The University of New Hampshire
A Pillar in the New Hampshire Economy

An Economic Impact Study

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JUNE 2012

WHITTEMORE SCHOOL OF BUSINESS AND ECONOMICS
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I. OVERVIEW

This report provides an update on the economic contributions of the University of New Hampshire (UNH) to the state of New Hampshire, including the direct and multiplier effects of the University’s employment of N.H. residents and in-state expenditures and UNH’s contribution to the skilled workforce. The analysis draws on commonly used and widely accepted methodology and conservative valuations and multiplier estimates that will be explained further in Section IV. The report also documents some of the important contributions the University makes that are difficult to quantify and are not included in the main economic impact estimates.

II. MAIN FINDINGS

In academic year 2010–11, UNH contributed approximately $1.4 billion to New Hampshire’s economy. This represents 2.3 percent of New Hampshire’s total $62 billion Gross State Product in 2010. UNH’s economic contributions reflect approximately $791 million from direct and indirect expenditures within the state and employment of New Hampshire residents. This estimate includes a conservative 1:1 multiplier to capture the so-called “ripple effects” of UNH’s expenditures and UNH employee salaries and benefits on the New Hampshire economy. Vendors and service providers to UNH create “multiplier” jobs and economic benefits in the state, and UNH employees spend their compensation at in-state businesses, producing additional multiplier benefits. We have used a 2:1 multiplier for research and development expenditures—commonly recognized as having stronger secondary effects in the economy than other expenditures with regard to company and job creation.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>2008 (IN 2011 $) AMOUNT</th>
<th>2011 AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNH Economic Base Impact w/o Multiplier</td>
<td>$339 Million</td>
<td>$334 Million</td>
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<td>$339 Million</td>
<td>$334 Million</td>
</tr>
<tr>
<td>Economic Base Impact with Multiplier</td>
<td>$ 678 Million</td>
<td>$666 Million</td>
</tr>
<tr>
<td>Average Research and Development Awards/Grants 2005–2007</td>
<td>$ 122 Million</td>
<td>$125 Million</td>
</tr>
<tr>
<td>Research and Development with Multiplier</td>
<td>$ 370 Million</td>
<td>$375 Million</td>
</tr>
<tr>
<td>Skilled Worker Valuation</td>
<td>$ 590 Million</td>
<td>$617 Million</td>
</tr>
<tr>
<td>UNH Total</td>
<td>$ 1.4 Billion</td>
<td>$1.4 Billion</td>
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</table>
III. UNH ECONOMIC IMPACT METHODOLOGY

The economic base approach is the most commonly used in economic impact valuation. The approach takes an institution’s total state expenditures and adds a multiplier effect. UNH’s total expenditures—including payments for goods and services from N.H.-based vendors, capital spending to N.H. firms, employee spending by in-state residents, medical and dental benefits redeemed in state, and student, and visitor spending in the state—come to about $334 million dollars annually. UNH’s Office of Finance provided the figures used in these estimates, which rely on several implicit assumptions. The estimate of institutional capital spending is very conservative because it reflects only contracts with in-state companies and does not take into account that many out-of-state companies subcontract within the state, returning a portion of their earnings to the state. Employee spending is based on 80 percent of gross salary going to New Hampshire residents, as estimated by the Bureau of Labor Statistics, and does not take into account N.H. spending by UNH employees who are not state residents. Medical and dental benefits are estimated at 19 percent of gross salary for N.H. residents receiving benefits from UNH. The figure then assumes 80 percent of these benefits will go to in-state insurers and health care providers. Student spending is estimated at $410 monthly, a figure arrived at via student surveys, and does not include UNH Manchester or continuing education students. Visitor spending is based on a conservative estimate of $15 per visitor spent outside UNH but in N.H. on fuel, food, and other goods and services.

The detailed breakdown for UNH expenditures in N.H. (see table below) includes institutional goods and services spending totaling nearly $32.9 million, capital spending of $35.1 million, employee benefits of $27.8 million, employee spending of $155.8 million, student spending of $74.4 million, and visitor spending of $5.4 million. The figure for visitor spending represents a low portion of the total and has not been updated from the previous analysis but is assumed to have increased at the rate of inflation. Included within this breakdown is over $125 million annually going towards research and development.

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<th>CATEGORY</th>
<th>2008 (IN 2011 $) AMOUNT</th>
<th>2011 AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Goods and Services</td>
<td>$28,633,652</td>
<td>$32,874,267</td>
</tr>
<tr>
<td>Institutional Capital Spending</td>
<td>$44,473,018</td>
<td>$35,050,776</td>
</tr>
<tr>
<td>Employee Medical and Dental Expenses</td>
<td>$27,087,976</td>
<td>$27,769,128</td>
</tr>
<tr>
<td>Employee Spending</td>
<td>$155,644,401</td>
<td>$155,785,334</td>
</tr>
<tr>
<td>Student Spending</td>
<td>$78,378,120</td>
<td>$74,405,160</td>
</tr>
<tr>
<td>Visitor Spending</td>
<td>$5,422,253</td>
<td>$5,422,253</td>
</tr>
<tr>
<td>Total</td>
<td>$339,639,419</td>
<td>$331,306,927</td>
</tr>
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</table>
A 1:1 multiplier, endorsed in an analysis of University Economic Impact Studies by the Federal Reserve Bank of Boston, is applied to the expenditure data to capture the “ripple effects” of UNH’s expenditures in the state. Some university studies have used 1.8:1, 3:1 or even higher multipliers, while other studies apply different multipliers to different types of expenditures. Here we use a 2:1 multiplier for research and development expenditures due to the strong relationship between research and development spending and long-term income and job creation. Economic base approaches often include a jobs multiplier to estimate the number of outside 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, but other studies (McFarland, 1997) offer multipliers as high as .09 jobs per $1,000. Using these two multipliers gives us an estimated range of between 13,000 and more than 29,000 jobs created outside of UNH as a result of its expenditure within the state (Nagowski, 2-3).

