

The Community College System of New Hampshire

An Economic Impact Study

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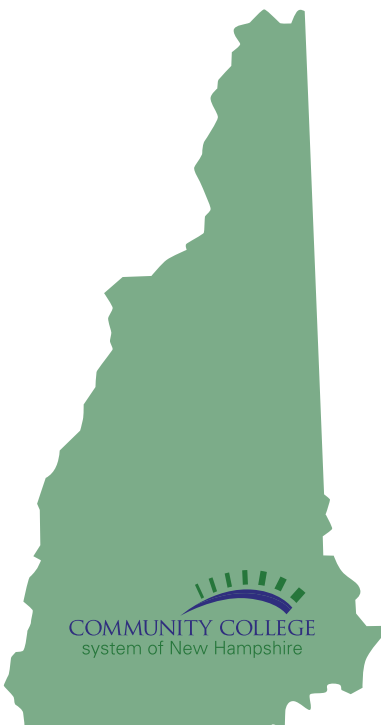
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Introduction

The Community College System of NH, as a business, an employer, a vehicle for NH residents to advance economically, and an entity with a presence in every region of the state, naturally has a significant economic impact within New Hampshire. This report summarizes and describes that economic impact. As CCSNH works to strengthen the alignment of its offerings with the needs of the state's economy, to curb the costs of postsecondary education for NH students, and to serve a broad demographic that includes recent high school graduates as well as adults seeking college and career training, we share this report as one means by which CCSNH demonstrates its accountability and value to NH taxpayers and policy-makers.

There are many components of CCSNH's value to the state. CCSNH has worked hard to improve college affordability in New Hampshire. The community colleges froze tuition four out of the last nine years, and reduced tuition costs for the 2014-15 academic year. Dual enrollment programs with NH high schools give students a jump-start on college and support postsecondary aspirations. Working with the University System of NH and other partners, CCSNH has added and strengthened transfer agreements that enable NH students to earn degrees affordably and conveniently by starting at their local community college. And CCSNH has built pathways with NH employers that strengthen our industry and economy through a skilled workforce and ready-to-work graduates.

CCSNH is pleased to be a partner in important efforts to ensure a bright economic future for New Hampshire.



CCSNH has an overall economic impact in NH of over \$1 billion a year.

Executive Summary

The Community College System of New Hampshire has an overall economic impact in NH of over \$1 billion a year. This includes:

- **Approximately a \$964 million valuation of CCSNH's contribution to a more skilled NH workforce based on the wage premium of college graduates**
- \$22 million in purchases from NH vendors
- \$42 million in employee spending by NH residents
- \$10 million in medical and dental benefits with NH insurers and health care providers
- \$3 million in capital expenditures



Frances Benton

Supporting the Growth of a High-Demand Workforce

Once the only woman in her engineering class at NHTI, Concord's Community College, Frances Benton is now a Senior Technologist/Mechanical Engineer at Markem-Imaje Corp. in Keene and a leader in helping other women enter the engineering profession, where demand for skilled professionals in New Hampshire is high.

Benton's professional experience includes designing equipment to grow industrial sapphire, developing liquid sensors to prevent toxic chemical spills, and developing marking and coding printers for food and pharmaceutical safety. She holds five US patents and her career includes travel around the United States, Asia and Europe.

Benton has both donated and raised over \$108,000 in scholarship money for young women through the Frances H. Benton Women's Engineering Scholarship Fund, which she founded in 2005.

"The future of our country is dependent on a workforce with technology skills, and NH's community colleges are preparing graduates with those skills," said Benton.

CCSNH's total direct economic impact on the state's economy is more than \$76.5 million.

Overview

This report documents the economic contributions of the Community College System of New Hampshire. NH's community colleges are a strong contributor to the state's economy chiefly by providing access to affordable advanced education and training to residents across the state. Developing a skilled workforce that is aligned with NH's economy enables NH-based businesses to fill positions, compete and thrive. CCSNH's economic impact also includes the direct and indirect multiplier impacts of the Community College System's employment of NH residents and expenditures by CCSNH employees in the state.

This analysis draws on well-accepted methodology, and uses conservative valuations and multiplier estimates. The report also highlights some of the important contributions the Community College System makes that are difficult to quantify and are not included in the economic impact estimates.

Main Findings

CCSNH contributes approximately \$1.040 billion annually to NH's economy. This represents just under 2% of NH's total Gross State Product.

CCSNH's economic contributions include approximately \$76.5 million from direct and indirect expenditures within the state and employment of NH residents. Vendors and service providers to CCSNH produce multiplier jobs and economic benefits in the state, and CCSNH employees spend their compensation at in-state businesses, producing multiplier benefits in the state's economy.

