU on its service region and the State of Utah for the 2013-14 fiscal year. As UVU has evolved to a state university from its beginnings as a vocational school to technical college, community college and state college, its impact on the surrounding community has expanded.

Utah's Return on Investment

UVU's impacts on the State of Utah are significantly greater than the funds provided by the State to support the University. UVU provided $376.0 million in value-added economic impact to the State. The State of Utah provided UVU with about $67.7 million in state funds in 2013-14.1

UVU's Value-Added Economic Impact on State of Utah Greatly Exceeds State Funds Received



UVU's Impact to Cost Ratio

The ratio of UVU's economic impact to State cost can be compared using an impact-cost analysis. UVU has an impact to cost ratio of 8.04 to 1, which means that almost every dollar spent by the State government on UVU creates $8.04 in economic activity in the State of Utah.

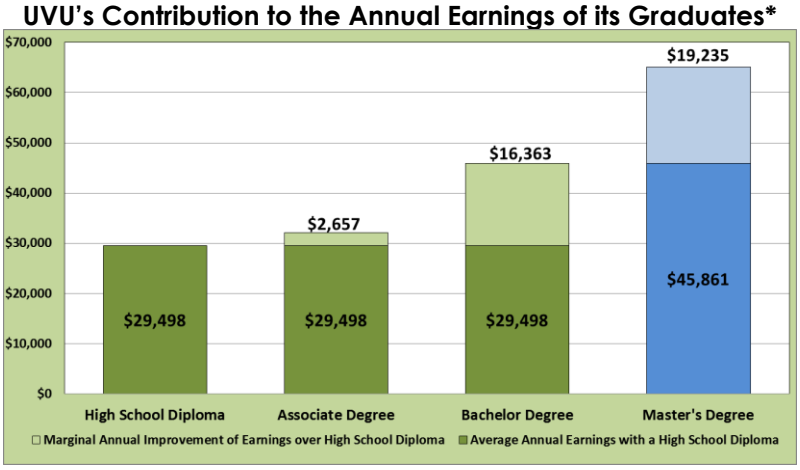
UVU's Annual Impacts to Region

[1] UVU 2014 Factbook, Exhibit 69. From UVU Office of Planning and Budget

- UVU's total economic impact as measured by output is $391.5 million at the service region level (i.e. Utah, Wasatch, and Summit Counties) and $544.3 million at the state level.
- UVU's total economic impact as measured by value added is $282.9 million at the service region level (i.e. Utah, Wasatch, and Summit Counties) and $376.0 million at the state level.
- UVU has a total tax impact of $23.5 million on its service region and a total tax impact of $32.7 million on the State of Utah.
- UVU directly employs 3,346 employees and in total supports 6,724 full-time equivalent jobs in the state.

UVU's Contribution to the Lifetime Earnings of its Graduates

UVU contributes to the community by helping its graduates obtain better paying employment over the course of their lives than they might otherwise have been able to achieve. The university education provides an approximate increase in lifetime earnings of $106,280 for those who earn an associate degree, $654,520 for a bachelor degree, and $769,400 for a master's degree. UVU had 5,242 students graduate in FY2013-14. For this cohort of students, their UVU degrees are expected to contribute more than $2.1 billion over their combined lifetimes.



Source: U.S. Census Bureau, American Community Survey, 2013

* The marginal benefits of each degree are measured against a high school diploma, except for a master's degree shown in light blue, which is measured against a bachelor degree shown in darker blue.

UVU is More than Just a University

UVU is not just a center for higher education; it plays an important role in promoting economic development and entrepreneurship in the surrounding community. The populations served by the groups, organizations, centers, and initiatives affiliated with UVU are varied, including small manufacturers, entrepreneurs, UVU students with new business concepts, restauranteurs, and Spanish-speaking childcare providers. The economic development programs associated with the University include:

- Small Business Development Center
- Manufacturing Extension Partnership of Utah
- Utah Science Technology and Research Initiative
- Utah Cluster Acceleration Partnership

- UVU Office of Technology Commercialization
- Business Resource Center
- Woodbury School of Business Entrepreneurship Institute
- Volunteer & Service Learning Center
- Care About Childcare at UVU
- Grants for Engaged Learning Program
- USTAR Technology Commercialization Grants

$3.2 Million from UVU Events

UVU hosts a number of athletic, cultural and other school-related events throughout the year that create economic value to UVU's service area and the State. Three main facilities are available for use by students, faculty, staff and local community members. They are:

- UCCU Events Center
- Brent Brown Ballpark
- Sorensen Student Center

Revenues from UVU events exceeded $3.2 million in 2014, with almost equal contributions from UCCU and athletic events. The economic impact of these events occurs due to two types of effects. The first is spending by these facilities for their operations. The second is spending by event attendees on food, lodging and travel. Attendees come from within and outside the UVU service area.

Economic Impact of the Career and Technical Education Department (CTE)

The Career and Technical Education (CTE) department plays an important economic and social role in the community it serves. Not only does the department provide skilled workers to the local economy, but also it, along with the rest of Utah Valley University (UVU), is a major employer and purchaser of goods and services from local businesses.

CTE programs at UVU are designed to prepare students for employment in high-demand and higher-paying career fields. CTE offers diplomas, certificates and associate's degrees, in 38 programs, including computer science, building construction, aviation science, nursing, accounting, and hospitality management. During the 2013-14 school year, the CTE program enrolled 14,127 students of which 2,199 students were pursuing majors in the CTE program.

One way in which the University contributes to the community is by helping its CTE graduates to obtain better paying employment over the course of their lives than they might otherwise have been able to do. This increase in annual income associated with higher educational attainment may contribute to a significant improvement in lifetime earnings for UVU CTE graduates. A university education is associated with an approximate increase in lifetime earnings (compared to a high school graduate) of $106,280 for an associate degree. For the 2014 UVU graduating class, this represents a total of about $83.3 million over their lifetimes.

The State obtains a high return on its investment in the CTE program at UVU. For example, from a service region perspective, the return on investment is $3.49 per dollar of value added and $4.73 per dollar of output. From a state level perspective, the return on investment is $4.86 per

dollar of value added and $7.00 per dollar of output. The federal perspective return on investment is $73.72 for the service region and $108.92 for the State.

Economic Modeling & Methodology

Economists define and measure the impact of an exogenous event, such as the development and operation of a university like UVU, in terms of the differences between the state of the economy associated with the university and the economic state without the university. This study calculated the economic impacts of UVU using IMPLAN, an industry leading input-output model. More than 250 colleges and universities have used IMPLAN, including several of comparable size to UVU. The development of expenditure values for six categories of "direct" impact activities were entered into the model and assigned to one or more economic sectors. These "production vectors" were then entered into IMPLAN to derive "indirect" and "induced" economic impacts. The tally of direct, indirect, and induced economic impacts equal the total economic impacts of UVU spending. The definition of direct, indirect, induced, and total economic impacts are as follows:

- **Direct impacts** refer to impacts from the economic activities associated with the university.
- **Indirect impacts** measure output (gross sales), jobs, and labor income associated with organizations and entities that support direct activities.
- **Induced impacts** accrue when workers in the direct and indirect industries spend their wages on local goods and services. These expenditures in turn stimulate other sectors in the local economy.
- **Total impacts** are the sum of direct, indirect, and induced impacts. These represent all transactions attributable, either directly or indirectly, to the university.

The IMPLAN model produces a variety of quantified impact measures, including employment, personal income, value added, and output.[2] Additionally, IMPLAN provides a tax impact summary that shows the federal taxes and combined state and local taxes associated with the analyzed economic activities. The IMPLAN model develops service region and state results through independent quantitative processes and the results are not cumulative. Running the IMPLAN model requires the user to input the appropriate expenditure data. For this analysis, the expenditure data is one of three basic types, an industry purchase, compensation to households, and payment to governments.

[2] Please note that economists favor the use of "value added" over "output" as a measure of economic impact. "Output" is a measure of gross sales and therefore includes double counting as goods are sold and resold. "Value added" is a measure of gross product, i.e. Gross National Product (GNP), and eliminates double-counting and the value of purchased goods produced outside the region.

Chapter 1. Introduction

1.1 Study Objective

The purpose of this study is to estimate the economic impacts of Utah Valley University (UVU) on the service region and the State of Utah economy during the 2013-2014 fiscal year. UVU's service region is made up of three in-state counties: Utah, Wasatch, and Summit Counties. About 86 percent of students enrolled at UVU are from the State of Utah and 67 percent of students are from the UVU service region.[3]

1.2 Literature Review

Each year, thousands of enterprises, including colleges and universities, conduct or retain an outside organization to conduct economic impact studies.[4] Nevertheless, there appears to be confusion over what exactly constitutes a college or university economic impact study. Economists in the field note how some studies measure true impacts, while others do not. These studies may measure contributions, gross regional products, or true economic impacts.[5] As defined by Watson, et al., a true economic impact is "the net change to the economic base of a region that would not otherwise be there without the industry or firm under analysis."[6] He also defines exactly what impacts are and what they are not. The team of economists at Vanderbilt University, cited below, elaborates the counterfactuals necessary to measure economic impact and describe how true economic impacts are determined by income, and not by sales.

There has been a proliferation of university impact studies over the last ten years. The studies show how universities demonstrate a wide range of services, both tangible and intangible. Swenson offers a range of cautions that to consider in these analyses, noting that many go beyond the proper scope of the university economic impact.[7] Other legitimate methods of measuring university activity may include employing alternative methods of university worth, benefit-cost analyses, case studies and success stories, linkages and flows, alumni or stakeholder surveys, testimonials, social contributions of students and faculty, etc. The research team is familiar with Swenson's guidelines to enhance university impact credibility and applied them as required. In addition, the research team noted recommendations from others, including the researchers from Vanderbilt University Department of Economics, concerning proper

[3] UVU Fact Book 2014. Exhibit 39, p. 27.
[4] Christophersen, K., Nadreau, T., and Olanie, A. The Rights and Wrongs of Economic Impact Analysis for Colleges and Universities. Economicmodeling.com.
[5] Ibid.
[6] Watson, Philip, Joshua Wilson, Dawn Thilmany, and Susan Winter. "Determining economic contributions and impacts: What is the difference and why do we care." *Journal of Regional Analysis and Policy* 37, no. 2 (2007): 140-146.
[7] Swenson, David. Chapter 2. Enhancing University Impact Studies. Credibility of Analysis, Alternative Measures of University Worth. In Economic Impact Guidelines, Association of Public and Land-Grant Universities, December 2014.

methodology and cautions to avoid overstating conclusions.[8] These concerns include specification of the counterfactual, not double counting economic impacts, recognizing the role of paid or avoided local taxes, and the omission of local spillover benefits from enhanced human capital created by higher education.[9]

There are a number of reputable input/output models used in these analyses. Among them, IMPLAN is a widely accepted software tool for measuring the economic impact of academic institutions.[10] The IMPLAN model is described in detail in Chapter 8. Swenson, an expert in the field, argues IMPLAN must be modified to measure correctly the economic contributions of public universities (compared to private entities) and favors an approach called a Bill of Goods analysis (BOG). A BOG analysis requires the analyst to know the specific expenditures of the industry being evaluated, i.e., its detailed bill of goods. Within-region and out of region purchases should also be distinguished. Swenson summarizes four reliable and defensible approaches to creating public universities input-output results or sector using IMPLAN.[11] The four approaches are:

1. Customizing the Study Area Data Only
2. Bill of Goods Approach Using IMPLAN Local Purchase Coefficients
3. Bill of Goods Analysis Using Known Local Purchase Values
4. A Hybrid Approach to Bill of Goods: Modifying the Production Coefficients

Of the four approaches, Swenson argues the superiority of the third approach, a detailed BOG with known local spending levels. If the data provided by the institution allows, that is, the spending can be allocated to in-state suppliers using zip codes of the payees, this method is recommended. He admits that often these data are not available and therefore he routinely uses a version of Method 4 in cases where only the broad categorical spending totals are known. Swenson illustrates that the four methods all produce "very little difference in the total multipliers" when done reasonably well.

Thousands of enterprises are the subject of economic impact studies each year. These include colleges, universities, workforce boards and many other types of organizations.[12] Five studies have examined the economic impact of UVU on the region and state. The first two studies in 1996-97 and 1999-20 were conducted in-house. Jack Faucett Associates conducted two studies in 2010.[13]

[8] McHenry, P., Sanderson, A., and Siegfried, J. The Local Economic Impact of Colleges and Universities. Paper presented at SUNY Conference, 2011.
[9] Siegfried, JJ, Sanderson, AR and McHenry, P. The Economic Impact of Colleges and Universities. Working Paper No. 06-W12, May 2006. Also *Economics of Education Review*, Volume 26, Issue 5, October 2007, pp. 546-558.
[10] Swenson, Dave. Using IMPLAN to Evaluate Public Universities Regional Economic Impacts. Mid-Continent Regional Science Association and IMPLAN Biennial Meeting, June 4-5, Madison, WI.
[11] Swenson, Dave. Using IMPLAN to Evaluate Public Universities Regional Economic Impacts. Department of Economics, Iowa State University, Revised May 2014. https://www.econ.iastate.edu/research/other/p17708
[12] Christopersen, K., Nadreau, T and Olanie. The Rights and Wrongs of Economic Impact Analysis for Colleges and Universities. http://www.economicmodeling.com/2014/01/07/the-rights-and-wrongs-of-economic-impact-analysis-for-colleges-and-universities/
[13] http://www.uvu.edu/iri/

Economic Impacts of Utah Valley University, FY2010[14]
Jack Faucett Associates, Inc.

Economic Impacts of Utah Valley University's Career and Technical Education Program, FY2010[15]
Jack Faucett Associates, Inc.

Jack Faucett Associates conducted a companion analysis in 2010 comparing the results of the FY1996, FY1999 and FY2004 studies to impacts identified using the Ryan New Jersey model.[16]

Economic Impact study of Utah Valley University, 2004-05

Economic Impacts of Utah Valley State College, 1999-2000
The Department of Institutional Research and Management Studies

Economic Impact of Utah Valley State College, 1996-1997
The Department of Institutional Research and Management Studies

The research team reviewed comparable key college and university economic impact studies focusing on methodology and how economic models were applied in similar cases. Exhibit 1-1 shows the studies reviewed the name and location of the institution, the author and provides a link to each.

Exhibit 1-1: College and University Economic Impact Studies

City or State	Year*	Institution	Author	Link
Texas	2015	• Tarleton State University	• Economic Modeling Specialists, Intl.	Link to Study
Texas	2015	• University of Texas at Austin	• EMSI	Link to Study
Utah	2014	• Utah Valley University – Tech Program	• Jack Faucett Associates	Link to Study
Pennsylvania	2014	• University of Pittsburgh	• TrippUmbach	Link to Study
Texas	2014	• Texas State University	• Texas State Univ.: McCoy College of Business Administration – Dept. of Finance and Economics	Link to Study
USA	2014	• Community Colleges	• EMSI	Link to Study
Washington	2014	• University of Washington	• TrippUmbach	Link to Study
California	2013	• University of California: Los Angeles	• Center for Strategic Economic Research	Link to Study
Ohio	2013	• Ohio University	• Ohio Univ.: Finance and Administration with Thomas Miller and Associates, Inc.	Link to Study
Rhode Island	2013	• University of Rhode Island	• Appleseed	Link to Study
Texas	2013	• University of Houston System	• Institute for Regional Forecasting	Link to Study
Virginia	2012	• Norfolk State University	• Jack Faucett Associates	Link to Study
Florida	2012	• University of Miami	• Bendixen & Amandi International	Link to Study
California	2011	• University of California	• Economic & Planning Systems	Link to Study

[14] http://www.uvu.edu/iri/documents/surveys_and_studies/UVU%20Ecoomic%20Impact%20Study%202009-2010%20by%20JFA%2011%208%202011%20final%20RLL.pdf
[15] http://www.uvu.edu/iri/documents/surveys_and_studies/cte_economic_impact_study_report_01-21-14.pdf
[16] Appendix 1.
http://www.uvu.edu/iri/documents/surveys_and_studies/UVU%20Ecoomic%20Impact%20Study%202009-2010%20by%20JFA%2011%208%202011%20final%20RLL.pdf

California	2011	• University of California: Davis	• Center for Strategic Economic Research	Link to Study
Utah	2011	• Utah Valley University	• Jack Faucett Associates	Link to Study
California	2010	• California State University System	• ICF International	Link to Study
Montana	2010	• Montana State University	• Univ. of Montana: Bureau of Business and Economic Research	Link to Study
California	2008	• University of California: San Diego	• CBRE Consulting, Inc.	Link to Study
South Carolina	2000	• SC Technical College System	• Jack Faucett Associates	Link to Study

*Approximate year of publication; May not coincide with year of data analysis

1.3 Organization of this Report

This report is divided into nine chapters. The paragraphs below provide a brief description of each chapter.

Chapter 1 presented an **Introduction** to the Study including the **purpose** of the project and **Literature Review.** The literature review supplied a list of key college and University economic impact studies, the institution studied, when the studies were undertaken, the author of each and a link to the report. To assist the reader, Chapter 1 also described the **organization of this report**.

Chapter 2 provides general **background information about UVU**. The chapter includes information about UVU's history, profiles of UVU's students, faculty and staff, and the academic programs offered by the university. It also summarizes budget expenditures for the project year.

Chapter 3 analyses **spending by the university**. University spending is one of the two primary drivers of economic impacts associated with UVU. The chapter illustrates trends in UVU's operating expenses, a breakdown by spending categories, and functional allocations. It details expenditures made by invoice purchases or procurement cards, along with distributions for travel expenses, capital expenditures and payroll. The chapter dissects the economic impacts of these expenditures at the service region and state levels for the university as a whole and the CTE subset.

Chapter 4 describes **student expenditures.** It explores both service region and state level economic impacts. Student expenditures are the second of the primary drivers of economic impacts associated with the University and the CTE subset. This chapter describes the economic impacts for the university as a whole and the CTE subset.

Chapter 5 reviews **the socio-economic value of various types of university-related sporting and cultural events.** It profiles the three top facilities at the university by attendance, revenues and the resulting economic impacts.

Chapter 6 provides a discussion of increased **future earnings** for students because of earning degrees/awards from UVU. Past studies are reviewed discussing the way other analyses considered this influence. It reviews salary levels of UVU students by attained education level and the contribution to lifetime earnings that may be attributed to attending UVU.

Chapter 7 provides detailed **profiles of UVU operated and affiliated centers**. These centers have impacts on the local community through the various programs they host. While it is difficult to quantify the economic value of these centers, the chapter provides qualitative descriptions of their economic contributions.

Chapter 8 describes the study **methodology and the economic model**. This chapter includes the study's approach to estimating economic impacts. JFA has considerable experience conducting studies of economic impact. This study uses the IMPLAN model, widely recognized in the field as a leading system and model. The research team is well versed in its application, along with its merits and limitations. As discussed by Swenson, the IMPLAN model must be modified to evaluate public universities, such as UVU. He discusses four approaches to this task, and recommends one as the most appropriate.[17] The method adopted by the research team matches Swenson's endorsed method. He notes that on occasion, when the origins of purchase locations are unknown, an alternative method is more applicable. The research team used his second suggested method for credit cards purchases only, given the unknown origins of the purchases.

Chapter 9 presents the results, conclusions and summarizes the **key points**.

Chapter 10 summarizes the economic impact of the **Career and Technical Education Department** (CTE). It includes additional information about the CTE program including Perkins funding, enrollments, awards and faculty. Chapter 10 also includes data on UVU's contribution to future earnings of CTE graduates.

A **Fact Sheet** of key findings is attached at the end of the report.

[17] Swenson, Dave. Using IMPLAN to Evaluate Public Universities Regional Economic Impacts. Department of Economics, Iowa State University, Revised May 2014. https://www.econ.iastate.edu/research/other/p17708

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Chapter 2. Background on UVU

This chapter provides general background information about Utah Valley University (UVU). It includes information about UVU's history, students, faculty and staff, and academic programs. The chapter profiles the university as it was in the 2013-14 academic year, the year this project covers.

2.1 Introduction to UVU

UVU is a public, state university; its main campus is located in Orem, Utah. According to the University's mission statement, "*[UVU] is a teaching institution which provides opportunity, promotes student success, and meets regional educational needs. UVU builds on a foundation of substantive scholarly and creative work to foster engaged learning. The university prepares professionally competent people of integrity who, as life-long learners and leaders, serve as stewards of a globally interdependent community."*[18] Exhibit 2-1 summarizes key facts about UVU.[19]

Exhibit 2-1: Key Facts about UVU (Academic Year 2013-14)

Category	Detail
Location (Main Campus)	800 West University Parkway Orem, Utah
President	Dr. Matthew S. Holland
Board of Trustees Chair	Steven J. Lund
Fall 2013 Student Headcount	30,564
Fall 2013 Student FTE	20,697
Fall 2013 Total Employees	3,436
Degree Offerings (Fall 2013)	Master - 3 Bachelor - 67 Associate - 67 Certificates and Diplomas - 18
2013-14 Total Graduates[20]	5,242
Athletics	NCAA Division I, Western Athletic Conference
Basic Carnegie Classification	Baccalaureate/Diverse Fields
Elective Classification	Community Engagement
Accreditation	Northwest Commission on Colleges and Universities

In the Fall 2013, the university offered 18 certificate/diploma programs, 67 associate degrees, 67 bachelor degrees, and master degrees in education, business, and nursing. Enrollments totaled 30,564 students in the Fall 2013 semester.

[18] UVU website, "Mission Statement." http://www.uvu.edu/president/mission/mission.html
[19] Fact Book 2013, Frontice. http://www.uvu.edu/iri/documents/additional_resources/Fact Book 2013.pdf
[20] Fact Book 2014, Frontice

UVU began as a vocational school during World War II and, in the seven decades since, has evolved from a technical school to community college to state college and, finally, to comprehensive regional university. UVU is one of Utah's largest institutions of higher learning and offers programs ranging from certificates to master degrees.

2.2 UVU's History

Utah Valley University was established in 1941 as Central Utah Vocational School (CUVS) with the primary function of providing war production training. CUVS was part of the Provo School District located in south Provo. The institution received a state appropriation in March 1945 of $50,000 to operate for the 1945-1947 biennium. In 1947, the school received funding as a permanent state institution.[21]

A new site for the school was acquired on University Avenue in Provo in 1948; in 1952, the state appropriated funding for the first construction on that site. As enrollments grew, the state acquired over 185 acres in southwest Orem and the first building was completed in 1977. Today, the University's facilities consist of a combined total of 422 acres with 50 buildings with campuses in Orem, Provo, and Heber City and property in Vineyard and at Thanksgiving Point in Lehi.

In 1963, the school's name changed to Utah Trade Technical Institute to reflect its growing role in technical training. The name again changed in 1967 to Utah Technical College at Provo. The institution was approved in 1966 to grant Associate of Applied Science degrees, in 1967 to offer general education courses, in 1971 to grant Associate of Science degrees (discontinued in 1974 and reinstated in 1981), and in 1987 to grant Associate of Arts degrees. With its expanded degree offerings, the institution's name changed again to Utah Valley Community College in 1987. In 1993, the institution's name changed to Utah Valley State College and the mission was expanded to include the offering of bachelor's degrees. On July 1, 2008, the institution underwent another mission and name change. It became Utah Valley University and began offering master degree programs.

Throughout its history, UVU has responded to its service region's (Utah, Wasatch and Summit counties) population changes and business/industry needs. This responsiveness is evidenced in its mission, program offering, degree level, and enrollment changes.

2.3 UVU Student Profile

[21] UVU website, History of the University, "Fact Book 2014" p. 52
http://www.uvu.edu/iri/additionalresources/annualreports.html

UVU has a diverse and growing student population. In 1999, the University had an enrollment of about 20,000 students.[22] Enrollment in the 2009-10 school year was more than 31,000 students and was projected to increase to more than 40,000 students by 2020.[23]

UVU's open admission policy, degree offerings, and academic rigor make it a unique university in its service region and in the country. UVU's open admission policy distinguishes it from nearby research and doctoral institutions, and its multiple levels of degree offerings separate it from nearby community and applied technology colleges. UVU is one of the largest open-admissions universities in the nation, affording a significant opportunity to young adults in its region. The significant enrollment growth experienced since UVU's transition from vocational school to community college to four-year college to regional university is evidence of the value of and need for such an institution.

Enrollment in the 2013 Fall Semester was 30,564 students.[24] Exhibit 2-2 shows the breakdown of students by class category.[25] More than four in ten students were freshman. Seniors accounted for almost a quarter of enrolled students.

Exhibit 2-2: UVU Enrollment in the 2013 Fall Semester

Enrollment Category	Enrollment	Percent
Total Headcount Enrollment	30,564	N/A
Full Time Equivalent Enrollment	20,697	N/A
Freshman	12,481	41
Sophomore	5,610	18
Junior	5,002	16
Senior	7,277	24
Graduate	194	1

Exhibit 2-3 shows the enrollment, both total headcount and full-time equivalent students, at UVU in Fall semester from 2007 to 2013.[26] During this period, after four years of growth, enrollment peaked in 2011 and declined in 2012 and 2013.

Exhibit 2-3: UVU Fall Semester Enrollments (2007-2013)

Enrollment Year	Fall Headcount	FTE Enrollment
2007	23,840	16,135

[22] UVU website, "Fact Book 2013." p. 14. http://www.uvu.edu/iri/documents/additional_resources/FactBook2013.pdf
[23] UVU website, "Fact Book 2014" p.39
[24] Fact Book 2013, Frontice
[25] Ibid, p. 1
[26] Ibid, p. 10

2008	26,696	17,910
2009	28,765	19,670
2010	32,670	21,825
2011	33,395	22,448
2012	31,562	21,617
2013	30,564	20,697

The majority of UVU's student body was drawn from the service region and the State of Utah. About 68 percent of the students are from the service region (Utah, Wasatch, and Summit counties) and 88 percent are from the State. The rest of the students are out-of-state students from elsewhere in the U.S. (10 percent) and international students (2 percent).[27]

Exhibit 2-4 profiles the student body in the Fall 2013 semester.[28] There were more males on campus than females, 56 percent to 44 percent. Full-time students exceeded the number of part-time students but by fewer than 1,000 students. The average age of a student was just over 24 years old.

Exhibit 2-4: UVU Student Profile in the 2013 Fall Semester

Student Category	Number	Percent
Male	16,984	56
Female	13,580	44
Full Time	15,755	52
Part Time	14,809	48
White	25,273	83
Hispanic	2,460	8
Other Ethnicity	1,510	5
Nonresident Alien	559	2
Unknown	762	2
Utah County Origin	19,489	64
Service Region Origin	20,689	68
Utah State Origin	26,790	88
U.S. Students from Other States	3,192	10
Out of US/Unknown	582	1.9
Average Age	24.2	N/A

2.4 UVU Faculty and Staff Profile

In order to serve its students, UVU employs faculty, administrators, information management

[27] Ibid. p. 28
[28] Ibid, p. 1, 16, 24, 28

professionals, administrative support staff, and facilities staff. The University employs 576 full-time faculty and 1,097 full-time staff as well as 979 adjunct and part-time faculty and 1,942 part-time staff.[29]

The University's faculty and staff numbers have grown as the University has grown. The number of full time faculty rose from 389 in 2004-05 to 576 in 2013-14, an increase of 48 percent. [30]

In many cases, the presence of UVU provides high quality, well-paying jobs that would not otherwise exist in the service region. Exhibit 2-5 provides a profile of UVU's faculty and staff.[31] At both the total full-time and total part-time staffing levels, males outnumbered females. At the nonexempt salaried level and the part-time non-faculty level, there were more females employed than males.

Exhibit 2-5: Faculty and Staff Profile in the 2013 Fall Semester

Category	Male	Female	Total
Full-Time			
Executives	28	6	34
Exempt Salaried Staff	340	261	601
Faculty	381	195	576
Nonexempt Salaried Staff	209	253	462
Early Retiree	11	9	20
Total Full-Time	969	724	1,693
Part-Time			
Adjunct/Overload Teaching	617	362	979
Part Time Staff	336	390	726
Student Employees	532	496	1,028
Work Study Student	55	75	130
Stipend or Temporary	1	1	2
Total Hourly/Part-Time	1,569	1,352	2,921

Exhibit 2-6 shows the primary functions or occupational activities of the faculty and staff. More than 1,500 individuals out of more than 4,600 total UVU employees – or 33% of employees -- had teaching as their primary function.

Exhibit 2-6: Employees by Primary Functions/Occupational Activity

Primary Function/Occupational Activity	Total
Professional Staff	

[29] Ibid, p. 48
[30] Ibid, p. 49
[31] Ibid, p. 48

Instruction	1,554
Public Service	56
Executive/Admin/Managerial	238
Other Professionals	485
Non-professional Staff	
Technical and Paraprofessional	325
Clerical/Secretarial	500
Skilled Crafts	66
Service/Maintenance	212
Total Faculty/Staff	**3,436**
Early Retiree, Workstudy, and Student Employees	**1,178**
Grand Total UVU Employees	**4,614**

2.5 Academic Programs Offered

UVU offers a wide range of degree and non-degree programs. Exhibit 2-7 provides an overview of the types of degree and non-degree programs offered in 2013 and the number of students who graduated from each in 2012/13 academic year.[32] In 2013, UVU offered an equal number of programs at the baccalaureate and associate degree levels. However, it awarded almost 1,000 more baccalaureate degrees than associate degrees that year.

Exhibit 2-7: Overview of Academic Programs in 2014[33]

Academic Programs	Number of Programs Offered	Number of Degrees Granted in the 2013-14 Academic Year
Master Degree	3	52
Bachelor Degree	71	2,825
Associate Degree	61	2,280
Certificate / Diploma	29	85

Exhibit 2-8 profiles enrollments by college or school in Fall 2013.[34] Enrollments topped 4,000 students at the University College, College of Humanities & Social Sciences and in Academic Affairs. Every college or school exhibited enrollments exceeding 1,000 students.

Exhibit 2-8: Enrollment by College/School

College School	Headcount
School of Education	1,176
School of Arts	1,580

[32] Ibid, p. 45
[33] Fact Book 2014, Frontice
[34] Fact Book 2013, p. 41

College of Aviation and Public Services	2,714
College of Science and Health	3,389
College of Technology and Computing	3,699
Woodbury School of Business	3,922
University College	4,066
College of Humanities & Social Sciences	4,289
Academic Affairs	5,729
Total	**30,564**

Exhibit 2-9 shows the number of degrees awarded in academic year 2013-14.[35] Most of the degrees awarded were baccalaureate and associate level degrees. Associate of Science and Bachelor of Science degree category levels dominated within those levels.

Exhibit 2-9: Number of Degrees Awarded (2013-14)

Degree Level	Awards
One-Year Certificate	80
Diploma	5
Associate in Applied Science	333
Associate in Arts	103
Associate in Science	1,844
Bachelor of Arts	210
Bachelor of Fine Arts	52
Bachelor of Science	2,563
Master of Education	52
Total	**5,242**

2.6 Budgeted Expenditures[36]

Exhibit 2-10 shows that salaries and wages accounted for almost 60 percent of budgeted expenditures during the 2013-14 academic year. Benefits made up a little over a quarter of expenditures and current expenses were just over 11 percent.

Exhibit 2-10: Budgeted Expenditures by Natural Classification, 2013-14

[35] Fact Book 2014, p. 40
[36] Ibid, p. 59

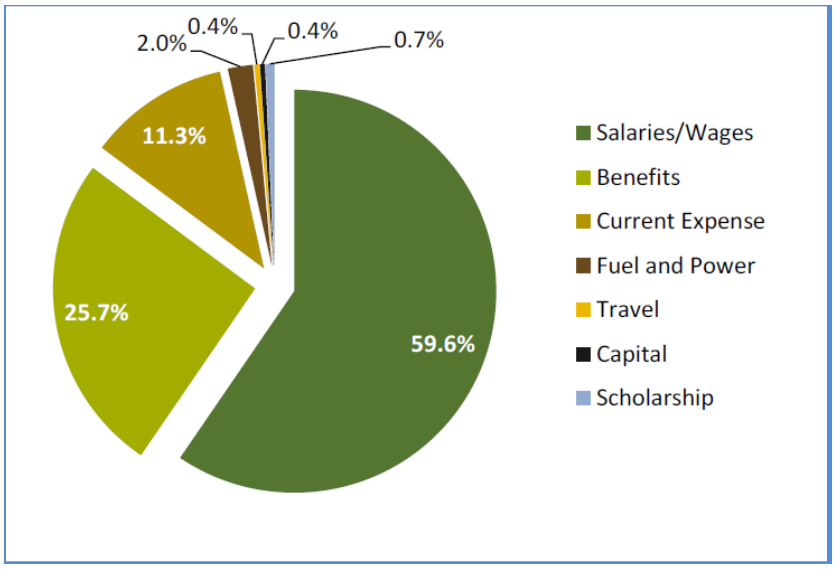
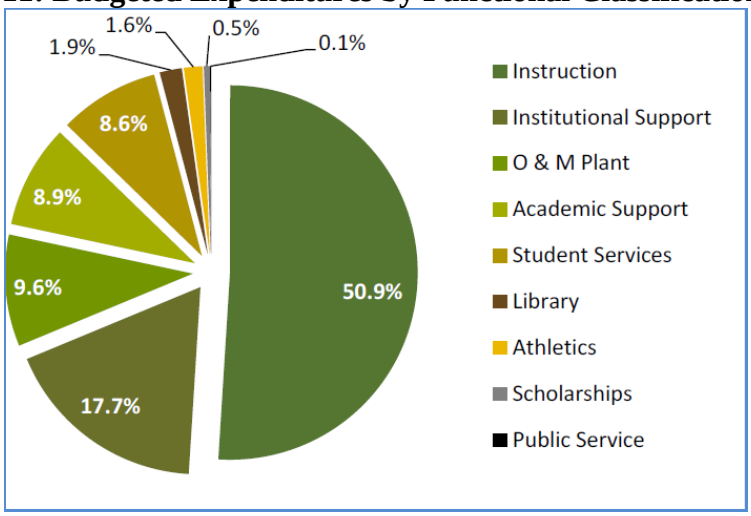


Exhibit 2-11 shows that academic instruction accounted more than half (50.9 percent) of the budgeted expenditures by function. About 8 percent went for instructional support functions while no other category exceeded ten percent of expenditures.[37]

Exhibit 2-11: Budgeted Expenditures by Functional Classification, 2013-14



[37] Fact Book 2013, p.59

Chapter 3. University Spending

This chapter presents on overview of UVU expenses and methods used by the research team to process the data for use in the economic modeling. The UVU Finance Office collaborated with the research team to make available the majority of the information. The Finance Office provided an Excel workbook with multiple spreadsheets showing a summary overview of expenses and detailed breakdowns for each of six types of purchases. These six types of purchases were:

- Invoice purchases
- Procurement cards
- Travel expenses
- Capital expenditures
- Payroll
- Other non-payroll expenses

The data encompassed expenses for Fiscal Year 2014, which begins on July 1 and ends June 30. The reports contained itemized wire transfers or direct debit and check payments along with supporting detail. Some of the expense reports specified an additional breakdown indicating if the spending occurred in UVU's local service region, other parts of Utah or out-of-state. The capital expenditures covered five years, from FY2010 to FY2014.

