ILLINOIS EDUCATION RESEARCH COUNCIL

Cornerstones of Student Success: *Institutions Yielding High Return on Investment for Underserved Students*

EXECUTIVE SUMMARY

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We sought to identify those institutions helping students overcome barriers to college completion and achieve a livable wage. Our analysis of Illinois 4-year postsecondary institutions highlights those institutions which fostered degree completion and job success with less debt for underrepresented minority students, first-generation students, and low-income students. Combined, we define this group as traditionally underserved students.

Background

There is extensive information available for prospective college students to evaluate colleges, including various college rankings. This abundance of college information and ranking systems has the potential to ensure that all students find the best college fit. Yet, among those less familiar with college (e.g., first-generation college students), college choice often depends on a small set of practical concerns, which tends to limit their postsecondary choices. This study focuses on some of the most relevant variables for later financial success: graduation rates, including for minority students; earnings after graduation; and student debt and default rates. We also devised a ranking system that emphasized Illinois institutions that are strong academically, but are attainable and realistic options for students who have average ACT scores and high school GPAs.

Purpose

We applied the ranking methodology used in Holt, White, and Terrell (2017), with some adaptations, to generate a new metric and identify the top 4-year postsecondary institutions in Illinois for graduating underserved students and transitioning them to employment, while

helping students to accrue minimal debt. By creating a tailored or personalized ranking formula, we were better able to identify those institutions that are leading the way and fostering success for underserved students. We also investigated correlates of these success metrics among these universities and colleges.

Methods

Sample

Illinois 4-year colleges and universities that primarily grant bachelor's degrees, as identified by the Integrated Postsecondary Education Data System (IPEDS), were included in this study. In total, there were 55 four-year colleges or universities including 4-year public (n=11), private nonprofit (n=38), and private for-profit (n=6) 4-year colleges and universities from across the state in our analyses (see Figure 1).
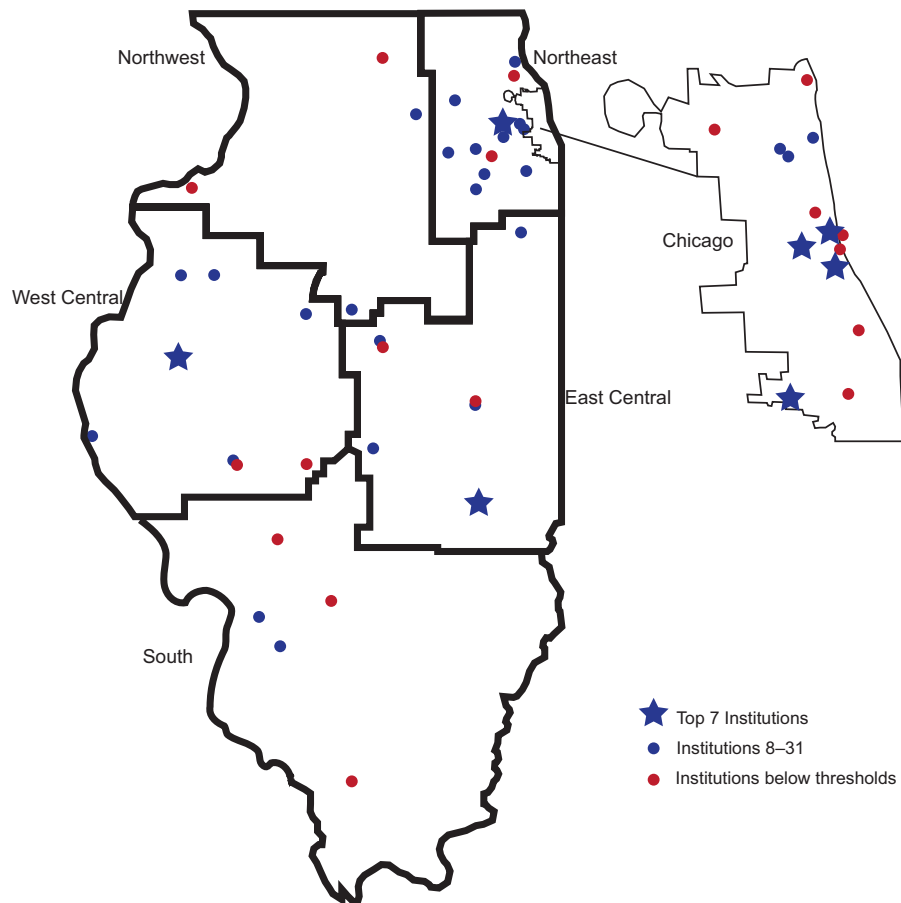

Figure 1. Map of the universities included in the study with the Top 7 indicated by blue stars.

Data and Metrics

Most data used originated from the 2013-2014 and 2014-2015 College Scorecard[1] and IPEDS[2] data files, with a few variables from 2012-2013 data file.[3] The two most recent years of available data for each variable were averaged prior to analysis. Averages between multiple years were not computed for variables that were pooled and/or already contained multiple years of data (e.g., three-year cohort default rates).

The variables of interest were sorted into three categories:

- Categorical Predictors including *sector*, *locale size*, *locale type*, and *region* within the state.

- Continuous predictors including three sub-categories of variables that consisted of undergraduate student enrollment, cost, and percentages of degrees awarded by field.[4] These degrees by major field variables were computed from the "*percentages of degrees awarded in . . .*" from IPEDS collected via College Scorecard.

