



Economic Contribution of
**NORTH DAKOTA
STATE UNIVERSITY**

**EXECUTIVE
SUMMARY**

Analysis of Investment
Effectiveness and
Economic Growth

NOVEMBER 2012

emsi

Socioeconomic impact study

STUDY HIGHLIGHTS

ECONOMIC GROWTH ANALYSIS

- The net added income generated by NDSU operations (\$201.2 million) and the spending of non-local students (\$25.1 million) and visitors (\$2.9 million) contributes a total of **\$229.2 million** in income to the NDSU Service Area economy each year.
- The accumulated credit hours achieved by former NDSU students over the past 30 years translate to **\$655.4 million** in added regional income each year due to the higher earnings of students and increased output of businesses.

INVESTMENT ANALYSIS

- For every dollar students invest in NDSU, they receive a cumulative **\$5.23** in higher future income (discounted) over the course of their working careers.
- North Dakota benefits from improved health and reduced welfare, unemployment, and crime, saving the public some **\$17 million** per year.
- Taxpayers see a rate of return of **3.1%** on their investment in NDSU.

North Dakota State University
SERVICE AREA



INTRODUCTION

North Dakota State University (NDSU) is a land-grant research university with a dual focus of preparing students for in-demand, high-tech fields and cultivating a growing research portfolio. Founded in 1890, NDSU is located in Fargo and serves approximately 17,000 undergraduate and graduate students each year. The University is one of two flagship universities in the state and has seven colleges, a graduate school offering 46 doctoral degrees, and extensive continuing and cooperative education programs. A fifth of NDSU students are enrolled in the College of Engineering and Architecture, while NDSU's 55-acre Research and Technology Park houses just under 20 tech-related companies.

In this study, EMSI applies a comprehensive model designed to quantify the economic benefits of the North Dakota State University and translate these into common sense benefit/cost and investment terms.

The study includes two major analyses:

- *Investment Analysis:* Treats education funding as an investment, calculating all measurable returns and comparing them to costs, from the perspectives of students, taxpayers, and society as a whole.
- *Economic Growth Analysis:* Measures added income in the region due to university operations, student and visitor spending, and the accumulated skills of past and present students still in the workforce.

For an in-depth discussion of the methodology and results, the reader is encouraged to consult the Main Report, "The Economic Contribution of North Dakota State University."

THE RESULTS

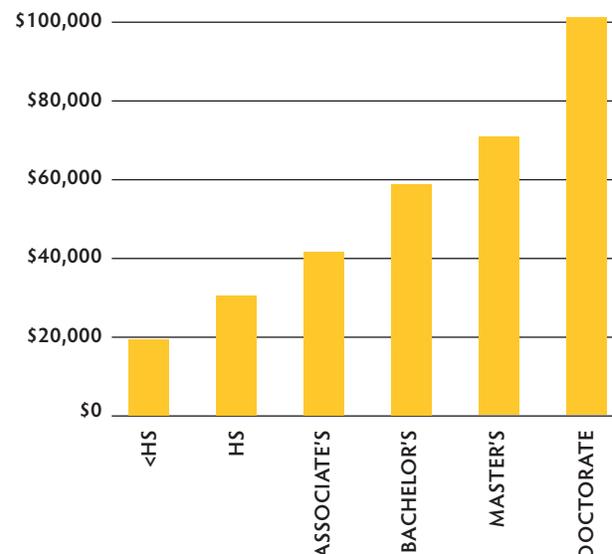
INVESTMENT ANALYSIS

Student Perspective

Benefits of higher education are most obvious from the student perspective: students sacrifice current earnings (as well as money to pay for tuition) in return for a lifetime of higher income. Compared to someone with a high school diploma, bachelor's degree graduates earn \$28,200 more per year, on average, over the course of a working lifetime (undiscounted).