Operating expenses are expenses paid to acquire or produce goods and services and to carry out the mission of the University. For this study, the final estimates of operating expenses do not include the resale cost of goods sold. An example of a resale cost of goods sold is the sale of books to students in the bookstore. The research team excludes these expense categories to avoid double counting between estimates of student spending and university spending, as student spending captures the value of the books and supplies purchased in the bookstore.

The first section of this chapter presents a synopsis of UVU's expenditures for the project year FY2014 and trends to other years. It details the distribution of expenses by spending category for FY2014 and provides comparisons to UVU spending in earlier years. The following six sections of the chapter discuss each of the six types of purchases, detailing the analysis of the expenditure data for use in the economic modeling.

3.1 Overview of University Operating Expenditures

In FY2014, UVU spending totaled $266.64 million. This was virtually unchanged from FY2013, when rounded to the closest ten thousand dollars. Exhibit 3-1 provides UVU operating expenditures from FY2010 to FY2015. UVU operating expenditures increase for each of these years. In FY2015, the most recent year for which data are available, UVU spent about $285.83 million on operating expenses, which is significantly higher than the $220.90 million spent on operating expenses in FY2010.

Exhibit 3-1: UVU's Operating Expenditures from FY2010 to FY2015

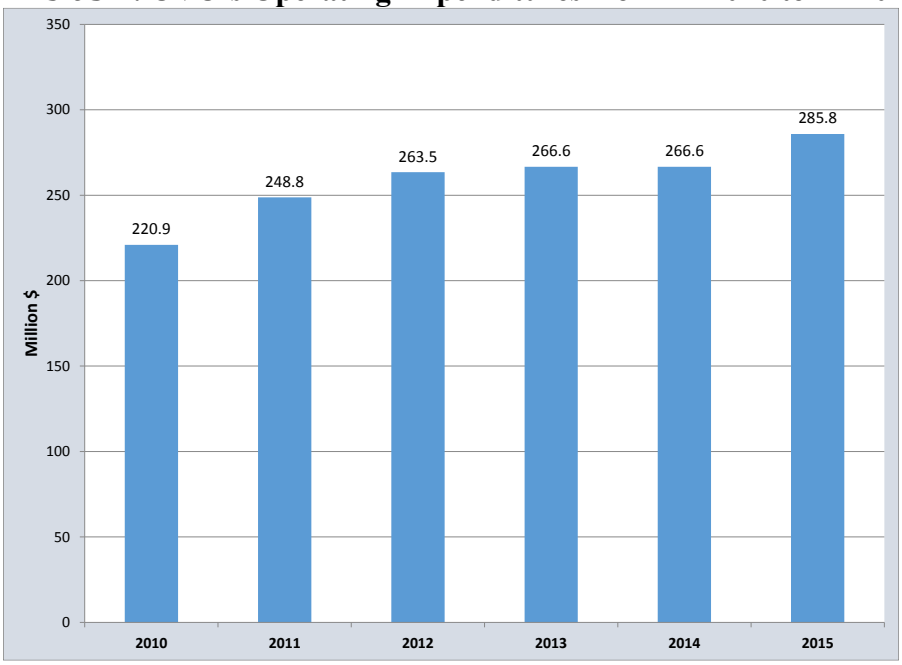


Exhibit 3-2 provides the composition of UVU operating expenses in FY2014. The principal operating expense for the University is employee compensation. Combined, the categories of salaries and fringe benefits comprise 62 percent of the university's operating expenses. Administrative expenses accounted for 14 percent of operating expenses while student financial aid accounted for 13 percent of operating expenses.

Exhibit 3-2: Composition of UVU's Operating Expenses in FY2014

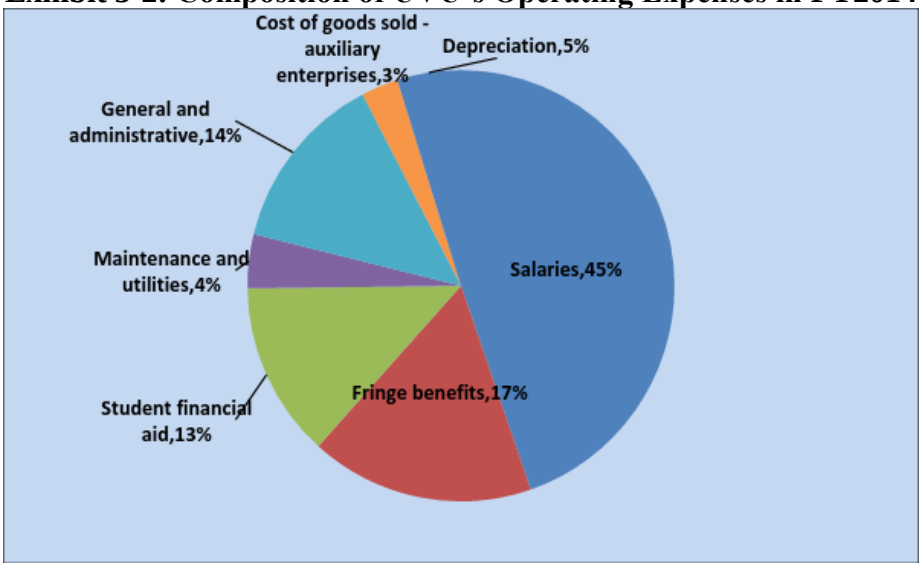


Exhibit 3-3 shows the distribution of operating expenses by functional categories for FY2014. More than a third of expenses went towards instruction (34 percent), followed by student financial aid (13 percent) and institutional support (13 percent).

Exhibit 3-3: Composition of UVU's Functional Operating Expenses FY2014

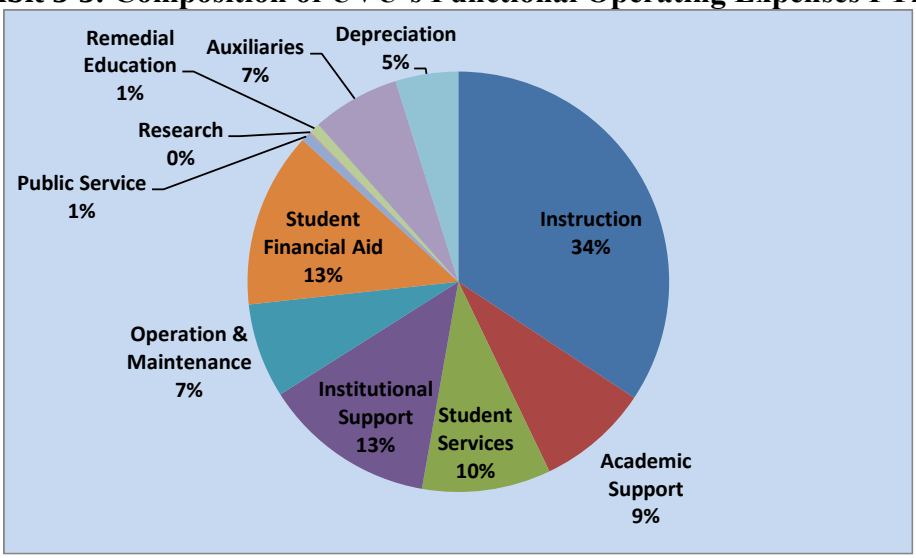


Exhibit 3-4 provides a summary of UVU FY2014 spending by type of purchase, that the UVU Controllers Office provided. Payroll is the largest purchase type at $132.6 million followed by invoice purchases at $43.4 million and capital expenditures at $40.5 million. The total spending is $231.8 million, 13 percent lower than total operating expenses that Exhibit 3-2 reported. However, the controller's data did not include student financial aid, which was 13 percent of expenditures (see Exhibits 3-2 and 3-3). This study did not include student financial aid, as the estimates of student spending account for the expenditures of these funds (see Chapter4). Including student financial aid in university spending would result in double counting.

Exhibit 3-4: UVU Expenses by Type of Purchase, FY2014

Type of Purchase	Amount ($, Million)
Invoice purchases	43.4
Procurement cards	8.1
Travel Expenses	4.1
Capital Expenditures	40.5
Payroll	132.6
Other Non-Payroll Expenses	3.1
Total	**231.8**

The following sections discuss each of the types of purchases, and describe how the study team developed inputs to the economic model by tabulating and manipulating the data to estimate spending by region and industry.

3.2 Invoice Purchases

The UVU Controllers Office provided FY2014 spending by invoice purchases in an Excel worksheet. The worksheet contains a list of unique invoices. UVU categorizes each invoice by one of roughly 100 account codes and descriptions. Exhibit 3-5 provides a sample of unique invoice purchases. For each purchase, the data included various characteristics, including the account, description, vendor, location and amount.

Exhibit 3-5: Examples of Invoice Purchase Data, FY2014

Account Code	Account Description	Vendor	City	State	Region	Amount
710117	Equipment Repair-Maintenance	Barco	Atlanta	Georgia	Out of State	$1,673
710117	Equipment Repair-Maintenance	Diamondback Fire and Rescue	Temecula	California	Out of State	$1,188
710117	Equipment Repair-Maintenance	Frasca International	Urbana	Illinois	Out of State	$3,751
710117	Equipment Repair-Maintenance	Johnson Controls	Dallas	Texas	Out of State	$5,546
710117	Equipment Repair-Maintenance	Joost Industrial	Denver	Colorado	Out of State	$2,531
710117	Equipment Repair-Maintenance	OCLC	Chicago	Illinois	Out of State	$36,000
710117	Equipment Repair-Maintenance	Pasco Scientific	Roseville	California	Out of State	$177
710117	Equipment Repair-Maintenance	SirsiDynix	Chicago	Illinois	Out of State	$30,774
710117	Equipment Repair-Maintenance	Taylor Dynamometer	Milwaukee	Wisconsin	Out of State	$14,003
710117	Equipment Repair-Maintenance	United States Welding Inc	Indianapolis	Indiana	Out of State	$1,008
710117	Equipment Repair-Maintenance	YRC Freight	Dallas	Texas	Out of State	$4,421
710120	Grounds Maintenance	A DeZign	Salem	Utah	Local Service Region	$5,925
710120	Grounds Maintenance	AAA Trailer Sales	Springville	Utah	Local Service Region	$4,799
710120	Grounds Maintenance	Arrowhead Landscaping Inc	Provo	Utah	Local Service Region	$750
710120	Grounds Maintenance	BISCO	Orem	Utah	Local Service Region	$1,638
710120	Grounds Maintenance	Barrett Business Services	Orem	Utah	Local Service Region	$6,253
710120	Grounds Maintenance	Cutler's Inc.	Orem	Utah	Local Service Region	$1,320
710120	Grounds Maintenance	Johnson Tractor	Spanish Fork	Utah	Local Service Region	$1,863
710120	Grounds Maintenance	Lawson Landscaping	Heber City	Utah	Local Service Region	$15,400
710120	Grounds Maintenance	Linden Nursery	Lindon	Utah	Local Service Region	$5,320
710120	Grounds Maintenance	Mountain States Supply Inc	Orem	Utah	Local Service Region	$0
710120	Grounds Maintenance	Mountainland Supply	Orem	Utah	Local Service Region	$874
710120	Grounds Maintenance	Northwest Fence and Supply	Lindon	Utah	Local Service Region	$3,500

In order to utilize the data in the IMPLAN economic impact model, the study team had to assign the purchases to IMPLAN sectors. Since the account codes that UVU provided do not directly link to IMPLAN codes, the analysis process used the account code descriptions to aid in the assignment process.

First, the research team assigned each expense category to a six-digit North American Industry Classification System (NAICS) code. Matching the data to NAICS improves accuracy of the assignments since there are more than 5,000 NAICS codes with corresponding industry and product descriptions. Second, the team assigned each category to one of 536 IMPLAN sectors using the NAICS to IMPLAN Concordance available on the IMPLAN website. Exhibit 3-6 provides the IMPLAN code that the study team assigned to each UVU Account code.

Exhibit 3-6: Concordance between UVU Account Codes and IMPLAN Codes

Account	Account Description	IMPLAN	IMPLAN Description
710105	Building Maintenance and Repairs	62	Maintained and repaired nonresidential structures
710108	Building Materials-Improvement	62	Maintained and repaired nonresidential structures
710111	Electrical Supplies	199	Pottery, ceramics, and plumbing fixtures
710114	Equipment-Maintenance	62	Maintained and repaired nonresidential structures
710117	Equipment Repair-Maintenance	62	Maintained and repaired nonresidential structures
710120	Grounds Maintenance	62	Maintained and repaired nonresidential structures
710123	Janitorial Supplies	395	Wholesale trade distribution services
710126	Keys and Locks	395	Wholesale trade distribution services
710129	Laundry and Linen Services	511	Dry-cleaning and laundry services
710132	Paint	395	Wholesale trade distribution services
710135	Parking Lot Maintenance	62	Maintained and repaired nonresidential structures
710138	Parts-Maintenance	62	Maintained and repaired nonresidential structures
710141	Chemicals	395	Wholesale trade distribution services
710144	Radios / Repair	395	Wholesale trade distribution services
710147	Services-Maintenance	62	Maintained and repaired nonresidential structures
710150	Signs	395	Wholesale trade distribution services
710153	Testing Services	474	Other educational services
710156	Tools and Instruments	395	Wholesale trade distribution services
710315	Ins-Other	438	Insurance agencies, brokerages, and related services
710320	Ins-Vehicle	437	Insurance
710505	Auto Parts	396	Retail services - Motor vehicle and parts dealers
710510	Gas/Oil/Grease	395	Wholesale trade distribution services
710515	Motor Vehicle Repair	507	Commercial and industrial machinery and equipment repair and maintenance
710520	Shuttle Bus Expense	412	Transit and ground passenger transportation services
710525	Vehicle Maintenance	507	Commercial and industrial machinery and equipment repair and maintenance
710705	Telephone-Cellular	428	Wireless telecommunications (except satellite)
710710	Telephone-Equipment	428	Wireless telecommunications (except satellite)
710715	Telephone-Service Carriers	427	Wired telecommunications
710720	Telephone-Pagers	398	Retail services - Electronics and appliance stores
710735	Utilities-Sewer	51	Water, sewage and other systems
710740	Utilities-Waste	51	Water, sewage and other systems
710745	Utilities-Water	51	Water, sewage and other systems
720025	Luncheons/Receptions-Intra Campus	503	All other food and drinking place services
720105	Conf/Seminars-Off Campus	474	Other educational services
720155	Books and Publishing -non-Library	419	Books
720160	Copying Costs	465	Business support services
720165	Printing Supplies and Services	395	Wholesale trade distribution services
720205	Books and Publishing-Library	419	Books
720210	Clothing/Uniforms-Instructional	511	Dry-cleaning and laundry services
720215	Equipment-Instructional	395	Wholesale trade distribution services
720255	Audio Visual Supplies	445	Commercial and industrial machinery and equipment rental and leasing services
720260	Food-Classrooms	503	All other food and drinking place services
720265	Fuel-Aviation	395	Wholesale trade distribution services
720270	Instructional Supplies	395	Wholesale trade distribution services
720275	Parts-Instructional	395	Wholesale trade distribution services
720280	Periodicals Binding	395	Wholesale trade distribution services
720285	Photo Supplies/Service	395	Wholesale trade distribution services
720290	Scenery and Props	445	Commercial and industrial machinery and equipment rental and leasing services
720295	Testing Supplies	474	Other educational services
720355	Lease Payments-Buildings	440	Real estate buying and selling, leasing, managing, and related services
720360	Lease Payments-Equipment	395	Wholesale trade distribution services
720365	Lease Payments-Other	395	Wholesale trade distribution services
720405	Services-Consulting	454	Management consulting services
720410	Services-Contract 1099	473	Junior colleges, colleges, universities, and professional schools
720415	Services-Instruction	473	Junior colleges, colleges, universities, and professional schools
720420	Services-Officials	473	Junior colleges, colleges, universities, and professional schools
720425	Services-Other	473	Junior colleges, colleges, universities, and professional schools
720430	Services-Professional	473	Junior colleges, colleges, universities, and professional schools
720435	Services-Staffing	473	Junior colleges, colleges, universities, and professional schools
720440	Services-Testing	473	Junior colleges, colleges, universities, and professional schools
720445	Stipends	514	Grantmaking, giving, and social advocacy services
720505	Advertising and Publicity	457	Advertising, public relations, and related services
720508	Awards and Gifts	514	Grantmaking, giving, and social advocacy services
720509	Sub-Award Agreements Sponsored Prog	514	Grantmaking, giving, and social advocacy services
720510	Prof Serv Agreement/Grant Awards	514	Grantmaking, giving, and social advocacy services
720511	Clothing/Uniforms	511	Dry-cleaning and laundry services
720514	Computer Software	395	Wholesale trade distribution services
720520	Floral Arrangement	406	Retail services - Miscellaneous store retailers
720529	Interest / Bank Charges	433	Monetary authorities and depository credit intermediation
720532	Interest Expense	433	Monetary authorities and depository credit intermediation
720538	Luncheons/Receptions	503	All other food and drinking place services
720541	Medical Care and Related Supplies	395	Wholesale trade distribution services
720544	Memberships	515	Business and professional services
720547	Moving/Relocation	411	Truck transportation services
720550	Office Supplies	395	Wholesale trade distribution services
720553	Other Office and General	395	Wholesale trade distribution services
720556	Postage and Handling	395	Wholesale trade distribution services
720559	Procurement Card	434	Nondepository credit intermediation and related activities
720562	Project Expenses	474	Other educational services
720565	Subscriptions	426	Cable and other subscription programming
720568	Taxes and Assessments	448	Accounting, tax preparation, bookkeeping, and payroll services
720705	Equipment Repair-Office	395	Wholesale trade distribution services
720710	Office Equipment	395	Wholesale trade distribution services
720715	Office Furniture	395	Wholesale trade distribution services
720720	Computer Hardware/Parts	452	Computer systems design services
720725	Computer Network / Parts	452	Computer systems design services
720805	Rentals-General	395	Wholesale trade distribution services
720810	Rentals-Space	395	Wholesale trade distribution services
730050	Resale-Used Text Books	406	Retail services - Miscellaneous store retailers
741005	Utilities-Gas	42	Electricity from fossil fuels
742005	Utilities-Electric	42	Electricity from fossil fuels
744005	Utilities-Fuel	42	Electricity from fossil fuels
745005	Utilities-Other	395	Wholesale trade distribution services

As discussed above, the estimates of operating expenses do not include intra-campus charges and resale cost of goods sold. Exhibit 3-7 provides a list of the UVU account codes that the analysis excluded to avoid double counting.

Exhibit 3-7: Excluded UVU Invoice Account Codes

Account	Account Description	IMPLA	IMPLAN Description
130115	Stores Inv Valuation Clearing - Inventory to Resell internally	395	Wholesale trade distribution services
730005	Resale-New Text Books	395	Wholesale trade distribution services
730011	Resale-Computers	395	Wholesale trade distribution services
730014	Resale-Computers/Ele	395	Wholesale trade distribution services
730020	Resale-Food	105	All other food products
730023	Resale-Freight	395	Wholesale trade distribution services
730026	Resale-Gifts/Cards	395	Wholesale trade distribution services
730035	Resale-General Reading	395	Wholesale trade distribution services
730038	Resale-Soft Goods	395	Wholesale trade distribution services
730041	Resale-Software	395	Wholesale trade distribution services
730047	Resale-Supplies	395	Wholesale trade distribution services

Finally, the study team summed the data by IMPLAN code. Exhibit 3-8 provides the resulting estimates of invoice purchases by IMPLAN Code and region. The exhibit omits the $22.8 million that UVU spent out of the state, as this does not provide an economic impact to the service region or state.

Exhibit 3-8: Invoice Purchases by IMPLAN Code and Region, FY2014

IMPLAN	IMPLAN Description	Local Service Region	Utah State
42	Electricity from fossil fuels	87,687	517,291
51	Water, sewage and other systems	335,025	336,454
62	Maintained and repaired nonresidential structures	723,464	2,321,600
105	All other food products	365,201	1,420,135
199	Pottery, ceramics, and plumbing fixtures	-	26,855
395	Wholesale trade distribution services	2,508,787	6,329,436
396	Retail services - Motor vehicle and parts dealers	800	848
406	Retail services - Miscellaneious store retailers	6,976	6,976
411	Truck transportation services	55,508	79,530
412	Transit and ground passenger transportation services	-	6,243
419	Books	19,347	20,614
426	Cable and other subscription programming	-	44,184
427	Wired telecommunications	756	799
428	Wireless telecommunications (except satellite)	1,448	65,441
434	Nondepository credit intermediation and related activities	230	230
437	Insurance	-	43,180
438	Insurance agencies, brokerages, and related services	-	626,996
440	Real estate buying and selling, leasing, managing, and related services	66,197	66,197
445	Commercial and industrial machinery and equipment rental and leasing services	47,114	972,727
448	Accounting, tax preparation, bookkeeping, and payroll services	2,289	3,974
452	Computer systems design services	5,941	583,267
454	Management consulting services	3,750	47,860
457	Advertising, public relations, and related services	108,522	332,646
465	Business support services	205	14,507
473	Junior colleges, colleges, universities, and professional schools	1,143,792	3,035,151
474	Other educational services	95,770	230,352
503	All other food and drinking place services	167,360	709,700
507	Commercial and industrial machinery and equipment repair and maintenance	60,267	70,384
511	Dry-cleaning and laundry services	231,245	295,173
514	Grantmaking, giving, and social advocacy services	617,888	2,200,989
515	Business and professional services	150,574	232,598
Total		**6,806,141**	**20,642,338**

3.3 Procurement Cards

The UVU Finance Office supplied data on spending paid for using procurement cards. Procurement card spending for FY2014 was $8,060,580. A worksheet contained the detail for each procurement card transaction of which there were approximately 33,000. Unlike for invoice purchases, UVU does not assign these individual transactions to an account code or to a geographic region.

Given the large number of purchase card purchases, it was not possible for the research team to code each transaction to an industry sector in the IMPLAN economic model and a geographic region. In order to estimate purchases by industry the study team developed a sorting by company name. This was not a purely mechanical procedure as many of the names had slight variations and, store numbers, and other minor details that prevented the use of a simple summation procedure. The analysis was able to identify 42 major suppliers that accounted for $3,266,734 or less than half of all procurement card transactions and assign them to an IMPLAN sector. These 42 suppliers ranged from Delta Air at $851,986 to Bed Bath & Beyond at $4,509. In addition, the analysis identified purchases of $108,062 by the UVU Bookstore. The analysis deleted the purchases by UVU from the UVU Bookstore to avoid double counting.

Exhibit 3-9 provides the final data on procurement card purchases by IMPLAN sector. As described above, the first step was to assign purchases for each supplier to an IMPLAN sector. The second step was to sum the data by IMPLAN sector. For example, Exhibit 3-9 shows that the analysis coded $1,386,019 of the $3,266,734 to IMPLAN 408, Air Transportation Services. The third step was to convert these estimates to percentages. The final step was to divide the control total of $7,952,518 among IMPLAN sectors using the calculated percentages. The control total is the total procurement card spending of $8,060,580, adjusted downward to reflect UVU purchases of $108,062 at the UVU Bookstore.

Exhibit 3-9: Procurement Card Expenses by Category and IMPLAN Sector, FY2014

IMPLAN	IMPLAN Description	Spending Identified by Sector ($)	Spending Identified by Sector (Percent)	Final Spending Estimates by Sector ($)
379	Surgical and medical instruments	66,839	2.0	162,713
396	Retail services - Motor vehicle and parts dealers	52,204	1.6	127,085
397	Retail services - Furniture and home furnishings stores	4,509	0.1	10,978
398	Retail services - Electronics and appliance stores	48,916	1.5	119,080
399	Retail services - Building material and garden equipment and supplies stores	113,274	3.5	275,753
400	Retail services - Food and beverage stores	5,866	0.2	14,280
403	Retail services- Clothing and clothing accessories stores	246,685	7.6	600,528
404	Retail services - Sporting goods, hobby, musical instrument and book stores	11,407	0.3	27,769
405	Retail services - General merchandise stores	183,774	5.6	447,379
406	Retail services - Miscellaneious store retailers	459,012	14.1	1,117,415
407	Retail services - Nonstore retailers	368,130	11.3	896,174
408	Air transportation services	1,386,019	42.4	3,374,117
423	Motion pictures and videos	16,485	0.5	40,132
428	Wireless telecommunications (except satellite)	17,176	0.5	41,813
465	Business support services	23,671	0.7	57,625
466	Travel arrangement and reservation services	51,723	1.6	125,913
468	Services to buildings	55,286	1.7	134,588
499	Hotels and motel services, including casino hotels	103,238	3.2	251,322
501	Full-service restaurant services	7,119	0.2	17,330
502	Limited-service restaurant services	26,256	0.8	63,917
518	US Postal delivery services	19,146	0.6	46,608
Total		**3,266,734**	**100.0**	**7,952,518**

The purchase card data did not include sufficient information by which to assign purchases by geographic region. However, the IMPLAN model provides Regional Purchase Coefficients (RPCs), which the study team relied upon to distribute these purchases by region.

3.4 Travel Expenses

The UVU Finance Office supplied travel expenditures for FY2014 as expenses paid by invoice. Total travel expenses were just under $4.1 million. The UVU Finance Office processed more than 2,600 travel invoices. Travel advances and out-of-state travel were the major two categories for travel expenses.

The UVU Finance Office supplied two Excel spreadsheets on travel expenses. The first was a summary of travel expenses in a pivot table that provided totals by type of travel (In-state travel, Out-of-state travel, Travel advances, Recruiting travel, and Motor pool expenses). Exhibit 3-10 provides the data by account code, description, and amount.

Exhibit 3-10: Travel Expenses by Account, FY2014

Account Code	Account Description	Amount ($)
750005	In-State Travel	603,013
750010	In-State Travel Motor Pool Charges	3,086
750015	Out-of-State Travel	1,655,788
750020	Travel Advance	1,804,762
750025	Recruiting Travel	2,584
Total		**4,069,234**

The second spreadsheet was a detailed listing by invoice. It provided the vendor ID, city, state, zip code, region (local service region, other Utah or out-of-state), and invoice amount. Exhibit 3-11 is an extract of the data.

Exhibit 3-11: Extract of Travel Expense Invoices

Account Code	Accont Description	City	State	Region	Amount ($)
750005	In-State Travel	Springville	UT	Local Service	858.50
750005	In-State Travel	Lehi	UT	Local Service	104.34
750005	In-State Travel	Orem	UT	Local Service	232.78
750005	In-State Travel	Spanish Fork	UT	Local Service	171.97
750005	In-State Travel	Lehi	UT	Local Service	136.80
750005	In-State Travel	Orem	UT	Local Service	129.95
750005	In-State Travel	Orem	UT	Local Service	61.60
750005	In-State Travel	Orem	UT	Local Service	100.00
750005	In-State Travel	Lehi	UT	Local Service	1,678.07
750005	In-State Travel	Orem	UT	Local Service	1,909.29
750005	In-State Travel	Provo	UT	Local Service	82.08
750005	In-State Travel	Springville	UT	Local Service	42.00
750005	In-State Travel	Payson	UT	Local Service	94.24
750005	In-State Travel	Highland	UT	Local Service	141.68
750005	In-State Travel	Orem	UT	Local Service	129.96
750005	In-State Travel	American Fork	UT	Local Service	206.80

Using this spreadsheet the study team was able to calculate travel expenses by location (local service region, other Utah or out-of-state). Exhibit 3-12 provides this breakdown.

Exhibit 3-12: Travel Expenses by Region, FY2014

Region	Amount ($)
Local Service Region	2,953,601
Other Utah	932,964
Total: Utah State	3,886,565
Out-of-State	182,669
Total	**4,069,234**

The UVU travel invoice data, however, only provides data on the total travel expenses for the trip. UVU did not provide information on the expenses by type of travel expenses such as air or hotel. As a result, the study team used survey results from Certify, a travel services company, to determine the distribution by type of expense.[38] The first two columns of Exhibit 3-13 provide the Certify expense categories and the percent of travel expenses that their survey found by category. The first step in the analysis was to assign each of the Certify expense categories to an industry sector in the IMPLAN economic model. The third and fourth columns of Exhibit 3-13 provide the chosen IMPLAN sector codes and sector description. Note that the analysis distributed meal costs evenly between full-service and limited-service restaurants.

Exhibit 3-13: Travel Expenses by IMPLAN Sector and Location, FY2014

Certify Travel Expence Categories	Certify Spending (%)	IMPLAN Sector	IMPLAN Description	Local Service Region Spending (%)	Local Service Region Spending ($)	Other Utah Spending (%)	Other Utah Spending ($)	Total Utah Spending ($)
Meals	19.0	501	Full service restaurants	13.8	406,655	11.2	104,889	511,545
		502	Limited service restaurants	13.8	406,655	11.2	104,889	511,545
Airlines	17.0	408	Air transportation	0.0	-	10.1	93,848	93,848
Miscellaneous	17.0	412	Transit and ground passenger transportation	24.6	727,699	20.1	187,697	915,396
Lodging	14.0	499	Hotels and motels, including casino hotels	0.0	-	8.3	77,287	77,287
Gas	11.0	402	Retail - Gasoline stores	15.9	470,864	13.0	121,451	592,315
Cell Phones	5.0	428	Wireless telecommunications carriers	7.2	214,029	5.9	55,205	269,234
Car Rental	5.0	442	Automotive equipment rental and leasing	7.2	214,029	5.9	55,205	269,234
Supplies	5.0	387	Office supplies (except paper) manufacturing	7.2	214,029	5.9	55,205	269,234
Taxi	3.0	412	Transit and ground passenger transportation	4.3	128,417	3.6	33,123	161,540
Shipping	2.0	518	Postal service	2.9	85,612	2.4	22,082	107,694
Tolls	1.0	512	Other personal services	1.4	42,806	1.2	11,041	53,847
Parking	1.0	512	Other personal services	1.4	42,806	1.2	11,041	53,847
Total	**100.0**		**Total**	**100.0**	**2,953,601**	**100.0**	**932,964**	**3,886,565**

For travel in the local service area, the analysis assumes no airline or lodging expenses. For travel in the remainder of Utah, the analysis assumes half of the out-of-state percents for airfare and lodging, as many trips would be to Salt Lake City, within easy driving distance with less overnight stays.

[38] Third Annual SmartSpend Report on Current Business Travel Spending Trends, Certify, January 21, 2015

To implement these assumptions for local region travel, the analysis set the percentages for these categories to zero and then renormalized the values for the other categories to equal 100 percent. Column 5 of Exhibit 3-13 shows the results. Column 6 applies these percentages to the local service region spending of $2,953,601 from Exhibit 3-12.

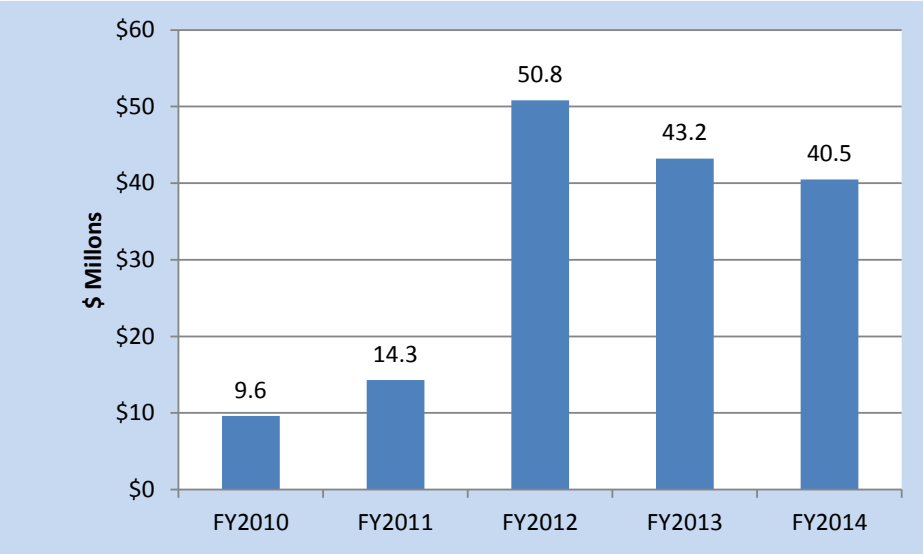
To implement these assumptions for travel to the rest of Utah, the analysis set the percentages for these categories to half their initial value and then renormalized the values for the other categories to equal 100 percent. Column 7 of Exhibit 3-13 shows the results. Column 8 applies these percentages to the other Utah spending of $932,964 from Exhibit 3-12. The ninth and final column of Exhibit 3-13 sums the values of travel spending in the local service area and other Utah to calculate total Utah State spending by type of spending.

The analysis assumes that spending on out-of-state travel does not have an impact on the region or the state.

3.5 Capital Expenditures

Capital expenditures represent an important part of UVU's annual expenditures. Average annual capital expenditure between FY2010 and FY2014 was about $31.7 million, but was subject to significant annual fluctuations as indicated in Exhibit 3-14.

