Is College Worth It? For Whom? How Do We Know?

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Bachelor’s Degrees Are Worth It

<table>
<thead>
<tr>
<th>Study</th>
<th>PV Earnings over HS Graduate (*Net of college costs)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agan (2013)*</td>
<td>$243,700</td>
<td>NLSY79</td>
</tr>
<tr>
<td>Tamborini et al. (2015)</td>
<td>$266,100</td>
<td>SIPP, IRS</td>
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<tr>
<td>Kim et al. (2015)</td>
<td>$321,100</td>
<td>SIPP, IRS</td>
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<tr>
<td>Mitchell (2014)</td>
<td>$354,300</td>
<td>SIPP 2008</td>
</tr>
<tr>
<td>Barrow &amp; Malamud (2015)*</td>
<td>$434,900</td>
<td>CPS 2013</td>
</tr>
<tr>
<td>Avery and Turner (2010)*</td>
<td>$462,000</td>
<td>CPS2009</td>
</tr>
<tr>
<td>Webber (2014)*</td>
<td>$492,400</td>
<td>NLSY79, ACS</td>
</tr>
<tr>
<td>Herschbein &amp; Kearney (2014)</td>
<td>$610,000</td>
<td>ACS 2009-12</td>
</tr>
<tr>
<td>Barrow &amp; Rouse (2005)*</td>
<td>$629,400</td>
<td>CPS 2004</td>
</tr>
<tr>
<td><strong>Average (N=9)</strong></td>
<td><strong>$423,800</strong></td>
<td></td>
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</table>
CAPSEE Agenda

① What are the employment/earnings benefits of educational pathways and awards?
   • For sub-BA awards, certificates, non-completers, by field of study, at for-profits, after remediation

② What institutional programs and public policies improve completion rates and employment/earnings?
   • Aid, Work Study, SAP incentives, One-Stop Centers
CAPSEE Data

- Transcripts across state-wide community college and four-year college systems for FTIC cohorts in 2000s
- Transfer data from National Student Clearinghouse
- Earnings data from UI systems pre- and post-college

- Many states: AR, CA, MI, NC, OH, VA, WA, NY
Returns to Community College

By Award

If Transfer

On Entry Status

Per Pathway
## Returns to Community College

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<td><strong>By Award</strong></td>
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<td>- HS quality, college-ready, age</td>
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<td><strong>Per Pathway</strong></td>
<td>- College, subject, sequence, aid, while working</td>
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Returns to Community College

By Award
- Most attention
  /diploma, different non-

If Transfer
- For-profit college, four-year college, with award

On Entry Status
- HS quality, college-ready, age

Per Pathway
- Least attention
  solid, while working

Data quality, methodology
Data

• Missing data:
  • Migration out of state; uncovered by UI; reverse transfers

• Window for follow-up:
  • Too short if earnings trajectories are flat

• Need individual-level data
College-level Earnings: NC Community Colleges

- Mean Earnings IRS vs. CL Mean Earnings UI

- Data points showing a trend in earnings distribution.
Figure 3. Earnings of College Enrollees Ten Years Later [Aggregated by College]

Split by Gender: Female Students

Different characteristics:
- More prepared (HSGPA +0.15)
- Older and richer (Age > 24 +8%p; EFC +$1950)

Choose differently:
- More intent on AA (+11%p)
- Study health/nursing (+++)

Do better:
- CGPA in first semester (+0.24)
- More credits (+6) and more awards (+5%p)
Quarterly Earnings by Gender Degree Completers (AR, KY, MI, OH)

College entry 18 Quarters later
Methodology

Fixed Effects or OLS estimations?

- OLS:
  - Sensitive to omitted variable bias
  - But easy to interpret and robust

- Fixed Effects:
  - Control for unobservable, unchanging individual heterogeneity
  - But not easy to interpret although robust

Results are pretty similar, consistent and vary together
By Award

Earnings gains for:

(1) AA degrees
(2) Certificates
(3) Credits
(4) Different no awards
Quarterly Earnings Gains:
AA over No Award 8 Years Post-FTIC (Fixed Effects)

- AR
- WA
- VA
- Mean (Male) $1,040
- NC
- MI
- KY
- AR
- WA
- VA
- Mean (Female) $1,800
- NC
- MI
- KY
Quarterly Earnings Gains:
AA over No Award 8 Years Post-FTIC (Fixed Effects)

PV gain for AA
(30 years d=3%)
Male $75,000
Female $135,000
Quarterly Earnings Gains: Certificate over No Award 8 Years Post-FTIC (Fixed Effects)

Gains are: modest, temporary, non-robust (except in health).
But certificates vary substantially in credits.
Quarterly Earnings Gain over Zero Credits (8 Years After FTIC in VA/NC)

Average Credits Earned

- $400
- $1,200
- $2,000
- $2,800

Credits Earned

1-10 11-20 21-30 31-40 41-50 51-60 61+
Different No Awards

- Returns to awards *ex ante* reflect:
  - $R_C$: Returns to completion of award (*ex post*)
  - $P(C)$: Probability of completion
  - $R_{NC}$: Returns to non-completion

- *Ex ante* returns differ from *ex post* returns because of differences in completion probabilities and returns to non-completion
① What are the returns to different types of AA degrees?