The most important economic impacts are related to CCSNH's creation of a more skilled workforce, achieved through the provision of affordable and accessible education and training paths to well-paying employment to NH residents across the state. The economic value of these activities is based on the difference in lifetime earnings between those with higher education and those without in NH. This contribution is valued at just under \$964 million.

CCSNH Economic Impact Methodology

The economic base approach is the most commonly used in economic impact valuation. The approach takes the total state expenditures by an institution (or collection of institutions) and its employees, students, and visitors and then adds a multiplier effect. CCSNH's total direct economic impact on the state's economy of more than \$76.5 million dollars annually is composed of several categories. These include expenditures on goods and services from NH based vendors, capital spending to NH firms, employee spending by in-state residents, medical and dental benefits spent in state, and student and visitor spending in the state. There are several implicit assumptions in the expenditure categories. The contributions from direct and indirect expenditures, and employment of NH residents includes a conservative 1:1 multiplier to capture the so-called "multiplier effects" of CCSNH's expenditures, employee salaries and benefits in the NH economy. Institutional capital spending is a very conservative estimate in that it reflects only contracts with in-state companies and does not take into account that many out-of-state companies subcontract within the state.

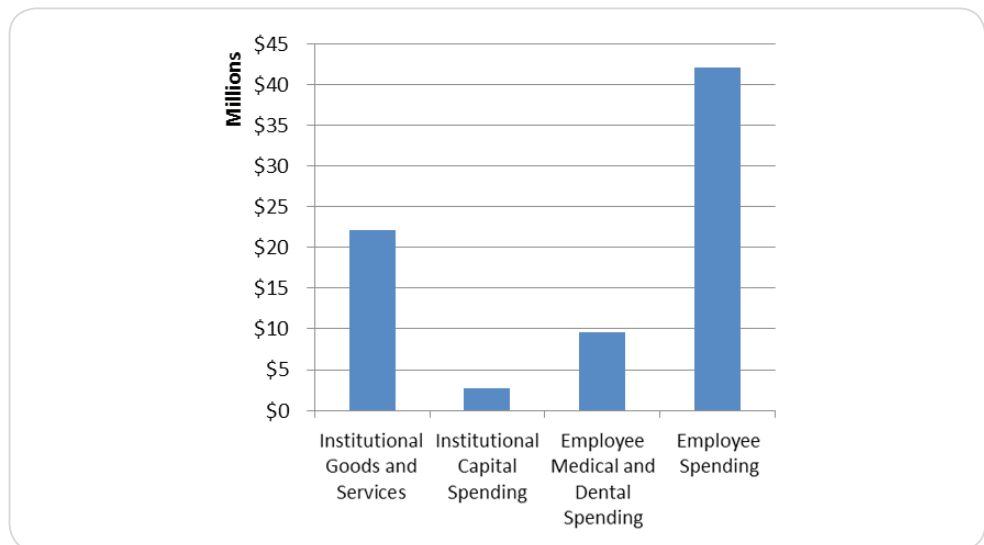
The figures used in this study were provided primarily by the CCSNH Office of Finance for fiscal year 2012 (a base year for this study with fully audited financial information).

Detailed Breakdown of CCSNH Spending in NH

FY 2012 CCSNH Totals	Amount
Institutional Goods and Services	\$22,120,000
Institutional Capital Spending	\$2,762,000
Employee Medical and Dental Spending	\$9,600,000
Employee Spending	\$42,073,600
Total	\$76,555,600

Employee spending is calculated as 76% of gross salary, based on figures for the Northeast United States from the Consumer Expenditure Survey of the Bureau of Labor Statistics. This does not take into consideration spending in NH by out-of-state employees, or spending by NH resident employees outside of the state; in essence, this study presumes that these offset one other.

The data on goods and services expenditure and capital expenditure (construction) are based solely on transactions conducted through NH vendors and firms. It includes invoice activity and some purchase card activity, as the latter did not always specify full address information. In this way, the estimates are conservative.



A multiplier is applied to the expenditure data to capture the “ripple effects” of CCSNH’s expenditures in the state. This study uses the 1:1 multiplier that was supported in an analysis of University Economic Impact Studies by the Federal Reserve Bank of Boston. Some university studies have used higher multipliers such as 1.8, 3:1 or even higher. Meanwhile, some studies apply different multipliers to different types of expenditures.

Economic base approaches often include a jobs multiplier to estimate the number of external jobs created indirectly through the institution's expenditure within the state. Some studies use a multiplier of .04 jobs created per \$1,000 of expenditure, while other studies (McFarland, 1997) offer multipliers as high as .09 jobs per \$1,000. Using these two multipliers gives us an estimated range of roughly 4,700 to 6,890 jobs created outside of CCSNH as a result of its expenditure within the state (Nagowski 2, 3).