Exhibit 3-14: UVU Capital Expenditures from FY2010 to FY2014 ($ Millions)

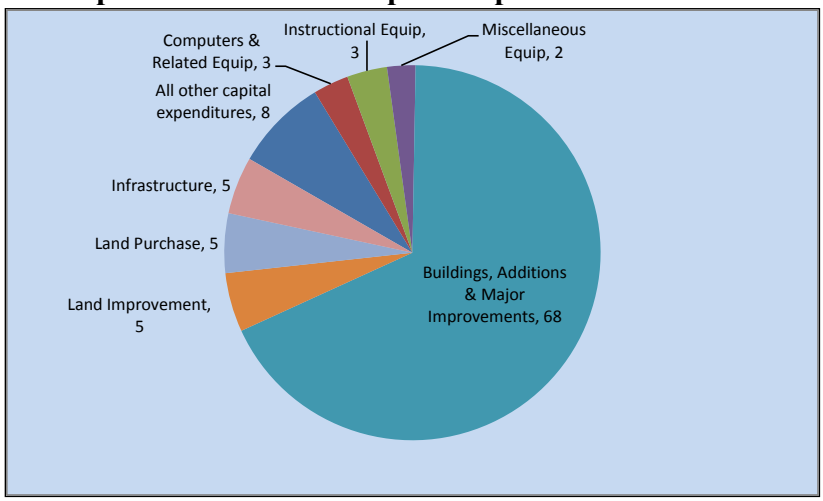


The method used to determine capital expenditures was to take a simple average of capital spending between FY2010 and FY2014. Utilizing capital expenditures for a single year may lead to an over or underestimate of UVU's economic impact if the analysis covers a year when a large capital project was completed, or may underestimate UVU's economic impact if the analysis covers a year when there no large capital projects are underway. Employing the average

over several years accounts for possible variation in capital budgets and in expected economic impacts from year to year.

As Exhibit 3-15 shows, the majority of this spending was on buildings and major improvement projects. Other important capital expenditure categories include infrastructure, land purchases, as well as the leasing and purchase of computers and other equipment.

Exhibit 3-15: Composition of UVU's Capital Expenditures from FY2010 to FY2014



UVU provided capital expenditures by account/category for five years, FY 2010-FY2014.The research team summed the spending in each capital expenditure expense category, such as building expenses or infrastructure expenses, across the five years from FY2010 to FY2014. The analysis calculated the average for each category by dividing the total by five. UVU also provided data on the distribution of capital expenses by region (UVU service region, remainder of state and out-of-state). This allowed the research team to calculate average region-specific capital expenses by category. Exhibit 3-16 shows the data by capital expense category, fiscal year, five fiscal year average, and the distribution by location.

Exhibit 3-16: Capital Expenditures by Category, Fiscal Year, 5-Year Average and Location

Capital Expenditure Code	Capital Code Description	FY 2014 ($)	FY 2013 ($)	FY 2012 ($)	FY 2011 ($)	FY 2010 ($)	5 Year Average ($)	Local Service Region ($)	Other Utah ($)	Out-of-State ($)
770001	Capital Exp-Library Books/Films	265,213	330,933	246,952	333,484	299,959	295,308	73,968	208,196	13,144
770005	Capital Exp-Aircraft	-	-	-	-	100,000	20,000	5,010	14,100	890
770010	Capital Exp-Audio Visual Equip	1,387,741	418,934	324,481	331,975	107,989	514,224	128,801	362,534	22,888
770015	Capital Exp-Data Proc Eqp/Computers	800,301	1,067,969	685,759	1,337,880	933,657	965,113	241,739	680,417	42,958
770020	Capital Exp-Instructional Equip	762,055	1,839,036	780,628	1,136,822	957,257	1,095,160	274,312	772,101	48,746
770025	Capital Exp-Misc Equipment	1,510,299	405,073	482,510	891,084	570,254	771,844	193,329	544,160	34,355
770030	Capital Exp-Motor Vehicles	411,691	389,365	250,506	343,486	356,661	350,342	87,753	246,995	15,594
770035	Capital Exp-Office Equipment	116,496	112,998	150,519	93,523	225,782	139,864	35,033	98,606	6,225
770040	Capital Exp-Bldgs/Additns/Major Imp	23,683,402	34,796,335	41,446,094	5,679,549	1,901,009	21,501,277	5,385,577	15,158,665	957,035
770050	Capital Exp-Land Improv-Depreciable	472,966	22,507	1,109,329	1,061,760	1,402,338	813,780	203,833	573,725	36,222
770055	Capital Exp-Land Improv-Non Depreci	3,293,136	667,726	29,457	-	3,595	798,783	200,077	563,152	35,554
770060	Capital Exp-Land Purchases	3,997,878		2,000,295	1,110,780	1,014,008	1,624,592	406,923	1,145,357	72,312
770063	Capital Exp-Works of Art/Hist Treas	-	-	-	-	24,400	4,880	1,222	3,440	217
770065	Capital Leases-Equipment	217,577	255,765	1,242,313	1,005,262	1,040,819	752,347	188,446	530,414	33,487
770070	Capital Leases/Notes-Buildings	204,077	204,077	241,577	204,077	328,169	236,395	59,212	166,662	10,522
770075	Capital Leases/Notes-Land	259,574	259,574	129,787	216,000	232,000	219,387	54,951	154,671	9,765
770045	Capital Exp-Infrastructure	2,329,674	1,684,662	1,640,681	551,271	88,455	1,258,948	315,338	887,574	56,037
770080	Capital Leases/Notes-Infrastructure	781,744	758,096	-	-	-	307,968	77,139	217,121	13,708
Total		**40,493,824**	**43,213,052**	**50,760,888**	**14,296,953**	**9,586,351**	**31,670,214**	**7,932,663**	**22,327,890**	**1,409,661**
Percentage per Region							**100.00%**	**25.05%**	**70.50%**	**4.45%**

In order to utilize the data in the IMPLAN economic impact model, the study team assigned the purchases to IMPLAN sectors. Since the capital expenditure account codes that UVU provided do not directly link to IMPLAN codes, the analysis process used the account code descriptions to aid in the assignment process.

First, the research team assigned each expense category to a six-digit North American Industry Classification System (NAICS) code. Matching the data to NAICS improves accuracy of the assignments since there are more than 5,000 NAICS codes with corresponding industry and product descriptions. Second, the team assigned each category to one of 536 IMPLAN sectors using the NAICS to IMPLAN Concordance available on the IMPLAN website. Exhibit 3-17 provides the IMPLAN code that the study team assigned to each UVU Account code. Note that the exhibit does not assign capital expenditures for land. This is because economic impact analysis considers sales of land to be a transfer with no impact on the economy.

Exhibit 3-17: Capital Expenditures by IMPLAN Sector and Description

Capital Expenditure Code	Capital Code Description	IMPLAN Sector	IMPLAN Sector Description
770001	Capital Exp-Library Books/Films	419	Book publishers
770005	Capital Exp-Aircraft	357	Aircraft manufacturing (1/3)
		358	Aircraft engine and engine parts manufacturing (1/3)
		359	Other aircraft parts and auxiliary equipment (1/3)
770010	Capital Exp-Audio Visual Equip	307	Audio and Visual Equipment manufacturing
770015	Capital Exp-Data Proc Eqp/Computers	301	Electronic computer manufacturing
770020	Capital Exp-Instructional Equip	306	Other communications equipment manufacturing
770025	Capital Exp-Misc Equipment	394	All other miscellaneous manufacturing
770030	Capital Exp-Motor Vehicles	396	Retail - Motor vehicle and parts dealers
770035	Capital Exp-Office Equipment	387	Office supplies manufacturing
770040	Capital Exp-Bldgs/Additns/Major Imp	55	Construction of new educational and vocational structures
770050	Capital Exp-Land Improv-Depreciable	Not Applicable	Not Applicable
770055	Capital Exp-Land Improv-Non Depreciation	Not Applicable	Not Applicable
770060	Capital Exp-Land Purchases	Not Applicable	Not Applicable
770063	Capital Exp-Works of Art/Hist Treasures	406	Retail - Miscellaneous Retail Stores
770065	Capital Leases-Equipment	445	Commercial and industrial machinery and equipment rental and leasing
770070	Capital Leases/Notes-Buildings	440	Real estate
770075	Capital Leases/Notes-Land	Not Applicable	Not Applicable
770045	Capital Exp-Infrastructure	440	Real estate
770080	Capital Leases/Notes-Infrastructure	440	Real estate

Finally, the study team summed the data by IMPLAN code. Exhibit 3-18 provides the resulting estimates of capital expenditures by IMPLAN Code and region.

Exhibit 3-18: Capital Expenditures by IMPLAN Sector and Region

IMPLAN Sector	IMPLAN Sector Description	Local Service Region ($)	Other Utah ($)	Total Utah ($)	Out-of-State ($)	Total ($)
55	Construction of new educational and vocational structures	5,385,577	15,158,665	20,544,242	957,035	21,501,277
301	Electronic computer manufacturing	241,739	680,417	922,155	42,958	965,113
306	Other communications equipment manufacturing	274,312	772,101	1,046,414	48,746	1,095,160
307	Audio and Visual Equipment manufacturing	128,801	362,534	491,336	22,888	514,224
357	Aircraft manufacturing	1,670	4,700	6,370	297	6,667
358	Aircraft engine and engine parts manufacturing	1,670	4,700	6,370	297	6,667
359	Other aircraft parts and auxiliary equipment	1,670	4,700	6,370	297	6,667
387	Office supplies manufacturing	35,033	98,606	133,638	6,225	139,864
394	All other miscellaneous manufacturing	193,329	544,160	737,489	34,355	771,844
396	Retail - Motor vehicle and parts dealers	87,753	246,995	334,748	15,594	350,342
406	Retail - Miscellaneous Retail Stores	1,222	3,440	4,663	217	4,880
419	Book publishers	73,968	208,196	282,164	13,144	295,308
440	Real estate	451,688	1,271,357	1,723,045	80,267	1,803,312
445	Commercial and industrial machinery and equipment rental and leasing	188,446	530,414	718,860	33,487	752,347
	Total	**7,066,878**	**19,890,985**	**26,957,863**	**1,255,808**	**28,213,672**

3.6 Payroll

The UVU Finance Office supplied FY2014 data on net pay to employees and employer liability payments. The net payroll to employee data was contained in an Excel worksheet that provided subtotals by service region, other Utah, out-of-state and total. UVU calculated these subtotals based on the local address of the employees. Payroll clearings totaled $92.2 million with $71.6 million contained in the local service region. Exhibit 3-19 provides the net payroll to employee data.

Exhibit 3-19: Net Payroll by Region, FY2014

Account No.	Account Description	Net Pay to Employee			
		Local Service Region ($)	Other Utah ($)	Out-of-State ($)	Total ($)
140010	Payroll Clearing	71,584,185	18,375,612	2,242,809	92,202,606

The worksheet also provided data on employer liabilities. These additional payments by UVU, which include taxes, retirement expenses, life insurance, investments and other payments, sum to $40.4 million. Exhibit 3-20 provides a listing of these payments and associated dollar amounts. UVU did not provide geographic detail for employer liabilities. Therefore, the analysis assumes these payments have the same regional distribution as direct payroll.

Exhibit 3-20: Employer Liabilities, FY2014

Account No.	Account Description	Payments ($)
210005	Taxes-Fica	8,338,579
210019	State Retirement	193,093
210021	Tiaa Cref	7,309,356
210023	UVU Employee Medical Plan	14,988,267
210049	Basic Life Ins	97,518
210053	LT Term Dis Ins	226,144
210057	Workmans Comp High R	745,479
210067	State Ret Non-Colleg	4,968,270
210075	Health Plus	21,267
210077	UVU Employee Dental Plan	1,216,935
210079	Fidelity Investments	2,318,389
Total		**40,423,295**

The sum of all payroll expenses was $132.6 million. Exhibit 3-21 provides the sum of net pay and employer liabilities by region. The research team entered these sums by region into the IMPLAN model as labor income change.

Exhibit 3-21: Net Payroll and Employer Liabilities by Region, FY2014

Local Service Region ($)	Other Utah ($)	Total Utah ($)	Out-of-State ($)	Total ($)
102,967,991	26,431,814	129,399,805	3,226,096	132,625,901

3.7 Other Non-Payroll Expenses

The UVU Finance Office provided a worksheet summarizing FY2014 non-payroll expenses by account code. A second worksheet detailed each expense including account description, amount, transaction description, etc. Non-payroll expenses included benefit plans, testing supplies, interest/bank charges, postage and handling charges, project expenses, and out-of-state travel.

Exhibit 3-22 summarizes the spending by UVU account code. The research team assigned each transaction to an IMPLAN sector, sorted the expenses by sector and summed the categories. Out-of-state travel expenditures flow out of the region and, therefore, the study team eliminated these expenditures from further consideration. UVU did not provide data on the location of the purchases. However, the IMPLAN model provides Regional Purchase Coefficients (RPCs), which the study team relied upon to distribute these purchases by region.

Exhibit 3-22: Non-Payroll Expenses, FY2014

Account Code	Account Description	Amount ($)	IMPLAN Sector	IMPLAN Sector Description
633002	Benefit Plans Fees	1,694,929	439	Funds, trusts, and other financial vehicles
720295	Testing Supplies	3,764	395	Wholesale trade
720529	Interest / Bank Charges	345,096	433	Monetary authorities and depository credit intermediation
720556	Postal Service	50,000	518	Postal Service
720556	Business Support Services	50,000	465	Business support services
720562	Project Expenses	595,815	395	Wholesale trade
750015	Out-of-State Travel	119,363	-	Not Applicable
Total		**2,858,968**		

Chapter 4. Student Expenditures

Spending by students represents another source of impacts to the local economy, which are in addition to the money spent by UVU through its operating and capital expenditures. This chapter discusses the development of the estimates of this spending. This chapter consists of four sections. Section 4.1 provides an overview of the methodology. Section 4.2 discusses the number of students. Section 4.3 discusses the cost of attendance. Section 4.4 presents the final estimates of student spending.

4.1 Methodology

This economic impact analysis measures only the additional spending in the UVU service region or state that occurs due to the existence of UVU. For example, a current UVU student may have attended another university in the service region if UVU did not exist. In this instance, the student may have simply bought books and supplies at a different institution. In addition, these students would still have spent money on room, board, transportation, and personal expenses. On the other hand, students from outside the service region would not have attended a university in the service region if UVU did not exist and therefore would not have incurred expenses for books and supplies, room and board, transportation, or personal expenses.

For this reason, the student spending that the service region economic impact analysis considers only includes the following types of spending:

- Books and supplies for all students who would not have attended a college or university in the service region in the absence of UVU
- Room and board only for students who are from outside of the service region
- All transportation for students who are from outside of the service region and a portion for students from the service region
- All personal expenses for students who are from outside of the service region and a portion for students from the service region

The state level economic impact analysis is similar, but the analysis assumes that Utah residents from outside the service region would not purchase room and board, transportation, or personal expenses in the service region in the absence of UVU. Exhibit 4-1 provides the percent of student expenditures included in the economic impact analysis. The UVU Department of Institutional Research provided these estimates based on their professional judgment. In addition, the study team assumed that students in the region who would no longer attend classes would reduce spending on transportation and personal expenses by one-third.

Exhibit 4-1: Percent of Student Expenditures Included in the Economic Impact Analysis

Student Expenditure Category	Service Region Model			Utah State Model		
	From Service Region	From Elsewhere in State	From Outside of State	From Service Region	From Elsewhere in State	From Outside of State
Tuition and fees	0.0	0.0	0.0	0.0	0.0	0.0
Books and supplies	95.0	100.0	100.0	90.0	74.6	100.0
Room and board	0.0	100.0	100.0	0.0	74.6	100.0
Transportation	33.3	100.0	100.0	33.3	74.6	100.0
Personal expenses	33.3	100.0	100.0	33.3	74.6	100.0

4.2 The Number of Students

The first step in the process of estimating student spending was to collect data on the number of students. Due to the requirements of the analysis, a large amount of detail on the number of students was required. As noted above, the analysis required information on the number of students and their spending by students that are from inside of the service region, students that are from outside of the service region but within the state, and students that are from outside of the state. In addition, the cost of attendance data collected by the university differentiates spending by students living with and not living with parents and students who are full-time and part-time. Finally, this study develops economic impact estimates for the university as a whole. Therefore, student spending is also required for this subset.

In addition, the cost of attendance data collected by the university differentiates spending by students that are residents and nonresidents, students who are undergraduates and those that are graduate students. However, the differences in the cost of attendance for these subgroups are only for tuition and fees. This category of spending is not included in this economic impact analysis. This is because students pay tuition and fees to the university, which in turns spends it on goods, services and payroll. In order to avoid double counting this spending, it is accounted for when the university spends the funds.

The first step in the analysis was to develop estimates of the number of students by service region, and full or part-time status. The UVU Factbook provided data on enrollment. Total enrollment (headcount) including high school students at UVU for fall 2013 was 30,564, while full-time enrollment was 15,775.[39] The UVU Factbook also provided data on the numbers and percentages of students from various regions. The Factbook reported that for fall 2013, students from the service region numbered 20,689 (67.7 percent), students from Utah state numbered 26,790 (87.7 percent), students from out of state but in the U.S. numbered 3,192 (10.4 percent), students from out of state and outside of U.S. numbered 25 (0.1 percent), and students from a foreign country numbered 557 (1.8 percent).[40] Exhibit 4-2 summarizes the data on the number of students by service region.

Exhibit 4-2: Number of Students by Service Region, Fall Semester 2013

[39] UVU, "2013 Factbook," p. 1.
[40] UVU, "2013 Factbook," p. 28.

Region	Total
Service Region	20,689
Rest of State	6,101
Out of State	3,774
Total	**30,564**

4.3 The Cost of Attendance

The methodology for this study combines the data on the number of students with data on the Cost of Attendance (COA). UVU collects and publishes the COA data on an annual basis. Exhibit 4-4 provides a snapshot of the COA data for undergraduate residents for the 2013 to 2014 school year.

Exhibit 4-3: Cost of Attendance, Undergraduate Residents, 2013 - 2014 School Year

2013 - 2014 Cost of Attendance
Undergraduate

Undergraduate Resident Not Living with Parents (UGRES)	Two Semester	One Semester	Two Semesters LTHT	One Semester LTHT and One Semester FT	One Semster LTHT
BOOK: Books and Supplies	$ 976.00	$ 488.00	$ 976.00	$ 976.00	$ 488.00
FEES: Fees	$ 718.00	$ 359.00	$ 564.00	$ 641.00	$ 282.00
LOAN: Educational Loan Fee	$ 66.00	$ 33.00	$ 66.00	$ 66.00	$ 33.00
MISC: Miscellaneous Personal Expense	$ 1,208.00	$ 604.00	$ -	$ 604.00	$ -
ROOM: Room and Board	$ 6,084.00	$ 3,042.00	$ -	$ 3,042.00	$ -
TRAN: Transportation	$ 2,122.00	$ 1,061.00	$ 2,122.00	$ 2,122.00	$ 1,061.00
TUIT: Tuition	$ 4,368.00	$ 2,184.00	$ 2,184.00	$ 3,276.00	$ 1,092.00
Totals:	$ 15,542.00	$ 7,771.00	$ 5,912.00	$ 10,727.00	$ 2,956.00

Undergraduate Resident Living with Parents (UGRES)	Two Semester	One Semester	Two Semesters LTHT	One Semester LTHT and One Semester FT	One Semster LTHT
BOOK: Books and Supplies	$ 976.00	$ 488.00	$ 976.00	$ 976.00	$ 488.00
FEES: Fees	$ 718.00	$ 359.00	$ 564.00	$ 641.00	$ 282.00
LOAN: Educational Loan Fee	$ 66.00	$ 33.00	$ 66.00	$ 66.00	$ 33.00
MISC: Miscellaneous Personal Expense	$ 1,208.00	$ 604.00	$ -	$ 604.00	$ -
ROOM: Room and Board	$ 1,998.00	$ 999.00	$ -	$ 999.00	$ -
TRAN: Transportation	$ 2,122.00	$ 1,061.00	$ 2,122.00	$ 2,122.00	$ 1,061.00
TUIT: Tuition	$ 4,368.00	$ 2,184.00	$ 2,184.00	$ 3,276.00	$ 1,092.00
Totals:	$ 11,456.00	$ 5,728.00	$ 5,912.00	$ 8,684.00	$ 2,956.00

In order to assign these costs to the detailed industries in the economic model, the study team relied on two additional data sources. First, UVU officials also provided the study team with detailed data from the 2014 COA survey. This survey data provided additional detail that the study team could use to disaggregate the cost of major items (books and supplies, miscellaneous personal expense, room and board, and transportation) listed in the official COA estimates.

Exhibit 4-4 summarizes this data providing the survey data by detailed subcategory and the original and scaled estimate for each category and subcategory. The first two columns list the survey data category totals and sub-item titles and amounts. For example, the Books and Supplies category consists of seven sub-items, which had a total value of $975.61 according to the detailed data from the 2014 COA survey. The official COA estimates, however, lists the cost

of books and supplies at $976.00, $0.39 (0.04 percent) more than the raw survey data. As a result, the analysis scaled the survey estimates for the sub-items so that they agree with the major item costs in the official COA estimates. For example, the analysis scaled the costs of books from $574.28 to $574.51.

Exhibit 4-4: Original and Scaled 2014 COA Survey Data

Category	Survey Data ($)	Official UVU COA Estimate ($)	Difference ($)	Difference (%)
Books and Supplies	$ 975.61	$ 976.00	$ 0.39	0.04%
Course fees	$ 310.66	$ 310.78		
Books	$ 574.28	$ 574.51		
Additional software	$ 48.28	$ 48.30		
Supplies and materials	$ 11.46	$ 11.46		
Miscellanous technology	$ 9.34	$ 9.35		
Tools and equipment	$ 21.20	$ 21.21		
Program related events	$ 0.39	$ 0.39		
Miscellaneous Personal Expense	$ 1,228.00	$ 1,208.00	$ (20.00)	1.63%
Clothing	$ 460.38	$ 452.88		
Laundry	$ 63.42	$ 62.38		
Personal care costs	$ 276.41	$ 271.91		
Entertainment	$ 427.79	$ 420.83		
Room and Board - Not Living with Parents	$ 5,959.95	$ 6,084.00	$ 124.05	2.08%
Rent or mortgage	$ 3,269.48	$ 3,337.53		
Utitlites	$ 522.75	$ 533.63		
Food	$ 1,541.53	$ 1,573.61		
Phone	$ 482.50	$ 492.54		
Internet access	$ 98.28	$ 100.33		
Cable or satellite	$ 45.42	$ 46.36		
Room and Board - Living with Parents	$ 2,142.96	$ 1,998.00	$ (144.96)	6.76%
Rent or mortgage	$ 520.80	$ 485.57		
Utitlites	$ 127.52	$ 118.90		
Food	$ 1,141.75	$ 1,064.51		
Phone	$ 286.74	$ 267.35		
Internet access	$ 44.34	$ 41.34		
Cable or satellite	$ 21.80	$ 20.33		
Transportation	$ 2,105.66	$ 2,122.00	$ 16.34	0.78%
Parking permit	$ 30.53	$ 30.77		
Bus pass	$ 20.56	$ 20.72		
Vehicle payments	$ 656.26	$ 661.35		
Vehicle insurance	$ 460.56	$ 464.13		
Gas and repairs	$ 937.75	$ 945.03		

In general, the survey results, which are for 2014, are within two percent of the official COA estimates, which are for the 2013-2014 academic year. The exception is "Room and Board - Living with Parents," where the survey data is almost seven percent higher than the official COA estimates.

The next step was to assign these sub-items to IMPLAN sectors. Exhibit 4-6 provides the assignment of the COA subcategories to IMPLAN sectors. In most of the cases, the study team could make these assignments directly, as the sub-items corresponded to a single IMPLAN sector with one exception, Laundry, which was split evenly between IMPLAN sector 179 (Soaps and other detergents) and 511 (Dry-cleaning and laundry services). In other cases, additional data was required to split the COA subcategories to multiple IMPLAN sectors. In these cases, Exhibit 4-5 notes that the sector assignment was "multiple."

Exhibit 4-5: Assignment of COA Subcategories to IMPLAN Sectors

Category	Survey Data ($)	Official UVU COA Estimate ($)	IMPLAN	IMPLAN Description
Books and Supplies	$ 975.61	$ 976.00		
Course fees	$ 310.66	$ 310.78	473	Junior colleges, colleges, universities, and professional schools
Books	$ 574.28	$ 574.51	419	Books
Additional software	$ 48.28	$ 48.30	422	Software publishers
Supplies and materials	$ 11.46	$ 11.46	151	Stationery products
Miscellaneous technology	$ 9.34	$ 9.35	398	Retail services - Electronics and appliance stores
Tools and equipment	$ 21.20	$ 21.21	398	Retail services - Electronics and appliance stores
Program related events	$ 0.39	$ 0.39	473	Junior colleges, colleges, universities, and professional schools
Miscellaneous Personal Expense	$ 1,228.00	$ 1,208.00		
Clothing	$ 460.38	$ 452.88	403	Retail services - Clothing and clothing accessories stores
Laundry	$ 63.42	$ 31.19	179	Soaps and other detergents
		$ 31.19	511	Dry-cleaning and laundry services
Personal care costs	$ 276.41	$ 271.91	--	Multiple
Entertainment	$ 427.79	$ 420.83	--	Multiple
Room & Board: Not Living with Parents	$ 5,959.95	$ 6,084.00		
Rent or mortgage	$ 3,269.48	$ 3,337.53	440	Real estate buying and selling, leasing, managing, and related services
Utitlites	$ 522.75	$ 533.63	--	Multiple
Food	$ 1,541.53	$ 1,573.61	--	Multiple
Phone	$ 482.50	$ 492.54	428	Wireless telecommunications (except satellite)
Internet access	$ 98.28	$ 100.33	427	Wired telecommunications
Cable or satellite	$ 45.42	$ 46.36	426	Cable and other subscription programming
Room & Board: Living with Parents	$ 2,142.96	$ 1,998.00		
Rent or mortgage	$ 520.80	$ 485.57	440	Real estate buying and selling, leasing, managing, and related services
Utitlites	$ 127.52	$ 118.90	--	Multiple
Food	$ 1,141.75	$ 1,064.51	--	Multiple
Phone	$ 286.74	$ 267.35	428	Wireless telecommunications (except satellite)
Internet access	$ 44.34	$ 41.34	427	Wired telecommunications
Cable or satellite	$ 21.80	$ 20.33	426	Cable and other subscription programming
Transportation	$ 2,105.66	$ 2,122.00		
Parking permit	$ 30.53	$ 30.77	512	Other personal services
Bus pass	$ 20.56	$ 20.72	412	Transit and ground passenger transportation services
Vehicle payments	$ 656.26	$ 661.35	396	Retail services - Motor vehicle and parts dealers
Vehicle insurance	$ 460.56	$ 464.13	438	Insurance agencies, brokerages, and related services
Gas and repairs	$ 937.75	$ 945.03	--	Multiple

Exhibit 4-6 provides the assignment of COA subcategories to IMPLAN sectors. In total, five COA subcategories corresponded to multiple IMPLAN economic sectors. These included Personal care costs, Entertainment, Utilities, Food, and Gas and repairs. In these cases, the study team used data from the Consumer Expenditure Survey (CES), to split the COA subcategories to a finer level of detail.[41] The applicable table was for consumer units with reference person under age 25 by region of residence, and for the purposes of this analysis, the study team used the

[41] Table 3800. Consumer units with reference person under age 25 by region of residence: Average annual expenditures and characteristics, Consumer Expenditure Survey, 2013-2014

"West" region. For example, for the COA Food subcategory, the study team divided the dollar amount in proportion to spending reported in the CES for all of the CES food items.

Exhibit 4-6: The Assignment of COA Subcategories to Detailed IMPLAN Sectors

CES Category	CES Amount	IMPLAN	IMPLAN Title	COA Amount: Not Living with Parents	COA Amount: Living with Parents
Food					
Cereals and cereal products	158.00	73	Breakfast cereal	49.00	33.15
Bakery products	233.00	94	Bread and bakery products, except frozen	72.26	48.88
Beef	161.00	11	Beef cattle	49.93	33.78
Pork	105.00	14	Animal products, except cattle and poultry and eggs	32.56	22.03
Other meats	59.00	14	Animal products, except cattle and poultry and eggs	18.30	12.38
Poultry	147.00	13	Poultry and egg products	45.59	30.84
Fish and seafood	123.00	17	Fish	38.15	25.81
Eggs	46.00	13	Poultry and egg products	14.27	9.65
Fresh milk and cream	115.00	12	Dairy cattle and milk products	35.67	24.13
Other dairy products	184.00	12	Dairy cattle and milk products	57.06	38.60
Fresh fruits	206.00	4	Fruit	63.89	43.22
Fresh vegetables	165.00	3	Vegetables and melons	51.17	34.62
Processed fruits	85.00	81	Canned fruits and vegetables	26.36	17.83
Processed vegetables	80.00	81	Canned fruits and vegetables	24.81	16.78
Sugar and other sweets	91.00	75	Sugar cane	28.22	19.09
Fats and oils	90.00	72	Fats and oils refining and blending	27.91	18.88
Miscellaneous foods	517.00	105	All other food products	160.34	108.47
Nonalcoholic beverages	249.00	106	Bottled and canned soft drinks and water	77.22	52.24
Prepared on out-of-town trips	21.00	400	Retail services - Food and beverage stores	6.51	4.41
Food away from home	2,239.00	502	Limited-service restaurant services	694.39	469.74
Total	**5,074.00**			**1,573.61**	**1,064.51**
Utilities					
Natural gas	175	50	Natural gas distribution	100.63	22.42
Electricity	527	49	Electricity transmission and distribution	303.04	67.52
Fuel oil and other fuels	22	156	Refined petroleum products	12.65	2.82
Water and other public	204	51	Water, sewage and other systems	117.31	26.14
Total	**928.00**			**533.63**	**118.90**
Personal care costs					
Personal services	116	509	Personal care services	18.88	18.88
Other household expenses	390	508	Personal and household goods repair and	63.46	63.46
Other household products	168	182	Toilet preparations	27.34	27.34
Health insurance	490	437	Insurance	79.73	79.73
Medical services	341	475	Offices of physicians	55.49	55.49
Drugs	117	401	Retail services - Health and personal care stores	19.04	19.04
Medical supplies	49	401	Retail services - Health and personal care stores	7.97	7.97
Total	**1,671.00**			**271.91**	**271.91**
Gas and repairs					
Gasoline and motor oil	1,738	402	Retail services - Gasoline stores	732.59	732.59
Maintenance and repairs	504	504	Automotive repair and maintenance, except car	212.44	212.44
Total	**2,242.00**			**945.03**	**945.03**
Entertainment					
Fees and admissions	313	496	Other amusement and recreation	84.06	84.06
Audio visual equip/services	563	307	Audio and video equipment	151.20	151.20
Pets	172	404	Retail services - Sporting goods, hobby, musical	46.19	46.19
Toys/hobbies/playground	151	404	Retail services - Sporting goods, hobby, musical	40.55	40.55
Other entertainment	368	496	Other amusement and recreation	98.83	98.83
Total	**1,567.00**			**420.83**	**420.83**

Exhibit 4-7 provides a summation of the dollar amounts for both the single and multiple sectors assignments sorted by IMPLAN code. In the economic impact analysis, the existence of UVU results in additional spending, that varies depending on whether students are from the 3-county service region or not. Therefore, Exhibit 4-7 provides spending profiles that vary, including or not including certain categories of expenses.

Exhibit 4-7: Student Spending Profiles by IMPLAN Code

IMPLAN	IMPLAN Title	COA Amount: Not Living with Parents	COA Amount: Living with Parents	COA Amount: Books and Supplies Only	COA Amount: Except Room and Board
3	Vegetables and melons	51.17	34.62		
4	Fruit	63.89	43.22		
11	Beef cattle	49.93	33.78		
12	Dairy cattle and milk products	92.73	62.73		
13	Poultry and egg products	59.86	40.49		
14	Animal products, except cattle and poultry and eggs	50.86	34.41		
17	Fish	38.15	25.81		38.15
49	Electricity transmission and distribution	303.04	67.52		
50	Natural gas distribution	100.63	22.42		
51	Water, sewage and other systems	117.31	26.14		
72	Fats and oils refining and blending	27.91	18.88		
73	Breakfast cereal	49.00	33.15		
75	Sugar cane	28.22	19.09		
81	Canned fruits and vegetables	51.17	34.62		
94	Bread and bakery products, except frozen	72.26	48.88		
105	All other food products	160.34	108.47		
106	Bottled and canned soft drinks and water	77.22	52.24		
151	Stationery products	11.46	11.46	11.46	
156	Refined petroleum products	12.65	2.82		
179	Soaps and other detergents	31.19	31.19		31.19
182	Toilet preparations	27.34	27.34		27.34
307	Audio and video equipment	151.20	151.20		151.20
396	Retail services - Motor vehicle and parts dealers	661.35	661.35		661.35
398	Retail services - Electronics and appliance stores	30.55	30.55	30.55	
400	Retail services - Food and beverage stores	6.51	4.41		
401	Retail services - Health and personal care stores	27.01	27.01		27.01
402	Retail services - Gasoline stores	732.59	732.59		732.59
403	Retail services - Clothing and clothing accessories stores	452.88	452.88		452.88
404	Retail services - Sporting goods, hobby, musical instrument and book stores	86.74	86.74		86.74
412	Transit and ground passenger transportation services	20.72	20.72		20.72
419	Books	574.51	574.51	574.51	
422	Software publishers	48.30	48.30	48.30	
426	Cable and other subscription programming	46.36	20.33		
427	Wired telecommunications	100.33	41.34		
428	Wireless telecommunications (except satellite)	492.54	267.35		
437	Insurance	79.73	79.73		79.73
438	Insurance agencies, brokerages, and related services	464.13	464.13		464.13
440	Real estate buying and selling, leasing, managing, and related services	3,337.53	485.57		
473	Junior colleges, colleges, universities, and professional schools	311.17	0.39	311.17	
475	Offices of physicians	55.49	55.49		55.49
496	Other amusement and recreation	182.89	182.89		182.89
502	Limited-service restaurant services	694.39	469.74		
504	Automotive repair and maintenance, except car washes	212.44	212.44		212.44
508	Personal and household goods repair and maintenance	63.46	63.46		63.46
509	Personal care services	18.88	18.88		18.88
511	Dry-cleaning and laundry services	31.19	31.19		31.19
512	Other personal services	30.77	30.77		30.77
--	Total	10,390.00	5,993.22	976.00	3,368.15

4.4 Student Spending Estimates

The final student spending estimates are a product of the number of students (Exhibits 4-2 and 4-3), the final student spending profiles (Exhibit 4-7), and the percent of student expenditures included in the economic impact analysis (Exhibit 4-1). Exhibit 4-8 provides the final estimates of spending by detailed economic sector for all of the students at UVU. In total, the analysis estimates that the existence of UVU leads to increased spending by students of just under $145 million in the service region and just under $128 million in the state of Utah.