UNH’s economic base contribution was estimated at nearly $788 million, using the 1:1 multiplier with a double multiplier for Research and Development. Using a 1.8:1 multiplier, the estimated economic impact through expenditures would be over $1.1 billion, and with a 3.1:1 multiplier over $1.6 billion.

**IV. UNH’S NET IMPACT**

One common criticism of the economic base approach is that, while it provides a measure of the economic activity in the state that is currently associated with an institution, it provides no measure for how much one could expect economic activity to decline if the University were no longer present. One imagines that if the University were no longer present, economic activity in the state would not decrease by its total current contribution to the economic base, including the multiplier effect, as resources could be directed to other activities/investments. Imagining the economic landscape in the absence of a major state institution (such as its flagship public university) is extremely difficult and is the reason many studies abstain from providing a measure of this net effect, instead choosing to present only the economic base or total effect when putting a value on an institution’s contribution to a region’s economy.

One method that has been developed to address this deficiency and provide a measure of the net effect is to focus on exogenous or non-regional sources of funding, money attracted to the state by a university that would be completely lost in its absence, such as federal research funding and out-of-state student spending (Beck et al., 1995 and Brown and Heaney, 1997). This approach is biased downward (or inherently conservative) in that it largely assumes away any possible intra-regional net positive impact an institution of higher education can have on a region’s economic base, such as the creation of outside jobs, due to its expenditure. In
this breakdown, we’ve made what we feel to be a conservative assumption that, without the university, 50 percent of visitor spending would be lost. We use a 2:1 multiplier for research grants, again due to their vital role in bolstering a state’s economy and apply the 1:1 multiplier to lost student and visitor spending (the former estimated by the UNH finance office). The net effect comes out to over $330 million (Nagowski, 2-3).

V. UNH’S SKILLED WORKFORCE CONTRIBUTION

The economic base approach does not account for perhaps 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 important to states such as New Hampshire that compete for high-paying employers who require highly skilled workers.

The economic assessment of UNH’s contributions to the skilled workforce in New Hampshire is based on the differential in lifetime earnings between those with and without degrees in N.H. and depends on 50 percent of UNH graduates remaining in state after graduation, an average which is consistent with the data provided by UNH. A very conservative assumption is then made that UNH is directly responsible for only one quarter of those skilled workers being in the state (i.e., that even without UNH three quarters of those workers would have been highly educated and working in New Hampshire) to arrive at an estimate of UNH’s contribution to the state of N.H.’s skilled workforce. Using this methodology, we arrive at an estimate of $642 million for our skills-based approach.

To make this estimate, we included information on UNH degrees awarded (in 2011, UNH awarded 130 associate’s, 2,670 bachelor’s, 811 master’s and 60 doctoral degrees) and then compared high school graduates earning $1.59 million (in 2011 dollars) over their lifetime to the income of recipients of higher education degrees. Associate’s degrees earn $2.12 million, bachelor’s $2.79 million, master’s $3.32 million, and PhDs $4.51 million over their lifetime. The benefit of “some college,” which earns $2.00 million lifetime, was omitted (US Census, 2000).

A concern sometimes cited with the above method of estimating the value of a university degree is the so-called self-selection bias—that individuals who choose go to college are inherently smarter and more productive than others, so attributing the net differential in lifetime earnings between degree and non-degree holders to a university as economic value-added exaggerates the economic impact of higher education institutions. In economics, it is difficult to determine how much of the income advantage for college degree earners is due to differences in so-called unobservables (such as ability and motivation, which are highly correlated with higher education enrollment) and how much should be considered the direct benefit of education. We have not applied a multiplier to this valuation and thus essentially attribute only 50 percent of the income difference to the return on education, in order to offset
higher estimates of the “ability bias.” Some studies using “instruments” to correct this self-selection issue have found that the return for the mean population is even greater than the more simply estimated OLS findings. This would imply that the return on education is even greater for those less likely to attend college, and thus initiatives to bolster enrollment and provide higher education to more of the population would increasingly add more value (or a greater return) for the individuals and the state (several studies listed in Works Cited).

**STEPS IN VALUATION OF SKILLED WORKFORCE CONTRIBUTION**

1.) Multiply the income differential by the number of the degrees graduated.
2.) Divide in half to represent 50 percent of graduates remaining in the state.
3.) Multiply by 1/4th to attribute to UNH 1/8th of graduates being in the state that would not be otherwise.
4.) No multiplier is added so only half of the income differential is attributed to the return to higher education.

**VI. CONCLUSION**

Each and every year, UNH contributes directly and indirectly to the economy of New Hampshire through employment and expenditures. The University also plays an essential foundational role in the state’s economic future—providing New Hampshire with highly educated and skilled workers and with new research and development. Even using conservative estimates of its impact, it is clear that UNH is a pillar for the New Hampshire economy and critical to the state’s economic future.
WORKS CITED


