IT’S NOT JUST THE MONEY
The Benefits of College Education to Individuals and to Society

LUMINA ISSUE PAPERS

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You already know…

- It is now widely accepted that education creates “human capital,” which is generally understood to mean the value of the higher earnings associated with education attainment.
- The “college earnings premium” is frequently used to indicate this notion.
Present Value of Lifetime Earnings
(At Age 19 using a 3% Discount Rate)
You probably also know…

- There is no sign of a shrinking college earnings premium, despite relatively more college-educated labor.
- In fact, the college earnings premium has generally risen over the past several decades.
The Curse of the College Earnings Premium

- The large monetary payoff to college education has been demonstrated countless times.

- Two unfortunate side effects:
  - Numerous other important benefits tend to get overlooked.
  - It fuels the perception that college education is primarily a private good and thus there is little need for taxpayer support.

- Our actions are speaking. Public support for higher education:
  - Falling relative to national income (since early 1980s)
  - Falling relative to total government spending (since about 1980)
  - Falling relative to net student/family contributions
“If you can’t measure it, it doesn’t exist”

- The “other” benefits are at least as important as the well-known effect on earnings.
  - They are not just the gravy.
- The report compiles evidence from several different literatures (and shows a few new things too).
- Most of the data are from 2012.
- The benefits from college attainment are emphasized, not the benefits from college education generally.
  - The benefits from research and public service activities are not quantified.
Caveats

- Numerous effects are separately summarized, but they are unlikely to be independent.
  - A simple summation risks double counting.

- The report does not deal with issues of causation.
  - The correlations could be the result of omitted-variables bias (a.k.a. “ability bias” in this context).
  - The literatures have found that instances of causal estimates being noticeably lower than the observed correlations are uncommon.
Some other private benefits of college attainment:

- Greater fringe benefits from employment
- Reduced risk of unemployment
- Better health and reduced risks of disability and mortality
- Increased savvy in making consumption and financial decisions
- Reduced risk of imprisonment
- Better marriages
- Increased life satisfaction
- These benefits are partially passed on to their children
Average Annual Employer Contribution for Health Insurance

- Less than High School Diploma: $836
- High School Diploma: $1,859
- Some College: $2,267
- Associate's Degree: $2,568
- Bachelor's Degree: $3,226
- Advanced Degree: $3,984
Average Annual Employer Contribution for Health Insurance in New Hampshire

- Less than High School Diploma: $1,232
- High School Diploma: $2,708
- Some College: $2,976
- Associate's Degree: $3,073
- Bachelor's Degree: $3,583
- Advanced Degree: $4,217
Retirement Plan through Employment

- Less than High School Diploma: 9.2%
- High School Diploma: 26.6%
- Some College: 33.1%
- Associate's Degree: 38.8%
- Bachelor's Degree: 45.7%
- Advanced Degree: 54.7%
Retirement Plan through Employment in New Hampshire

- Less than High School Diploma: 15.7%
- High School Diploma: 31.7%
- Some College: 36.1%
- Associate's Degree: 44.2%
- Bachelor's Degree: 46.6%
- Advanced Degree: 56.3%
Unemployment Rate

- Less than High School Diploma: 13.6%
- High School Diploma: 9.6%
- Some College: 7.8%
- Associate's Degree: 6.0%
- Bachelor's Degree: 4.4%
- Advanced Degree: 3.1%
Unemployment Rate in New Hampshire

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Unemployment Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than High School Diploma</td>
<td>10.8%</td>
</tr>
<tr>
<td>High School Diploma</td>
<td>5.4%</td>
</tr>
<tr>
<td>Some College</td>
<td>5.5%</td>
</tr>
<tr>
<td>Associate's Degree</td>
<td>4.0%</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>3.1%</td>
</tr>
<tr>
<td>Advanced Degree</td>
<td>2.2%</td>
</tr>
</tbody>
</table>
Self-Reported Health

- Less than High School Diploma: 15.0%
- High School Diploma: 19.5%
- Some College: 23.5%
- Associate's Degree: 25.2%
- Bachelor's Degree: 34.7%
- Advanced Degree: 39.2%
- Excellent: 72.6%
- Excellent or Very Good: 76.1%
Self-Reported Health in New Hampshire