Exhibit 4-8: Final Student Spending Estimates by IMPLAN Code, All Students

	Service Region Model				Utah State Model			
IMPLAN	From Service Region	From Elsewhere in State	From Outside of State	Total	From Service Region	From Elsewhere in State	From Outside of State	Total
3	-	312,200	193,123	505,323	-	232,901	193,123	426,024
4	-	389,777	241,111	630,888	-	290,773	241,111	531,884
11	-	304,631	188,441	493,072	-	227,255	188,441	415,696
12	-	565,744	349,962	915,706	-	422,045	349,962	772,007
13	-	365,179	225,895	591,074	-	272,424	225,895	498,319
14	-	310,308	191,952	502,260	-	231,490	191,952	423,442
17	262,807	232,731	143,964	639,502	262,807	173,617	143,964	580,388
49	-	1,848,851	1,143,676	2,992,527	-	1,379,243	1,143,676	2,522,919
50	-	613,945	379,778	993,723	-	458,003	379,778	837,781
51	-	715,684	442,713	1,158,398	-	533,901	442,713	976,614
72	-	170,291	105,340	275,630	-	127,037	105,340	232,377
73	-	298,955	184,930	483,885	-	223,020	184,930	407,950
75	-	172,183	106,510	278,693	-	128,448	106,510	234,959
81	-	312,200	193,123	505,323	-	232,901	193,123	426,024
94	-	440,864	272,713	713,577	-	328,884	272,713	601,597
105	-	978,226	605,118	1,583,344	-	729,757	605,118	1,334,875
106	-	471,138	291,440	762,578	-	351,469	291,440	642,909
151	225,311	69,939	43,264	338,514	213,453	52,175	43,264	308,891
156	-	77,182	47,744	124,925	-	57,578	47,744	105,321
179	214,897	190,304	117,720	522,920	214,897	141,967	117,720	474,583
182	188,339	166,786	103,171	458,296	188,339	124,422	103,171	415,933
307	1,041,658	922,449	570,615	2,534,722	1,041,658	688,147	570,615	2,300,420
396	4,556,324	4,034,892	2,495,932	11,087,148	4,556,324	3,010,029	2,495,932	10,062,286
398	600,510	186,405	115,308	902,222	568,904	139,058	115,308	823,270
400	-	39,735	24,579	64,314	-	29,642	24,579	54,221
401	186,097	164,800	101,943	452,840	186,097	122,941	101,943	410,981
402	5,047,114	4,469,515	2,764,784	12,281,413	5,047,114	3,334,258	2,764,784	11,146,156
403	3,120,092	2,763,024	1,709,171	7,592,287	3,120,092	2,061,216	1,709,171	6,890,479
404	597,612	529,220	327,369	1,454,201	597,612	394,798	327,369	1,319,779
412	142,767	126,429	78,207	347,403	142,767	94,316	78,207	315,290
419	11,291,803	3,505,107	2,168,214	16,965,123	10,697,498	2,614,809	2,168,214	15,480,521
422	949,234	294,653	182,269	1,426,157	899,275	219,811	182,269	1,301,355
426	-	282,849	174,966	457,815	-	211,005	174,966	385,971
427	-	612,092	378,632	990,724	-	456,621	378,632	835,253
428	-	3,005,003	1,858,856	4,863,860	-	2,241,733	1,858,856	4,100,589
437	549,323	486,458	300,917	1,336,698	549,323	362,898	300,917	1,213,137
438	3,197,613	2,831,673	1,751,637	7,780,923	3,197,613	2,112,428	1,751,637	7,061,678
440	-	20,362,262	12,595,833	32,958,094	-	15,190,247	12,595,833	27,786,080
473	6,115,982	1,898,472	1,174,370	9,188,824	5,794,088	1,416,260	1,174,370	8,384,719
475	382,284	338,535	209,413	930,232	382,284	252,547	209,413	844,244
496	1,259,980	1,115,786	690,211	3,065,978	1,259,980	832,377	690,211	2,782,568
502	-	4,236,456	2,620,617	6,857,074	-	3,160,396	2,620,617	5,781,014
504	1,463,605	1,296,108	801,756	3,561,468	1,463,605	966,896	801,756	3,232,257
508	437,216	387,181	239,505	1,063,902	437,216	288,837	239,505	965,558
509	130,044	115,161	71,237	316,443	130,044	85,910	71,237	287,192
511	214,897	190,304	117,720	522,920	214,897	141,967	117,720	474,583
512	211,962	187,705	116,112	515,780	211,962	140,028	116,112	468,103
Total	**42,387,473**	**63,389,390**	**39,211,860**	**144,988,723**	**41,377,850**	**47,288,485**	**39,211,860**	**127,878,194**

Exhibit 4-9 provides the final estimates of spending by detailed economic sector for CTE students at UVU. In total, the analysis estimates that the existence of UVU leads to increased spending by students of just over $21.5 million in the service region and just over $19.1 million in the state of Utah.

Exhibit 4-9: Spending by Economic Sector by CTE Students

	Service Region Model				Utah State Model			
IMPLAN	From Service Region	From Elsewhere in State	From Outside of State	Total	From Service Region	From Elsewhere in State	From Outside of State	Total
3	-	44,633	36,781	81,413	-	33,296	36,781	70,076
4	-	55,723	45,920	101,643	-	41,569	45,920	87,489
11	-	43,551	35,889	79,439	-	32,489	35,889	68,378
12	-	80,880	66,651	147,530	-	60,336	66,651	126,987
13	-	52,207	43,022	95,229	-	38,946	43,022	81,968
14	-	44,362	36,558	80,920	-	33,094	36,558	69,652
17	31,084	33,272	27,418	91,774	31,084	24,821	27,418	83,323
49	-	264,315	217,815	482,129	-	197,179	217,815	414,993
50	-	87,770	72,329	160,100	-	65,477	72,329	137,806
51	-	102,315	84,315	186,631	-	76,327	84,315	160,643
72	-	24,345	20,062	44,407	-	18,161	20,062	38,223
73	-	42,739	35,220	77,959	-	31,883	35,220	67,103
75	-	24,616	20,285	44,901	-	18,363	20,285	38,648
81	-	44,633	36,781	81,413	-	33,296	36,781	70,076
94	-	63,027	51,939	114,965	-	47,018	51,939	98,956
105	-	139,849	115,246	255,094	-	104,327	115,246	219,573
106	-	67,355	55,505	122,860	-	50,247	55,505	105,752
151	26,649	9,999	8,240	44,887	25,247	7,459	8,240	40,945
156	-	11,034	9,093	20,127	-	8,231	9,093	17,324
179	25,417	27,206	22,420	75,043	25,417	20,296	22,420	68,133
182	22,276	23,844	19,649	65,769	22,276	17,788	19,649	59,713
307	123,204	131,875	108,675	363,753	123,204	98,379	108,675	330,257
396	538,907	576,834	475,354	1,591,095	538,907	430,318	475,354	1,444,580
398	71,026	26,649	21,961	119,636	67,288	19,880	21,961	109,129
400	-	5,681	4,681	10,362	-	4,238	4,681	8,919
401	22,011	23,560	19,415	64,986	22,011	17,576	19,415	59,002
402	596,956	638,968	526,557	1,762,482	596,956	476,670	526,557	1,600,184
403	369,034	395,006	325,514	1,089,555	369,034	294,674	325,514	989,223
404	70,684	75,658	62,348	208,690	70,684	56,441	62,348	189,472
412	16,886	18,074	14,895	49,855	16,886	13,484	14,895	45,264
419	1,335,558	501,095	412,940	2,249,593	1,265,265	373,817	412,940	2,052,022
422	112,272	42,124	34,713	189,110	106,363	31,425	34,713	172,501
426	-	40,436	33,323	73,759	-	30,166	33,323	63,488
427	-	87,506	72,111	159,617	-	65,279	72,111	137,390
428	-	429,600	354,022	783,622	-	320,481	354,022	674,503
437	64,972	69,545	57,310	191,827	64,972	51,880	57,310	174,163
438	378,203	404,820	333,602	1,116,625	378,203	301,996	333,602	1,013,801
440	-	2,911,019	2,398,895	5,309,914	-	2,171,620	2,398,895	4,570,516
473	723,379	271,408	223,661	1,218,448	685,306	202,471	223,661	1,111,437
475	45,215	48,397	39,883	133,496	45,215	36,105	39,883	121,203
496	149,026	159,514	131,452	439,993	149,026	118,998	131,452	399,476
502	-	605,650	499,101	1,104,751	-	451,815	499,101	950,915
504	173,110	185,294	152,696	511,100	173,110	138,229	152,696	464,035
508	51,713	55,352	45,614	152,679	51,713	41,293	45,614	138,619
509	15,381	16,464	13,567	45,412	15,381	12,282	13,567	41,230
511	25,417	27,206	22,420	75,043	25,417	20,296	22,420	68,133
512	25,070	26,835	22,114	74,019	25,070	20,019	22,114	67,203
Total	**5,013,453**	**9,062,241**	**7,467,958**	**21,543,652**	**4,894,038**	**6,760,432**	**7,467,958**	**19,122,428**

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Chapter 5. UVU Athletic and Cultural Events

UVU hosts a large number of athletic, cultural, and other school related events throughout the year. There are three main facilities available for students, faculty, staff, and local community members to use for various activities:

- UCCU Events Center
- Brent Brown Ballpark
- Sorensen Student Center

In hosting events for UVU students and staff, these venues create an economic value to UVU's service region and the state of Utah. This chapter first describes each facility in detail, including data on the number of events and attendance. The last section of the chapter presents data on revenues and discusses the economic impacts of these facilities.

5.1 UVU's Facilities for Planned Special Events

Planned special events (e.g. sports events, festivals, organized extracurricular activities of students and staff) generate a substantial amount of revenue for the university. UVU has three main venues that the university uses for such activities. These three facilities are the Sorensen Student Center, UCCU Events Center, and Brent Brown Ballpark. The following sections provide a description of each of these facilities. These sections describe the facilities and their tenants, provide interior and exterior images, and provide data on the number of events and attendance.

The UCCU Events Center

The Utah Community Credit Union (UCCU) Events Center is an 8,500-seat multi-purpose venue established in 1996. It is home for UVU's NCAA Division 1 Wolverine athletics teams, which compete in the Western Athletic Conference (WAC). The multi-purpose facility hosts a wide range of athletic, entertainment, business, and academic events.

The facility hosts a total of about 120-150 events annually, including expos, concerts, sports, dances, luncheons/dinners, high school graduations and other activities. Exhibit 4-1 provides images of the UCCU Events Center including the exterior, a basketball game, a trade show and a business meeting.

Exhibit 5-1: Images of UCCU Events Center

Exhibit 4-2 provides information about UCCU events by type of event during the 2013-2014 school year. The exhibit provides data on the number of events, and total and average attendance for seven types of events. Total attendance from July 2013 to June 2014 was just over 400,000 attendees at 139 events. Sporting events are the most common event with 57 events, while graduations were first in terms of total and average number of attendees.

Exhibit 5-2: Events and Attendance at UCCU Events Center, July 2013 - June 2014

Type	Number of Events	Total Number of Attendees	Average Number of Attendees
Expos/Shows	13	94,200	7,246
Concerts	3	13,300	4,433
Sports	57	104,500	1,833
Dances	3	3,950	1,317
Luncheons/Dinners	27	12,900	478
Graduations	18	143,500	7,972
Miscellaneous	18	33,200	1,844
Total	**139**	**405,550**	**2,918**

Brent Brown Ballpark

Brent Brown Ballpark is a 5,000-seat baseball stadium on the campus of UVU and boasts beautiful views of the Wasatch Mountains to the east. This baseball stadium is the home field of UVU's baseball team and the minor-league Orem Owlz, which is the Pioneer League affiliate of the Los Angeles Angels of Anaheim. The ballpark also hosts high school baseball tournaments, festivals, and other cultural events.

Exhibit 5-3: Images of Brent Brown Ballpark

Exhibit 5-4 provides information about Brent Brown Ballpark events by type of event during school year 2013-2014. The exhibit provides data on the number of events, and total and average attendance for seven types of events.

Exhibit 5-4: Events and Attendance at Brent Brown Ballpark, July 2013 - June 2014

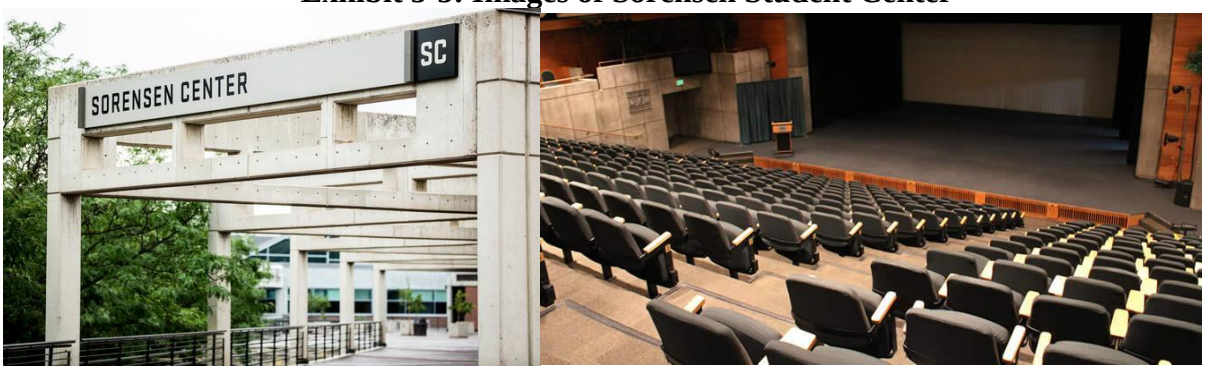
Type	Number of Events	Total Number of Attendees	Average Number of Attendees
Baseball Camps	5	400	80
College	17	19,800	1,165
Orem Owlz Games	33	74,200	2,248
Total	**55**	**94,400**	**1,716**

Sorensen Student Center

The Sorensen Student Center is a multipurpose facility used by UVU students, faculty, staff, and outside community members. The facility features a 5,773 square foot multi-purpose performance center (the Centre Stage), a 10,384 square foot ballroom (the Grande Ballroom), a theater that can seat 400 people (the Ragan Theater), two lounge areas for studying and relaxation (the Commons and the Zone), and several well-equipped conference rooms. The facility also provides a wide range of services and resources to individuals and groups, such as a bookstore and dining services.

The facility hosts as many as 25 events per day and 150 events per week. These events include banquets, dances, concerts, club activities, dining, bookstore activities, outdoor barbecues and weddings and receptions. UVU students, faculty, and staff constitute roughly 75-80 percent of all event attendees at the facility, while the remaining 20-25 percent of attendees consists of members of the outside community.[42] Exhibit 5-5 provides images of the exterior of the Sorensen Student Center and the Ragan Theater.

Exhibit 5-5: Images of Sorensen Student Center



5.2 Revenues and Economic Impacts

Revenues from UVU events have increased from $2.2 million in 2010 to over $3.2 million in 2014. Exhibit 5-6 provides revenues by year with separate detail on the revenues from the

[42] Leslie Farnsworth, the scheduler for the Sorensen Student Center, provided this information to the research team.

UCCU and athletics. Athletic revenue excludes student fee revenue. Athletic revenue has increased at a higher rate than the UCCU revenue, although the latter is still slightly larger.

Exhibit 5-6: UVU Event Revenue, 2010 - 2014

Year	UCCU Revenue	Athletics	Total
2014	$ 1,649,978	$ 1,590,150	$ 3,240,128
2013	$ 1,879,352	$ 1,148,080	$ 3,027,432
2012	$ 1,378,870	$ 795,578	$ 2,174,448
2011	$ 1,589,496	$ 955,111	$ 2,544,607
2010	$ 1,462,651	$ 740,023	$ 2,202,674

The economic impact of these events will occur due to two types of effects. The first is the spending by these facilities for their operations. The second is spending by event attendees on food, lodging, and travel. In terms of the first set of impacts, the UVU budgetary expenditures cover much of this spending. Therefore, this section does not separately tabulate this spending to avoid potential double counting. Concerning the later set of impacts, the available data indicate that most attendees at these events would be from the local service area. Some events, such as music festivals, camps, high school sports tournaments and athletic teams attract visitors from outside the service region. However, due to a lack of data to estimate these relatively small effects, this chapter does not separately quantify these economic impacts of UVU events.

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Chapter 6. Increased Student Earning Potential

This study uses a variety of tools to examine UVU's impact on the surrounding communities and on the State of Utah. One way in which the University contributes to the community is by helping its graduates obtain better paying employment over the course of their lives than they might otherwise have.

6.1 Literature Review

There have been thousands of studies examining the economic impact of colleges, universities and all manner of institutions and enterprises.[43] Given the large number of university economic impact studies, the research team could not review all of them. Given the lack of a comprehensive list of the studies, a random sample for analysis was also impractical. As a result, the research team examined a sample of representative studies from various researchers to see if they included future earnings of graduates in their studies and if so, the methods used in the analyses.

Not all of the studies reviewed examined future earning potential of graduates as part of assessing the economic impact of the institution. Some of the studies examined the impact of a single college or university, while others looked at the economic contribution of a number of related institutions or "system" belonging to a state run group of colleges and/or universities. Many studies that did estimate the institution influence on future earnings potential did not provide detail on methodologies used to project future earnings. Some acknowledged significant potential shortcomings in their methodologies while others did not.

A recent study of the economic impact of Tarleton State University near Fort Worth, Texas found that students would receive a present value of $697.3 million in increased earnings over their working lives. For every $1 that students pay for their education, they will get a return of $3.40 in higher future income, a corresponding annual rate of return of 14.2 percent.[44] Within the service area of the school, at the midpoint of one's working career, students who receive a bachelor's degree can expect $69,400 in income per year, approximately $32,700 more than individuals with only a high school diploma can expect. This in addition to increased productivity to employers of the university's alumni resulting in additional non-labor income, that is, higher profits. The study also calculated the return on investment to students over their careers.

In a Rhode Island study, residents in 2011 who had completed four-year college degrees had median annual earnings that were 69 percent higher than those with only a high school diploma

[43] Christophersen, K., Nadreau, T., and Olanie, A. The rights and wrongs of economic impact analysis for colleges and universities. http://www.economicmodeling.com/2014/01/07/the-rights-and-wrongs-of-economic-impact-analysis-for-colleges-and-universities/

[44] Demonstrating the economic value of Tarleton State University, EMSI, January, 2015. http://www.tarleton.edu/documents/economic-impact.pdf

were. Those earning professional or graduate level degrees had earnings that were 130 percent higher than the earnings of those with no education beyond high school. The aggregate income of some 24,200 University of Rhode Island graduates was more than $500 million higher that it would have been without that education.[45]

A 2010 study of Montanans estimated that the payback to individuals for their educational achievements was substantial.[46] A 25-year-old Montana man with a four-year college degree will enjoy, on average, earnings over his working life that are worth $814,318 more in present dollars than those he would realize with only a high school degree. The comparable figure for a 25-year-old woman with a four-year degree is $568,941. However, the study claimed that these additional earnings were not only a reward for the student, but that they are a gain for the state economy as well. An educated worker is a more productive worker, and increased productivity raises the output and the competitiveness of the entire state economy. Higher output levels and higher compensation reverberates throughout the economy with increased spending, demand and state tax revenues.

A study comparing cohorts from multiple years graduating from the University System of Maryland demonstrated considerable impact of increased future earnings at various levels of educational attainment compared to lesser attainment.[47] For 1996 graduates, estimated lifetime incremental earnings will be $17.4 billion, generating $1.2 billion in additional Maryland income and sales taxes.

A study of graduates of the University of Washington (undergraduate, graduate and professional) found that graduates who live in the state contribute an additional $1.5 billion annually to the Washington State economy, based on their additional earning power as UW graduates.[48]

In 2008-09, the 1.96 million California State University (CSU) System bachelor's and master's degree alumni working in California earned an estimated $122 billion in income. While not all of this $122 billion is attributable to their university education, roughly $42.1 billion of this total represents the enhanced earnings power that is attributable to their CSU degree.[49] Interestingly, a study of the University of California's economic contribution to the state of California measured "primary" impacts only, and did not include future economic earnings of alumni.[50]

On the other hand, there are those who argue that internal personality traits outweigh educational attainment. Stacy Dale and Alan Krueger showed that graduates of elite colleges did not earn more money than did workers who were accepted at the same institutions, but opted to attend

[45] The economic impact of the University of Rhode Island, Appleseed, http://web.uri.edu/economic-impact/
[46] Montana State University: Economic Impact Study, December, 2010.
[47] The economic impact of the University System of Maryland: A fiscal perspective. FY 2011.
[48] 2014 Economic and Community Impact Report of the University of Washington, December, 2014. http://www.washington.edu/externalaffairs/eir/
[49] Working for California: The Impact of the California State University System. May, 2010. https://www.calstate.edu/impact/docs/CSUImpactsReport.pdf
[50] University of California: The University of California's Economic Contribution to the State of California. EPS, September 2011.

less selective schools instead.[51] The research implied the importance of being intelligent and hard- working prior to attending college and argued it was those factors, rather than the education and opportunities of the elite institutions that factored into future earnings.

In a commentary in the Chronicle of Higher Education, Arthur M. Cohen, Carrie B. Kisker, and Florence B. Brawer argue that the vibrancy and productivity of the economy is unrelated to higher education. At the personal level, they imply that the likelihood of finding a job is largely unrelated to education. At the aggregate level, they deny that education benefits the economy, relegating its advantages to social and culture benefits.

Rothwell of the Brookings Institute dismisses these claims. He states that the data are very clear that the educational investments made by taxpayers, parents, and individuals are economically worthwhile. He points to the writings of his Brookings colleagues that have shown that workers with more education typically earn significantly higher wages and are more likely employed than workers who have no post-secondary education. He also notes that a large body of economic literature shows that these differences are not the result of a special group of very smart people getting educated. He also quotes leading labor economist, Philip Orepoulos, who stated:

> "For the past three decades, technological change has led to increased growth in the demand for skilled workers, and because the supply of college educated workers has not increased at the same rate, employers have bid up the wages of college graduates causing the rise in the college earnings premium."

There were, nonetheless, commonalities among methodologies. Many studies calculated earnings by degree level for their service regions or states based on data from the federal government.[52] Some researchers were able to supplement those data with state figures for increased accuracy. Typically, these studies include assumptions about the number of graduates who remain in state following their graduation. The studies typically infer the value of the particular educational attainment differences by comparing earnings drawn between degree levels. They then multiply those differences by the number of graduates and the expected years in the workforce to determine the total impact. The authors then apply various adjustments to the data including estimates of graduates expected to leave the workforce prematurely, graduates expected to leave the state, earning while in school, and potential lost earnings of the individuals while in school. Other studies adjusted for expected inflation and discount rates, while others used multiple cohorts of graduations and wage differentials for different years.

[51] Stacy Berg Dale, Alan B. Krueger. Estimating the Payoff to Attending a More Selective College: An Application of Selection on Observables and Unobservables. NBER Working Paper No. 7322, Issued in August 1999 http://www.nber.org/papers/w7322

[52] American Community Survey, U.S. Census Bureau.

6.2 UVU Data on Graduate Earnings

This section discusses the methodology that this study used to calculate the contribution of UVU to its graduates lifetime earnings. It too uses data federal data providing considerable evidence that degree level correlates with higher annual salaries. Exhibit 6-1 summarizes the median annual salaries for different levels of education in Utah.

This study uses a variety of tools to examine UVU's impact on the surrounding communities and on the State of Utah. One way in which the University contributes to the community is by helping its graduates to obtain better paying employment over the course of their lives than they might otherwise have been able to do. The average annual salaries for different levels of education in Utah are summarized in Exhibit 6-1.

Exhibit 6-1: Average Annual Salaries for Different Levels of Education in Utah

Highest Level of Educational Attainment	Average Annual Salary
High School Diploma	$29,498
Associate Degree	$32,155
Bachelor Degree	$45,861
Master's Degree	$65,096

Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2014[53]

This increase in annual income associated with higher educational attainment may contribute to a significant improvement in lifetime earnings for UVU graduates. A university education is associated with an approximate increase in lifetime earnings (compared to a high school graduate) of $106,280 for an associate degree, $654,520 for a bachelor degree, and $769,400 for a master's degree. For the 2014 UVU graduating class, this represents a total of about $2 billion over their lifetime.

The increase in expected lifetime earnings is calculated in a multistep process:

- First, data about the average annual salary for graduates by level of education for the State of Utah was obtained from the U.S. Census Bureau American Community Survey for 2014.
- Second, the marginal benefit of each level of educational attainment was calculated. The marginal benefits of each degree are measured against a high school diploma, except for master's degrees. The marginal benefit of a masters degree was measured against a bachelor degree. For example, the marginal benefit of getting a bachelor degree is

[53] For more information on this data set please refer to the U.S. Census Bureau's American Fact Finder website at: http://factfinder.census.gov/home/en/acs_pums_2009_5yr.html

$16,363 in average expected additional income per year relative to only getting a high school diploma.

- Third, each graduated student is assumed to work 40 years between the age of 23 and the age of 63. Using this assumption, a university education is associated with an approximate increase in lifetime earnings of $106,280 for an associate degree, $654,520 for a bachelor degree, and $769,400 for a masters degree.
- Fourth, the marginal income benefit estimate was multiplied by the number of UVU graduates by degree level in the 2013-14 academic year. This calculation estimates improvements to aggregate student earnings per year. It is impossible to know UVU's contribution to its students' previous levels of educational attainment. Therefore, this study measures the marginal income benefit of the UVU degrees attained by the graduating cohort of students.
- Finally, UVU's IRI Office estimates that 92.5 percent of UVU students would not attend another university in the absence of UVU. Thus, the $2.13 billion value is reduced by 7.25 percent to achieve a final estimate of $1.97 billion, which is UVU's unique contribution to the expected lifetime earnings of its 2013-14 graduates.

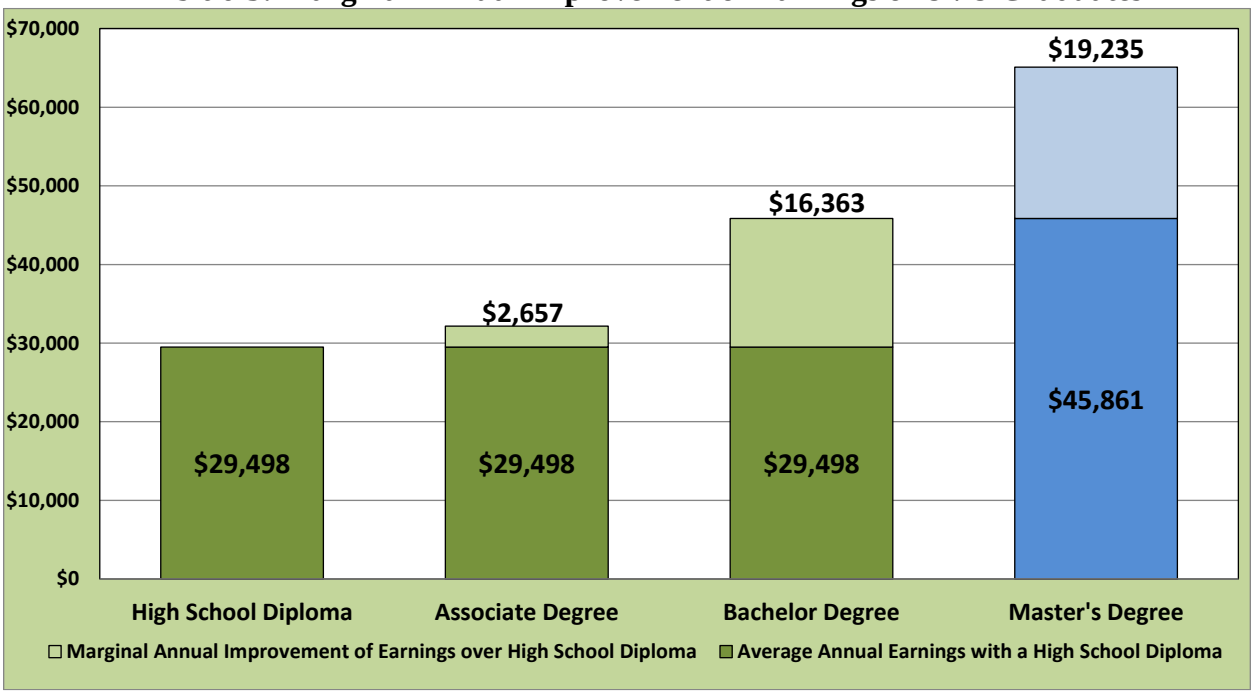
The result of these calculations of UVU's contribution to its students' lifetime earnings is summarized in Exhibit 6-2. The columns follow the steps described above sequentially.

Exhibit 6-2: UVU's Contribution to the Lifetime Earnings of Its Graduates

Highest Level of Educational Attainment	Average Annual Salary	Marginal Annual Improvement of Earnings over High School Diploma	Marginal Improvement of Lifetime Earnings per Student	Number of Degrees Granted in 2014	Improvement of Aggregate Student Earnings per Year ($, Millions)	Improvement of Aggregate Student Earnings over Lifetime ($, Millions)	Improvement of Aggregate Student Earnings over Lifetime for Students who Would Not Attend University Without UVU ($, Millions)
High School Diploma	$29,498	NA	NA	NA	NA	NA	NA
Associate Degree	$32,155	$2,657	$106,280	2,280	$6.06	$242.3	$224.1
Bachelor Degree	$45,861	$16,363	$654,520	2,825	$46.23	$1,849.0	$1,710.3
Master's Degree	$65,096	$19,235	$769,400	52	$1.00	$40.0	$37.0
TOTAL	**NA**	**NA**	**NA**	**5,157**	**$53.28**	**$2,131.3**	**$1,971.5**

The above data are shown in graphic format in Exhibit 6-3.

Exhibit 6-3: Marginal Annual Improvement of Earnings of UVU Graduates



Chapter 7. University Centers and Affiliates

This chapter provides detailed profiles of UVU centers and affiliates. These entities have economic impacts on the local community through the various programs they host. While it is difficult to quantify the economic value of these centers, the chapter provides a qualitative analysis that describes their social value.

There are a number of groups, organizations, centers, and initiatives affiliated with UVU that generate economic impacts beyond those associated with the direct impacts of UVU's operations. Many of these relate to UVU's major community engagement initiative, which places a particular emphasis on economic development. In fact, the Carnegie Foundation for the Advancement of Teaching in 2015 announced that UVU was one of 240 U.S. colleges and universities to receive its Community Engagement Classification, awarded to educational institutions that apply and demonstrate an institutional focus on community engagement.[54] This emphasis is highly correlated with Utah State Governor Gary R. Herbert's top priorities for the state including helping businesses thrive and expand, and education. In 2015, the Governor said, "Education has always been and will continue to be my top budget priority."[55] He called his budget proposal, "the largest true investment in education in 25 years."[56] Governor Herbert has directed his Office of Economic Development to use all tools at its disposal to help existing business thrive and expand, and recruit new businesses to locate or expand their operations in the state.[57]

The populations served by the groups, organizations, centers, and initiatives affiliated with UVU are varied, including small manufacturers, UVU faculty, entrepreneurs, UVU students with new business concepts, and childcare providers. The nature of the organizations' affiliations with UVU are also varied, including some that are partially to fully funded by UVU to others that receive no funding from UVU but have strong linkages to campus activities.

The sections below describe some of the groups or initiatives associated with UVU and the nature of their economic impacts. Information regarding the services these entities provide focuses on the FY 2013-14 time frame where available, to retain consistency with the UVU economic impact analysis for FY 2013-14. These groups and affiliates include the following:

- Small Business Development Center (SBDC)
- Manufacturing Extension Partnership of Utah (MEP)
- Utah Science Technology and Research Initiative (USTAR)
- USTAR Technology Commercialization Grants (TCGs)
- Utah Cluster Acceleration Partnership (UCAP)
- UVU Office of Technology Commercialization

1.1 [54] UVU Receives Carnegie Foundation 2015 Community Engagement Classification, Press Release, UVU Marketing & Communications, January 8, 2015.

[55] Governor signs 82 bills, education funding, criminal justice reforms. Press release, March 31, 2015.

[56] Strong job growth yields opportunity to invest in education. Press release, March 4, 2015.

[57] Governor's Position on Jobs, Statement of Principles, 2015 Public Policy Priorities.

- Business Resource Center
- Woodbury School of Business Entrepreneurship Institute
- Volunteer & Service Learning Center
- Care About Childcare at Utah Valley University
- Grants for Engaged Learning Program

Some of these groups or initiatives have a long history of service, while others have evolved in recent years as a result of the strengthening of ties between the State of Utah and its institutions of higher education that focus on coordinating job creation with business development and growth.

