

Denison University Economic Impact Study 2017

Prepared By

Jiahui Zhang

Under Direction of David English, Vice President of Finance and Management

Dr. Todd M. Jamison, Director of Institutional Research

Office of Institutional Research

Denison University

June 8, 2017

EXECUTIVE SUMMARY	3
1.0 BRIEF INTRODUCTION TO THE RIMS II MODEL	4
2.0 OPERATING EXPENDITURE	5
3.0 INVESTMENT EXPENDITURES	6
4.0 ANCILLARY SPENDING	7
4.1 SUMMARY OF ANCILLARY SPENDING	7
4.2 STUDENT SPENDING	7
4.3 STUDENT VISITOR SPENDING	8
4.4 PROSPECTIVE STUDENT SPENDING	9
4.5 ECONOMIC IMPACT FROM ANCILLARY SPENDING	9
5.0 CONCLUSION	10

Executive Summary

Located in Granville, a town of 3,600 residents, approximately 20 miles east of Columbus, Ohio, and within the Columbus Metropolitan Statistical Area, Denison University is a premier private liberal arts college with approximately 2,200 students. Founded in 1831, and offering Bachelor of Arts, Bachelor of Science, and Bachelor of Fine Arts degrees with 50 majors and 11 pre-professional programs, Denison has emerged as a top-tier liberal arts college nationwide, ranked highly by U.S. News and World Report, Washington Monthly, Wall Street Journal/Times Higher Education, Forbes and Money.



As the only private higher-education institution in Licking County, Ohio, Denison creates significant value to the economy of Granville and Licking County. This study measures and articulates the depth of the economic impact of Denison's presence in Licking County. The economic benefit to the surrounding community comes from three primary sources:

- 1. Operating Expenditures:** Denison's operating expenditures are comprised of recurring annual expenses. Denison directly injects significant resources into the local economy through its annual operating expenses in categories such as utilities, supplies, payroll, maintenance, and repair expenditures. Payroll expenses directly support employment and household income in local communities, while other operating expenses support local businesses, to the degree that purchases are from local suppliers.
- 2. Capital Investment:** In addition to operating expenses, Denison reinvests significant amounts in equipment and physical infrastructure. These investments in land, buildings, and equipment are substantial and generate high levels of revenue for local businesses. In turn, this revenue supports employment by local businesses. The most notable current example is the new Michael D. Eisner Center for the Performing Arts on which construction began in March 2017.

3. **Ancillary Spending:** Denison attracts students, visitors of students, visiting prospective students and events attendees (sports, concerts, etc.). These visitors patronize local hotels, restaurants, shops, and gas stations; and this in turn supports local job creation.

Combining the three categories and implementing the multiplier effect (discussed in Section 1), Denison adds approximately \$209 million in total economic contribution. This supports 2,442 jobs, \$63.7 million in household earnings and \$134 million of other economic activity. We also note that much of the funds that Denison spends, either on payroll or direct expenses, are from revenue that originates from outside Licking County. Denison is not just recycling money within the community, but it is a major source of wealth flowing into Licking County.

1.0 Brief Introduction to the RIMS II Model

Regional Input-Output Modeling System (RIMS II) is a tool developed by the Bureau of Economic Analysis (BEA) to provide investors, planners, and government officials with a way to forecast the economic impacts of various projects. Some advantages using RIMS II model include: 1) easy accessibility of the main data sources 2) common acceptance by investors, planners, and government officials and 3) relatively high degree of accuracy (https://bea.gov/regional/pdf/rims/RIMSII_User_Guide.pdf).

RIMS, like any model, is only a reflection of the actual world, and must make simplifying assumptions, which can be disputed. A commonly cited issue with RIMS is the concept of opportunity cost, that under-utilized resources would not be used for an activity other than the one being evaluated. We have chosen RIMS because this is not an issue we see in evaluating Denison's impact, as Denison is an existing entity and no alternate use is feasible – we are more readily able to quantify the impact Denison has on the surrounding community.