CCSNH's Skilled Workforce Contribution

The economic base approach does not account for the most important benefit higher education institutions provide: adding annually to the pool of highly educated and highly skilled labor in the state. This is particularly relevant for NH's community colleges in which 95% of enrolled students are in-state residents. A skilled workforce pipeline is also very important to states such as NH that compete on the basis of workforce for high-paying employers who require highly skilled workers.



Brian Inkell

Career-Changer

Brian Inkell spent 21 years as a furniture builder with Ethan Allen Global, in Beecher Falls, VT. When Ethan Allen closed its operations in 2009, Brian needed a new career and found it through the Culinary Arts program at White Mountains Community College. Brian enrolled in the associate degree program while working as a line cook and chef at the Balsam's resort in Dixville Notch, NH. Since graduating from WMCC, Brian has moved up the ladder in his new career and is Sous Chef and manager of the Steward Department at the prestigious Omni Mt. Washington Resort.

Of his experience as a career-changer, Brian says: "In today's economy, many adults in New Hampshire need opportunities to train for new careers. The community colleges make these opportunities local, accessible, affordable, and aligned with where the jobs are. I worked very hard to get where I am, but I could not have done it without the community college."

The economic valuation of CCSNH's contributions to the skilled workforce in NH is based on the differential in lifetime earnings between those with and without postsecondary degrees, and is factored upon 95% of CCSNH graduates remaining in state after graduation. Then a very conservative assumption is made that CCSNH is directly responsible for only two-thirds of those skilled workers being in the state (i.e., that even without CCSNH, one-third of those workers would have been highly educated and working in NH). This methodology arrives at an estimate of just under \$939 million, representing the value to the state of CCSNH's skilled workforce contribution.

This estimate includes lifetime earnings information based upon educational attainment. High school graduates earn \$1.53 million (in 2011 dollars) over their lifetime, associate degree holders earn \$2.04 million, certificate and credential holders earn \$1.84 million, and students with some college (no official degree) earn \$1.63 million. The lifetime earnings data are multiplied by the number of corresponding CCSNH degrees produced. This study does not apply a multiplier to the valuation of the income difference.

The below table provides the number and type of degrees awarded in FY 2012 and their associated Skilled Workforce Contribution:

FY 2012 CCSNH Totals	2012 Graduates	Skilled Workforce Contribution
Associate	1,600	\$367,027,200
Certificate	900	\$165,240,000
Some College	3,908	\$431,630,784
Total	6,408	\$963,897,984

¹ These estimates reflect a 27%, 20%, and 13% boost in income for associates degrees, certificates/credentials, and some college over that obtained with just a high school degree, respectively.

Source (Associates and Certificates/Credentials): <http://trends.collegeboard.org/sites/default/files/education-pays-2013-full-report.pdf>

Source (Some College): <https://georgetown.app.box.com/s/w6bzsdovxqcywoog6yl>

Steps in Valuation of Skilled Workforce Contribution

1. Multiply the income differential by the number of the degrees graduated
2. Estimate by assuming retention of 90% of graduates remain in state
3. Multiply by 2/3 to attribute to CCSNH graduates being in the state who would not be otherwise
4. No multiplier is added, so only half of the income differential is attributed to the return of higher education

CCSNH Contributions That Are Hard to Quantify

A hard-to-quantify measure of value added to NH by CCSNH is through student engagement in service-learning and volunteer activities enabling students to use what they learn in the classroom to solve real-life problems in areas such as education, small business, public safety, and the environment. Through the service they perform, they become actively contributing citizens and community members. Many of the students that comprise CCSNH’s annual student headcount of 27,000 engage in some form of service learning or other form of community service. Student internships with NH employers, projects undertaken for non-profit organizations, and other services in the community provide a real, although unquantified, benefit. And given the diversity of CCSNH student demographics, in particular age (forty percent of CCSNH students are 25 or older) the impact of student activities in the community is significant and multifaceted.

Likewise, faculty and staff actively engage in professional and community activities, providing pro bono services in their areas of expertise to citizens throughout the state. They provide leadership to their professional societies and organizations, engage in local government, and volunteer services in their communities and regions. Many of these outreach activities are uniquely tied to the institutions’ distinct missions and collective vision to enhance individual lives and the state as a whole.

Also difficult to quantify is the economic benefit of community college campuses and facilities. Public use of facilities for community meetings, to host civic and political events, workshops, cultural events, and recreation benefits the state and its residents. CCSNH includes seven main campuses and three affiliated academic centers, all of which are used regularly as community resources. There is a CCSNH facility in every region of NH and the institutions are active and engaged community partners.