7.1 Small Business Development Center

The Small Business Development Center (SBDC) is located in Orem, Utah. As of fall 2011, the SBDC has been jointly located with many other local economic development-based organizations at a new facility that UVU developed. Prior to fall 2011, the SBDC operated out of an independent facility housed in Orem. Serving small businesses in Utah and Wasatch counties, the mission statement for the SBDC is as follows:

> "The number one goal of the Orem SBDC is to help entrepreneurs get started in business and to help small business grow from one level to the next. We will do a superior job in accomplishing this most important task of helping small businesses to succeed and contribute to the economy in Central Utah. We will be the most important partner with our stakeholders in providing assistance to small business."[58]

Service Population/Services Provided

In keeping with its mission, the SBDC has two primary clientele groups, entrepreneurs seeking to establish new businesses and existing businesses seeking to improve and grow their businesses. There is a wide array of planned and existing businesses represented by the clientele seeking SBDC assistance. These businesses include restaurants, tire stores, consumer goods retailers, hairdressers, manufacturers, internet sales-based businesses, computer software developers, marketing consultants, and high tech businesses.

In FY 2013-14 the SBDC had approximately 640 new clients, 54 percent of which were people who had never been in business and 46 percent of which were existing businesses. On average SBDC staff spends 5.5 hours with each client seeking services. The SBDC provides all services to SBDC clients at no cost. These services include:

- Helping start-up businesses file business registration papers required by various governmental bodies
- Supporting businesses to develop business plans

[58] UVU website, "Mission Statement." http://www.uvu.edu/sbdc/about/mission.html

- Directing businesses to potential funding resources (including Small Business Administration loans)
- Providing training classes on a wide array of topics such as QuickBooks, estate planning, strategic marketing, search engine optimization, running a family business, and financial statement analysis, among others

There are approximately 50 classes offered annually, with 600 to 700 attendees, and a monthly newsletter sent out to approximately 5,000 recipients. The SBDC also helps businesses get involved in area networking groups, such as the Chamber of Commerce, CEO Space, Startup Princess, and Entrepreneur Launchpad.

Funding Sources

The SBDC has three funding sources including federal grants through the U.S. Small Business Administration, funding through the Utah Governor's Office of Economic Development (GOED), and matching from UVU. UVU matches 50 percent of the funding collectively contributed by the SBA and GOED, resulting in UVU providing 33 percent of SBDC's annual budget. The budget, which totals less than $250,000, funds a full-time Director, two full-time Counselors, one part-time Counselor and one part-time administrative staff. In addition, many business professionals throughout the community provide in-kind services teaching the classes provided by the SBDC.

Linkage with UVU

The SBDC has strong and growing linkages with UVU. Approximately five professors have developed student class projects around SBDC client needs, averaging about three to four classes annually. These include classes on Marketing and Advertising. For each class, the SBDC compiles a list of approximately 35 to 40 businesses interested in being the subject of a class project. The professor divides the students into approximately three to four groups per class, with each group picking a business as the subject of its class project. Throughout the course, the student groups then prepare relevant business-related materials for the businesses, such as strategic marketing or advertising plans. The subject businesses therefore receive free services through their connection with the SBDC. The SBDC has plans to grow this important linkage with UVU by taking this program to UVU's Graphic Arts school, which includes web designers. Thus, there may be future opportunities for student-selected businesses to receive free web sites designed as a student learning experience.

Economic Contributions

In FY 2013-14, the SBDC provided over 2,400 hours of counseling which supported the creation of 45 new business starts. Through the SBDC's efforts during this period, new and existing businesses obtained $5,600,000 in funding and increased sales by $2,700,000. These results indicate that the SBDC helped grow the regional economy by the $5,600,000 million invested in Utah and Wasatch county businesses. While the SBDC does not track the job generation associated with this level of investment, it is likely that the $2,700,000 in increased sales have contributed to new regional job growth. This is a strong return on the program's annual budget of

less than $250,000, indicating that UVU, along with the SBA and GOED, is contributing economic impacts to the region beyond those associated with the University's direct impacts.

7.2 Manufacturing Extension Partnership of Utah

The Manufacturing Extension Partnership of Utah (MEP Utah) is an extension service offered by the U.S. Department of Commerce's National Institute of Standards and Technology (NIST). MEP Utah assists small and medium-sized manufacturers throughout the State, in the form of helping modernize their operations and become more competitive, productive, and efficient. There are 64 MEP centers serving all 50 states and Puerto Rico, all linked through NIST.

Service Population/Services Provided

MEP Utah provides companies with services and access to public and private resources that enhance profitability and growth, improve productivity, and develop companies into a sustainable enterprise. It assesses the individual needs of a manufacturer, identifies the roadblocks to success, identifies opportunities for improvement and growth, and helps the company to leverage private/public resources and to access a consistent set of services to maximize their potential and grow their business. MEP field staff customizes plans to fit the individual needs and goals of its clients. Services are available to help a company tackle short-term issues and long-term transformation plans. The MEP focuses on five critical areas:

- Continuous Improvement
- Technology Acceleration
- Sustainability (Green)
- Supplier Development
- Workforce Development

The target market for MEP Utah is manufacturers with 500 employees or fewer. In Utah, this comprises the majority of manufacturers. The average manufacturer in Utah has 26 employees, and of the 4,500 manufacturers in the State of Utah, only 27 have 500 or more employees. This provides a deep client base for MEP Utah.

Services to manufacturers are provided on a project basis, with a fixed scope and fee determined based upon each manufacturer's needs. MEP Utah's intent is to provide cost-competitive or below-competitive services that might otherwise not be available to the small or medium-sized manufacturer precisely because of their size.

MEP Utah has a staffing complement of 12.5 full-time equivalent (FTE) employees, many of whom are manufacturing engineers. One of the great benefits of the MEP system is that these employees and manufacturing engineers have access to approximately 3,000 additional MEP employees throughout the country, providing a very broad-based solution network. These MEP resources have additional access to thousands of additional trained professionals. Thus, if MEP Utah assesses a client has needs and determines that additional resources are necessary than the MEP Utah staff member can identify these resources through the MEP network and incorporated them into the project.

MEP Utah has assisted many small- to medium-sized manufacturers in improving and growing their business. Two recent examples include the following:

- Liberty Safe began building safes from a rental storage unit in 1988 and has grown over the last 24 years to become the top manufacturer of gun safes for homes in America. Today Liberty produces as many as 350 safes a day on a 23-acre, 205,000 sq. ft. production and distribution facility located in Payson, Utah. Liberty has always prided itself on producing the cleanest safes in America. Their employees and clients appreciate the fact that they have eliminated nearly all of the environmental hazards that normally occur in the manufacturing processes. They have invested in this type of technology to produce a higher quality product while maintaining a cleaner and safer environment. It was in the interest of continuing their pursuit of environmentally friendly manufacturing processes and products that not only protect valuables but also protect natural resources that brought Liberty Safe to the Utah Manufacturing Extension Partnership. Liberty Safe attributes the following results to MEP Utah's assistance. Implementing Sustainability and Green resulted in $180,000 in annual savings from sustainability efforts, and a 15 percent reduction in solid waste and increased recycling. A Green Specialist passed an SME exam and became Green certified. The company more than doubled its garbage compaction. The garbage compaction project saved the company nearly $100,000, with labor savings of 70 percent.

- Wilson Electronics designs and manufactures easy-to-install cellular signal boosters to help mobile cellular users improve their cellular service and reduce dropped calls in buildings and vehicles. The company is located in St. George, Utah. With business increasing rapidly, Wilson needed to find immediate ways to manufacture more products in a shorter timeframe without compromising quality. Looking to implement projects quickly and with sustainable impact, the company decided to contract Utah's Manufacturing Extension Partnership for a training series on Lean 101 Manufacturing. The projects went beyond the manufacturing floor and into the office, where teams reduced turnaround time for marketing material and processing sales orders. Because of the training, Wilson employees are constantly looking for better and faster ways to perform tasks and improve the bottom line. Wilson Electronics attributes cost savings of $1 million and retention of five jobs as well as increased company efficiency to the lean training and implementation they received.

Funding Sources

MEP centers are non-profit, university or state-based organizations. Consistent with all MEPS, three sources provide the funding for MEP Utah. The Federal government, through NIST, provides one-third. The primary intention of these funds is to cover administrative costs. The MEP realizes the remaining two thirds from a combination of state funds, other regional partners, and revenue from users' fees paid by manufacturers for the services they receive. These revenues fund MEP's manufacturing engineers. MEP Utah has a staff of 12.5 FTE employees and a budget of $2.7 million. UVU does not provide direct funding to MEP Utah, however, UVU does provide space, information technology, and financial/human resource processing services.

Linkage with UVU

MEP Utah began operating in the mid-1990s. At that time, the Federal funding stipulated that MEPs had to collaborate with a university. MEP Utah remains located at UVU, where 11.5 of its 12.5 FTE employees are located. The remaining employee is located at Utah State University.

Economic Contributions

MEP Utah conducts mandatory follow-up surveys with its clientele one year after the completion of service. The survey includes standard questions asked of all MEP clients nationwide. The MEP of Utah uses this information to conduct its own economic impact study. The most recent study was completed for calendar year 2013 for clients assisted during 2013. This study, titled "The Economic Impacts of the MEP of Utah, Study Year 2013," estimates that MEP Utah's activities in 2013 alone generated the following total (direct, indirect, and induced) economic impacts for Utah's economy in 2013:

- 3,661 additional jobs (created or retained)
- More than $754 million of additional industrial output
- More than $18.7 million of additional indirect business taxes (taxes occurring during normal operation of the business)

The total tax revenue generated, including the aforementioned additional indirect business tax, is over $56 million, including over $37.7 million in federal taxes and $18.7 million in state taxes.

If sustained, these impacts could recur annually, adding to the economic impacts of businesses served by MEP in prior years, as well as those served in subsequent years. Thus, while the cumulative effect of MEP Utah's impacts are unknown, the figures for 2013 indicate that the impacts are substantial, providing a significant boost to Utah's economic base, personal wealth, and tax revenues.

7.3 The Utah Science Technology and Research Initiative

The Utah Science Technology and Research initiative (USTAR) is a long-term, state-funded investment to strengthen Utah's "knowledge economy," created by the Utah State Legislature in 2006. The state authorized the USTAR program for 30 years, with the legislature to approve the funding annually. The initiative invests in innovation teams and research facilities at the University of Utah and Utah State University, and public research universities in Utah, to create novel technologies that new business ventures subsequently commercialize.[59] A primary USTAR objective is to raise the average salary in Utah by creating more opportunities for high-tech jobs in advanced technology companies.

USTAR aligns with two of Utah Governor Gary Herbert's key objectives, to 1) Strengthen and grow existing Utah businesses, and 2) Increase innovation, entrepreneurship and investment. It is the signature initiative for the focus on Objective 2.[60] USTAR connects entrepreneurs,

[59] Innovation UTAH website, "About USTAR." http://www.innovationutah.com/aboutustar.html
[60] Ibid.

innovators, industry, education and the financial community with the equipment and human capital assets of the regional schools and universities.

USTAR promotes the following objectives, as stated on its website.[61]

Innovation:

- Expand Utah's University-based innovation capacity by organizing USTAR's star faculty into teams around strategic innovation areas aligned with Utah's near-term, medium-term and long-term industry growth needs.
- Improve mechanisms to support and encourage non-university based innovation by improving the utilization of established infrastructure, services and expertise to early stage companies.
- Support the Proof of Relevance and Proof of Concept vetting system by using the Go To Market Grant program and GOED's Technology Commercialization and Innovation Program (TCIP) as mechanisms to unify inventors, entrepreneurs, investors and industry partners that are interested in using innovation to spur economic development of early stage technologies.

Entrepreneurship:

- Utilize the Technology, Outreach, and Innovation Program (TOIP) as a regional campus such that local entrepreneurs and businesses have access to emerging technologies for the benefit of regional economies.
- Support and strengthen innovation and entrepreneurship by driving awareness of incubators, cooperative work locations and other independent support services throughout the state.

Investment:

- Broker ideas, new technologies and services to entrepreneurs and businesses throughout each respective service area and help connect local investors with entrepreneurs.

Service Population/Services Provided

The TOIP acts as a resource to look for opportunities for commercialization of technologies that the University of Utah and Utah State University are generating through their professors. The TOIP connects researchers, entrepreneurs, and service providers through collaborative efforts and engages them by connecting them to Utah's research universities. This includes connecting the resources and expertise of the research universities with regional campuses like UVU and communities such that local entrepreneurs and businesses have access to emerging technologies for the benefit of regional economies. The TOIP also brokers ideas, new technologies, and services to entrepreneurs and businesses throughout each respective service area.[62]

Funding Sources

[61] Ibid.
[62] Ibid.

The Utah State Legislature funds USTAR. This includes state funding for the TOIP and the Director of USTAR for Technology Outreach at UVU.

Linkage with UVU

The USTAR Technology Outreach Center ("USTAR Central") hosted at UVU is one of five such centers throughout the state. Located in the Business Resource Center, it rallies local entities and industry, government agencies, and regional educational institutions. The USTAR TOIP at UVU provides opportunities for technology commercialization and intellectual growth, connecting UVU faculty to USTAR research and development projects and other resources, and assisting UVU researchers reach the marketplace through the commercialization of technologies.

Economic Contributions

USTAR has established a competitive award and training program at UVU along with the UVU Rapid Development Center to help local businesses develop websites, apps, and other software, plus 3-D printed physical prototypes to quickly test ideas at low cost. A new digital media initiative is making the state an industry leader in digital media. It has fostered the development of intellectual property, commercial research and licensing revenue to UVU.

UVU faculty gain opportunities to collaborate with leading researchers in technology to conduct applied research through USTAR. It links local industry with applied research findings resulting in collaborative opportunities to create new businesses and jobs, fueling the regional economy. A specific program created by USTAR in 2009, the Technology Commercialization Grant program, represents a strong example of successful collaborative opportunities. The following section presents a description of this program and its relevancy to UVU. Note, however, that the grants directed through UVU are undergoing restructuring and funding for technology commercialization is likely to be available under a new program sometime next year.

7.4 The Utah Science Technology and Research Initiative, Technology Commercialization Grants

In an effort to bring innovative new technologies to market, USTAR launched the Technology Commercialization Grant (TCG) program in 2009. Funded by approximately $1.0 million from the Federal American Recovery and Reinvestment Act (ARRA), the TCG program is a short-term grant program intended for use in higher education as part of an overall strategy to promote commercialization of higher education innovation. USTAR intended the TCG grants for use at five Utah institutions of higher education, including UVU. USTAR changed the TCG (Technology Commercialization Grants) to GTM (Go to Market Grants) in a re-branding effort. Then UVU ended up branding it as G2M.

Service Population/Services Provided

Between late 2009 and the end of 2010 the TCG grants were awarded on a competitive basis to UVU faculty or students that had a partnership agreement with Utah-based companies and other third parties. The purpose of these grants was to assist applicants to develop and test prototypes,

assess markets, and commercialize new products and services in high-growth markets. There were four rounds of grant awards within an 18-month period, during which time nine UVU-based applicants received grant funds totaling approximately $300,000 to $400,000, with the average applicant receiving a $45,000 grant. The most common use for the grant funds was for prototyping, especially industrial scale prototypes.

Examples of grant winners from UVU include the following:

- WaterJet, an innovative water drill technology for dentistry, which is currently in the industrial prototype development stage of business development
- Learning Components, a business that is developing an on-line interactive method of teaching and monitoring student performance, now being piloted at the university level at UVU
- A protein-based identification technology, which is developing a method of using proteins from hair samples for identification purposes even if DNA is not present; this technology is in the validation stage, with the potential for getting to market in two to three years
- Pixelture, Inc., a business developing a software solution that allows users to share content from their laptop to one or more displays wirelessly, now being pilot tested at UVU and another university in Utah.

Funding Sources

The Federal ARRA program funded the TCGs. Grantees were expected to repay the original grant amount in full to a foundation at the granting public institution if the grant leads to the establishment of a commercially successful business. UVU makes the grant payments and USTAR reimburses UVU. USTAR did not direct the funding to any particular department of UVU. The funds went to 60 local businesses in the last two years (both student and non-student businesses).

Linkage with UVU

USTAR made possible the hiring of the first Director of Technology Commercialization at UVU and establishment of the UVU Technology Commercialization Office. The TCG program included four Technology Outreach Directors, responsible for liaising between the campuses for commercializing technology and for evaluating the overall potential of each grant opportunity. A university, including UVU, hosted each Technology Outreach Director. In addition, all grant applications had to include a university partner, faculty or staff. UVU received its first patent in the fall of 2013.

The TCG program changed to GTM (Go to Market) and then to G2M. Under G2M, at least for 2013-2015, the 'grants' were actually low interest loans to individual companies who competed for $2,500 or $5,000 funding. Both student run companies and other companies competed.

Economic Contributions

The TCG grants provided an opportunity to further the commercialization of new products and services. The approximately $300,000 to $400,000 in grant funds received by UVU-based grantees contributed to business growth and development, which ultimately has the potential to generate many times this amount in annual revenues for the grant recipients. These revenues will in turn generate jobs and multiplier effects within the regional and state economies. Moreover, as the grantees repay the grant funds, the program will generate opportunities for additional business ventures, which in turn could generate additional rounds of wage, jobs, and sales impacts.

The UVU Technology Commercialization Office works with professors and students to develop intellectual property, commercialization research, and provide licensing revenue to the university.[63] Some form of the TCG grants have been around since 2009 until May 2015. The amounts ranged from $5,000 to $40,000. In 2013-2015, approximately 60 companies received funding from G2M in some amount from $2,500 to $5,000, some accumulating up to $12,500. As of May 2015, the program is on hiatus and USTAR is reviewing the merits and procedures of the program.

7.5 Utah Cluster Acceleration Project

The purpose of the Utah Cluster Acceleration Project (UCAP) program is to strengthen collaboration between education, industry, and economic development in order to respond better to the needs of regional and statewide-designated clusters. It provides funding to public post-secondary educational institutions to develop, implement, or enhance educational programs that are responsive to regional and statewide industry needs or industry trade associations located in Utah that serve a state designated industry cluster or regional economic need. UCAP also provides funding to public school districts, individual schools, or charter schools to develop, implement or enhance career pathway programs and connecting them to post-secondary institutions.

The design of the UCAP program aims to increase the number of individuals who earn industry-recognized credentials, develop career pathways with multiple entry and exit points for students along the post-secondary education continuum, and create systemic change by establishing processes and programs that improve connections between education, the workforce and employers.

Service Population/Services Provided

Specifically, the intention of UCAP is to address the following four opportunities and concerns:

- Goal 1: Increase Economic Cluster Connectivity and Educational Alignment
- Goal 2: Respond to Industry Identified Skill Gaps
- Goal 3: Enhance the Role of the Regional Institutions in Economic Development
- Goal 4: Promote Regional Stewardship of Grantees' Contributions to Workforce Development

[63] USTAR Central. http://www.uvu.edu/brc/ustar/

A partnership of the Department of Workforce Services (DWS), the Utah System of Higher Education (USHE) and the Governor's Office of Economic Development (GOED) created the UCAP in 2009. The intention of this collaboration was to help strengthen the alignment between industry needs and educational programs, by bringing together industry groups.

A July 2013 revision changed the program from one that brings industry and education together to identify needs to a program that focuses on the implementation of needs previously identified. The UCAP program redesign provides grants to public post-secondary educational institutions to develop, implement or enhance educational programs that meet industry needs. UCAP also provides assistance for cluster industry initiatives. The UCAO programs expects applicants to have already met with industry to determine their requirements and now desire "seed" money to implement and expand existing programs to meet industry needs.

As part of the revised program, UCAP approved 15 applications including 12 different training institutions and 3 economic development partners, totaling $2,017,270. The successful applicants used these funds, coupled with $3,346,618 in leveraged resources, to develop 25 new certificate or degree programs, expand capacity for six existing programs and support three economic development projects. This created the capacity for 875 new training slots annually to support the Governor's "66 percent by 2020" initiative, a vision that maintains that to meet demand, at least two-thirds of Utahans ages 20 to 64 will have earned a postsecondary degree or certificate by the year 2020.

Applicants are encouraged to form a consortium to develop programs that will affect individuals across a region, statewide, industry sector or cluster of related industries and leverage their collective experience to expand the available education and career training programs. Consortium applications consist of two or more eligible applicants working with multiple employers or industry trade associations.

Funding Sources

Total funding allocated for the most recent grant period, March 31, 2015 to May 26, 2015, was $3,450,000. This included $2,200,000 for the post-secondary/industry trade association track and $1,250,000 for public school districts, individual schools or charter schools. The UCAP Executive Board set funding limits. As a general guideline, projects are limited to $200,000, with a higher cap approved for consortium/regional partnerships, upon approval by the UCAP Executive Board.

Linkage with Utah Valley University

In 2013, UVU received $157,000 ($324,000 leveraged) as part of the $1 million that UCAP approved for the expansion or creation of programs at higher education institutions throughout the state. Other grantees included Uintah Basin Applied Technology College, Dixie State University, Mountainland Applied Technology College, Utah State University Eastern's Price campus, Dixie Applied Technology College and the University of Utah. This new grant program funded training for students in highly sought-after fields. The University has designated the

funds to expand its information technology programs to help meet the demands of IT-related employers in Utah County. It created two pathways in the Information Technology Cluster for Business Engagement and Information Technology (IT) Certificate Expansion: These include:

1. Certificates of Proficiency (COP) in the IT Cluster – Certificate programs provided to secondary education students through UVU concurrent enrollment:
    a. COP in Computer Science
    b. COP in Information Technology
    c. COP in Digital Media

2. Non-credit Certificates of Proficiency in Software Testing – Certificates focus on adult training and are delivered through UVU Community & Continuing Education:
    a. Level 1: Beginning Software Testing Non-credit COP
    b. Level 2: Advanced Software Testing Non-credit COP

In addition to these certificates, the UCAP grant resulted in additional deliverables:

- Advance the IT career pathways.
- Develop these career pathways using a facilitator.
- Coordinate the development of high school Certificates of Proficiency with school district administration and faculty.
- Develop and implement a Rigorous Program of Study (RPOS) pilot within the Mountainland Region.
- Connect the Degree Maps available to the new UVU website to the Utah Majors Guide and occupational information and current job openings.
- Contract with Computer Science faculty for the development of Non-credit Certificates of Proficiency focused on training of adults.
- Work with representatives from business and industry to validate the curriculum supporting the adult Certificates of Proficiency.
- Incorporate Work Keys into the Adult Certificates of Proficiency.
- Finalize UVU as an authorized Work Keys National Career Readiness Center and testing site.
- Develop and equip a mobile computer lab providing computer workstations to support on and off-site delivery of the developed Adult Certificates of Proficiency.

The publication "Utah Valley University Business Engagement Strategy Career Pathways – Phase II: Computer Science and Software Engineering, 2013-2014." This report details the processes utilized to complete these projects.[64]

This is the second year UCAP has funded UVU's Regulatory Affairs Graduate Certificate. Second year funding will help transition the program from grant support to full sustainability by the institution. UCAP funds for this program will result in 15-20 new certificate holders through scholarship funding, adjunct professor salaries, program development and materials. In training

[64] https://www.uvu.edu/president/docs/bespathways_101314.pdf

individuals to be Regulatory Affairs specialists, UVU will fulfill industry's request for regulatory talent.

Economic Contributions

A recently released annual report tallies the successes of the program to date. A look back on the past year of the Utah Cluster Acceleration Partnership (UCAP) shows that the more than $2 million in funds helped create 25 new certificate or degree programs, expand capacity for six existing programs, and support three economic development projects. Leveraged funds of $3.3 million amplified the $2 million in direct funding. This created 875 new training slots annually. These openings equip Utahans with skills in high-demand, growing fields. Often, the skills taught in these programs directly relate to growth clusters as defined by the Governor's Office of Economic Development. This program helps to better align classroom training directly with industry needs, and is contributing to the Governor's "66 percent by 2020" initiative. The plan targets a state goal of 66 percent of all working-age Utahans attaining a postsecondary degree or certificate by the year 2020. In 2014, the program distributed grant amounts ranged from $18,000 to $250,000 and among various institutions, including applied technology colleges, trade organizations and traditional universities.

7.6 UVU Office of Technology Commercialization

UVU created the UVU Office of Technology Commercialization in January 2011. The Office's initial staff includes a Director, a newly formed position within the University. UVU charged the Office with identifying and cultivating entrepreneurial and informational technology properties developed at UVU and throughout the region and facilitating the transfer of those technologies into commercially viable enterprises. The overall mission of the Office is to have a strong economic impact on the region and State of Utah by strengthening the economy through development and application of new technologies. The Office seeks to create value for UVU through the revenues associated with the licensing of technologies and royalties.

Service Population/Services Provided

The Office of Technology's primary service group comprises faculty and students within UVU. The office provides additional outreach and services to local businesses to help develop or strengthen their technologies, in turn strengthening their employment base and reach within the world marketplace.

The Director of the Office of Technology Commercialization conducts outreach within UVU to identify and attract potential inventors and technologies suitable for commercialization. The Director speaks to University departments and faculty and also identifies and speaks to student groups. For example, in the spring of 2011 the Director made a presentation to a physics group within the College of Sciences. Ultimately, four students displayed their inventions after this presentation, including one invention involving electrical distribution. With the support of the Office of Technology Commercialization, the inventor subsequently filed a patent for this invention, and the Office is now supporting the inventor by looking for a local company to help manufacture a prototype. Several additional student groups have also helped university and

local inventors, including the engineering club, science students, and business students. Student teams perform marketing and business research every semester.

The UVU Office of Technology Commercialization also supports Regional businesses. These may include businesses referred by the SBDC or businesses that independently contact the Office. These businesses request assistance with taking the technologies they invent, own, or know about to the marketplace using UVU's opportunities. UVU faculty and students as well as the Office of Technology Commercialization provide some of this assistance. For example, during the fall semester of 2011, select Business School classes provided opportunities for inventors and local companies to receive market research specific to their technology. Through coursework and activities, the students helped these inventors and businesses, comprising start-up to well-established companies, understand marketing opportunities and sales potential. Technology and innovation reviews have helped numerous regional businesses. Regional businesses have filed three patents as a result.

Funding Sources

UVU directly funds the Office of Technology Commercialization. The Office's ultimate goal is to be self-supporting, funded by the revenues accruing to the University from licensing technology efforts or royalties. In addition, once the Office accumulates sufficient funds, the Office can then promote and fund additional research within the University to support commercialization of promising technologies.

Linkage with UVU

The Office, which UVU directly funds, has a primary goal of helping UVU faculty, students, and staff members develop technologies suitable for commercialization. Three student businesses have been created in the time of the study resulting from student innovations and patent or copyright filings.

Economic Contributions

Since January 2011, the UVU Office of Technology Commercialization has facilitated the filing of at least 15 patents, with others currently in process. The inventors individually own the patents, but UVU will participate in the downstream financial rewards from commercialization. This is a strong record of success. As the Office of Technology Commercialization becomes more established within UVU there is the demonstrated potential for the Office to foster numerous inventions and ultimately to create economic opportunities through manufacturing and sales benefiting the inventors, UVU, and the regional and State economies. While the office has received no royalties to date, the office is now in a position to see that change in 2015.

7.7 Business Resource Center

The Business Resource Center (BRC) serves the Mountainland Region of Utah, Summit, and Wasatch counties. A collaborative council for local economic development agencies and service providers hosted by UVU started the BRC in the late 2000s. The purpose of the BRC is to

consolidate economic development activities and events, find ways to support local entrepreneurs, and help them enhance their business success. Three quarter of the Center's emphasis is on job creation and growing opportunities. One quarter supports the state efforts to recruit jobs and increase job retention.[65]

Service Population/Services Provided

The Business Resource Center, which started as a loose network of member agencies and service providers, has become increasingly more formal since its inception. During its second year of operations pilot funding became available through the State legislature, administered by the Governor's Office of Economic Development (GOED), formalizing the creation of three Business Resource Centers throughout the State, including the one serving the Mountainland Region. A 20,000-square-foot former Saturn car dealership located across from the main entrance to UVU houses the BRC.

The BRC brings together in a shared space many agencies and service providers serving the economic development needs of the Mountainland Region (e.g., defined as Utah, Summit, and Wasatch counties). These groups include the Small Business Development Center (SBDC), the Commission for Economic Development in Orem (CEDO), the Manufacturing Extension Partnership (MEP), the Procurement Technical Assistance Center (PTAC), USTAR, Service Corps of Retired Executives (SCORE), and the University's new Technology Commercialization Officer. CEDO, a non-profit organization whose mission is to ensure the economic vitality of the city of Orem, also runs an incubator that collocates in the BRC.

Collectively the BRC groups are all dedicated to providing business and economic development assistance to aspiring and existing businesses. The Center staff conducts intake and prescreening, and then refers clients to the group within the Center most appropriate to meet their needs. The BRC provides classes, individual mentoring, networking, access to capital and other services to assist entrepreneurs, small, medium and large businesses in any industry.[66]

Funding Sources

The Utah State legislature has been providing funding for the Business Resource Center. The GOED administers the funding. UVU, CEDO, and a grant from the U.S. Economic Development Administration (EDA) provided funding for construction of the BRC. UVU provided the largest portion of the construction funds and purchased the development site. Now operational, all of the non-UVU Business Resource Center tenants are responsible for paying rent.

Linkage with UVU

UVU was the driving force behind the formation of the BRC and the development of the new Center facility. UVU's involvement with the BRC supports the University's major initiative of community engagement. It is a hub for connecting academics to private industry.

[65] www.evu.edu/brc/development
[66] www.uvu.edu/brc

Economic Contributions

The Business Resource Center itself is not a direct source of contributions to the regional economy. However, all the many constituent organizations that comprise the Center contribute to the establishment and growth of businesses, fueling the economy through business and job growth, encouraging business investment, and supporting the region's economic development. Just 30 of the companies that received G2M funding from USTAR in 2013 reported a collective increase in sales of $739,668 along with $1,922,000 in private investment. From January to December 2014, more than 220 companies applied to the Business Accelerator.

7.8 Woodbury School of Business Entrepreneurship Institute

In 2003, UVU started the Entrepreneurship Institute, which the university houses within the Woodbury School of Business. In August 2011, the first full-time director for the Institute was hired. A part-time administrative assistant was in place for January to May 2014.

The mission of the Entrepreneurship Institute is to cultivate the entrepreneurial mindset of the students across the campus of Utah Valley University. The institute accomplishes this by offering events and experiences outside the classroom that enhance rigorous, in-class studies in opportunity identification, evaluation, and execution. It fosters collaborative communities of student entrepreneurs, facilitating them as they hone both their managerial and technical skills through launching innovative businesses. The Entrepreneurship Institute celebrates achievement and applauds resiliency and commitment as student-entrepreneurs pivot and regroup to adjust to evolving technologies and markets. It promotes student success as they launch sustainable and scalable ventures that promote economic independence and that benefit society.

Service Population/Services Provided

The Entrepreneurship Institute offers ten classes to UVU students. These classes comprise a concentration within the University's Business Management Department. The university also offers a minor for non-business majors. The development of an Associate Degree is underway, to be available as a UVU degree program by fall 2016 or before.

During the 2013/14 academic year, the total student body at UVU numbered in excess of 35,000. Students declaring Entrepreneurship as a Concentration or a Minor numbered 474. Program graduates numbered 18 in spring 2014. In fall 2013, 135 student entrepreneurs participated in competitions offered through the Entrepreneurship Institute, with 114 participating in spring 2014.

The institute offers an Entrepreneurship Lecture and Luncheon series during both fall and spring semesters. During the two semesters, 28 regional experienced entrepreneurs prepared and presented to more than 150 students. The institute offers mentor luncheons after the lectures for smaller groups of students, with more than 140 mentor hours provided.

The Entrepreneurship Institute also sponsors student clubs. The UVU Entrepreneurship Club has a total membership of 63 with about 20 members attending weekly meetings. The UVU Web Development Club had 65 attendees at their kick-off event in February 2014.

The Entrepreneurship Institute offers events and experiences outside the classroom. The following paragraphs describe several of these offerings:

- **UVU Startup Lab** – Housed in the Business Resource Center, this startup incubator is a no-cost resource for new student ventures. Students participate in the BRC 'Go 2 Market' training as they do field research to identify and validate a customer base for their business ideas. Some of the student-run companies that have had or currently have office space in the Startup Lab include FuelOperator, MusicScape, Skeduna, ScholarBox, Dub Wars, and the Utah Open Source Foundation.

- **UVU Entrepreneurs-in-Residence and Expert Mentors** – Don Watkins, co-founder and past CEO of Handstands, Inc., was UVU Entrepreneur-in-Residence from 2011 to April 2013. Ryan Westwood, founder and CEO of both PcCareSupport Systems and Outbox Solutions accepted the invitation to become E-I-R in January 2014. Brian Whitmer, co-founder and CTO of Instructure, is also currently mentoring a promising UVU startup team. Also in 2014, Travis Wilson, attorney with Jones Waldo Law Firm donated free legal counsel to UVU startups.

- **UVU Business Competitions** – ***Opportunity Quest*** is the premier business competition at UVU. In the spring of 2014, 21 student teams competed for cash prizes totaling $10,800. In the fall of 2013, students competed for an opportunity to apprentice with experienced entrepreneurs in actual startups through the '***So You Think You Want to Be an Entrepreneur' Challenge.*** *The* ***AWE (Apprenticeships for Women Entrepreneurs)*** awarded three paid, 3-month internships with three promising UVU Startup companies. The Entrepreneurship Institute held this event in conjunction with the Startup Showcase. The ***iOi (Ideas, Opportunities, and Innovations)*** Competition was held in April. The competition selected 12 promising startups out of 28 applicant teams to receive $125 in the first round. Second and final rounds in the fall of 2014 resulted in six teams receiving $750 each and three teams receiving $1,250 each, respectively.

- **Young Entrepreneurs Startup Camp (YES Camp) --** A grant from the Department of Education funds this summer camp for aspiring high school entrepreneurs. In 2013, representatives from the Entrepreneurship Institute visited 11 local high schools, giving presentations in the business classes. The YES Camp attendees earned 3 hours of concurrent enrollment through attending this 8½-day camp. Attendance has grown from 11 in August 2011 to 41 in June 2012, and in June 2013, 32 high school entrepreneurs attended.