② Are returns to certificates actually subject effects?

③ What are the returns to awards that interact/stack?
By Transfer

(1) To for-profit colleges

(2) Upward to four-year colleges
Transfer (1): To For-Profit Colleges

• Evidence (but weak) of earnings penalty from attending FP
• No clear gains in earnings from even attending FP after community college
• Big tuition / loan balance penalty to FP
• Resume studies: “the bachelor's degrees granted by [FPs] are associated with the worst callback outcomes for jobs requiring a bachelor's degree”
Figure 3. Earnings of College Enrollees Ten Years Later
[Aggregated by College]

Students who transfer to a four-year public college have:

• Higher earnings than students who do not transfer (Reynolds, 2012)
• Lower earnings than those who started at a four-year college (Andrews et al., 2013)

Earnings gains are sensitive to pathways:

• Which type of college a student transfers to
• Whether student completes an award before transfer
What are the adverse features of for-profit colleges?

What are the returns to reverse transfer?

What is the value of transfer with AA degree versus without?
By Entry Status

Returns by:

1. High school quality
2. Preparedness
3. Age
Entry Status: HS Quality

Male  Female  Average

Quarterly Earnings Gaps of AR CC Students from 147 High Schools
Quarterly Earnings Gaps of AR CC Students from 147 High Schools

Earnings gaps are not statistically significantly different for schools within box.
Entry Status: Preparedness

- More prepared students earn more
- Controls for preparedness do not much influence returns to college
- Estimation split by preparedness shows similar returns
Earnings Gains: AA over No Award, Ill-Prepared (Light Bars) and Well-Prepared Students

- Male
  - Readiness
  - HS GPA
  - HS award

- Female
  - Readiness
  - HS GPA
  - HS award
Entry Status: Age

Earnings Growth: AA Completers by Age on Entry

- Ages 18-20
- Ages 21+

Entry, 12 Qtrs, 24 Qtrs, 36 Qtrs
Entry Status: Questions

① Is this a puzzle?
   • More prepared students have higher earnings
   • All students gain about the same in earnings

② If entry status does not influence returns per year of attainment, what selection decisions are students making?
Per Pathway

Pathways:

(1) Subject / field
(2) College choice
(3) Aid allocation
(4) Working while enrolled
(5) Course sequences
Per Pathway: Subject/Field

- Heterogeneous returns per:
  - Subject / field (vocational/CTE)
  - Subject-award combination

- Health awards:
  - Returns are big, persistent, and robust to modeling / sub-sampling
  - Approx. double returns to other AAs
Per Pathway: Choosing a College

- College attended does not seem to matter much

- US DOE data:
  - Community college completion rate
  - College-level average earnings 10 years later
  - Correlation between these variables: approximately zero
Figure 5-9a: Relationship Between Earnings and Completion Rate

Note: Chart uses 10 year mean earnings and the 150% completion rate from IPEDS. Source: Department of Education, College Scorecard Data
Per Pathway: Aid

Aid effects are extremely complicated:

• Type of aid
• Take-up of aid
• Incentives
• Targeting accuracy
• Changes in aid systems
Per Pathway: Working While Enrolled

- FE models estimate that penalty to being in college is $200-$300 per quarter
- Very low earnings penalty for studying
- Preliminary evidence shows that work-study is an effective form of student aid because it offers better jobs
Per Pathway: Course Sequences

- Hard to find any evidence for specific routes through college
- Progression does not seem to enhance earnings
- Math courses might but many students take very little math
Per Pathway: Questions

① Why do health programs not expand?
   • College-level barriers to enrollment in high-return fields?
   • Restrictive practices in labor market?
   • Selectivity into low returns areas?

② Which college characteristics matter: Class size? Faculty quality?
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What is the market failure?
Evaluating Transcript Research

Why isn’t it more useful?

① Time/resources for analysis
② Obvious or outdated or useless conclusions
③ Barriers to change

What can we do about it?