From an investment standpoint, NDSU students enjoy a 14.4% rate of return on their investments of time and

Average Earnings by Education Level in NDSU Service Area



money. This compares favorably with returns on other investments, e.g., long-term return on stocks and bonds.

The corresponding benefit/cost ratio is 5.23, i.e., for every dollar students invest in NDSU education, they receive a cumulative of \$5.23 in higher future income over their working careers. This is a real return that accounts for any discounting that occurs during the entire period. The payback period is 10.6 years.

Social Perspective

From the perspective of society as a whole, the benefits of education accrue to different publics. For example, NDSU students expand the state’s economic base through their higher incomes, while the businesses that employ them also become more productive through the students’ added skills. These benefits, together with the associated ripple effects, contribute an estimated \$83.6 million in taxable income to the North Dakota economy each year.

As they achieve higher levels of education, NDSU students are also less likely to smoke or abuse alcohol, draw welfare or unemployment benefits, or commit crimes. This translates into associated dollar savings (i.e., avoided costs) to the public equal to approximately \$17 million annually. These are benefits that are incidental to the operations of NDSU and accrue for years into the future, for as long as students remain active in the workforce.

To compare benefits to costs, we project benefits into the future, discount them back to the present, and weigh them against the \$126.5 million that state taxpayers spent in FY 2010–11 to support the University. Following this procedure, it is estimated that NDSU provides a benefit/cost ratio of 12.08, i.e. every dollar of state tax money invested in the University today yields a cumulative of \$12.08 in benefits that accrue to all North Dakota residents, in terms of added taxable income and avoided social costs.

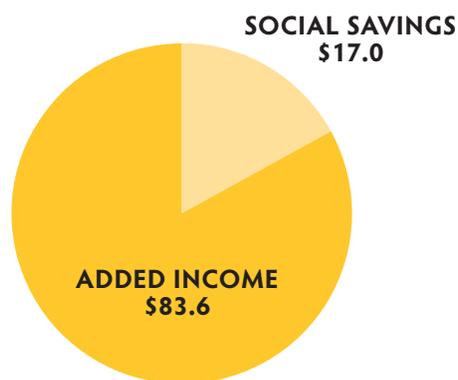
Taxpayer Perspective

Under the taxpayer perspective, only benefits that accrue to state and local governments are counted, namely, increased tax collections and reduced government expenditures. For example, in place of increased income, the taxpayer perspective includes only the increased state and local tax receipts from those higher incomes. Similarly, in place of overall

NDSU Investment Analysis AT A GLANCE

STAKEHOLDER	RATE OF RETURN	BENEFIT/COST	PAYBACK (YEARS)
Student perspective	14.4%	5.23	10.6
Social perspective	NA	12.08	NA
Taxpayer perspective	3.1%	1.03	25.5

Annual Benefits to North Dakota Public Due To NDSU Students (\$ Millions)



crime, welfare, unemployment and health savings, the taxpayer perspective includes only those that translate to actual reductions in state and local government expenditures.

Note here that government often undertakes activities wanted by the public, but which may be unprofitable in the marketplace. This means that positive economic returns are generally not expected from government investments. From the taxpayer perspective, therefore, even a small positive return (a benefit/cost ratio equal to or greater than 1, or a rate of return equal to or greater than the 3% discount rate used in the taxpayer investment analysis) would be a favorable outcome.

For NDSU, the results indicate positive returns: a rate of return of 3.1% and a benefit/cost ratio of 1.03 (every dollar of state tax money invested in NDSU today returns \$1.03).

ECONOMIC GROWTH ANALYSIS

NDSU serves a region that comprises the entire state of North Dakota and 18 counties in Minnesota within a 100-mile radius of Fargo, where the main campus is located. NDSU affects this regional economy in four ways: 1) through its payroll and purchases for supplies and services, 2) through the off-campus spending of out-of-region students, 3) through the spending of visitors from outside the region, and 4) through an increase in the skill base of the regional workforce. These effects break down as follows:

University Operations Effect

NDSU creates income through the earnings of its faculty and staff, as well as through its own operating and capital expenditures. Adjusting for taxes and other monies withdrawn from the local economy in support of NDSU, it is estimated that the NDSU Service Area economy receives a net of \$201.2 million in added labor and non-labor income due to NDSU operations each year. Of this, approximately \$74.8 million is due to NDSU's research activities alone.