- **Co-hosted Events and Community Networking** – The Entrepreneurship Institute co-hosts these events with other departments or with external organizations, to help connect UVU student entrepreneurs within the Utah entrepreneurial ecosystem:

- *OpenWest Technology Conference* – held annually on the UVU campus, this event drew 1,263 attendees in May 2014. UVU student entrepreneurs attend at no cost to learn basic as well as advanced programming skills and to network within the technology and entrepreneurial communities. (www.openwest.org)
- *LaunchUp* – hosted on the UVU campus by the UVU Entrepreneurship Institute, over 125 local startup entrepreneurs attended in May, 2013. (www.launchup.org)
- *Utah Venture Entrepreneurs' Forum* – UVU students are invited to attend these monthly meetings of experienced entrepreneurs sharing insights and providing mentoring. (www.uvef.com)
- *Women's Technology Council* – The Entrepreneurship Institute co-hosted a mentoring luncheon on the UVU campus with this Utah association, with 34 female students attending. (www.womentechcouncil.org)

Funding Sources

In addition to faculty and staff salaries and overhead, a $20,000 annual hard-money budget, UVU has allocated to the Entrepreneurship Institute. This covers the expenses of three to four part-time student interns, marketing, professional services, and office supplies. In addition, the Entrepreneurship Institute receives funding from a variety of other sources including the following:

- **Soft funding -** individual and community contributions provided a total of $37,400 in 2013-14. Zion's Bank, through University of Utah, provided $8,000 to cover the costs of the 2013-14 annual UVU Opportunity Quest business competition. KeyBank made a one-time contribution of $10,000 for the AWE program (Apprenticeships for Women Entrepreneurs). Stephen W. & Bette Gibson donated $10,000 to student competitions. Wing Enterprises donated $2,000. PC CareSupport donated $1,000 in January 2014. Clint Argyle donated $2,200 for the 2014 'So You Think You Want to Be an Entrepreneur' Challenge. Utah Venture Entrepreneurs' Forum contributed $4,200 to the Entrepreneurship Institute for internships.

- **Grant -** The Department of Education provided $31,402 in June 2014, as part of a five-year $250,000 grant to support the summer camp for high school entrepreneurs. The grant ends in September 2015.

- **In-kind donations -** Travis Wilson, attorney with Jones Waldo Law Firm, donated legal counsel to UVU student entrepreneurs. Standard rate for Travis' services is $325/hour.

Linkage with UVU

The Woodbury School of Business at UVU houses The Entrepreneurship Institute. The Institute focuses primarily on UVU students across the campus. The Institute also collaborates with the UVU Business Resource Center, the Utah Open Source Foundation, Utah Venture Entrepreneurs' Forum (UVEF) and other regional associations in community outreach programs. All faculty and staff associated with the Institute are University employees.

Economic Contributions

The Entrepreneurship Institute helped to foster the formation of more than 19 ongoing businesses started by students or former students during the academic year spanning 2013-14. Although the Institute does not have comprehensive data on all startup businesses, Hatchet Eyewear received $25,811 funding through Kickstarter.com in addition to a self-reported $75,000 in revenue during the 2013 FY. MURA Interactive also received $34,509 through KickStarter along with self-reported pre-launch beta sales of approximately $15,000. Skeduna received $50,000 through a private investor, and LionHeart Innovations received a reported $50,000 investment through J.W.Capital. These investments/revenues are in addition to their winnings through UVU competitions and other unreported revenues and investments.

The UVU Startup Lab has operated at about 90 percent capacity since its launch in 2012, providing professional-quality office space for seven UVU startup companies.

7.9 Volunteer & Service Learning Center

The Volunteer & Service-Learning Center (V&SL Center) engages students, faculty, staff, and community organizations in collaborative work and sustained partnerships to create transformative learning experiences and positive community change.[67]

Service Population/Services Provided

V&SL Center staff work closely with deans, department chairs, and the campus-wide service-learning committee to identify, recruit, and support faculty interested in adding a service component to their curriculum. UVU faculty work with the V&SL Center to have their courses designated as service-learning courses. Examples of classes with a service-learning component include the following:

- **MGMT 3550**: Organizational Development & Change, during which students have hands-on experience with organization development and change, including work the four primary areas of the organization development process, i.e., entering and contracting, diagnosing/analysis, planning and implementing change, and evaluating/institutionalizing change
- **SW 1010**: Introduction to Social Work, during which students provide 20 hours of volunteer service in a human service agency or school of their choice
- **PES 4400**: Exercise Promotion in the Community, in which students promote physical activity in settings that address assessment and exercise prescription in the elderly

V&SL Center staff help faculty in establishing community partnerships, finding opportunities for research and publishing, and providing training opportunities with other service-learning practitioners throughout the State of Utah.

[67] Program materials prepared by the UVU Volunteer & Service-Learning Center.

The VS&L Center staff includes a full-time director, full-time program coordinator, full-time community partnerships coordinator, and part-time administrative assistant. A faculty member is also involved part-time to coordinate academic service learning. There are 13 different academic departments with designated service-learning classes.

The VS&L Center works diligently to provide individuals and groups with meaningful engaged learning experiences and community involvement activities that encourage student development, learning, and civic engagement. A number of additional programs sponsored by the V&SL Center include youth mentoring, food drive, blood drives, Meals on Wheels, Adopt a Grandparent, and Sub for Santa. In FY 2013-14, there were 11,770 participants in V&SL Center programs, including service-learning classes.

Funding Sources

Student fees are the primary source of funding for the VS&L Center. Additionally, the V&SL Center also receives funding from the UVU Office of Academic Affairs, to assist in the training and development of service-learning faculty.

Linkage with UVU

The V&SL is a center and service that UVU directly provides.

Economic Contributions

The level of student involvement in the V&SL Center's activities has increased steadily over the years. In FY 2004, student involvement totaled 5,270, with 52,001 hours of volunteer & service learning. By FY 2009-10, 10,839 students devoted 102,665 hours to volunteering and service learning. In FY 2013-2014, 11,770 students dedicated 192,211 hours to volunteering and service-learning work. The VS&L Center values this level of student involvement at $4.52 million, based on a $23.51 per hour value of volunteer time as estimated by Independent Sector, a leadership forum for charities, foundations, and corporate giving programs committed to advancing the common good in America and around the world. This is a significant infusion of in-kind services to the community and regional economy, which in turn likely fueled yet additional economic impacts attributable to UVU.

7.10 Care About Childcare at Utah Valley University

Care-About-Childcare at Utah Valley University (CAC@UVU) serves Juab, Utah, Summit, and Wasatch counties. Housed at UVU, CAC@UVU assists parents, providers, and community partners by providing referrals, education, collaboration, and resources. CAC@UVU providers comprise childcare centers, childcare providers who work in their homes regulated with a family, family group license, or who are designated a DWS approved provider. Utah Valley State College was awarded the contract to run CAC@UVU from a 1990 Request for Proposals (RFP) and it has been located at UVU ever since. CAC@UVU pays 10 percent of its budget to UVU as a partial contribution to overhead.

Service Population/Services Provided

CAC@UVU provides professional development and training to childcare providers. This occurs in many ways, including through the provision of over 85 training classes a year. During FY 2015, about 6,875 childcare providers attended these classes. These classes are part of a professional development program administered by the Child Care Professional Development Institute, which is a program that has helped generate quality improvements in childcare settings.

CAC@UVU provides many other services. These include the Peer Mentoring System, through which home child care providers just entering the field are assigned to an experienced provider to gain professionalism and an understanding of early childhood best practices. Another major service provided by CAC@UVU includes Start-up Grants, which provides grants to new providers to help them establish their home business. During FY 2015, CAC@UVU provided these grants to 13 new providers, with a total value of $ 5,558. Additional services offered to childcare providers include monthly access to resources available in the CAC@UVU lending library such as the copy machine, laminator, and die cuts during Resource Night.

In collaboration with the Utah Office of Child Care and the Child Care Professional Development Institute, CAC@UVU markets, updates, and assists with the Care-About-Childcare website (www.careaboutchildcare.utah.gov) quality grant process. Childcare providers are able to earn monetary grants depending upon the number of quality criteria they provide documentation for and get approval from our CAC@UVU agency. This statewide website satisfies federal regulations regarding quality oversight in childcare programs and is a resource for parents, providers, and community partners who are working to improve quality childcare. During FY 15 CAC@UVU approved 2,121 quality criteria allowing 69 providers to receive monetary grants ranging from $250 to $2,000 per program depending upon the license (center or family) and the number of approved criteria.

In April 2014, CAC@UVU started providing oversight for the newly regulated Department of Workforce Services and Bureau of Child Development Bureau of Child Care Licensing DWS Approved providers. DWS designates these providers as FFN (Family, Friend, and Neighbor) childcare providers. Parents qualifying for the DWS subsidy, which helps to pay for their childcare while they work, are able to choose a relative or neighbor to provide the care for their child. Previously these providers have not been subject to state regulation, except for a criminal background check. Because of the current regulation, these providers are now required to become First Aid/CPR trained, have their home inspected for safety, and learn about basic child development. Starting in April 2014 CAC@UVU has reimbursed half of the cost of the First Aid and CPR training amounting to $940 for these providers. CAC@UVU also sent these providers welcome packets containing basic child development information and community resources

CAC@UVU provides a referral system to parents seeking a childcare provider. Parents can call the CAC@UVU referral line and share information regarding their childcare needs, including days of the week, number of children, etc. CAC@UVU then generates a personalized referral list for the parent based on their needs. Alternatively, parents can also generate an on-line referral through the statewide website at www.careaboutchildcae.utah.gov. CAC@UVU also provides parents with information regarding how to choose quality childcare. During FY 2015,

CAC@UVU facilitated 475 referrals for parents coming into the office, calling the referral line, or accessing the www.careaboutchildcare.utah.gov website.

Doing its part to support UVU's mission of engagement, CAC@UVU collaborates with many other programs throughout the region to promote early childhood projects and to advocate for children. These other programs include United Way and their Welcome Baby program, Centro Hispano, Partners for Infants and Children Utah County Early Childhood Council, Kids on the Move, Help Me Grow, and the Freedom Festival Baby Contest. It also includes donated children's books, which DWS distributes to low income families.

Economic Contributions

CAC@UVU creates economic impacts, primarily through skills enhancement, job growth, income earnings, and child development. Childcare providers gain education and professional skills that enhance their ability to provide childcare. CAC@UVU also provides grants designed to help providers gain entry to the marketplace, fueling job creation. Research findings indicate that investment in quality early childhood programs give back a high rate of return. Studies show that if a child's early childhood includes support for growth in language, motor skills, adaptive abilities, and social-emotional functioning, the child is more likely to succeed in school and to contribute to society.[68] GEL is helping to ensure that Utah's young children receive this critical start to being contributing and productive members of Utah's economy.

7.11 Grants for Engaged Learning Program

The Grants for Engaged Learning Program (GEL) supports projects that promote collaborative learning and problem-solving resulting in solutions, outcomes, and benefits to the local, regional, national, or international communities.[69] Through the grant program, faculty, students, and staff are encouraged to obtain funding for projects that will cultivate a culture of engagement across the University. The GEL intends these projects to build collaborative partnerships and expand engaged learning opportunities. GEL is a new program at UVU, started during academic year 2010-2011. GEL provides successor services to the UVU Center for Engaged Learning (CEL), which the Office of the President created in 2007 to raise the profile of engaged learning and to initiate partnerships and projects that model this approach to teaching and learning.

Service Population/Services Provided

GEL grants are available to students and faculty of UVU, but students require a faculty sponsor for grant distribution purposes. The application process to obtain a GEL grant is competitive. The evaluation process includes consideration of five criteria. Relative to economic impacts, the most relevant criterion is that the project has a community benefit, with the applicant specifically required to identify the depth and breadth of the anticipated impact and value to the community. Other grant selection criteria include depth and breadth of student involvement with significant

[68] UVU website, "What is the Grants for Engaged Learning (GEL) program?" http://www.uvu.edu/gel/faq/index.html
[69] Ibid.

learning conditions, the extent to which the project connects academic theory and learning to practical applications, and the extent to which the recipient will measure and communicate student and community outcomes.

There is a wide variety of projects funded with GEL grants. Grants range in value from $1,015 to $10,000, with just under half the grants awarded for $10,000. Summary descriptions of some of these GEL projects include the following:

- Paramedic students will utilize airway management equipment and become proficient in the intubation skill, thus improving clinical outcomes and engaging emergency service providers by having UVU students teach the intubation skill to partnering agencies.
- A grant will promote service learning will be promoted at the University of Bamako, Mali through a collaborative project which will study elevated groundwater arsenic and its health effects in the high-poverty neighborhoods of Bamako and the rural villages of Ouelessebougou.
- UVU students will collaborate with local schools to conduct programs for their at-risk families in increasing resilience and reducing risk factors for behavioral, emotional, academic, and social problems.

Funding Source(s)

The Office of the President provides the GEL grant funds, reflecting funds the State of Utah appropriated to the University. The Program has $392,000 annually available in funding, down from $400,000. From 2007-08 through 2009-10 all $400,000 was allocated as seed grants. Beginning in 2010-11, grants are divided into three categories; $200,000 for seed grant projects; $150,000 for phased grant projects, and $50,000 for University initiative projects, such as top engaged-learning initiatives. The phased grants are for high profile, multi-year projects in which University units (deans and Student Services) collaborate with GEL over a three-year period. Examples of these grants include the following:

- A $20,000 grant to the Business Marketing Research Center to fund a new UVU student market research program wherein students will set up a marketing research center in a local mall and collaborate with local businesses providing valuable information for their marketing practices
- A $9,000 grant to the Community Writing Center, to provide writing-related community service directly in the community
- A $7,000 grant to the UVU ESL Program for working closely with Latino initiatives to improve Latino outreach efforts in the Heber Valley

Linkage with UVU

UVU funds the GEL program and funds are exclusively available to UVU faculty, students, and staff.

Economic Contributions

The focus of GEL grants is providing opportunities for engaged student learning, which enhance student experiences and strengthen their skill sets. This provides a competitive edge for graduate school applications and boosts student labor-force marketability, potentially translating into higher salaries and wages. Equally, if not more importantly, reflecting the community benefit evaluation criteria for GEL grant applications, every project funded by a GEL grant has some positive impact on its constituent community, some of which will translate into future economic benefits. These communities vary widely, and in the first year of GEL, grant administration included the communities referenced above plus many others such as at-risk Latino Junior High students, children and youth attending UVU's Noorda Theatre Summer Camp, and a village in Central Mexico where the grant will field-test a system of slow sand filtration. This indicates that the GEL's economic contributions are far-reaching, including communities close to UVU as well as other, more global communities.

Chapter 8. Economic Modeling

Virtually all university economic impact studies follow a similar approach. Typically, the studies collect data on budgetary expenditures and student spending and then analyze them using a regional input-output model to estimate the direct, indirect, induced, and tax and employment effects.

This study uses two regions of analysis: the UVU service region (Utah, Wasatch, and Summit Counties) and the State of Utah. The estimates of the economic impacts on these two regions of analysis will differ principally because the State of Utah includes a larger set of businesses and industries than the service region.

8.1 Overview of Input-Output Economic Models

An input-output model describes relationships among the industries in an economy and an end-use (final) demand. The model assumes that production functions are linear, have constant returns to scale (e.g. doubling inputs doubles output), and use inputs in fixed proportions. It does not treat price adjustments in input and output markets or changes in technology. Therefore, a typical analysis assumes that when university budgetary expenditures and student spending enter an economy, they follow the same relationships among industries as reflected in the model. Because the model's coefficients and multipliers describe associations between final demand and output rather than causal effects, the model is useful for assessing the relationship between university and student spending and output, earnings, and employment, but it does not consider the effect of changes in university spending on the economy.[70]

In the input-output model, a given demand for a good or service leads to a direct effect, increasing the output of the industry from which the demand is satisfied, and an indirect effect because of that industry's purchases from other industries, their purchases from still other industries, and so forth. The input-output model captures these direct and indirect relationships to produce estimates of the overall relationship of university and student spending to output, earnings, and employment in the economy.

8.2 Economic Impact Analysis Approach Overview

Economists typically frame impact analyses within the context of a "with" and "without" perspective. This means the economic impact of a system is equal to the economic loss that would occur if the system ceased to exist. Economists define and measure the impact of an exogenous event, such as the development and operation of a university, in terms of the differences between the state of the economy associated with the university and its state without the university. Thus, impact analysis requires the ability to forecast a baseline condition. In ex post (i.e., after the fact) analyses, the hypothetical scenario to consider is what the economy would have been without the university, since the state with the university is directly observable.

[70] Based on report: How Much Does Military Spending Add to Hawaii's Economy? RAND, National Defense Institute, for the Office of the Secretary of Defense, 2011.

Many issues must be considered in developing the baseline, including the underlying growth in Utah's population and economic activity as well as employment levels, consumer behavior, and a host of other economic and social factors over dozens of different sectors in the state economy.

8.3 Model Selection

This study calculated the economic impacts of UVU using IMPLAN, an industry leading input-output model. The US Dept. of Agriculture developed the IMPLAN Model, the University of Minnesota augmented it, and the Minnesota IMPLAN Group has maintained it. IMPLAN is the same economic impact model used in the UVU FY2010 economic impact study.[71] Other universities in Utah have used IMPLAN to measure their economic impacts, including Utah State University and Southern Utah University.[72] More than 250 colleges and universities have used IMPLAN, including several of comparable size to UVU.[73] Other universities of comparable size to UVU that have used IMPLAN to perform economic impact studies include California State University - Sacramento, New Mexico State University, University of Wisconsin - Milwaukee and Virginia Commonwealth University.

Study authors must choose an economic model. There are four major alternatives. These include the use of one of the three major models (IMPLAN, REMI PI+, RIMS II), which are available at the national level as well as state and local levels. The fourth option is the use of a custom regional model.

Exhibit 8-1 demonstrates that the IMPLAN model can be adapted to address the criteria and model output that UVU required. This includes the ability to disaggregate results by location, to calculate changes in value added, output, and employment impacts. It is also a model that economists have vetted and accepted.

Exhibit 8-1: IMPLAN's Adaptability and Ability to Meet Core Criteria and Model Outputs

Ability to Meet Core Criteria	Fulfilled by IMPLAN
1. Disaggregate by county location	Yes
2. Differentiate between direct, indirect and induced spending impacts	Yes
3. Model has been used in studies of similar size and scope	Yes
4. Model has local purchase coefficients that automatically estimate the proportion of purchases businesses will send out of the region	Yes
5. Model automatically calculates margins, dividing purchases between producing industries and transportation, wholesale and retail industries	Yes
6. Model has 500 industries allowing for more accurate estimates of the impact of spending	Yes
Ability to Provide Required Outputs	
1. Can calculate total economic impact to the state	Yes
2. Can calculate change in Value Added	Yes
3. Can calculate number of jobs directly provided as well as indirect and induced employment effects	Yes

Further, IMPLAN is more adept to the task than other competing input-output models. Exhibit 8-2 summarizes the major arguments for using IMPLAN, rather than another input-output model.

[71] Jack Faucett Associates, 2011, "Economic Impacts of Utah Valley University in Fiscal Year 2010"
[72] IMPLAN website, "Client Listing."
http://implan.com/index.php?option=com_content&view=article&layout=edit&id=391
[73] IMPLAN website, "Client Listing."
http://implan.com/index.php?option=com_content&view=article&layout=edit&id=391

Exhibit 8-2: Introduction to IMPLAN and Comparison to Other Input-Output Models

IMPLAN, originally developed by the U.S. Department of Agriculture, augmented by the University of Minnesota, and now maintained by the Minnesota IMPLAN Group, uses Social Accounting Matrices to trace the effects of business transactions undertaken by an institution, business, or agency in a given year.[74] The model generates detailed results that can be sorted by impact type (employment, output, labor income, and value added), and a tax impact report that shows the impact on State/Local Government taxes and Federal Government taxes. The results also provide information on direct, indirect, and induced impacts reported in the analysis.

While there are a number of different options of input-output models, IMPLAN is a common choice, given its wide acceptance, its versatile functionality, and the ease of interpretation of its results. Three of the most commonly used input-output models are:[75]

- The U.S. Department of Commerce RIMS II Model (RIMS II)
- The Minnesota IMPLAN Group, Inc. Model (IMPLAN)
- The Regional Economic Modeling, Inc. Model (REMI)

IMPLAN allows a highly nuanced application of multipliers to measure the impacts of the wide range of economic activity. IMPLAN is often preferred over the more simplistic RIMS II input-output model, which applies a small set of multipliers, relative to the number of multipliers available in IMPLAN.

Another advantage IMPLAN has over the RIMS II is that IMPLAN automatically divides impacts into the traditional subcategories: direct, indirect, and induced effects. RIMS II is a spreadsheet-based model where the user is responsible for setting up the multiplier worksheet and each time the user adds a new variable to the worksheet they must physically change it. These additional steps increase the chance of user-induced error.[76]

Many economic modelers prefer IMPLAN to the REMI model because of its easier data entry analysis and its relative cost competitiveness. The cost of application of the REMI model can be up to seven times that of IMPLAN, depending on the complexity of the modeling effort.

In summary, IMPLAN is a more sophisticated and less user-error prone tool than RIMS II, and a vastly more user-friendly and economical tool than REMI.

8.4 Study Methodology

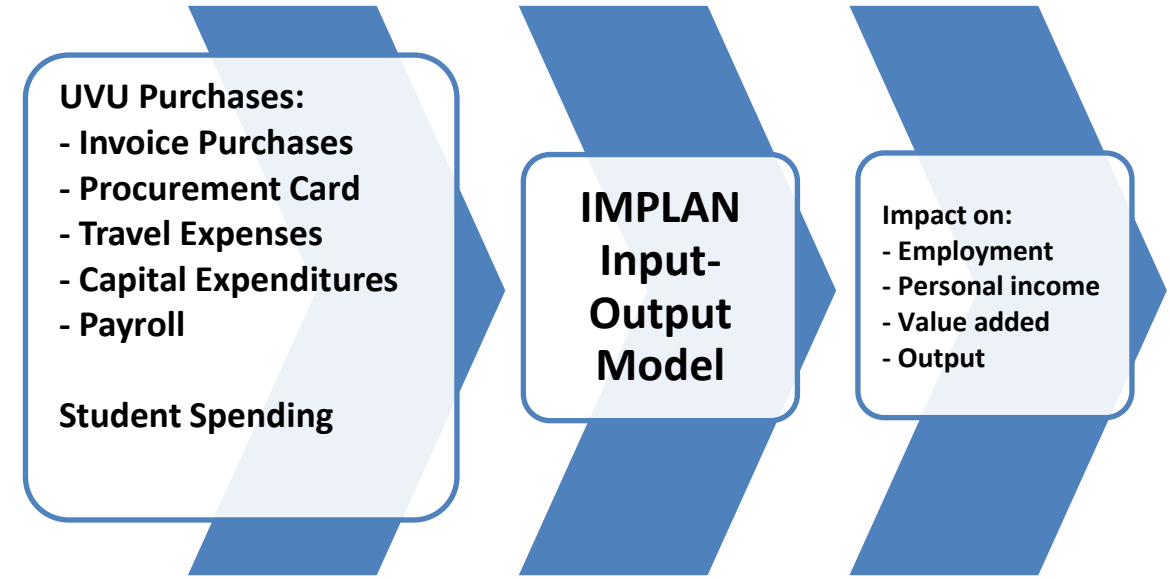
[74] Users Guide, IMPLAN Professional Version 3.0. Minnesota IMPLAN Group, Inc., Stillwater, Minnesota, November 1999, http://www.implan.com.

[75] U.S. Department of Transportation. 2000. Analyzing the Economic Impact of Transportation Projects Using RIM II, IMPLAN, and REMI. http://dlis.dos.state.fl.us/bld/roi/workshop/handouts/roi_workshop_lynch_report.pdf

[76] Mulkey, David and Alan Hodges. "Using IMPLAN to Assess Local Economic Impacts." University of Florida Working Paper FE168. University of Florida, June 2000.

Earlier chapters described the development of expenditure values for six categories of "direct" impact activities and then assigned them to one or more economic sectors. The next step in the process is to enter these "production vectors" into IMPLAN to derive "indirect" and "induced" economic impacts. Exhibit 8-3 provides a simplified overview of the process.

Exhibit 8-3: Overview of the Modeling Process



The tally of direct, indirect, and induced economic impacts equal the total economic impacts of UVU spending. The definition of direct, indirect, induced, and total economic impacts are as follows:

- **Direct impacts** refer to impacts from the economic activities associated with the university.
- **Indirect impacts** measure output (gross sales), jobs, and labor income associated with organizations and entities that support direct activities.
- **Induced impacts** accrue when workers in the direct and indirect industries spend their wages on local goods and services. These expenditures in turn stimulate other sectors in the local economy.
- **Total impacts** are the sum of direct, indirect, and induced impacts. These represent all transactions attributable, either directly or indirectly, to the university.

The IMPLAN model produces a variety of quantified impact measures, including employment, personal income, value added, and output.[77] Additionally, IMPLAN provides a tax impact summary that shows the federal taxes and combined state and local taxes associated with the

[77] Please note that economists favor the use of "value added" over "output" as a measure of economic impact. "Output" is a measure of gross sales and therefore includes double counting as goods are sold and resold. "Value added" is a measure of gross product, i.e. Gross National Product (GNP), and eliminates double-counting and the value of purchased goods produced outside the region.

analyzed economic activities. IMPLAN does not provide a disaggregation of state and local tax impacts. IMPLAN measures federal tax and state and local tax impacts for the following five tax sources: (1) employee compensation, (2) proprietor income, (3) indirect business, (4) households, and (5) corporations. Exhibit 8-4 provides the definitions for the IMPLAN outputs.

Exhibit 8-4: Definitions of IMPLAN Outputs

Employment refers to all full-time, part-time, and temporary positions throughout the economy that directly and indirectly delivers the final demand associated with the given level of expenditures.

Labor income includes all forms of employment income, including employee compensation (wages and benefits) and proprietor income.

Value added refers to the difference between total output and the cost of intermediate inputs. Value added equals gross output (sales or receipts and other operating income, plus inventory change) minus intermediate inputs (consumption of goods and services purchased from other industries or imported). It consists of compensation of employees, taxes on production and imports net of subsidies, and gross operating surplus. Value added is a measure of the contribution to GDP made by an individual producer, industry, or sector.

Output refers to the value of industry production required to satisfy the given level of final-use expenditures. For manufacturers, output equals sales plus/minus change in inventory. For service sectors, output equals sales. For retailers and wholesalers, output equals the gross margin (not gross sales).

Employee compensation refers to the total payroll cost of labor, including wage and salary, benefits (e.g., health, retirement, etc.), and employer paid payroll taxes (e.g., employer side of social security, unemployment taxes, etc.)

Proprietor income consists of payments received by self-employed individuals and unincorporated business owners. This income also includes the capital consumption allowance from Federal Tax form 1040C.

Indirect business taxes include excise, sales, and property taxes, as well as fees, fines, licenses, and permits.

Household tax impacts include income tax, property tax, estate and gift tax, fish/hunt tax, motor vehicle license, fees, and fines.

Corporation tax impacts include corporate profits tax and dividends.

Sources: IMPLAN website, "Glossary." http://implan.com/V4/index.php?option=com_glossary&Itemid=12. "Using Social Accounts to Estimate Tax Impacts." implan.com/V4/index.php?option=com_docma...id=135&Itemid=60.

8.5 Using IMPLAN to Model University Spending

As noted in Chapter 1 above, all types of enterprises, including universities, conduct thousands of economic impact studies annually. Christophersen and his colleagues caution that many

should not be considered true economic impact studies in the technical sense, but are really contributions or gross regional product studies.[78] Many public universities have employed input-output (I-O) analysis to promote their contributions to their respective regional economies. However, according to Ambargis, a lack of transparency makes many of these analyses difficult to assess.[79] In some cases, there is double counting; in others, the researchers improperly used the model. Sigfried, et al., provides additional cautions when conducting economic impact studies of colleges and universities.[80] These include not specifying the counterfactual, poorly defining the local area, the identification of "new" expenditures, the role of local taxes and the omission of local spillover benefits from enhanced human capital created by higher education.

Though not every study requires all of the following university activities to be included, such as operations, capital expenditures, student spending and visitor spending, Ambargis presents proposed methods in their correct use. The research team adhered closely to the recommendations cited and followed these best practices.

Swenson noted in these situations IMPLAN, the economic model used in this and many other economic impact analyses of public universities should be modified.[81] He has presented these methods at conferences and in publications encouraging analysts to adhere to his caveats. To this end, Swenson elaborated four methods for using IMPLAN to evaluate public universities' regional economic impacts:

1. ***Customizing the study area data only*** **-** This method modifies the output, value added and employment components of the model for the #392 private college/university sector. It creates a sector more appropriate for a public college or university.

2. ***Bill of Goods (BOG) approach using IMPLAN local purchase coefficients*** **-** In the Bill of Good case, relatively detailed data on expenditures are available. At first, item by item, the researcher models all of the indirect inputs of the university. Then they model employee spending. This can be a daunting task involving tens of thousands of expenditures.

3. ***Bill of Goods analysis using known local purchase values*** **-** This method also involves knowing details of each expenditure, and using the zip codes of payees to allocate spending to in-state suppliers. Precision is increased; however, the employee-spending component is identical to Method #2. The two results are combined to estimate expected total Bill of Goods-determined economic contribution of the university.

[78] Christophersen, K., Nadreau, T., and Olanie, A. The Rights and Wrongs of Economic Impact Analysis for Colleges and Universities. Economicmodeling.com.
[79] Ambargis, Z. O., Mead, C. I., & Rzeznik, S. J. (2014). *University Contribution Studies Using Input-Output Analysis* (No. 0105). Bureau of Economic Analysis.
[80] Sigfried, JJ, Sanderson, AR, and McHenry, P. The Economic Impact of Colleges and Universities. Working Paper No. 06-W12. Dept. of Economics, Vanderbilt University. May 2006.
[81] Swenson, Dave. Using IMPLAN to Evaluate Public Universities Regional Economic Impacts. Department of Economics, Iowa State University, Revised May 2014. https://www.econ.iastate.edu/research/other/p17708

4. ***A Hybrid Approach to Bill of Goods: Modifying the production coefficients*** **-** This method is employed for moderately detailed inputs and splits the difference between Method #1 and Method #3. The procedure uses the modified model from Method #1, amending the model's direct coefficients for the newly created public college/university sector of the model.

Of the four methods, Swenson considers Method #3, a detailed BOG with known local spending levels, to be "superior" to the other methods. He recommends this method when the data allow. The research team used Method #3 in all situations of this analysis apart from one. Because UVU was extremely cooperative and provided detailed university procurement data with location zip codes, the research team could apply Method #3.

Only in the analysis of credit cards spending, where the locations of purchases were unknown, did the research team use Method #4. Swenson too admits that he must often use Method #4 in his work.

The following section provides additional information on the IMPLAN model setup.

8.6 Running the IMPLAN Model

The six expenditure activity categories organize UVU expenditure data related to the Utah economy. The IMPLAN Input Output model contains the structure of the economy for the state of Utah and the three county study area. These are two independent IMPLAN models. The six expenditure activity categories show expenditures in each jurisdiction and the models follow these expenditures through the economy as they create employment, income and value added in each jurisdiction. The study team made the following model runs with the IMPLAN Input-Output model:

- State of Utah

The analysis calculated economic impacts at the following level:

- The university as a whole including Career and Technical Education (CTE)

- Three County Study Area (Service Region)

The analysis calculated economic impacts at the following level:

- The university as a whole including Career and Technical Education (CTE)

The IMPLAN model develops service region and state results through independent quantitative processes and the results are not cumulative.

Running the IMPLAN model requires the creation of Scenarios, Activities and Events. Exhibit 8-5 provides the Nomenclature for Inputs to the IMPLAN Model. **Events** are a set of expenditures by UVU to purchase goods or services from a particular Industry, i.e. *Sector 57, Construction of new commercial structures*. Events also include the income brackets for those being paid compensation, i.e. *Payroll* and categories for payments made directly to State and Local government, i.e. *State & Local Government – Education*. **Activities** are a group of all events in an expenditure category, i.e. *Invoice Purchases*. Activities also include payroll and

other compensation. **Scenarios** are IMPLAN model runs that include all Activities or a set of selected Activities. For each event, the user may be required to determine if UVU made a purchase directly from a manufacturer and, therefore, may not include margins for transportation, wholesale, or retail purchases. If the analysis assumes that UVU purchases the product from a wholesaler or a retailer, IMPLAN will allocate the purchase to the producer, wholesale or retail sectors based on the historical pattern for the region. The user may also override the default allocation if desired.

Exhibit 8-5: Nomenclature for Inputs to the IMPLAN Model

Running the IMPLAN model also requires the user to input the appropriate expenditure data. For this analysis, the expenditure data is one of three basic types, an industry purchase, compensation to households, and payment to governments. Each type of impact requires a different process for entering the data into the model. Exhibit 8-6 lists the process the study team selected for each category.

Exhibit 8-6: Selected IMPLAN Input Locations for UVU Expenditures Categories

	UVU Related Expenditures Made To:		
Activity	Industry	Households	Governments
Invoice Purchases	X		
Procurement Card	X		
Travel Expenses	X		
Capital Expenditures	X		
Payroll Expenses		X	X
Student Spending	X		

UVU can make **Industry** purchases directly from a manufacturer, a wholesaler, a retailer or a service provider. For manufactured goods, it must be determined if the good was purchased from a wholesale or retail establishment so that the IMPLAN model can account for the transportation, wholesale or retail margins included in the purchase price. In addition, either the data must differentiate the production location (service region, other Utah, or import) or the analyst can elect to let the model decide. In addition, UVU pays for travel and health care that is unique to UVU personnel. This analysis treats these purchases as industry change impacts similar to procurement or purchase card expenditures.