Buddy Zaremba



Walter Zaremba

Job-Creators

Brothers Buddy and Walter Zaremba are co-owners of RAM Printing in Hampstead, NH, a company they acquired in 1981 and have built into a multi-entity operation specializing in full-service printing, direct mail and fulfillment services, digital output and large format printing and customized products for a range of industries.

The brothers got their start at Lakes Region Community College (then the NH Technical College at Laconia) in the Graphic Arts program, which gave them the foundation and tools to embark on a long professional career in their chosen field, build a business, and create jobs. They have grown RAM's workforce more than 10-fold since they acquired the company.

"Our industry keeps evolving, and we know the value of skilled and adaptable employees who can help our business grow," said RAM President Wally Zaremba. "The community colleges' ability to produce those skilled graduates who live and work in New Hampshire makes the community college system a mainstay of our State's economy and a go-to partner for NH businesses."

Conclusion

In a time of economic change and heightened competition, the Community College System's role in the New Hampshire economy is critically relevant. CCSNH contributes directly and indirectly to the state's economy mainly through helping to ensure a skilled workforce aligned with NH's employer needs and also through employment and expenditures, serving as a strong contributor to the state's skilled worker economy. Playing a vital role in the state's economic future, CCSNH provides educated and skilled residents essential for the New Hampshire economy to thrive and for its citizens to achieve a high quality of life. A one-billion dollar impact makes NH's community colleges a truly essential and valuable resource to the State and its citizens.

Work Cited

Angrist, J. D., 'Lifetime earnings and the Vietnam era draft lottery: Evidence from Social Security administrative records', *American Economic Review* 80, 313 { 336, 1990.

Angrist, J. D. and A. B. Krueger, 'Does compulsory school attendance affect schooling and earnings', *Quarterly Journal of Economics* 106, 979 -1014, 1991.

Angrist, J. D. and G. Imbens (1994), 'Identification and estimation of local average treatment effects', *Econometrica* 62(2), 1994.

Belzil, Christian and Jorgen Hansen (2002), 'Unobserved ability and the return to schooling', *Econometrica* 70(5), 2075 { 2091.

Blackburn, McKinley L. and David Neumark (1993), 'Omitted ability bias and the increase in the return schooling', *Journal of Labor Economics* 11(3), 521-544.

Clark, Carolyn and Licheng Feng, Ernst Stromsdorfer. *The Economic and Social Impact of Washington State University*. 1998.

Devol, Ross and Anita Charuworn with Soojung Kim. *State Technology and Science Index: Enduring Lessons for the Intangible Economy*. Milken Institute, 2008.

Foote, Lynn. *The Economic Impact of the University of Delaware on Newark and the State of Delaware*, 2007.

Goodman, Michael and John Hoey, Leslie Granese, Chris Bell. *UMass: A Strategic Investment*. Office of the President, University of Massachusetts, 2006.

Harmon, C. and I. Walker, 'Estimates of the economic return to schooling for the United Kingdom', *American Economic Review* 85(5), 1278-1286, 1995.

Investing in Innovation Harvard University's Impact on the Economy of the Boston Area. Appleseed Consulting, 2009.

McKinley, Robert et al. Economic Impact Study: A Study of the Economic Impact of the University of Texas System. The Institute for Economic Development, University of Texas at San Antonio, 2004.

Mincer, Jacob, Schooling, Experience and Earnings, New York: Columbia University Press, 1974.

Nagowski, Matthew P. Assessing the Economic Impact of Higher Education Institutions to New England. New England Public Policy Center, Federal Reserve Bank of Boston, 2006.

Ohme, Allison M. The Economic Impact of a University on its Community and State: Examining Trends Four Years Later. University of Delaware 2003.

Oregon's Economy & Oregon State University: 1.5 Billion Reasons to Cheer. Office of the President, 2008.

Turrentine, Cathryn. "2012 Economic Impact of Keene State College" Keene State College.

Winters, Dennis K. et al. The Economic Impact of the University of Wisconsin System. Northstar Economics Inc, 2002.

US Census, 2000.

Appendix

A1: Total Direct Economic Impact (Baseline)

Total Direct Economic Impact	
Institutional Goods and Services	\$22,120,000
Institutional Capital Spending	\$2,762,000
Employee Medical and Dental Spending	\$9,600,000
Employee Spending	\$42,073,600
Total	\$76,555,600

A2: Estimated Job Creation

Estimated Job Creation (Multiplier)		
Multiplier	1000's \$ Spending	Jobs Created
0.04	\$76,555.60	3,062
0.09	\$76,555.60	6,890

A3: Skilled Workforce Contribution

Skilled Workforce Contribution	
Degree	Economic Impact
Associates	\$367,027,2000
Certificate	\$165,240,000
Some College	\$431,630,784
Total	\$963,897,984