Improving Student Workforce Outcomes and Colleges’ Return on Investments (ROIs)

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Topics covered

• The database used to examine ROIs
• Sources of variation in the returns to CC training:
  – HS-GPA
  – CC field-of-study
  – Credits and credentials
• Policy implications: Helping students improve their choices
• Variation in returns across CCs with and without taking student characteristics into account
• Policy implications: Inducing CCs to improve student outcomes
• Limitations in what we know and ways to remove them
Data used to analyze labor market outcomes of CC students

- Data cover all 35,000 students graduating Florida public high schools in the Class of 2000 who:
  - Attended a Florida public community college from 2000 – 06.
  - Had some earnings from a Florida employer covered by UI wage records after leaving college.

- Members of the Class of 2000 attending CCs were excluded if they only:
  - Took CC classes while attending FL public 4-year colleges.
  - Attended CCs as dual enrollees prior to leaving HS.
Database Contents

• The database spans 1995 through 2007.
• For each student the database includes:
  – HS transcripts.
  – Demographics including receipt of Free and Reduced Price Lunches (FRLs) in 8th grade (as a measure of low-income).
  – College transcripts.
  – College Credentials.
  – Quarterly UI wage-record data.
Key created variables

- **HS-GPA.**
- **College concentration (field of study).**
  - based on most credits among 17 fields with at least 12 credits.
- **CTE—Career & Technical Education (Applied) Concentrations (11).**
- **Arts and Sciences Concentrations (6).**
High, Moderate, and Low Earning Return Concentrations for each of four outcome groups

- **Outcome A: 2 & 4 year degrees:**
  - CTE—high; English—high.
  - Other Arts & Sciences—low (about 25% of group).
- **Outcome B: 2-year degree:**
  - Healthcare—high.
  - Business, Protective Services, Trade & Industry – moderate.
  - All else—low (about 60% of group).
- **Outcome C: Certificate requiring at least a year’s worth of credits:**
  - Healthcare, Protective Services, Trade & Industry – high.
  - All else – low (about 5% of group).
- **Outcome D: 25+ Credits, no-credential:**
  - Business, Protective Services – high.
  - Other CTE (except Personal Services) – moderate.
  - Other Arts & Sciences (except Fine & Performing Arts) – moderate.
  - Personal Services, Fine & Performing Arts – Low (about 8 percent of group).
The Top-3 and Bottom-3 Outcomes Based on Median Annual Earnings

- Earnings are the highest annual earnings in the **3 years** after leaving school (or in the period that can be observed after leaving school).
- Earnings differences **INCREASE** over time between the Top-3 and Bottom-3 groups and the students with 2 & 4 year degrees and 2-year degrees in high return concentrations.

<table>
<thead>
<tr>
<th>TOP-3</th>
<th>Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2Yr dgr - mod/hi conc.</td>
<td>$36,100</td>
</tr>
<tr>
<td>2Yr &amp; 4Yr degree</td>
<td>$35,400</td>
</tr>
<tr>
<td>Certificate</td>
<td>$34,000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BOTTOM-3</th>
<th>Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>25+ credits</td>
<td>$25,300</td>
</tr>
<tr>
<td>2Yr dgr - low conc.</td>
<td>$24,100</td>
</tr>
<tr>
<td>1-24 credits</td>
<td>$22,100</td>
</tr>
</tbody>
</table>
Transform students with the Bottom-3 outcomes to students with the Top-3 outcomes

How difficult would it be to make this transformation?

It might be easy if attaining the Top-3 outcomes did NOT require:

- Completing more courses.
- Completing more academically demanding courses.
- Having specialized non-academic skills.

and if the reason students made poor choices was LACK of sound information about:

- The options available at CCs.
- The student-specific factors associated with different outcomes.
- The effect of their choices on post-college earnings.
Is there a need to complete more academically challenging courses to have a Top-3 outcome?

Percentage of Students with A or B HS-GPAs
(as a measure of academic challenge)

- 2Yr & 4Yr degree: 76.0%
- 2Yr dgr - mod/hi conc.: 66.1%
- 2Yr dgr - low conc.: 61.4%
- Certificate: 34.6%
- 25+ credits: 35.6%
- 1-24 credits: 29.8%
Conclusions about academic challenge
(based on differences in HS-GPA)

• Most, but not all, students with 2-year degrees with low-return concentrations:
  – Could have gotten 2-year degrees with higher return concentrations because the HS GPAs of students in the two terminal 2-year degree groups are about the same.
  – But could not have gotten 4-years degree since the HS-GPAs of students with 2 & 4 year degrees are higher than for the low-return 2-year degree students.

• Most students with no credentials could have obtained certificates because the Bottom-3 groups have about the same HS GPAs.
Is there a need to complete more courses to have a Top-3 outcome?