Student Spending Effect

Of the 17,001 students served by NDSU in FY 2010–11, a total of 5,659 came from outside the region. These students spent money for room and board, transportation, entertainment, and other miscellaneous personal expenses, thereby creating jobs and incomes for local businesses. The spending of NDSU's non-local students generates approximately \$25.1 million in added income in the NDSU Service Area economy each year.

Visitor Spending Effect

Each year NDSU draws more than 354,400 visitors to the region. Non-local visitors bring monies that would not have otherwise entered the economy, including expenditures for lodging, eating and drinking, transportation, and other personal expenses. Adjusting for monies paid to the University (e.g., for ticket sales, gifts, food, etc.), the net impact of non-local visitor spending in the region is an estimated \$2.9 million in added income annually.

Student Productivity Effect

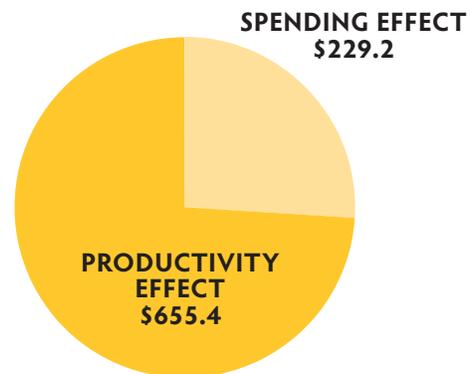
Every year students leave NDSU and join or rejoin the

NDSU Economic Impact Analysis AT A GLANCE

ADDED INCOME	
University operations effect	\$201,175,960
Student spending effect	\$25,079,370
Visitor spending effect	\$2,925,400
Total spending effect	\$229,180,750
Student productivity effect	\$655,409,100
GRAND TOTAL	\$884,589,840

Numbers may not add due to rounding.

Total Added Income in NDSU Service Area Due to NDSU (\$ Millions)



regional workforce. Their added skills translate to higher income and a more robust NDSU Service Area economy. Based on NDSU's historical enrollment and credit hour production over the past 30-year period, it is estimated that the accumulated contribution of NDSU instruction received by former students (both completers and non-completers) annually adds some \$655.4 million in income to the NDSU Service Area.

Total Effect

Altogether, the average annual added income due to the activities of NDSU and its former students equals \$884.6 million. This is approximately equal to 1.9% of the total NDSU Service Area economy.

CONCLUSION

The results of this study demonstrate that NDSU is a sound investment from multiple perspectives. The University enriches the lives of students and increases their lifetime incomes. It benefits taxpayers by generating increased tax revenues from an enlarged economy and reducing the demand for taxpayer-supported social services. Finally, it contributes to the vitality of both the local and state economies.

ABOUT THE STUDY

This report summarizes the results from “The Economic Contribution of North Dakota State University” detailing the role that the University plays in promoting economic development, enhancing students’ careers, and improving quality of life. Data sources include, but are not limited to, 2010–11 academic and financial reports from the University, industry and employment data from the U.S. Bureau of Labor Statistics, earnings and demographic data from the U.S. Census Bureau, and a variety of studies and surveys relating education to social behavior.

ABOUT EMSI

Economic Modeling Specialists Intl. (EMSI) provides high-quality employment data and economic analysis via web tools and custom reports. The company also produces comprehensive impact analyses for colleges and universities in the U.S. and internationally. Founded in 2000, EMSI is located in Moscow, Idaho and serves education, economic, and workforce development institutions and organizations. Visit us at www.economicmodeling.com for more information.