Does College Still Pay Off? New Estimates of the Public and Private Returns to College

William R. Doyle

Vanderbilt University
Peabody College

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I gratefully acknowledge the work of Ben Skinner, who collaborated with me on the work reported here.
Yearly Income by Attainment

Basic Human Capital Model

<table>
<thead>
<tr>
<th>Age</th>
<th>Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td>23</td>
</tr>
<tr>
<td>60</td>
<td>43</td>
</tr>
<tr>
<td>80</td>
<td>63</td>
</tr>
</tbody>
</table>

F

No College (E₀)
College (E₁)
Choose $s$ to max:

$$
\sum_{t=s+1}^{T} \frac{E_{si}}{(1 + r)^t} - \sum_{t=1}^{S} \frac{F_{si}}{(1 + r)^t} - \sum_{t=1}^{T} \frac{E_{0i}}{(1 + r)^t}
$$
Cost-Benefit Decision in Human Capital Model

\[ \sum_{t=s+1}^{T} \frac{E_{si} - E_{oi}}{(1 + r)^t} - \sum_{t=1}^{S} \frac{F_{si} - E_{0i}}{(1 + r)^t} > 0 \]
Inverse log distance

\[ ILD_i = \sum_{k=1}^{K} \frac{1}{\log(d_{ik})} \]

Source: IPEDS, 1997-2012
Results for Yearly Income

- IV: 4y year in county
- IV: Distance-weighted 2 Yr enrollment
- IV: Distance-weighted tuition
- IV: ILD to all institutions
- IV: ILD to in-state public 2 years
- IV: Public 2 year in county

2007

2008

2009

2010

Log Yearly Income
Results for Yearly Income, 2010 Only

IV: Distance-weighted 2 Yr enrollment
IV: ILD to in-state public 2 years
IV: Distance-weighted tuition
IV: ILD to all institutions
IV: 4y year in county
IV: Public 2 year in county
OLS

Log Yearly Income
Results for Yearly Income, 2010 Only, by Gender

Log Yearly Income

-0.1 0.0 0.1 0.2 0.3 0.4

Both
Females
Males

IV: Distance-weighted 2 Yr enrollment
IV: ILD to in-state public 2 years
IV: Distance-weighted tuition
IV: ILD to all institutions
IV: 4y year in county
IV: Public 2 year in county
OLS

−0.1 0.0 0.1 0.2 0.3 0.4
Log Yearly Income
A (Very Simple) Model of Civic Participation and Voting

\[ Civic = \begin{cases} 
1 & \text{if } D > C \\
0 & \text{if } D \leq C 
\end{cases} \quad (1) \]

\[ D = U(D_I, D_E) \quad (2) \]

For Voting:

\[ pB + D > C \quad (3) \]
Let’s talk about [the recent election/the election last November]. In talking to people about elections, we often find that a lot of people were not able to vote because they weren’t registered, they were sick, or they just didn’t have time. Which of the following statements best describes you:

One, I did not vote (in the election [this/last] November); Two, I thought about voting this time, but didn’t; Three, I usually vote, but didn’t this time; or Four, I am sure I voted?
Proportion Voting by Attainment
Results for Voting

Probability of voting

- IV: 4y year in county
- IV: Distance-weighted 2 Yr enrollment
- IV: Distance-weighted tuition
- IV: ILD to all institutions
- IV: ILD to in-state public 2 years
- IV: Public 2 year in county

OLS

2004

2006

2008

2010

0.0 0.1 0.2
Results for Voting, 2010 Only

OLS

Probability of voting

IV: 4-year in county
IV: Distance-weighted 2 Yr enrollment
IV: Distance-weighted tuition
IV: ILD to all institutions
IV: ILD to in-state public 2 years
IV: Public 2 year in county
IV: 4y year in county
IV: Distance-weighted tuition
Results for Voting, 2010 Only

Probability of voting

0.00 0.05 0.10 0.15 0.20

IV: ILD to all institutions
IV: Distance-weighted 2 Yr enrollment
IV: ILD to in-state public 2 years
IV: Public 2 year in county
IV: 4y year in county
IV: Distance-weighted tuition
OLS

All
Females
Males
NLSY Volunteering Question

In the last 12 months, how often did you do any unpaid volunteer work, including activities aimed at changing social conditions, such as work with educational groups, environmental groups, landlord/tenant groups, or other consumer groups, women’s groups or minority groups?