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Excellent</th>
<th>Excellent or Very Good</th>
</tr>
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<tbody>
<tr>
<td>Less than High School Diploma</td>
<td>11.4%</td>
<td>37.6%</td>
</tr>
<tr>
<td>High School Diploma</td>
<td>19.8%</td>
<td>58.4%</td>
</tr>
<tr>
<td>Some College</td>
<td>24.9%</td>
<td>66.0%</td>
</tr>
<tr>
<td>Associate's Degree</td>
<td>27.5%</td>
<td>67.6%</td>
</tr>
<tr>
<td>Bachelor's Degree</td>
<td>38.8%</td>
<td>77.2%</td>
</tr>
<tr>
<td>Advanced Degree</td>
<td>41.3%</td>
<td></td>
</tr>
</tbody>
</table>
Disability in New Hampshire

- Less than High School Diploma: 25.1% Any Disability, 13.6% Ambulatory Difficulty, 6.6% Independent Living Difficulty
- High School Diploma: 14.7% Any Disability, 8.5% Ambulatory Difficulty, 5.1% Independent Living Difficulty
- Some College: 8.6% Any Disability, 5.8% Ambulatory Difficulty, 2.3% Independent Living Difficulty
- Associate's Degree: 5.5% Any Disability, 1.8% Ambulatory Difficulty, 1.6% Independent Living Difficulty
- Bachelor's Degree: 4.2% Any Disability, 1.8% Ambulatory Difficulty, 1.3% Independent Living Difficulty
- Advanced Degree: 4.2% Any Disability, 1.8% Ambulatory Difficulty, 1.3% Independent Living Difficulty

Legend:
- Blue: Any Disability
- Red: Ambulatory Difficulty
- Green: Independent Living Difficulty
Life Expectancy

Hummer and Lariscy (2011) found that the mortality rate is 25% lower for bachelor’s degrees compared to high school.

They also show that college attainment is inversely related to all broad categories of mortality, but particularly for the most preventable causes.

The strongest negative effects on mortality are for diabetes and lung cancer, followed by respiratory disease and external causes (homicide, suicide, and accidents).

Meara et al (2008) estimated life expectancy at age 25 (in 2000). Life expectancy for those with at least some college was 81.6, compared to 74.6 for those who never attended college.
More on Life Expectancy

- Mokdad et al (2004) indicate that “modifiable behavioral risk factors are leading causes of mortality” in the U.S.
  - Smoking is the leading cause of death, followed closely by poor diet and physical inactivity, with alcohol a distant third.

- Cutler and Lleras-Muney (2010) found that college education has:
  - a positive relationship with exercise
  - a positive relationship with eating fruits and vegetables
  - negative correlations with both obesity and heavy drinking
  - a positive correlation with seat belt use
  - positive correlations with various types of preventative medical care
External Benefits

- College education also creates substantial benefits to the rest of society.
- Some external benefits of college attainment:
  - Probably the most important is knowledge creation and technological change fostered by college education, but this is not quantified.
  - “Productivity externalities”
  - “Fiscal externalities”
  - “Philanthropic externalities”
  - “Civic externalities” (a.k.a. “social capital”)
Productivity Spillovers

- Education not only increases the incomes of those being educated but may also increase the incomes of others.
- Regional data on income and college attainment suggest that productivity spillovers are important.
  - The greater regional income associated with greater regional college attainment is substantially more than can be explained by the greater incomes of graduates.
- Estimating the magnitude of productivity spillovers is challenging because correlation is not causation. But the best evidence indicates that it is comparable in size to the college earnings premium.
Fiscal Externalities

- Greater earnings associated with higher education create greater tax revenues, which benefit others by financing public services.
- The lower incidences of poverty, unemployment, disability, etc reduce spending on public assistance and social insurance, which benefit others by freeing government resources for other programs and/or reducing taxes.
Present Value of Lifetime Taxes
(At Age 19 using a 3% Discount Rate)

Federal Income Taxes
State Income Taxes
Property Taxes
Sales Taxes

Less than High School Diploma
High School
Some College
Associate's Degree
Bachelor's Degree
Advanced Degree

$63,429
$136,564
$186,280
$201,341
$328,511
$443,890

$24,304
$43,108
$22,709
$24,564
$175,234
$258,045

$31,760
$43,868
$75,206
$80,629
$6,065
$62,082

$6,065
$15,380
$22,709
$24,564
$31,760
$24,304

$50,000
$100,000
$150,000
$200,000
$250,000
$300,000
$350,000
$400,000
$450,000

Federal Income Taxes
State Income Taxes
Property Taxes
Sales Taxes
Present Value of Lifetime Public Assistance
(At Age 19 using a 3% Discount Rate)