The concepts underlying RIMS II can be summarized as: an initial change in one economic activity will generate downstream (“multiplier”) effects in other activities. For instance, a new construction project will result in the contractor hiring workers, which provides direct job creation in the local economy. Additionally, the project will require raw materials, and the firms supplying these inputs will hire workers, and may create additional work (and hence jobs) for the firms that, in turn, supply them.

Capturing multiplier effects is one of the main components of the RIMS II tool. The economic impact of an entity or event can be determined, by using the multiplier to calculate the total expenditure in a geographic region. This study utilizes BEA's Final Demand Multipliers:

- multiplier for output (sales)-all business sales resulting from an entity's (Denison, in this case) expenditures
- multiplier for earnings

- multiplier for employment
- multiplier for value-added (gross domestic product, or GDP)-a measure of the total economic impact

Multipliers represent the ratios of total to initial changes in economic activity. When final demand data in one industry is multiplied by the multiplier associated with that industry, the result will reveal the estimation of total demand change for the entire economy in that area.

2.0 Operating Expenditure

To calculate Denison's annual economic impact on Licking County, we obtained Denison's operating expenditures from 2010 to 2016 and calculated the average, as shown in Table 2.1. NOTE: these expenditures are from Denison's Audited Financial Statements.

Table 2.1 – Operating Expenditure from 2010 to 2016¹

Year	Expenses
2010	\$103,044,708
2011	107,309,164
2012	107,753,695
2013	113,400,551
2014	119,786,953
2015	113,148,255
2016	121,811,027
Total	\$786,254,353
Average	\$112,322,050

Applying the annual average to the final demand valued-added multipliers provided by BEA, we determine that annually **Denison generates about \$176 million in total expenditures, supporting \$59.5 million in household earnings, approximately 2,300 jobs and \$112.3 million in expenditures within Licking County from its operating activities** (see Table 2.2). Since the BEA multipliers are proprietary, the actual multipliers cannot be shared in this report.

Table 2.2 – Estimated Annual Impact on Licking County from Denison University Operating Activities using RIMS II multiplier model

Value-Added (GDP)	\$112.7M
Output (Sales)	\$172.2M

¹ Source: Denison University Audited Financial Statement, 2010 to 2016.

Earnings (Salaries)	\$59.5M
Employment (# Jobs)	2,296

3.0 Capital Investment

Like any large organization, Denison has significant annual expenditures for reinvestment in infrastructure – i.e. spending to upgrade buildings and equipment. These investment activities generate a considerable economic impact on Licking County, especially from renovation of buildings, which utilize local labor and construction materials. The average expenditure from 2010-2016 was \$18.6 million per year (see Table 3.1). Presently, Denison is investing \$35 million in a single project, the Michael D. Eisner Center for Performing Arts. By itself, this project will create an additional significant economic boost during construction.

Table 3.1 – Expenditure in Purchases of Land, Buildings and Equipment from 2010 to 2016²

Year	Land, Buildings, Equipment Expenses
2010	\$9,373,108
2011	26,133,457
2012	30,328,562
2013	19,123,572
2014	11,643,328
2015	21,423,610
2016	12,104,724
Total	\$130,130,361
Average	\$18,590,052

The majority of Denison’s expenditures in land, buildings and equipment during this period were for building renovation, which has a greater economic impact than purchases of equipment or land. Using the RIMS II tool, we find that through this capital reinvestment, **Denison generates \$23.4 million in total sales, \$1.5 million in household earnings, and supporting 64 jobs, as well as \$15.8 million in GDP within Licking County** (see Table 3.2).

Because the Eisner Center is presently under construction, and is much larger than annual average expenditures on Capital, we have calculated its impact on a case study.