1 Never
2 1 - 4 times
3 5 - 11 times
4 12 times or more

Which of the following is the main reason you do volunteer work? 1 Court ordered 2 Required for a school or religious group 3 Strictly voluntary
Frequency of Volunteering by Attainment

Graph showing the frequency of volunteering by attainment level for different years and genders. The x-axis represents different attainment levels (PreHS, HS, AA, BA, MA, PhDProf) and the y-axis represents the volunteering scale (0=Never, 3=Often). The bars indicate the proportion of individuals within each attainment level for each year and gender.
Results for Volunteering

Volunteering Scale: 0=Never, 3=12 times or more, SD=.85,.79,.86
Results for Volunteering

Volunteering Scale: 0=Never, 3=12 times or more, SD=.86
Results for Volunteering

Volunteering Scale: 0=Never, 3=12 times or more, SD=.86
NLSY Question: Donations

In the last 12 months, have you donated money to a political, environmental, or community cause?

What is the total amount of money that you have donated to these causes in the last 12 months?

1 $1 - $100
2 $101 - $500
3 $501 - $1,000
4 More than $1,000
Amount Donated to Causes by Postsecondary Attainment

<table>
<thead>
<tr>
<th>Year</th>
<th>Gender</th>
<th>PreHS</th>
<th>HS</th>
<th>AA</th>
<th>BA</th>
<th>MA</th>
<th>PhDProf</th>
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</thead>
<tbody>
<tr>
<td>2005</td>
<td>Female</td>
<td>0.0</td>
<td>0.5</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>Male</td>
<td>0.0</td>
<td>0.5</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>Female</td>
<td>0.0</td>
<td>0.5</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>Male</td>
<td>0.0</td>
<td>0.5</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>Female</td>
<td>0.0</td>
<td>0.5</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td>Male</td>
<td>0.0</td>
<td>0.5</td>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Results for Donations

Donations Scale: 0=None, 4=More than 1k, SD=.66,.69,.75
Results for Donations

Donations Scale: 0=None, 4=More than 1k, SD=.75
Results for Donations

Donations Scale: 0=None, 4=More than 1k, SD=.75
Thank You!

Will Doyle
w.doyle@vanderbilt.edu

Benjamin Skinner
b.skinner@vanderbilt.edu

Interactive Maps
http://btskinner.shinyapps.io/colcost

VANDERBILT Peabody College
First Stage Results, Earnings

<table>
<thead>
<tr>
<th>Panel 3</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inverse Log Distance to In-State Pub. 2yr</td>
<td>0.1004</td>
<td>0.1247</td>
<td>0.1031</td>
<td>0.12</td>
</tr>
<tr>
<td></td>
<td>(0.0167)</td>
<td>(0.0182)</td>
<td>(0.0191)</td>
<td>(0.0205)</td>
</tr>
<tr>
<td>... \times Mother's education</td>
<td>-0.0073</td>
<td>-0.0086</td>
<td>-0.0073</td>
<td>-0.0081</td>
</tr>
<tr>
<td></td>
<td>(0.0013)</td>
<td>(0.0013)</td>
<td>(0.0014)</td>
<td>(0.0015)</td>
</tr>
<tr>
<td>Endogeneity: $F$ p-value</td>
<td>0.7242</td>
<td>0.0094</td>
<td>0.552</td>
<td>0.5043</td>
</tr>
<tr>
<td>Overidentification: $\chi^2$ p-value</td>
<td>0.2538</td>
<td>0.3495</td>
<td>0.2673</td>
<td>0.7379</td>
</tr>
<tr>
<td>First Stage $F$</td>
<td>53.0052</td>
<td>56.4189</td>
<td>43.0095</td>
<td>40.2527</td>
</tr>
<tr>
<td>First stage Min. Eigenvalue</td>
<td>58.5407</td>
<td>56.3201</td>
<td>47.8483</td>
<td>43.0297</td>
</tr>
<tr>
<td>$N$</td>
<td>3836</td>
<td>3983</td>
<td>3702</td>
<td>3732</td>
</tr>
</tbody>
</table>
## First Stage Results, Voting