Less than High School Diploma
- Medicaid: $10,000
- SNAP: $20,000
- School Lunches: $30,000
- Cash Assistance: $40,000
- Energy Assistance: $50,000
- Housing Subsidy: $60,000
- Total: $155,454

High School
- Medicaid: $33,430
- SNAP: $15,430
- School Lunches: $10,059
- Cash Assistance: $6,626
- Energy Assistance: $2,116
- Housing Subsidy: $981
- Total: $54,155

Some College
- Medicaid: $9,394
- SNAP: $14,480
- School Lunches: $31,803
- Cash Assistance: $38,617
- Energy Assistance: $54,155
- Housing Subsidy: $95,454
- Total: $89,430

Associate's Degree
- Medicaid: $11,097
- SNAP: $7,638
- School Lunches: $24,772
- Cash Assistance: $22,053
- Energy Assistance: $6,626
- Housing Subsidy: $2,116
- Total: $51,090

Bachelor's Degree
- Medicaid: $14,480
- SNAP: $11,097
- School Lunches: $2,116
- Cash Assistance: $981
- Energy Assistance: $7,638
- Housing Subsidy: $981
- Total: $33,430

Advanced Degree
- Medicaid: $10,000
- SNAP: $20,000
- School Lunches: $30,000
- Cash Assistance: $40,000
- Energy Assistance: $50,000
- Housing Subsidy: $60,000
- Total: $95,454
Present Value of Lifetime Social Insurance
(At Age 19 using a 3% Discount Rate)
Present Value of the Lifetime Public Costs of Incarceration and Uninsurance (At Age 19 using a 3% Discount Rate)
Present Value of Total Lifetime Fiscal Effects
(At Age 19 using a 3% Discount Rate)
Trostel (2010) estimated the fiscal benefits relative to the cost (using 2005 data):

- From taxpayers’ point of view each potential college degree is, conservatively, worth $481,000 ($556,000 in various fiscal benefits minus the $75,000 cost).
- Net government spending per college degree was negative!
  - The reduction in spending after college is greater than public spending on college education.
- The real internal rate of return on taxpayer investment in college students was, conservatively, 10.3%.
- The real internal rate of return to state and local governments was 3.1%, on average.

Fiscal Bottom Line
Figure 4
Cumulative Fiscal Effect per Four-Year Equivalent Degree
Appendix Table 17
Estimated Lifetime Fiscal Effects per Four-Year-Equivalent Degree in New Hampshire

<table>
<thead>
<tr>
<th></th>
<th>Costs</th>
<th>Present Value</th>
<th>Revenues</th>
<th>Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sum</td>
<td></td>
<td>Sum</td>
<td></td>
</tr>
<tr>
<td>Cost per Public Degree</td>
<td>$28,410</td>
<td>$27,192</td>
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<tr>
<td>Income Taxes</td>
<td></td>
<td></td>
<td>$2,794</td>
<td>$683</td>
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<tr>
<td>Property Taxes</td>
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<td>$40,750</td>
<td>$13,649</td>
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<td>Sales Taxes</td>
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<td>$5,712</td>
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<tr>
<td>Welfare</td>
<td>-$2,314</td>
<td>-$1,436</td>
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<tr>
<td>Medicaid</td>
<td>-$7,230</td>
<td>-$4,445</td>
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<tr>
<td>Unemployment Compensation</td>
<td>-$1,558</td>
<td>-$949</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worker's Compensation</td>
<td>-$549</td>
<td>-$734</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrections*</td>
<td>-$22,438</td>
<td>-$10,225</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public Healthcare*</td>
<td>-$1,253</td>
<td>-$783</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-college Totals</td>
<td>-$35,342</td>
<td>-$18,572</td>
<td>$49,256</td>
<td>$16,148</td>
</tr>
</tbody>
</table>

Internal Rate of Return (public degrees only) = 4.0%**

Post-college fiscal effects are reduced by 6.6 percent to account for net emigration of graduates. Present values are calculated using a 3 percent real interest rate. *Estimates for Corrections and Public Healthcare are based on national averages.
Value of Volunteered Labor

- Less than High School Diploma: $163
- High School Diploma: $410
- Some College: $759
- Associate's Degree: $840
- Bachelor's Degree: $1,665
- Advanced Degree: $2,682
Earnings Sacrificed for Not-for-Profit Employment

- Less than High School Diploma: $3,434, $66
- High School Diploma: $5,757, $188
- Some College: $7,076, $332
- Associate's Degree: $1,801, $137
- Bachelor's Degree: $19,974, $1,642
- Advanced Degree: $31,805, $4,052