The investment in the Performing Art Center will generate about \$56.5 million in

² Data from Denison University Audited Financial Statements, Consolidated Statement of Cash Flows.

total sales, \$14.5 million in household earnings, supporting about 372 jobs, and \$31 million of GDP within Licking County during construction (see Table 3.3).

Table 3.2 – Economic Impact in Licking County from Denison University Investment in Land, Buildings, Equipment

Value-Added (GDP)	\$15.8M
Output (Sales)	\$23.4M
Earnings (Salaries)	\$1.5M
Employment (# Jobs)	64

Table 3.3 – Economic Impact in Licking County from Investment in Michael D. Eisner Center for Performing Arts at Denison University

Value-Added (GDP)	\$31M
Output (Sales)	\$56.5M
Earnings (Salaries)	\$14.5M
Employment (# Jobs)	372

4.0 Ancillary Spending

4.1 Summary of Ancillary Spending

In addition to the economic benefit of expenditures from Denison, the college contributes to the local community through ancillary spending, which is defined as spending from visitors to Denison's campus, Denison is a notable destination, attracting not only students but student families and visitors, as well as, event attendees. Campus visitors patronize local businesses, such as hotels, restaurants and gas stations. This activity supports local job creation and tax revenue generation. The major three categories of ancillary spending are from:

1. Denison students
2. Visiting prospective students
3. Alumni, parents and other affiliates

These three categories represent a significant amount of spending within Licking County, which would not have taken place at the first place without the presence of Denison.

4.2 Student Spending

Denison requires all students to live on campus. However, many students are not on college meal plans, and these students buy food and produce from local stores, dine at local restaurants, and make purchases from other local businesses. To a lesser degree,

students who are on meal plans also patronize local restaurants and food stores. Denison's Office of Admission & Financial Aid estimates that average student spends approximately \$2,200 a year for off-campus sundry purchases. There are 2,200 students on Denison's campus, hence estimated, annual student spending is \$4.84 million (see Table 4.1).³

Table 4.1 – Estimated Annual Spending by Denison Students

Total Enrollment	Spending Per Student	Total
2,200	\$2,200	\$4.84M

4.3 Visitor Spending

Families and friends of Denison students also contribute a significant level of purchasing to the local community. Data on student visitors is not readily available, however we have made what we believe are conservative assumptions regarding the proportion of students who have overnight visitors during the academic year, and the number of visitors that come during a visit. Visitor spending is analogous to tourist spending, in that a minority of visitors spend money on overnight lodging, and the majority of visitors drive sales in food, beverage and sundry retailers. There are four primary Denison events that draw in student visitors:

1. Fall Semester Move-in⁴ – We predict that 80% of in-state students will have one visit from two visitors, who will not stay overnight; and 30% of out-of-state students will have one visit per academic year, from two visitors, who will stay locally for one night.

2. Family Weekend – We have assumed that 80% of in-state students will have two visitors who will not stay overnight, and 30% of out-of-state first-year students will have a group of two visitors and stay locally for one night.

3. Graduation – We have assumed that in-state graduating seniors will have two visitors, who will not stay overnight; and out-of-state seniors will have two visitors, who will stay overnight.

4. Events Attendees (concerts, sports, etc.) – We have assumed that 30% of in-state students will have two visitors, who will not stay overnight, and out-of-state students will not have any visitors for events.

³ NOTE: spending by faculty, staff, and administrative is not included in this section, since it is already accounted for in the economic impact from Denison's operating expenditures.

⁴ Number of students is estimated around 2,200, and 78% of students come from outside Ohio.