Households with UVU faculty, administrators and other personnel receive compensation from the university. These dollars are part of the Final Demand component of the service area and

Utah economy and the IMPLAN model. Households receive this pay[82] and spend or save this income. When they spend the income, they purchase goods and services from industries, wholesale outlets and retail outlets. These purchases stimulate these sectors creating employment, income, and value added that the Utah economy then further cycles.

Government also receives direct payments from UVU to support state retirement programs. The analysis adds these payments to appropriate state and local government sectors where the government uses them for payroll, materials and other government purchases.

The direct expenditures made by UVU stimulate the service area and Utah economies creating employment, income and development beyond the direct payments to businesses and employees and spending by students. The IMPLAN model captures the full range of these economic impacts.

[82] IMPLAN recognizes all Labor Income Changes as compensation and reduces the input value to provide the household sector with compensation net of payroll taxes.

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Chapter 9. Results and Conclusions

Chapter 9 provides an analysis on the impacts of UVU's budgetary expenditures and its student expenditures. The chapter examines the economic impacts of these expenditures at the service region and state levels. The bullets below summarize the overall economic impacts of UVU found in this study:

- According to IMPLAN estimates, the total estimated economic output of UVU is $544 million at the State level and $391 million at the service region level.[83]
- Measured in terms of value-added, UVU's total economic impact was $376 million at the state level and $283 million at the service region level.
- The University also indirectly supports an additional 6,123 full time equivalent jobs in the service region and 6,724 full time equivalent jobs in the state of Utah.
- UVU has a total tax impact of $23.5 million on its service region and a total tax impact of $32.7 million on the State of Utah. These estimates include federal, state, and local taxes.

The following sections provide further detail on the economic impacts of UVU's in its service region and Utah State. They also provide detailed information on the tax impact that UVU has on its service region and the State of Utah. The contribution of the Career and Technical Education Department (CTE) is reported in Chapter 10.

9.1 Economic Impact of UVU's Operating and Capital Expenditures

In most instances, the impacts of university spending from the state perspective are larger than the impacts from the service region perspective. This is because the smaller the geographic region of analysis, the more likely the goods and services purchased in a specific location came from outside that location and less likely they had value added to them within the local region. To illustrate the point, all the goods and services purchased by UVU come from and have value added to them somewhere in the world. A small portion of those goods and services come from the U.S., a smaller portion come from the State of Utah, and an even smaller portion come from the UVU service region.

The economic impact of UVU student expenditure captures the unique spending by students that would otherwise not occur in the service region or State in the absence of UVU. Estimates of student expenditure impacts at the state-level are lower than the impacts at the service region level in most instances. There are few, if any, comparable alternatives to UVU at the service region level and many service region students would not attend another university if UVU did not exist. Therefore, a larger proportion of student spending at the local level can be considered

[83] Value added is generally considered a better measure of wealth created by an activity than output. Output is a measure of the total value of all goods produced. Value added is a subset of output which measure the increase in economic value associated with the parts of the production process that take place within the region of study. This value added is used to pay labor and taxes with hopefully some remainder for profit. The measure of output is also problematic because the output of an industry requires output of other industries so output is double counted.

unique to UVU's existence. At the state level, there are a few comparable options to UVU. Therefore, a smaller percentage of student spending could be considered unique to UVU at the state level.

To illustrate the point in the paragraph above, imagine Fred and Alice are two students currently attending UVU. Both are residents of the State of Utah. Fred is from the service region. Alice is outside the service region. While attending UVU, both of them are spending money in the service region. However, if UVU ceased to exist, Fred might not be able to attend another institution of higher education in the service region or elsewhere in the state. He would therefore not spend money on tuition, textbooks, and school supplies. Alice, who was willing to relocate to the service region for UVU, has a higher likelihood of attending another university in the state that is outside the service region. In the absence of UVU, Alice will likely still spend money on tuition, textbooks, and school supplies in Utah somewhere outside in the service region. As a result, the theoretical loss of UVU would affect the service region more than the State. Therefore, the impacts of UVU student spending at the service region level are higher than they are at the state level.

The total output in the service area related to UVU Expenditures in Fiscal Year 2014 was about $33.1 million. This level of activity is associated with a total economic impact in terms of value added of $16.5 million from the service area perspective. The total output and value from the state perspective are $104.3 million and $52.2 million, respectively. UVU's capital and operating expenditures support 3,687 job years when the impacts are considered from the service region perspective and 4,108 full time equivalent jobs when the impacts are considered from the state perspective. The higher employment impacts in the service region relative to the State impacts are due to the higher regional purchasing coefficient in the service region relative to the State. The direct university related expenditures used to stimulate the model for UVU are shown below in Exhibit 9-1. The service region level economic impacts of UVU budget expenditures are summarized in Exhibit 9-2. The economic impacts are summarized by direct, indirect, induced, and total impacts. The state-level economic impacts of UVU's budget expenditures are summarized in Exhibit 9-3.

Exhibit 9-1: Direct Expenditure Model Inputs for UVU

Region / Expenditure Category	UVU Service Region	Utah State
Payroll Expenditures	$ 102,967,991	$ 129,399,805
Other University Expenditures	$ 27,518,743	$ 62,178,890

Exhibit 9-2: Service Region Economic Impacts of University Expenditures

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	3,436	$ 102,967,991	N/A	N/A
Indirect Effect	208	$ 8,168,291	$ 13,582,262	$ 27,885,705
Induced Effect	43	$ 1,581,022	$ 2,972,777	$ 5,289,912
Total Effect	**3,687**	**$112,717,304**	**$16,555,040**	**$33,175,617**

Exhibit 9-3: State-Level Economic Impacts of University Expenditures

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	3,436	$ 129,399,805	N/A	N/A
Indirect Effect	514	$ 24,150,052	$ 40,413,134	$ 82,739,208
Induced Effect	158	$ 6,322,956	$ 11,825,659	$ 21,596,737
Total Effect	**4,108**	**$159,872,813**	**$52,238,792**	**$104,335,944**

The federal, state, and local tax impacts of UVU budget expenditures were also examined from the service region and state perspective. A tax impact is the estimated amount of revenue generated for the federal, state, and local governments from employee compensation, proprietor income, households, and corporations. Five categories of taxes were examined: employee compensation, proprietor income, tax on production and imports, household, and corporation tax. UVU's capital and operating expenditures result in about $2.2 million of federal tax impacts from the service region perspective. That value increases to about $7.1 million when the state perspective is considered. The university's expenditures result in almost $1.6 million in state and local taxes from the service region perspective and almost $4.3 million in state and local taxes from the state perspective. Accordingly, total university expenditure impacts on federal, state, and local taxes are $4 million from the service region perspective and $11.4 million from the State perspective. The service region level federal tax impacts of UVU with regard to university expenditures are summarized in Exhibit 9-4.

Exhibit 9-4: Service Region Tax Impacts of University Region Expenditures

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 476,405	$ 102,900	-	-	-	$ 579,306
Social Ins Tax- Employer Contribution	$ 469,123	-	-	-	-	$ 469,123
Tax on Production and Imports: Excise Taxes	-	-	$ 118,392	-	-	$ 118,392
Tax on Production and Imports: Custom Duty	-	-	$ 43,940	-	-	$ 43,940
Tax on Production and Imports: Fed NonTaxes	-	-	$ 12,487	-	-	$ 12,487
Corporate Profits Tax	-	-	-	-	$ 398,748	$ 398,748
Personal Tax: Income Tax	-	-	-	$ 624,392	-	$ 624,392
Total	**$945,528**	**$102,900**	**$174,819**	**$624,392**	**$398,748**	**$2,246,387**

The state-level federal tax impacts of UVU with regard to university expenditures are summarized in Exhibit 9-5.The same set of summary impacts is provided in the exhibit.

Exhibit 9-5: State-Level Tax Impacts of University Region Expenditures

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 1,517,427	$ 266,721				$ 1,784,148
Social Ins Tax- Employer Contribution	$ 1,494,233					$ 1,494,233
Tax on Production and Imports: Excise Taxes			$ 323,772			$ 323,772
Tax on Production and Imports: Custom Duty			$ 120,166			$ 120,166
Tax on Production and Imports: Fed NonTaxes			$ 34,149			$ 34,149
Corporate Profits Tax					$ 1,346,669	$ 1,346,669
Personal Tax: Income Tax				$ 2,000,136		$ 2,000,136
Total	**$3,011,660**	**$266,721**	**$478,088**	**$2,000,136**	**$1,346,669**	**$7,103,274**

9.2 Economic Impact of UVU Student Expenditures

In the 2013-2014 school year, the level of economic activity associated with UVU student spending constitutes an increase in total output in the local service region of $187.1 million and an increase in value added of $125.1 million. The respective total economic impact from the state perspective is about $192 million in output or $129.5 million per year in value added. UVU student expenditures support 1,886 full time equivalent jobs in the service region and 1,748 full time equivalent jobs in the State. The service region level economic impacts of UVU with regard to student expenditures are summarized in Exhibit 9-6. The direct student spending expenditures used to stimulate the model for UVU are $145 million inside the UVU service region and $128 million in the State of Utah.

Exhibit 9-6: Service Region Economic Impacts of UVU Student Expenditures

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	N/A	$ 144,988,723	N/A	N/A
Indirect Effect	1,613	$ 52,152,444	$ 106,113,527	$ 153,323,394
Induced Effect	273	$ 10,102,379	$ 18,999,015	$ 33,809,775
Total Effect	**1,886**	**$207,243,546**	**$125,112,542**	**$187,133,168**

The state-level economic impacts of UVU student expenditures are summarized in Exhibit 9-7. Like the service region impacts, the state-level economic impacts can also be disaggregated by direct, indirect, induced, and total impacts.

Exhibit 9-7: State-Level Economic Impacts of UVU Student Expenditures

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	N/A	$ 127,878,194	N/A	N/A
Indirect Effect	1,404	$ 52,434,080	$ 103,789,222	$ 145,073,928
Induced Effect	344	$ 13,738,122	$ 25,695,499	$ 46,927,640
Total Effect	**1,748**	**$194,050,397**	**$129,484,720**	**$192,001,568**

The federal, state, and local tax impacts of UVU student expenditures were also examined from the service region and state perspective. The same tax categories as the University budget analysis were examined to measure student expenditure tax impacts: employee compensation, proprietor income, tax on production and import, household, and corporation tax. UVU student expenditures result in $16.9 million of federal tax impacts from the service region perspective. That value is $16.2 million when the state perspective is considered. Student expenditure results in almost $12 million in state and local taxes from the service region perspective and $11.4 million in state and local taxes from the State perspective. Accordingly, student expenditure impacts on federal, state, and local taxes are about $29 million from the service region perspective and about $27.6 million from the State perspective. The service region level tax impacts of UVU with regard to student expenditures are summarized in Exhibit 9-8.

Exhibit 9-8: Service Region Tax Impacts of UVU Student Expenditures

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 3,399,472	$ 504,562				$ 3,904,034
Social Ins Tax- Employer Contribution	$ 3,347,509					$ 3,347,509
Tax on Production and Imports: Excise Taxes			$ 905,889			$ 905,889
Tax on Production and Imports: Custom Duty			$ 336,216			$ 336,216
Tax on Production and Imports: Fed NonTaxes			$ 95,546			$ 95,546
Corporate Profits Tax					$ 3,948,405	$ 3,948,405
Personal Tax: Income Tax				$ 4,333,535		$ 4,333,535
Total	**$6,746,981**	**$504,562**	**$1,337,651**	**$4,333,535**	**$3,948,405**	**$16,871,134**

The state-level tax impacts of UVU with regard to student expenditures are summarized in Exhibit 9-9. These impacts are disaggregated by the same categories as the service region level impacts.

Exhibit 9-9: State-Level Tax Impacts of UVU Student Expenditures

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 3,298,978	$ 479,384				$ 3,778,361
Social Ins Tax- Employer Contribution	$ 3,248,551					$ 3,248,551
Tax on Production and Imports: Excise Taxes			$ 899,333			$ 899,333
Tax on Production and Imports: Custom Duty			$ 333,782			$ 333,782
Tax on Production and Imports: Fed NonTaxes			$ 94,855			$ 94,855
Corporate Profits Tax					$ 3,863,717	$ 3,863,717
Personal Tax: Income Tax				$ 3,963,223		$ 3,963,223
Total	**$6,547,529**	**$479,384**	**$1,327,970**	**$3,963,223**	**$3,863,717**	**$16,181,823**

9.3 Total Annual Economic Impact of UVU

The total economic impact of UVU equals the sum of university expenditure impacts and student expenditure impacts. This calculation has to be performed at the service region and state level separately. UVU's total service region level economic impacts are summarized in Exhibit 9-11. The total output in the service area in Fiscal Year 2014 was about $391 million. This level of activity is associated with a total economic impact in terms of value added of $283 million from the service area perspective. The total output and value added from the state perspective is shown in Exhibit 9-12. The total output in the state for fiscal year 2014 was 544 million and $376 million in terms of value added. UVU's capital and operating expenditures support 6,123 job years when the impacts are considered from the service region perspective and 6,724 full time equivalent jobs when the impacts are considered from the state perspective. The higher employment impacts in the service region relative to the State impacts are due to the higher regional purchasing coefficient in the service region relative to the State. Service region and state economic impacts are summarized by direct, indirect, induced, and total impacts. The direct university related expenditures used to stimulate the model for UVU are shown below in Exhibit 9-10.

Exhibit 9-10: Direct Expenditure Model Inputs for UVU

Region / Expenditure Category	UVU Service Region	Utah State
Payroll Expenditures	$ 102,967,991	$ 129,399,805
Other University Expenditures	$ 27,518,743	$ 62,178,890
Student Spending	$ 144,988,723	$ 127,878,194

Exhibit 9-11: Service Region Economic Impacts of UVU

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	4,892	$ 150,576,773	$ 200,061,063	$ 235,893,675
Indirect Effect	365	$ 12,711,953	$ 22,602,718	$ 48,283,414
Induced Effect	866	$ 32,046,766	$ 60,284,829	$ 107,288,803
Total Effect	**6,123**	**$195,335,493**	**$282,948,610**	**$391,465,893**

The state-level economic impacts of UVU's institutional expenditures are summarized in Exhibit 9-12.

Exhibit 9-12: State-Level Economic Impacts of UVU

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	4,893	$ 185,471,457	$ 237,189,522	$ 285,099,608
Indirect Effect	461	$ 20,512,480	$ 36,412,639	$ 72,113,333
Induced Effect	1,370	$ 54,755,527	$ 102,433,552	$ 187,087,421
Total Effect	**6,724**	**$260,739,465**	**$376,035,712**	**$544,300,362**

The federal, state, and local tax impacts of UVU's economic impact were also examined from the service region and state perspective. A tax impact is the estimated amount of revenue generated for the federal, state, and local governments from employee compensation, proprietor income, indirect business taxes, households, and corporations. Five categories of taxes were examined: employee compensation, proprietor income, tax on production and imports, household, and corporation tax. UVU's economic contribution results in about $23.5 million of federal tax impacts from the service region perspective. That value increases to about $32.7 million when the state perspective is considered. The university's expenditures result in almost $17 million in state and local taxes from the service region perspective and almost $21.5 million in state and local taxes from the state perspective. Accordingly, total university expenditure impacts on federal, state, and local taxes are $40.6 million from the service region perspective and $54.1 million from the State perspective. The service region level federal tax impacts of UVU with regard to university expenditures are summarized in Exhibit 9-13.

Exhibit 9-13: Service Region Tax Impacts of UVU

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 4,870,603	$ 727,928	-	-	-	$ 5,598,531
Social Ins Tax- Employer Contribution	$ 4,796,154	-	-	-	-	$ 4,796,154
Tax on Production and Imports: Excise Taxes	-	-	$ 1,283,237	-	-	$ 1,283,237
Tax on Production and Imports: Custom Duty	-	-	$ 476,266	-	-	$ 476,266
Tax on Production and Imports: Fed NonTaxes	-	-	$ 135,346	-	-	$ 135,346
Corporate Profits Tax	-	-	-	-	$ 5,357,685	$ 5,357,685
Personal Tax: Income Tax	-	-	-	$ 5,882,474	-	$ 5,882,474
Total	**$9,666,757**	**$727,928**	**$1,894,849**	**$5,882,474**	**$5,357,685**	**$23,529,693**

The state-level federal tax impacts of UVU with regard to university expenditures are summarized in Exhibit 9-14.The same set of summary impacts is provided in the exhibit.

Exhibit 9-14: State-Level Tax Impacts of UVU

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 6,779,658	$ 978,347	-	-	-	$ 7,758,005
Social Ins Tax- Employer Contribution	$ 6,676,027	-	-	-	-	$ 6,676,027
Tax on Production and Imports: Excise Taxes	-	-	$ 1,681,217	-	-	$ 1,681,217
Tax on Production and Imports: Custom Duty	-	-	$ 623,974	-	-	$ 623,974
Tax on Production and Imports: Fed NonTaxes	-	-	$ 177,322	-	-	$ 177,322
Corporate Profits Tax	-	-	-	-	$ 7,162,900	$ 7,162,900
Personal Tax: Income Tax	-	-	-	$ 8,598,246	-	$ 8,598,246
Total	**$13,455,686**	**$978,347**	**$2,482,514**	**$8,598,246**	**$7,162,900**	**$32,677,693**

9.4 Return on State Investment

Overall University Return on Investment

UVU revenues come from several sources including tuition and fees, the federal and state government, sales and services, auxiliary enterprises, state appropriations, and private donations and gifts.

While student tuition pays for a large portion of the cost of educating a student at UVU, state and other sources, including grants, gifts and investment income also contribute to covering the cost of education. According to the 2015 Utah System of Higher Education Data Book, in 2013-14, UVU expended $7,123 per FTE student. Tax fund revenues per FTE were $3,168 (50.8%) and tuition revenues per FTE were $3,362 (47.2%). During the 2013-14 academic year, the state provided 25.7 percent of the revenues for operating the University.[84]

The State obtains a high return on its investment in UVU. Exhibit 9-15 provides data on the return on investment for state expenditures for UVU in fiscal year 2013-14. For example, from a service region perspective, the return on investment is $4.18 per dollar of value added and $5.78 per dollar of output. From a state level perspective, the return on investment is $5.55 per dollar of value added and $8.04 per dollar of output.

Exhibit 9-15: UVU Return on State Investment

	Service Region	State
UVU Institution and Student Expenditure	$ 275,475,457	$ 319,456,889
Value Added Impact	$ 282,948,610	$ 376,035,712
Output Impact	$ 391,465,893	$ 544,300,362
State Funding	$ 67,694,800	$ 67,694,800
State ROI (Value Added)	$ 4.18	$ 5.55
State ROI (Output)	$ 5.78	$ 8.04

Value added is generally considered a better measure of economic impact than output, because it captures only the economic value of the production activities that take place within the area studied, and therefore more accurately assesses the economic benefits unique to that area. Exhibit 9-15 reports return on investment per dollar of output, however, because it is more comparable to the return on investment calculations undertaken in past UVU impact studies.

[84] UVU website, "UVU 2014 Annual Financial Report." https://www.uvu.edu/finance/reports/

UVU's return on investment, as Exhibit 9-16 shows, is similar to results from economic impact studies at similar universities. For example, economic impact studies for Tarleton State University and Chadron State College measured their return on investment as $6.93 and $5.33 respectively. [85,86] However, caution should be used when one compares economic impact and return on investment estimates from different studies. There is no standard way to perform all university impact studies. Unless two or more studies are performed using the exact methodology, comparing their results may lead to apples-to-oranges comparisons. Nevertheless, if the economic impacts of two or more similar entities are somewhat similar, it lends more confidence to the results achieved in the studies than if their results varied widely.

Exhibit 9-16: Economic Impacts Studies of Comparable Institutions, using IMPLAN

	Tarleton State	Jackson University	Chadron State	Utah Valley University	Utah Valley University
	State Level Impacts	Service Region Impacts	Service Region Impacts	State Level Impacts	Service Region Impacts
Output Multiplier	1.48	1.57	1.51	1.71	1.42
Jobs per $Million in Output	23.11	12.32	30.73	12.36	15.65
Return on Investment	6.93	N/A	5.33	8.04	5.78

Sources: Hussain et al (2000), Kumar et al (2007), and Nebraska Business Development Center (1999)[87]

[85] Jafri, Hussain Ali, Jay Dudley, and David Buland. 2000. "Economic Impact of Tarleton State University."
[86] Nebraska Business Development Center. 1999. "Chadron State College Impact Study Final Report."
[87] Jafri, S. Hussain Ali, Jay D. Dudley, and David Buland. "Economic Impact of Tarleton State University." May 9, 2000.
Kumar, Mukesh, Vincent E. Mangum, Gregory N. Price, Jerry Watson. "The Economic Impact of Jackson State University." The MURC Digest Vol. 3, Issue 1, February 2007.
Nebraska Business Development Center, "Chadron State College Impact Study Final Report" Chadron State College, Chardron, NE, December 6, 1999.

Chapter 10. Economic Impact of the Career and Technical Education Department (CTE)

The purpose of this chapter is to analyze the economic impact of UVU's Career and Technical Education Department (CTE). CTE offers diplomas, certificates and associate's degrees, in 38 programs, including computer science, building construction, aviation science, nursing, accounting, and hospitality management. During the 2013-14 school year, the CTE program enrolled 14,127 students of which 2,199 students were pursuing majors in the CTE program.

The Career and Technical Education (CTE) department plays an important economic and social role in the community it serves. Not only does the department provide skilled workers to the local economy, but also it, along with the rest of Utah Valley University (UVU), is a major employer and purchaser of goods and services from local businesses. This section attempts to identify the socio-economic impacts of the CTE department from a local perspective through quantitative and qualitative research. The purpose of this study is to estimate the economic impacts of the UVU CTE department on the service region and State of Utah economy during the 2013-14 fiscal year. Utah, Wasatch, and Summit Counties define CTE's service region.

The bullets below summarize the overall economic impacts of UVU's CTE Program found in this study:

- According to IMPLAN estimates, the total estimated economic output of the CTE program was $111.8 million at the State level and $75.6 million at the service region level.[88]
- Measured in terms of value-added, the total economic impact of the CTE program was $77.7 million at the state level and $55.7 million at the service region level.
- The CTE program also indirectly supported an additional 1,437 full time equivalent jobs in the state of Utah and 1,280 full time equivalent jobs in the service region.
- The CTE program had a total tax impact of $6.3 million on the State of Utah and $4.1 million in its service region. These estimates included federal, state, and local taxes.

The following sections provide further detail on the economic impacts of the CTE program in the state of Utah and its service region. They also provide detailed information on the tax impact that the CTE program had on its service region and the State of Utah. The overall economic contribution of UVU is reported in Chapter 9.

Perkins Funds

[88] Value added is generally considered a better measure of wealth created by an activity than output. Output is a measure of the total value of all goods produced. Value added is a subset of output which measure the increase in economic value associated with the parts of the production process that take place within the region of study. This value added is used to pay labor and taxes with hopefully some remainder for profit. The measure of output is also problematic because the output of an industry requires output of other industries so output is double counted.

The Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV) is a principal source of federal funding to states and discretionary grantees for the improvement of secondary and postsecondary career and technical education programs across the nation. The purpose of the Act is to develop more fully the academic, career, and technical skills of secondary and postsecondary students who elect to enroll in career and technical education programs.[89]

Federal Perkins funding is allocated from the federal government to each state based on per-capita income and population by three age cohorts (15-19 years, 20-24 years, and 25-65 years). Within Utah, the distribution of funds is then based on a calculated formula and disbursement is administered by the Utah State Board of Education and the Utah State Office of Higher Education. Funding per post-secondary institution is based on unique participants (headcount) in CTE defined courses who fall into any of the following three groups: Pell grant award recipients, students who receive assistance from Bureau of Indian Affairs, and students who receive assistance from Department of Workforce Services.

Organization of the Chapter

This chapter is organized into the following sections:

- Introduction to CTE
- CTE Student Profile
- CTE Degree Awards
- CTE Faculty
- CTE Economic Impacts
- CTE Share of State Funding
- Increased Student Earnings Potential for CTE Students

10.1 Introduction to CTE

CTE programs at UVU are designed to prepare students for employment in high-demand and higher-paying career fields. UVU offers the following types of awards across 38 different programs. It bestows diplomas, certificates, Associates of Applied Science, Associates of Arts, Associates of Science, Associates of Science in Nursing, Associates of Science in Business and Associates in Pre-engineering. CTE's program offerings included computer science, building construction, aviation science, nursing, accounting, and hospitality management. CTE operates under the direction of the Director of CTE who reports to the Associate Vice President of Academic Outreach and Economic Development.[90] The CTE department helps develop the academic, career, and technical skills of secondary education students and provides them with career counseling services.

In the 2013-14 academic year, UVU offered the following number of programs by degree type:

[89] http://cte.ed.gov/legislation/about-perkins-iv
[90] http://www.uvu.edu.admin.docs.pdf 6-30-16_academic _affairs.pdf

- 15 1-year Certificates – all are CTE programs
- 4 Diplomas – all are CTE programs
- 26 AAS degrees – all are CTE programs
- 36 AA/AS degrees – 20 are CTE programs[91]

10.2 CTE Student Profile

In the Fall of 2013, the CTE program enrolled 14,127 students receiving Perkins funding of which 2,199 students were pursuing majors in the program. Ninety-five percent of these students were enrolled in associate level programs. The most popular CTE programs were pre-engineering, culinary arts, emergency services, automotive technology and nursing. Exhibit 10-1 provides CTE enrollment by program for those students majoring in the CTE program.

Direct correspondence from the University provided additional details on Fall 2013 CTE students including that:[92]

- 60.6 percent of CTE students were from within the service region
- 21.6 percent of CTE students were from Utah but outside the service region
- 17.8 percent of CTE students were from outside the state of Utah

Exhibit 10-1: CTE Enrollment by Program in the 2013 Fall Semester

[91] 2012-13 CTE Year End Report. UVU. P. 1.
[92] Email from Tim Stanley, Associate Director - Assessment Support, Analysis, Survey Research, dated July 7, 2015.

Program Description	Cert	DIP	AA	AAS	APE	AS	ASB	ASN	Program Total
Pre-Engineering					16	352			368
Culinary Arts				195					195
Emergency Services				130		37			167
Automotive Technology	2	2		112		2			118
Nursing								114	114
Art and Design	3		4	46		59			112
Early Childhood Education						112			112
Engineering Design Technology				78		33			111
Business Management	6			8		68			82
Associate in Science in Business							72		72
Aviation Science (Global)				58		11			69
Electrical Automation and Robotics Technology				61		2			63
Diesel Mechanics Technology	2			55					57
Information Systems and Technology				29		18			47
Collision Repair Technology				45					45
Computer Science				29		15			44
Accounting	3			9		25			37
Legal Studies				5		32			37
Dental Hygiene				32					32
Firefighter Recruit Candidate	29								29
Cabinetry and Architectural Woodwork				28					28
Mechatronics Engineering Technology				28					28
Criminal Justice			2			24			26
Aviation Science				17		6			23
Paramedic	22								22
Technology				18					18
Hospitality Management				12		5			17
Construction Management				14					14
Early Care and Education	13								13
Facilities Management				13					13
Wildland Fire Management				13					13
Digital Communication Technology				12					12
Pre-Elementary Education						11			11
Communication			2			8			10
Administrative Information Management						7			7
Administrative Information Support				7					7
Administrative Support	7								7
Building Inspection Technology	1			5					6
Programmer	5								5
Network Administration	4								4
Building Construction				2					2
Water and Wastewater Operations	2								2
Grand Total	**99**	**2**	**8**	**1,061**	**16**	**827**	**72**	**114**	**2,199**

Source: S. Robson, PhD, UVU Institutional Research and Information[93]

[93] http://www.uvu.edu/iri/

The school reports that in the 2012-13 academic year, 58.7 percent of CTE students were enrolled full-time (compared with 44.5 percent of non-CTE students). The average credit hours for CTE full-time students were 13.9 versus 6.8 for part-time CTE students. The average credit hours for non-CTE full-time students was 13.8 hours compared to 5.8 hours for non-CTE part-time students. CTE degree options make up 81 percent of the community college degree offerings at UVU. 14,464 students participate in CTE courses at UVU. Almost two-thirds of UVU's 81 two-year degree offerings fall under CTE supported programs.[94] Almost 40 percent of program majors at UVU are CTE (40 of 103 programs).

Exhibit 10-2 shows the trend in Perkins funded students for Academic Years 2009-10 to 2013-14. Exhibit 10-3 shows the trend in CTE budget-related headcount enrollments for those majoring in the CTE program from Fall 2009-10 to Fall 2013-14.[95]

Exhibit 10-2: Perkin's Funded Enrollments in CTE Program 2009-10 to 2013-14

Academic Year	2009-10	2010-11	2011-12	2012-13	2013-14
Enrollment	13,939	15,038	15,179	14,296	14,127

Exhibit 10-3: CTE Fall Enrollment of Majors 2009-10 to 2013-14

Academic Year	2009-10	2010-11	2011-12	2012-13	2013-14
Enrollment	2,692	2,508	2,509	2,411	2,199

CTE Degree Awards

The CTE Department awarded 866 diplomas, certificates and associate degrees during the 2013-14 academic year. This was an increase from the 682 awards in academic year 2012-13. Exhibit 10-4 shows the trend in number of awards by academic year. The program with both the most program graduates was emergency services. The second most popular program was in the field of business management followed by nursing, aviation science and automotive technology. Exhibit 10-5 shows the number of awards by program major for academic year 2013-14. In some instances, students were able to earn awards or degrees in recently suspended programs.

Exhibit 10-4: CTE Awards by Academic Year: 2009-10 to 2013-14

Academic Year	2009-10	2010-11	2011-12	2012-13	2013-14
Awards	645	711	775	682	866

Exhibit 10-5: CTE Degree Awards by Major in 2013-14

[94] UVU 2012-2013 CTE Year End Report.
[95] CTE Enrollment Dashboard. https://www.uvu.edu/cte/dashboard.html

Major Field of Study	Awards
Emergency Services	132
Business Management	110
Nursing	82
Aviation Science	59
Automotive Technology	40
Culinary Arts	37
Early Childhood Education	37
Accounting	36
Art and Visual Communications	29
Drafting Technology	29
Criminal Justice	25
Electrical Automation and Robotics Technology	25
Information Systems and Technology	24
Firefighter Recruit Candidate	23
Pre-Engineering	21
Law Enforcement	20
Diesel Mechanics Technology	17
Dental Hygiene	16
Collision Repair Technology	12
Computer Science	12
Digital Communication Technology	10
Hospitality Management	9
Legal Studies	9
Building Construction	8
Communication	5
Mechatronics Engineering Technology	5
Network Administration	5
Technology	5
Cabinetry and Architectural Woodwork	4
Early Care and Education	4
Paramedic	4
Programmer	3
Administrative Information Management	2
Facilities Management	2
Water and Wastewater Operations	2
Building Inspection Technology	1
Construction Management	1
Digital Cinema	1
Total	**866**

Source: CTE Completions Dashboard

10.3 Faculty

There were 511 instructional faculty members involved with the CTE program in the 2013-14 academic year.[96] To make these data comparable to previous CTE reports, they include all faculty in departments with CTE programs. Some of these professors and instructors are fully dedicated to the CTE program, while others teach CTE students but are affiliated with other departments. Of the 511 faculty, 220 were full-time employed (43 percent) and 291 were part-time adjunct faculty (57 percent).

For many faculty and staff, the CTE program provides high quality, well-paying jobs that would not otherwise exist in the service region. Exhibit 10-6 provides a profile of CTE's instructional faculty by college and department. The Art and Visual Communications department employs the highest number of faculty – a total of 69 full and part-time faculty.

Exhibit 10-6: CTE Faculty, 2013

College	Department	FT Faculty	PT Adjunct	Total
Aviation & Pub Scv	Aviation Science	9	25	34
Aviation & Pub Scv	Criminal Justice/Law Enforcement	8	26	34
Aviation & Pub Scv	Emergency Services	9	38	47
Business	Accounting	13	5	18
Business	Legal Studies	5	15	20
Business	Management	16	25	41
Sci & Health	Dental Hygiene	4	9	13
Sci & Health	Earth Science	12	7	19
Sci & Health	Nursing	22	6	28
Education	Elementary Education	17	9	26
Art	Art & Visual Communications	20	49	69
Tech and Computing	Auto trades	10	5	15
Tech and Computing	Computer Science	17	6	23
Tech and Computing	Construction Technology	7	6	13
Tech and Computing	Culinary Arts	7	6	13
Tech and Computing	Digital Media	14	28	42
Tech and Computing	Engineering Graphics & Design Tech	12	7	19
Tech and Computing	Info Systems Technology	12	12	24
Tech and Computing	Technology Management	6	7	13
TOTAL		**220**	**291**	**511**

10.4 CTE Economic Impact

This section discusses the economic impact of the CTE Department. It includes the economic effects of student and CTE program expenditures and tax impacts on the service region and state. Chapter 3 provides the methodology for student spending. Chapter 4 provides the methodology and data on the calculation of university spending. UVU's accounting system does not track

[96] Data supplied by UVU administration.

separately spending by the CTE. As a result, UVU staff provided data on the full cost of instruction for CTE. Exhibit 10-7 provides the methodology for the calculation of a ratio of the Full Cost of Instruction of CTE to Full Cost of Instruction for UVU. This ratio was then applied to the total UVU spending figure in order to determine CTE spending. This ratio does not affect or include CTE spending. The calculation of the CTE Factor results in 23.55% of UVU expenditures being assigned to the CTE facility.