<table>
<thead>
<tr>
<th>Degree Type</th>
<th>CC Credits</th>
<th>4YC Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2Yr &amp; 4Yr degree</td>
<td>58.4</td>
<td>71.6</td>
</tr>
<tr>
<td>2Yr dgr - mod/hi conc.</td>
<td>83.0</td>
<td>17.6</td>
</tr>
<tr>
<td>2Yr dgr - low conc.</td>
<td>70.6</td>
<td>13.1</td>
</tr>
<tr>
<td>Certificate</td>
<td>53.8</td>
<td>1.7</td>
</tr>
<tr>
<td>25+ credits</td>
<td>50.8</td>
<td>1.6</td>
</tr>
<tr>
<td>1-24 credits</td>
<td>10.8</td>
<td>0.1</td>
</tr>
</tbody>
</table>

Legend:
- CC credits per student
- 4YC credits per student
Conclusions about taking more courses
(based on differences in credits earned)

• Most students with 25+ credits could have obtained certificates since credits earned by these two groups are about the same.

• Most, but not all students with low return 2-year degrees could have obtained a 2-year degree with a higher returns since the difference in credits is modest.

• Students with low-return 2-year degrees would have a difficulty completing a 4-year degree because students with 4-year degrees completed many more credits and completed most credits at 4-year colleges.

• Students with 1-24 credits would have difficulty obtaining certificates because they would have to complete many more courses.
KEY POLICY-RELEVANT FINDINGS FROM THE EARNINGS ANALYSIS

• Students with certificates earn $8,700 more per year than those with 25+ credits and no credential.

• Among students with 2-year degrees, those with hi/mod return concentrations earn $11,300 more per year than students with low-return concentrations.

• Students with 25+ credits and Bottom-3 outcomes could substantially increase their earnings by changing the mix of credits completed without completing:
  – More courses.
  – More academically demanding courses.

• by obtaining:
  – Certificates.
  – 2-year degrees with high or moderate returns.
Policy Implications: Improve Student Choices

- Student choices can be improved by assessment and counseling (A&C) that provides the information needed to make sound decisions.

- Discussions with CC and One-Stop staff strongly endorse the view that:
  - Students lack the information required to make sound decisions.
  - CCs lack the resources to provide A&C.
  - The techniques used by One-Stops are effective in improving the information bases.
  - One-Stops lack the resources to provide A&C to most trainees.

- The extent to which providing resources will improve workforce outcomes is unclear
  - The quality of the A&C might vary substantially.
  - There are many other impediments besides poor information that affect outcomes.
Focusing CCs on Improving Workforce Outcomes

• Changing students demand is important because CCs will try to meet the demand for higher return courses.
• But CCs’ incentives to help students improve their choices are limited.
• At present, few CCs have or use information about the returns-on-investments, and most performance measures that are used are related to obtaining degrees.
• Questions examined:
  – What are the returns on investment?
    ▪ To what extent do resources go to high-return outcomes?
  – What type of performance measures would provide an accurate view of how one CC’s performance compares to that of its peers?
The size of CC Investments by Student Returns

- The investments and the returns are **high** for Top-3 students.
- The investments are **high** but the returns **low** for Bottom-3 students with 25+ credits.
- The investments and the returns are **low** for Bottom-3 students with 1-24 credits.
Conclusion about increasing ROI

• The two key groups to focus on are students with:
  – 2-year degrees with low return concentrations.
  – 25+ credits with no credentials.

• This reinforces the view that the “low-hanging fruit” is having:
  – More two-year degree students concentrating in high and moderate return concentrations.
  – More 25+ credit students with no credentials obtaining certificates.
Variation in Outcomes across the 28 FL CCs

- Top-3: 45.4%
- 2Yr & 4Yr degree:
  - 6.6% (22.5%)
- 2Yr dgr - mod/hi conc.:
  - 8.4% (16.4%)
- 2Yr dgr - low conc.:
  - 3.4% (7.7%)
- Certificate:
  - 0.1% (27.5%)
- 25+ credits:
  - 16.0% (30.3%)
- 1-24 credits:
  - 26.8% (50.8%)
Why is there so much variation across CCs?

- About 67 percent of the variation is due to differences in the:
  - HS-GPAs of the students.
  - Percentage of students coming from rural high schools.
The Effect of the Adjustment at the Extremes

4 CCs with greatest negative adjustment

Unadjusted rank: 2.8
Adjusted Rank: 12.8

4 CCs with greatest positive adjustment

Unadjusted rank: 21.8
Adjusted Rank: 15.5
Policy Implications: Changing CC Incentives

• The adjusted measures of cross-college differences in ROIs show promise in giving CCs the information they need to:
  – Set realistic goals.
  – Alter resource distributions.
  – Monitor change over time.

• Changes outside of a CCs control could contribute to increasing ROIs
  – Including workforce outcome as a measure used for accreditation.
  – Changing state and federal funding formulas to:
    ▪ Reward much above average performance and impose sanctions when performance is much below average.
    ▪ Give more equal treatment to academic and CTE components.
    ▪ Take differences in cost and returns into account in funding CC slots.
Limitations

- **Data related**
  - Workforce outcomes need to be tracked for longer periods
  - More education and training providers need to be included
    - For-profits
    - Certificate programs run by K-12 systems

- **Effectiveness of Assessment and Counseling**
  - Demonstrations should be conducted to assess the effectiveness of various ways of providing these services.

- **Altering CC Incentives**
  - Demonstrations should be conducted to assess the effectiveness of:
    - Altering measures available to CC administrators
    - Altering the way funds are provided to CCs by:
      - States
      - Federal Student Financial Aid programs