In-state visitors are assumed to come in groups of two, and will spend \$40 per group, while out-of-state visitors are assumed to come in groups of two, and will spend \$200 per group on items such as transportation, food, and accommodations⁵. Based on these assumptions, annual spending by student visitors is estimated at \$0.34 million (see Table 4.2)

Table 4.2 – Estimated Annual Spending in Licking County by Visitors to Denison University Students

Visitor Type	Fall Semester Move-in	Family Weekend	Graduation	Total Groups of Visitors
In-State	390	390	140	920
Out-State	515	515	500	1,530
Total Spending	\$118,600	\$118,600	\$105,600	\$342,800

4.4 Prospective Student Spending

Each spring and fall season, multiple prospective students will visit Denison' campus. According to the data provided by Denison Admission Office, there are about 4,000 prospective students that visit each academic year. It is assumed that each student is accompanied by two family members. Although prospective students will live on campus with a Denison student for that night, their parents must stay in local hotels. The trip expense for each group is estimated at \$200 per day, including traveling, food, and accommodations. Based on these assumptions, prospective student visiting groups will contribute \$800,000 annually to our local community (see Table 4.3).

Table 4.3 – Estimated Annual Spending by Student Visitors

# Prospective Students	Spending per Group	Total pending
4,000	\$200	\$800,000

4.5 Economic Impact from Ancillary Spending

The total ancillary spending adds to about \$5.8 million in local purchasing each year, and most of which is spent by out-state students and visitors. Hence **Denison's economic impact from ancillary spending generates about \$9.5 million in local**

⁵ According to Consumer Expenditure Survey conducted by the Bureau of Labor Statistics, for overnight stays, on daily basis, transportation costs of \$23, accommodations costs of \$153, and food costs of \$66, which sums to \$242. Since our community is in suburban area, we conservatively rounded expenditures down to \$200 per trip.

sales, with total household earnings of \$2.7 million through about 82 jobs. The annual value-added GDP is \$5.4 million. (see Table 4.4).

Table 4.4 – Estimated Annual Impacts in Licking County from Ancillary Spending by Denison University Visitors

Value-Added (GDP)	\$5.4M
Student Spending	\$4.84M
Student Visitor Spending	\$342,800
Prospective Student Spending	\$800,000
Ancillary Spending	\$5.95M
Output (Sales)	\$9.5M
Earnings (Salaries)	\$2.7M
Employment (# Jobs)	82

5.0 Conclusion

Denison has been a major contributor to the economy of Licking County from the following perspectives:

1. **Operating Expenditures** – Denison’s annual operating expenses, categories such as energy, maintenance, and payroll, supports employment and household income in local communities. Denison generates about \$176 million in total expenditures, supporting about 2,300 jobs and \$59.5 million in household earnings from its operating activities.
2. **Capital Investment** – Denison’s investments in land, buildings, and equipment induce significant effects and generate high levels of employment: \$23.4 million in total sales, supporting about 64 jobs and \$1.5 million in household earnings. The ongoing new Michael D. Eisner Center for Performing Arts will generate another \$56.5 million in total sales, \$14.5 million in household earnings, 372 jobs and \$31 million in GDP during construction.
3. **Ancillary Spending** – students, visitors of students, visiting prospective students, and events attendees will support local job creations. Denison generates about \$9.5 million in local sales, supporting about 82 jobs with total household earnings of \$2.7 million.

Table 5.1 – Estimated Total Annual Impacts

	Operating Activities	Capital Investment	Ancillary Spending	Total Impacts
Value-Added (GDP)	\$112.7M	\$15.8M	\$5.4M	\$134
Output (Sales)	\$176M	\$23.4M	\$9.5M	\$209M
Earnings (Salaries)	\$59.5M	\$1.5M	\$2.7M	\$63.7M
Employment (# Jobs)	2,296	64	82	2,442

In conclusion, annually Denison contributes about \$209 million in total sales, supporting 2,442 jobs and \$63.7 million in household earnings, and \$134 millions of GDP through its operating activities, capital investments, and ancillary spending (see Table 5.1). In addition, the ongoing new Michael D. Eisner Center for Performing Arts, alone, will generate another \$56.5 million in total sales, \$14.5 million in household earnings, 372 jobs and \$31 million in GDP in the next few years.