Exhibit 10-7: Calculation Methodology of Ratio of Full Cost of Instruction of CTE to UVU

USHE 2013-14 Full Cost Study Summary (Appropriated Funds Only)
Institution: Utah Valley University

Analysis of Full Costs
Education and General (NACUBO)

Function	Direct Expend	Physical Plant	Institutional Support	Academic Support	Student Services	Full Expend
1. Education & General						
A. School of Medicine	0	0	0	0	0	0
B1. Instruction (Budget Related)	82,738,926	9,038,410	22,412,484	24,696,654	22,787,854	161,674,328
B2. Instruction (Other)	0	0	0	0	0	0
C. Research	0	0	0	0	0	0
D. Public Service	104,666	11,434	28,352	31,242	0	175,694
E. Academic Support	17,917,180	1,957,275	4,853,441	-24,727,896	0	0
F. Student Services	16,511,477	1,803,716	4,472,662	0	-22,787,854	0
G. Institutional Support	28,638,469	3,128,470	-31,766,939	0	0	0
H. Plant Operations & Maintenance	15,939,304	-15,939,304	0	0	0	0
I. Scholarships & Fellowships	441,064	0	0	0	0	441,064
J. Transfers (Net)	584,600	0	0	0	0	584,600
Subtotal	162,875,686	0	0	0	0	162,875,686

Cost Study Summary
Includes all Line Items

Instruction Level	Direct Cost of Instruction	Full Cost of Instruction	FTE Students	Student/ Faculty Ratios	Direct Cost of Instruction Per FTE	Full Cost of Instruction Per FTE
1. Regular Instruction (Budget Related)						
A. Vocational (CTE) Education	21,895,974	38,080,510	4,038	17.0	$5,423	$9,431
B. Lower Division	35,480,927	78,331,037	10,690	20.7	$3,319	$7,327
C. Upper Division	24,491,387	43,798,233	4,817	16.2	$5,085	$9,093
D. Basic Graduate	870,638	1,464,549	148	17.1	$5,876	$9,884
E. Advanced Graduate	0	0	0	0.0	$0	$0
Subtotal	82,738,926	161,674,328	19,693	18.6	$4,201	$8,210

The study team then used the data on student and university spending to stimulate the IMPLAN economic impact model. Chapter 8 describes this process in detail.

Exhibit 10-8 provides the final estimates of spending by detailed economic sector for CTE students at UVU. In total, the analysis estimates that the existence of UVU leads to increased spending by students of just over $21.5 million in the service region and just over $19.1 million in the state of Utah.

Exhibit 10-8: Final Student Spending Estimates by IMPLAN Code, CTE Students

	Service Region Model				Utah State Model			
IMPLAN	From Service Region	From Elsewhere in State	From Outside of State	Total	From Service Region	From Elsewhere in State	From Outside of State	Total
3	-	44,633	36,781	81,413	-	33,296	36,781	70,076
4	-	55,723	45,920	101,643	-	41,569	45,920	87,489
11	-	43,551	35,889	79,439	-	32,489	35,889	68,378
12	-	80,880	66,651	147,530	-	60,336	66,651	126,987
13	-	52,207	43,022	95,229	-	38,946	43,022	81,968
14	-	44,362	36,558	80,920	-	33,094	36,558	69,652
17	31,084	33,272	27,418	91,774	31,084	24,821	27,418	83,323
49	-	264,315	217,815	482,129	-	197,179	217,815	414,993
50	-	87,770	72,329	160,100	-	65,477	72,329	137,806
51	-	102,315	84,315	186,631	-	76,327	84,315	160,643
72	-	24,345	20,062	44,407	-	18,161	20,062	38,223
73	-	42,739	35,220	77,959	-	31,883	35,220	67,103
75	-	24,616	20,285	44,901	-	18,363	20,285	38,648
81	-	44,633	36,781	81,413	-	33,296	36,781	70,076
94	-	63,027	51,939	114,965	-	47,018	51,939	98,956
105	-	139,849	115,246	255,094	-	104,327	115,246	219,573
106	-	67,355	55,505	122,860	-	50,247	55,505	105,752
151	26,649	9,999	8,240	44,887	25,247	7,459	8,240	40,945
156	-	11,034	9,093	20,127	-	8,231	9,093	17,324
179	25,417	27,206	22,420	75,043	25,417	20,296	22,420	68,133
182	22,276	23,844	19,649	65,769	22,276	17,788	19,649	59,713
307	123,204	131,875	108,675	363,753	123,204	98,379	108,675	330,257
396	538,907	576,834	475,354	1,591,095	538,907	430,318	475,354	1,444,580
398	71,026	26,649	21,961	119,636	67,288	19,880	21,961	109,129
400	-	5,681	4,681	10,362	-	4,238	4,681	8,919
401	22,011	23,560	19,415	64,986	22,011	17,576	19,415	59,002
402	596,956	638,968	526,557	1,762,482	596,956	476,670	526,557	1,600,184
403	369,034	395,006	325,514	1,089,555	369,034	294,674	325,514	989,223
404	70,684	75,658	62,348	208,690	70,684	56,441	62,348	189,472
412	16,886	18,074	14,895	49,855	16,886	13,484	14,895	45,264
419	1,335,558	501,095	412,940	2,249,593	1,265,265	373,817	412,940	2,052,022
422	112,272	42,124	34,713	189,110	106,363	31,425	34,713	172,501
426	-	40,436	33,323	73,759	-	30,166	33,323	63,488
427	-	87,506	72,111	159,617	-	65,279	72,111	137,390
428	-	429,600	354,022	783,622	-	320,481	354,022	674,503
437	64,972	69,545	57,310	191,827	64,972	51,880	57,310	174,163
438	378,203	404,820	333,602	1,116,625	378,203	301,996	333,602	1,013,801
440	-	2,911,019	2,398,895	5,309,914	-	2,171,620	2,398,895	4,570,516
473	723,379	271,408	223,661	1,218,448	685,306	202,471	223,661	1,111,437
475	45,215	48,397	39,883	133,496	45,215	36,105	39,883	121,203
496	149,026	159,514	131,452	439,993	149,026	118,998	131,452	399,476
502	-	605,650	499,101	1,104,751	-	451,815	499,101	950,915
504	173,110	185,294	152,696	511,100	173,110	138,229	152,696	464,035
508	51,713	55,352	45,614	152,679	51,713	41,293	45,614	138,619
509	15,381	16,464	13,567	45,412	15,381	12,282	13,567	41,230
511	25,417	27,206	22,420	75,043	25,417	20,296	22,420	68,133
512	25,070	26,835	22,114	74,019	25,070	20,019	22,114	67,203
Total	**5,013,453**	**9,062,241**	**7,467,958**	**21,543,652**	**4,894,038**	**6,760,432**	**7,467,958**	**19,122,428**

The following exhibits show the expenditures and economic impacts for the CTE programs of UVU. The total output in the service area related to CTE Expenditures in Fiscal Year 2014 was about $8 million. This level of activity is associated with a total economic impact in terms of value added of $4.3 million from the service area perspective. The total output and value from the state perspective are $24.8 million and $12.8 million, respectively. CTE's capital and operating expenditures support 69 job years when the impacts are considered from the service region perspective and 168 full time equivalent jobs when the impacts are considered from the state perspective. The higher employment impacts in the service region relative to the State impacts are due to the higher regional purchasing coefficient in the service region relative to the State. The service region level economic impacts of CTE budget expenditures are summarized in Exhibit 10-10. The economic impacts are summarized by direct, indirect, induced, and total

impacts. The direct university related expenditures used to stimulate the model for CTE are shown in Exhibit 10-9.

Exhibit 10-9: Direct Expenditure Model Inputs for CTE

Region / Expenditure Category	UVU Service Region	Utah State
Payroll Expenditures	$ 24,248,962	$ 30,473,654
Other University Expenditures	$ 6,481,720	$ 14,643,129
Student Spending	$ 21,543,652	$ 19,122,428

Exhibit 10-10: Service Region Economic Impacts of CTE Expenditures

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	45	$ 1,704,226	$ 2,780,819	$ 4,924,766
Indirect Effect	12	$ 443,432	$ 746,356	$ 1,643,388
Induced Effect	11	$ 415,748	$ 781,752	$ 1,391,104
Total Effect	**69**	**$2,563,407**	**$4,308,928**	**$7,959,258**

The state-level economic impacts of CTE's institutional expenditures are summarized in Exhibit 10-11.

Exhibit 10-11: State-Level Economic Impacts of CTE Expenditures

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	91	$ 4,145,357	$ 6,850,418	$ 13,301,919
Indirect Effect	39	$ 1,801,457	$ 3,048,901	$ 6,186,340
Induced Effect	39	$ 1,557,054	$ 2,912,126	$ 5,318,307
Total Effect	**168**	**$7,503,868**	**$12,811,445**	**$24,806,566**

The following exhibits show the tax incomes of federal, state and local taxes derived from the economic activity of the CTE facility of UVU. The federal, state, and local tax impacts of CTE budget expenditures were also examined from the service region and state perspective. A tax impact is the estimated amount of revenue generated for the federal, state, and local governments from employee compensation, proprietor income, indirect business taxes, households, and corporations. Five categories of taxes were examined: employee compensation, proprietor income, tax on production and imports, household, and corporation tax. UVU CTE's capital and operating expenditures result in about $590,000 of federal tax impacts from the service region perspective. That value increases to about $1.7 million when the state perspective is considered. The university's expenditures result in almost $440,000 in state and local taxes from the service region perspective and almost $1.1 million in state and local taxes from the state perspective. Accordingly, total university expenditure impacts on federal, state, and local taxes are $1.03 million from the service region perspective and $2.8 million from the State perspective. The service region level federal tax impacts of CTE with regard to university expenditures are summarized in Exhibit 10-12.

Exhibit 10-12: Service Region Tax Impacts of CTE Region Expenditures

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 127,087	$ 25,793				$ 152,880
Social Ins Tax- Employer Contribution	$ 125,144					$ 125,144
Tax on Production and Imports: Excise Taxes			$ 32,785			$ 32,785
Tax on Production and Imports: Custom Duty			$ 12,168			$ 12,168
Tax on Production and Imports: Fed NonTaxes			$ 3,458			$ 3,458
Corporate Profits Tax					$ 100,015	$ 100,015
Personal Tax: Income Tax				$ 164,003		$ 164,003
Total	**$252,231**	**$25,793**	**$48,411**	**$164,003**	**$100,015**	**$590,453**

The state-level federal tax impacts of CTE with regard to university expenditures are summarized in Exhibit 10-13.

Exhibit 10-13: State-Level Tax Impacts of CTE Region Expenditures

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 374,318	$ 65,209				$ 439,527
Social Ins Tax- Employer Contribution	$ 368,596					$ 368,596
Tax on Production and Imports: Excise Taxes			$ 82,068			$ 82,068
Tax on Production and Imports: Custom Duty			$ 30,459			$ 30,459
Tax on Production and Imports: Fed NonTaxes			$ 8,656			$ 8,656
Corporate Profits Tax					$ 325,676	$ 325,676
Personal Tax: Income Tax				$ 492,465		$ 492,465
Total	**$742,914**	**$65,209**	**$121,184**	**$492,465**	**$325,676**	**$1,747,448**

The following exhibits show the expenditures and economic impacts for the CTE student of UVU. In the 2013-2014 school year, the level of economic activity associated with CTE student spending constitutes an increase in total output in the local service region of $27.7 million and an increase in value added of $18.3 million. The respective total economic impact from the state perspective is about $28.6 million in output or $19 million per year in value added. CTE student expenditures support 275 full time equivalent jobs in the service region and 256 full time equivalent jobs in the State. The service region level economic impacts of CTE with regard to student expenditures are summarized in Exhibit 10-14. The direct student spending expenditures used to stimulate the model for CTE are $21.5 million inside the UVU service region and $19.1 million in the State of Utah.

Exhibit 10-14: Service Region Economic Impacts of CTE Student Expenditures

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	189	$ 5,918,376	$ 12,694,908	$ 16,674,291
Indirect Effect	46	$ 1,608,731	$ 2,888,590	$ 6,124,840
Induced Effect	39	$ 1,458,003	$ 2,741,963	$ 4,879,456
Total Effect	**275**	**$8,985,110**	**$18,325,460**	**$27,678,586**

The state-level economic impacts of CTE student expenditures are summarized in Exhibit 10-15. Like the service region impacts, the state-level economic impacts can also be disaggregated by direct, indirect, induced, and total impacts.

Exhibit 10-15: State-Level Economic Impacts of CTE Student Expenditures

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	161	$ 5,687,777	$ 11,834,759	$ 14,880,362
Indirect Effect	44	$ 1,924,189	$ 3,513,894	$ 6,875,429
Induced Effect	50	$ 1,994,246	$ 3,729,976	$ 6,812,034
Total Effect	**256**	**$9,606,213**	**$19,078,628**	**$28,567,825**

The federal, state, and local tax impacts of CTE student expenditures were examined from the service region and state perspective. The same tax categories as in the University budget analysis were examined to measure CTE student expenditure tax impacts: employee compensation, proprietor income, tax on production and import, household, and corporation tax. UVU CTE student expenditures result in $2.3 million of federal tax impacts from the service region perspective. That value is $590,432 when the state perspective is considered. Student expenditure results in almost $1.7 million in state and local taxes from the service region perspective and $4.1 million in state and local taxes from the State perspective. Accordingly, student expenditure impacts on federal, state, and local taxes are about $4 million from the service region perspective and about $4.7 million from the State perspective. The service region level tax impacts of CTE with regard to student expenditures are summarized in Exhibit 10-16.

Exhibit 10-16: Service Region Tax Impacts of CTE Student Expenditures

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 474,143	$ 70,566				$ 544,709
Social Ins Tax- Employer Contribution	$ 466,896					$ 466,896
Tax on Production and Imports: Excise Taxes			$ 131,478			$ 131,478
Tax on Production and Imports: Custom Duty			$ 48,797			$ 48,797
Tax on Production and Imports: Fed NonTaxes			$ 13,867			$ 13,867
Corporate Profits Tax					$ 576,141	$ 576,141
Personal Tax: Income Tax				$ 572,189		$ 572,189
Total	**$941,039**	**$70,566**	**$194,142**	**$572,189**	**$576,141**	**$2,354,077**

The state-level tax impacts of CTE with regard to student expenditures are summarized in Exhibit 10-17. These impacts are disaggregated by the same categories as the service region level impacts.

Exhibit 10-17: State-Level Tax Impacts of CTE Student Expenditures

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 491,990	$ 74,327				$ 152,880
Social Ins Tax- Employer Contribution	$ 484,470					$ 125,144
Tax on Production and Imports: Excise Taxes			$ 133,161			$ 32,785
Tax on Production and Imports: Custom Duty			$ 49,422			$ 12,168
Tax on Production and Imports: Fed NonTaxes			$ 14,045			$ 3,458
Corporate Profits Tax					$ 592,797	$ 100,015
Personal Tax: Income Tax				$ 629,240		$ 164,003
Total	**$976,460**	**$74,327**	**$196,628**	**$629,240**	**$592,797**	**$590,453**

The following exhibits show the expenditures and economic impacts for the CTE facility of UVU. The total economic impact of CTE equals the sum of university expenditure impacts and student expenditure impacts. This calculation has to be performed at the service region and state level separately. CTE's total service region level economic impacts are summarized in Exhibit 10-17. The total economic output in the service area of CTE in Fiscal Year 2014 was about $75.6 million. This level of activity is associated with a total economic impact in terms of value

added of $55 million from the service area perspective. The total output and value from the state perspective are $111.7 million and $77.6 million, respectively. CTE's capital and operating expenditures support 1,280 job years when the impacts are considered from the service region perspective and 1,437 full time equivalent jobs when the impacts are considered from the state perspective. The higher employment impacts in the service region relative to the State impacts are due to the higher regional purchasing coefficient in the service region relative to the State. The service region level economic impacts of CTE budget expenditures are summarized in Exhibit 10-19. The economic impacts are summarized by direct, indirect, induced, and total impacts. The direct university related expenditures used to stimulate the model for CTE are shown below in Exhibit 10-18.

Exhibit 10-18: Direct Expenditure Model Inputs for CTE

Region / Expenditure Category	UVU Service Region	Utah State
Payroll Expenditures	$ 24,248,962	$ 30,473,654
Other University Expenditures	$ 6,481,720	$ 14,643,129
Student Spending	$ 21,543,652	$ 19,122,428

Exhibit 10-19: Service Region Economic Impacts of CTE

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	1,043	$ 31,871,564	$ 39,724,689	$ 45,848,018
Indirect Effect	59	$ 2,052,163	$ 3,634,946	$ 7,768,228
Induced Effect	178	$ 6,579,356	$ 12,377,162	$ 22,027,826
Total Effect	**1,280**	**$40,503,083**	**$55,736,797**	**$75,644,072**

The state-level economic impacts of CTE's institutional expenditures are summarized in Exhibit 10-20.

Exhibit 10-20: State-Level Economic Impacts of CTE

Impact Type	Employment	Labor Income	Value Added	Output
Direct Effect	1,061	$ 40,306,789	$ 49,158,831	$ 58,655,935
Indirect Effect	83	$ 3,725,646	$ 6,562,795	$ 13,061,769
Induced Effect	293	$ 11,721,843	$ 21,928,970	$ 40,051,938
Total Effect	**1,437**	**$55,754,277**	**$77,650,596**	**$111,769,642**

The federal, state, and local tax impacts of UVU's economic impact were also examined from the service region and state perspective. A tax impact is the estimated amount of revenue generated for the federal, state, and local governments from employee compensation, proprietor income, indirect business taxes, households, and corporations. Five categories of taxes were examined: employee compensation, proprietor income, tax on production and imports, household, and corporation tax. UVU's economic contribution results in about $4.1 million of federal tax impacts from the service region perspective. That value increases to about $6.2 million when the state perspective is considered. The university's expenditures result in almost

$3 million in state and local taxes from the service region perspective and almost $4.1 million in state and local taxes from the state perspective. Accordingly, total university expenditure impacts on federal, state, and local taxes are $7.1 million from the service region perspective and $10.3 million from the State perspective.

The following exhibits show the same tax incomes of in federal, state and local taxes derived from the economic activity of the CTE facility of UVU. The federal, state, and local tax impacts of CTE were examined from the service region and state perspective. A tax impact is the estimated amount of revenue generated for the federal, state, and local governments from employee compensation, proprietor income, indirect business taxes, households, and corporations. Five categories of taxes were examined: employee compensation, proprietor income, tax on production and imports, household, and corporation tax. UVU CTE's economic activities result in about $4.1 million of federal tax impacts from the service region perspective. That value increases to about $6.3 million when the state perspective is considered. The university's expenditures result in about $3 million in state and local taxes from the service region perspective and almost $4.1 million in state and local taxes from the state perspective. Accordingly, total university expenditure impacts on federal, state, and local taxes are $7.1 million from the service region perspective and $10.4 million from the State perspective. The service region level federal tax impacts of CTE with regard to university expenditures are summarized in Exhibit 10-21.

Exhibit 10-21: Service Region Tax Impacts of CTE

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 854,316	$ 130,015				$ 984,331
Social Ins Tax- Employer Contribution	$ 841,257					$ 841,257
Tax on Production and Imports: Excise Taxes			$ 225,618			$ 225,618
Tax on Production and Imports: Custom Duty			$ 83,737			$ 83,737
Tax on Production and Imports: Fed NonTaxes			$ 23,797			$ 23,797
Corporate Profits Tax					$ 929,242	$ 929,242
Personal Tax: Income Tax				$ 1,035,410		$ 1,035,410
Total	**$1,695,573**	**$130,015**	**$333,151**	**$1,035,410**	**$929,242**	**$4,123,391**

The state-level federal tax impacts of CTE with regard to university expenditures are summarized in Exhibit 10-22.The same set of summary impacts is provided in the exhibit below.

Exhibit 10-22: State-Level Tax Impacts of CTE

Description	Employee Compensation	Proprietor Income	Tax on Production and Imports	Households	Corporations	Total
Social Ins Tax- Employee Contribution	$ 1,304,988	$ 188,300				$ 1,493,288
Social Ins Tax- Employer Contribution	$ 1,285,040					$ 1,285,040
Tax on Production and Imports: Excise Taxes			$ 321,571			$ 321,571
Tax on Production and Imports: Custom Duty			$ 119,349			$ 119,349
Tax on Production and Imports: Fed NonTaxes			$ 33,917			$ 33,917
Corporate Profits Tax					$ 1,358,346	$ 1,358,346
Personal Tax: Income Tax				$ 1,655,012		$ 1,655,012
Total	**$2,590,028**	**$188,300**	**$474,837**	**$1,655,012**	**$1,358,346**	**$6,266,523**

10.5 CTE Share of State Funding

The study team calculated the CTE share of state funding for use in the Return on Investment (ROI) analysis. This share (23.6 percent) was set equal to the ratio of the full cost of instruction

for CTE students ($38,080,510) to the full cost of instruction for all UVU students ($161,674,328). [97]

10.6 Increased Student Earnings Potential for CTE Students

This section discusses the methodology that this study used to calculate the contribution of UVU to its CTE graduates lifetime earnings. It too uses data federal data providing considerable evidence that degree level correlates with higher annual salaries. Exhibit 10-23 summarizes the median annual salaries for different levels of education in Utah.

Exhibit 10-23: Average Annual Salaries for Different Levels of Education in Utah

Highest Level of Educational Attainment	Average Annual Salary
High School Diploma	$29,498
Associate Degree	$32,155
Bachelor Degree	$45,861
Master's Degree	$65,096

Source: U.S. Census Bureau, American Community Survey, 1-year estimates, 2014[98]

This study uses a variety of tools to examine UVU's impact on the surrounding communities and on the State of Utah. One way in which the University contributes to the community is by helping its CTE graduates to obtain better paying employment over the course of their lives than they might otherwise have been able to do.

This increase in annual income associated with higher educational attainment may contribute to a significant improvement in lifetime earnings for UVU CTE graduates. A university education is associated with an approximate increase in lifetime earnings (compared to a high school graduate) of $106,280 for an associate degree. For the 2014 UVU graduating class, this represents a total of about $77.1 million.

The increase in expected lifetime earnings is calculated in a multistep process:

- First, data about the average annual salary for graduates by level of education for the State of Utah was obtained from the U.S. Census Bureau American Community Survey for 2014.
- Second, the marginal benefit of each level of educational attainment was calculated. The marginal benefits of each Associate degree are measured against a high school diploma. Only 77 certificates were awarded to CTE graduates in 2014.

[97] USHE 2015 Databook, Tab I, Table 21

[98] For more information on this data set please refer to the U.S. Census Bureau's American Fact Finder website at: http://factfinder.census.gov/home/en/acs_pums_2009_5yr.html

- Third, each graduated student is assumed to work 40 years between the age of 23 and the age of 63. Using this assumption, a university education is associated with an approximate increase in lifetime earnings of $106,280 for one who earns an associate degree.
- Fourth, the marginal income benefit estimate was multiplied by the number of UVU CTE graduates by degree level in the 2013-14 academic year. This calculation estimates improvements to aggregate student earnings per year. It is impossible to know UVU's contribution to its students' previous levels of educational attainment. Therefore, this study measures the marginal income benefit of the UVU degrees attained by the graduating cohort of students.
- Finally, UVU's IRI Office estimates that 92.5 percent of UVU students would not attend another university in the absence of UVU. Thus, the total $83.3 million value is reduced by 7.25 percent to achieve a final estimate of $77.1 million, which is UVU's unique contribution to the expected lifetime earnings of its 2013-14 graduates.

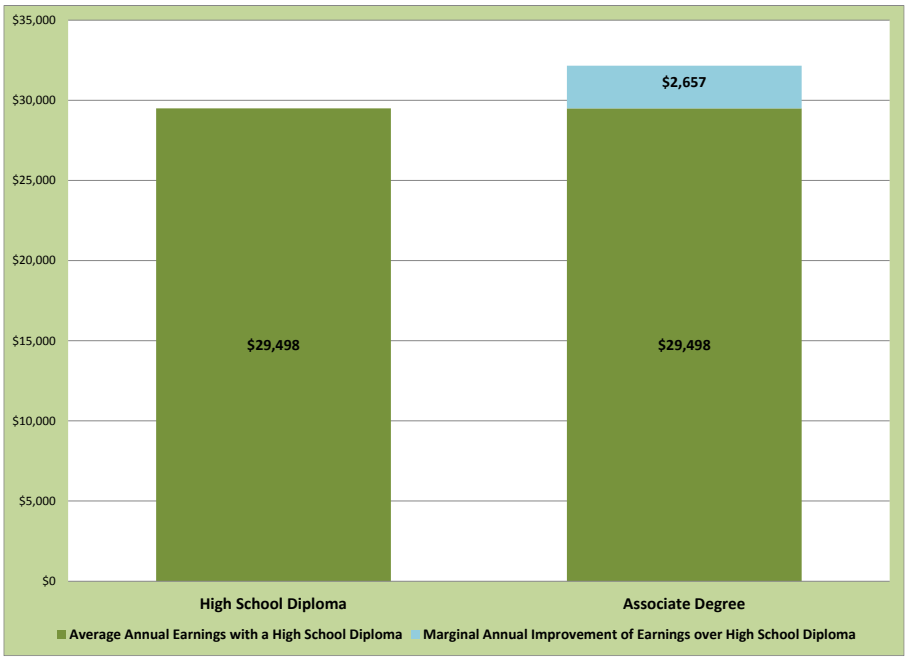
The result of these calculations of UVU's contribution to its students' lifetime earnings is summarized in Exhibit 10-24. The columns follow the steps described above sequentially.

Exhibit 10-24: UVU's Contribution to the Lifetime Earnings of Its CTE Graduates

CTE's Contribution to the Lifetime Earnings of its Graduates							
Highest Level of Educational Attainment	Average Annual Salary*	Marginal Annual Improvement of Earnings over High School Diploma**	Marginal Improvement of Lifetime Earnings per Student	Number of Degrees Granted in 2014	Improvement of Aggregate Student Earnings per Year ($, Millions)	Improvement of Aggregate Student Earnings over Lifetime ($, Millions)	Improvement of Aggregate Student Earnings over Lifetime for Students who Would Not Attend University Without UVU ($, Millions)
High School Diploma	$29,498	NA	NA	NA	NA	NA	NA
Associate Degree	$32,155	$2,657	$106,280	784	$2.08	$83.3	$77.1
TOTAL	**NA**	**NA**	**NA**	**784**	**$2.08**	**$83.3**	**$77.1**

Exhibit 10-25 displays these results graphically.

Exhibit 10-25: Marginal Annual Improvement of Earnings of UVU's CTE Graduates



10.7 CTE Return on Investment

CTE Return on Investment

The State obtains a high return on its investment in the CTE program at UVU. Exhibit 10-25 provides data on the return on investment for state expenditures for the CTE program at UVU in the 2013-14 fiscal year. For example, from a service region perspective, the return on investment is $3.49 per dollar of value added and $4.73 per dollar of output. From a state level perspective, the return on investment is $4.86 per dollar of value added and $7.00 per dollar of output. The federal perspective return on investment is $73.72 for the service region and $108.92 for the State. Exhibit 10-26 reports the data for the service region and State. Additional key return on investment indicators are shown in Exhibit 10-27 for the State and service region.

Exhibit 10-26: CTE Return on State Investment

	Service Region	State
CTE Institution and Student Expenditure	$ 52,274,334	$ 64,239,211
Value Added Impact	$ 55,736,797	$ 77,650,596
Output Impact	$ 75,644,072	$ 111,769,642
Federal Funds	$ 1,026,139	$ 1,026,139
State Funding	$ 15,976,209	$ 15,976,209
Federal ROI (Value Added)	$ 54.32	$ 75.67
State ROI (Value Added)	$ 3.49	$ 4.86
Federal ROI (Output)	$ 73.72	$ 108.92
State ROI (Output)	$ 4.73	$ 7.00

Exhibit 10-27: CTE Return on Investment

	Utah Valley University CTE	
	Service Region	State
Output Multiplier	1.45	1.74
Jobs per $Million in Output	6.76	4.57
Return on Investment	4.73	7.00

Chapter 11. UVU Economic Impact Factsheet

Utah Valley University 2013-14 Economic Impact Fact Sheet

"A teaching institution where students learn, do and become."

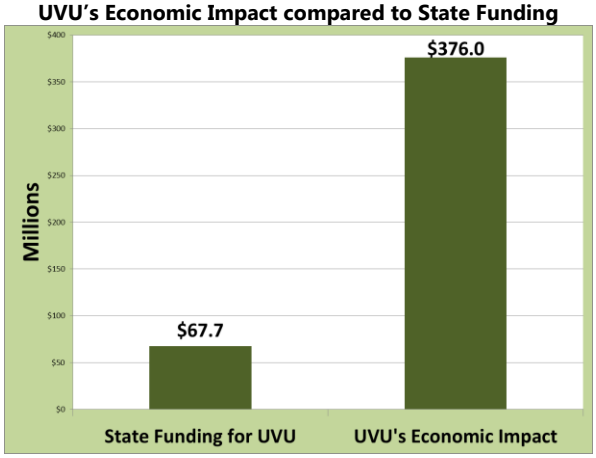
UVU PROVIDES UTAH WITH $544 MILLION IN ECONOMIC IMPACTS ANNUALLY

UVU creates $8.04 in economic impacts for every $1 in tax funds from the State of Utah

Overview - Utah Valley University (UVU), located in Orem, Utah, is currently the largest institution in the Utah System of Higher Education. A study (based on 2013-14) was completed in November 2016 to assess the local economic impacts of UVU. This fact sheet details the findings of the study.

UVU's impacts on the State of Utah are significantly larger than the tax funds the State provided to support the University. UVU provided $376.0 million in value-added economic impact to the State in 2013-14. The State of Utah provided UVU with about $67.7 million in tax funds that year.

UVU's Economic Impact compared to State Funding



The ratio of impact to cost can be compared using an impact-cost analysis***. UVU had an impact to cost ratio of 8.04 to 1, which means that almost every dollar spent by the State government on UVU created $8.04 dollars in impacts to the State***.

UVU Background - More than 30,500 students attended UVU in 2013, studying a wide variety of disciplines. UVU offered 67 associate degrees, 67 bachelor degrees, and master degrees in education, nursing, and business administration. The majority of UVU's students are from Utah, Wasatch, and Summit Counties. However, the University also has students from across Utah, the U.S., and the world.

UVU's mission and role in the community has evolved over its 70 year history. UVU was established in 1941 as Central Utah Vocational School (CUVS). Since then, it has served as a technical college, community college, and a state college. In July 2008 the institution became a university and began offering master's degree programs. As UVU has evolved, its impact on the surrounding community has expanded.

UVU's Impact on Jobs - UVU directly employed 3,436 employees and in total supported 6,724 full-time equivalent jobs in the state.

UVU's Mission - Utah Valley University is a teaching institution which provides opportunity, promotes student success, and meets regional educational needs. UVU builds on a foundation of substantive scholarly and creative work to foster engaged learning. The university prepares professionally competent people of integrity who, as life-long learners and leaders, serve as stewards of a globally interdependent community.

Utah Valley University Economic Impact Fact Sheet

More than Just a University - UVU is not just a center for higher education; it plays an important role in promoting economic development and entrepreneurship in the surrounding community. The populations served by the groups, organizations, centers, and initiatives affiliated with UVU are varied, including small manufacturers, entrepreneurs, UVU students with new business concepts, restauranteurs, and Spanish-speaking childcare providers. The economic development programs associated with the University include:

- Small Business Development Center
- Manufacturing Extension Partnership of Utah
- Utah Science Technology and Research Initiative
- Utah Cluster Acceleration Partnership
- UVU Office of Technology Commercialization
- Business Resource Center
- Woodbury School of Business Entrepreneurship Institute
- Volunteer & Service Learning Center
- Care About Childcare at UVU
- Grants for Engaged Learning Program
- USTAR Technology Commercialization Grants

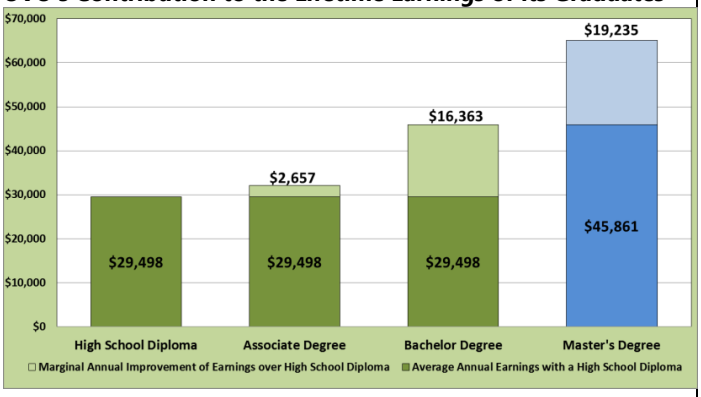
UVU's Annual Impacts to Region

- UVU's total economic impact as measured by output was $391.5 million at the service region level (i.e. Utah, Wasatch, and Summit Counties) and $544.3 million at the state level.
- UVU's total economic impact as measured by value added was $282.9 million at the service region level (i.e. Utah, Wasatch, and Summit Counties) and $376.0 million at the state level.
- UVU had a total tax impact of $23.5 million on its service region and a total tax impact of $32.7 million on the State of Utah.
- UVU directly employs 3,436 employees and in total supported 6,724 full-time equivalent jobs in the state.

UVU's Contribution to the Lifetime Earnings of its Graduates - One way in which the University contributes to the community is by helping its graduates to obtain better paying employment over the course of their lives than they might otherwise have been able to do.

The university provided an approximate increase in lifetime earnings of $106,280 for those who earned an associate degree, $654,520 for a bachelor degree, and $769,400 for a master's degree. UVU had 5,242 students graduate in FY2013-14 of which 5,157 earned these degree levels. For this cohort of students, their UVU degrees were expected to contribute more than $2.1 billion over their combined lifetimes.

UVU's Contribution to the Lifetime Earnings of its Graduates*



Source: U.S. Census Bureau, American Community Survey, 2013

* The marginal benefits of each degree are measured against a high school diploma, except for a master's degree shown in light blue which is measured against a bachelor degree shown in darker blue.

UVU Helps Its Students Achieve Lifelong Success - UVU fosters a culture of academic rigor and professional excellence; provides opportunity for individuals from a wide variety of backgrounds and perspectives and meets regional educational needs; support students in achieving their educational, professional, and personal goals; and engages its communities in mutually beneficial collaboration and emphasizes engaged learning.

For More Information

Including a technical report, contact:

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UTAH VALLEY UNIVERSITY

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