Legend:
- Blue: Earnings Differential
- Red: Average Contribution
Annual Charitable Contributions

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Charities</th>
<th>Religious Organizations</th>
<th>Educational Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than High School Diploma</td>
<td>$167</td>
<td>$1</td>
<td>$4</td>
</tr>
<tr>
<td>High School Diploma</td>
<td>$2</td>
<td>$334</td>
<td>$49</td>
</tr>
<tr>
<td>Some College</td>
<td>$616</td>
<td>$533</td>
<td>$79</td>
</tr>
<tr>
<td>Associate's Degree</td>
<td>$701</td>
<td>$599</td>
<td>$94</td>
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<tr>
<td>Bachelor's Degree</td>
<td>$1,304</td>
<td>$779</td>
<td>$279</td>
</tr>
<tr>
<td>Advanced Degree</td>
<td>$2,355</td>
<td>$682</td>
<td>$1,512</td>
</tr>
</tbody>
</table>

Charities: 
Religious Organizations: 
Educational Institutions:
Participation in Organizations

- Less than High School Diploma: Year 1, 6.6%; Year 2, 11%; Year 3, 33%
- High School Diploma: Year 1, 10.1%; Year 2, 17.2%; Year 3, 18.7%
- Some College: Year 1, 26.3%; Year 2, 34.1%; Year 3, 31.7%
- Associate’s Degree: Year 1, 36.3%; Year 2, 48.5%; Year 3, 40.2%
- Bachelor’s Degree: Year 1, 58.9%; Year 2, 56.2%; Year 3, 48.3%
- Advanced Degree: Year 1, 60.4%; Year 2, 62.5%; Year 3, 65.8%

Legend:
- Blue: School or Community Assoc.
- Red: Service or Civic Org.
- Green: Religious Institution
- Purple: Other Org.
- Blue: Any
Community Involvement

- Less than High School Diploma: Worked on a Community Project 3.6%, Attended a Community Meeting 2.7%
- High School Diploma: Worked on a Community Project 6.0%, Attended a Community Meeting 5.6%
- Some College: Worked on a Community Project 8.8%, Attended a Community Meeting 9.1%
- Associate's Degree: Worked on a Community Project 9.9%, Attended a Community Meeting 10.8%
- Bachelor's Degree: Worked on a Community Project 12.9%, Attended a Community Meeting 14.7%
- Advanced Degree: Worked on a Community Project 17.3%, Attended a Community Meeting 20.2%
Interactions with Neighbors

- Less than High School Diploma:
  - Speak with Neighbors: 61.8%
  - Exchange Favors with Neighbors: 41.2%
  - Trust Neighbors: 37.6%

- High School Diploma:
  - Speak with Neighbors: 65.8%
  - Exchange Favors with Neighbors: 44.2%
  - Trust Neighbors: 51.6%

- Some College:
  - Speak with Neighbors: 68.9%
  - Exchange Favors with Neighbors: 45.9%
  - Trust Neighbors: 54.5%

- Associate's Degree:
  - Speak with Neighbors: 70.1%
  - Exchange Favors with Neighbors: 46.8%
  - Trust Neighbors: 58.8%

- Bachelor's Degree:
  - Speak with Neighbors: 71.9%
  - Exchange Favors with Neighbors: 47.8%
  - Trust Neighbors: 64.4%

- Advanced Degree:
  - Speak with Neighbors: 72.5%
  - Exchange Favors with Neighbors: 49.2%
  - Trust Neighbors: 68.8%
Crime

- Crime is essentially negative citizenship.
- Lochner and Moretti (2004) estimated the reduction in the dollar value of the harm to crime victims.
- Extrapolating their estimates:
  - The PV of the lifetime bachelor’s degree premium in the victim costs of crime is 21% as large as the lifetime effect on earnings, and 45% as large as the bachelor’s degree fiscal externality.
Summary

► It is not overstatement to call the typically emphasized effect on earnings just the tip of the college-payoff iceberg.
  ► There are more benefits to college education beneath the surface than above it.
► These are just the (imperfectly) measurable benefits of college education.
  ► There are numerous important but difficult-to-quantify effects such as the positive influences on innovation, culture, diversity, and tolerance.
“A Mind is a Terrible Thing to Waste”

- In addition to its emotional appeal, the slogan is rationally true even more than UNCF realized.
- Compromising college access makes us all worse off.
Downloads

- Report:

- Excel charts:
  - http://network.bepress.com/explore/education/education-economics/?facet=subject_facet%3A%22Phil+trostel%22