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ILD: instate 2yr</strong></td>
<td>0.0863</td>
<td>0.1231</td>
<td>0.1233</td>
<td>0.1197</td>
</tr>
<tr>
<td>(0.0122)</td>
<td>(0.0169)</td>
<td>(0.0215)</td>
<td>(0.0221)</td>
<td></td>
</tr>
<tr>
<td><strong>ILD: instate 2yr × Mother education</strong></td>
<td>-0.0055</td>
<td>-0.0082</td>
<td>-0.0078</td>
<td>-0.0077</td>
</tr>
<tr>
<td>(0.0009)</td>
<td>(0.0012)</td>
<td>(0.0016)</td>
<td>(0.0016)</td>
<td></td>
</tr>
<tr>
<td><strong>Endogeneity: F p-value</strong></td>
<td>0.0079</td>
<td>0.0003</td>
<td>0.0005</td>
<td>0.0797</td>
</tr>
<tr>
<td><strong>overidentification: ( \chi^2 ) p-value</strong></td>
<td>0.0006</td>
<td>0</td>
<td>0.2197</td>
<td>0.2767</td>
</tr>
<tr>
<td><strong>First stage F</strong></td>
<td>44.1436</td>
<td>48.0073</td>
<td>43.4359</td>
<td>37.2016</td>
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<tr>
<td><strong>First stage Min. Eigenvalue</strong></td>
<td>47.4616</td>
<td>47.2205</td>
<td>45.098</td>
<td>38.5147</td>
</tr>
<tr>
<td><strong>N</strong></td>
<td>4614</td>
<td>3783</td>
<td>3048</td>
<td>3604</td>
</tr>
</tbody>
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First Stage Results, Volunteer

<table>
<thead>
<tr>
<th></th>
<th>Vol</th>
<th>Con</th>
<th>RN</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILD: instate 2yr</td>
<td>0.1007</td>
<td>0.1052</td>
<td>0.1133</td>
</tr>
<tr>
<td></td>
<td>(0.0143)</td>
<td>(0.0161)</td>
<td>(0.0202)</td>
</tr>
<tr>
<td>ILD: instate 2yr × Mother education</td>
<td>-0.0064</td>
<td>-0.0068</td>
<td>-0.0071</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.0012)</td>
<td>(0.0015)</td>
</tr>
<tr>
<td>Endogeneity: $F$ p-value</td>
<td>0.0917</td>
<td>0.0123</td>
<td>0.0255</td>
</tr>
<tr>
<td>overidentification: $\chi^2$ p-value</td>
<td>0.0761</td>
<td>0.8532</td>
<td>0.6364</td>
</tr>
<tr>
<td>First stage $F$</td>
<td>53.3421</td>
<td>58.3708</td>
<td>47.1434</td>
</tr>
<tr>
<td>First stage Min. Eigenvalue</td>
<td>58.5746</td>
<td>62.1393</td>
<td>49.4507</td>
</tr>
<tr>
<td>$N$</td>
<td>4442</td>
<td>4603</td>
<td>4549</td>
</tr>
</tbody>
</table>
First Stage Results, Donations

<table>
<thead>
<tr>
<th>Description</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>ILD: instate 2yr</td>
<td>0.0946</td>
<td>0.101</td>
<td>0.1266</td>
</tr>
<tr>
<td></td>
<td>(0.0144)</td>
<td>(0.0162)</td>
<td>(0.0196)</td>
</tr>
<tr>
<td>ILD: instate 2yr × Mother education</td>
<td>-0.006</td>
<td>-0.0065</td>
<td>-0.0082</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td>(0.0012)</td>
<td>(0.0014)</td>
</tr>
<tr>
<td>Endogeneity: $F$ p-value</td>
<td>0.897</td>
<td>0.2667</td>
<td>0.0004</td>
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<tr>
<td>overidentification: $\chi^2$ p-value</td>
<td>0.6926</td>
<td>0.5015</td>
<td>0.4835</td>
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<tr>
<td>First stage $F$</td>
<td>52.6244</td>
<td>56.7276</td>
<td>48.5538</td>
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<td>First stage Min. Eigenvalue</td>
<td>58.0406</td>
<td>60.8647</td>
<td>51.2998</td>
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<td>$N$</td>
<td>4439</td>
<td>4584</td>
<td>4581</td>
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