- Outcome variables including *student retention rate, 6-year graduation rate for all students, 6-year graduation rate for Black students, 6-year graduation rate for Hispanic students, median debt for graduates, 3-year cohort default rate (CDR),* and *median earnings after 10-years after entry*.

Analysis and Results

Phase 1

Multiple regression analyses were conducted, regressing each of the seven outcome variable on four predictors representing the underserved student context: the percentage of Black students, the percentage of Hispanic students, the percentage of first-generation students, and the percentage of Pell Grant recipients. The residuals were outputted for each regression model and used for further analysis. These residuals indicate the deviation of the actual outcome value from the predicted value, given a specific underserved student context. This step was designed to remove the advantage in the outcome variables that institutions might have by admitting fewer underserved students.

Phase 2

Using principal components analysis to generate a smaller number of composite variables which underlie the covariance among the outcome variables, we identified a 2-factor solution which accounted for 55% of the variance. Five variables loaded on component one: retention

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[1] https://collegescorecard.ed.gov/data/

[2] https://nces.ed.gov/ipeds/Home/UseTheData

[3] Data from 2012-2013 were data from the National Student Loan Data System that were not in IPEDS and were the most recent data available at time of analysis.

[4] STEM definition from Nash and Zaback (2011); defined by following degree areas: agriculture, agriculture operations, and related services; natural resources and conservation; architecture and related services; computer and information sciences and support services; engineering; engineering technologies and engineering-related fields; biological and biomedical sciences; mathematics and statistics; physical sciences; science technologies/technicians

rate; 6-year completion rates overall, for Black students, and for Hispanic students; and median earnings 10-years after entry. This component was named Success. The variables that loaded on the second component included median debt at graduation and cohort default rates and this component was named Debt. The rotated structure matrix is given in Table 1.

Table 1

Rotated Loading Matrix

Variable	Component	
	1 (Success)	2 (Debt)
6-yr. Completion Rate	**0.85**	0.03
6-yr. Completion Rate for Hispanic Students	**0.81**	0.16
6-yr. Completion Rate for Black Students	**0.75**	0.05
Student Retention Rate	**0.58**	-0.14
Median Earnings 10-yrs. After Entry	**0.57**	-0.18
3-yr. Cohort Default Rate	-0.15	**0.83**
Median Debt for Graduates	0.08	**0.67**

The scores on component two, Debt, were subtracted from the scores on component one, Success, to create an overall score, which represented high success with low debt. We termed the overall score, Return-on-Investment (ROI). We assume that higher ROI scores were due to internal processes but not institutional selectivity.

Component scores were tested for associations with institutional variables. We found a statistically significant association of Debt and sector of the university, $F(2, 52) = 5.16$, $p = .009$, $\eta^2 = .17$. Specifically, for-profit universities had significantly higher scores on the Debt component than public institutions. University of Illinois Chicago (UIC) was an extreme outlier with low debt, while Northeastern Illinois University was a low outlier on Success. Finally, UIC was a high outlier on ROI among the public institutions and Columbia College was a low outlier on ROI among the private nonprofit colleges.

Interestingly, we also found that a disproportionately higher number of underserved students attended for-profit institutions. This held true for racial/ethnic minority students, low-income students, first-generation students, and non-traditionally-aged students (see Table 2). This was most evident for low-income students, who constituted 69% of the for-profit enrollment, compared to 38% and 42% of nonprofit and public institution enrollment, respectively.

Table 2

Population of Underserved Students by Institution Sector

Sector		% Black Students	% Hispanic Students	% 1st-Generation Students	% Pell Grant Recipients	% Students Aged ≥25 Rate
Public (N=11)	M	18.9	11.8	37.1	41.6	21.8
	SD	19.5	9.9	7.1	13.0	17.6
Private Nonprofit (N=38)	M	11.3	12.4	33.5	37.5	16.8
	SD	10.7	8.2	9.6	11.9	15.3
Private For-Profit (N=6)	M	34.4	15.8	50.5	69.1	68.1
	SD	20.2	6.6	5.6	15.4	9.5
Total (N=55)	M	15.4	12.7	36.1	41.8	23.4
	SD	15.5	8.4	10.2	15.7	21.9

Source: College Scorecard, AY 2014-15 sector (control of institution); total share of enrollment for Black and Hispanic undergraduate students; AY 2013-14 & 2014-15 pooled cohorts of 1st generation students; average of AY 2012-13 & 2013-14 total undergraduate recipients of a Pell Grant; fall 2013 percentage of undergraduates aged 25 and above, no other years available; sector is from AY 2014-15.

Phase 3

In the third phase, thresholds were applied to the institutions and they were ranked. The thresholds were designed to ensure that those highly ranked institutions were serving a moderate number of underserved students and had a reasonably high overall graduation rate. Accordingly, we required institutions to have *both* an overall 6-year graduation rate of at least 50% and at least 25% Pell Grant recipients enrolled.

These two thresholds removed 24 institutions of the 55 from the final analysis, resulting in 31 institutions that could be ranked. The overall ROI scores of the remaining 31 institutions were calculated and rank ordered. The cut off for the top performing group was drawn between the 7th and 8th ranked institutions because there was a small gap between the 7th institution and the next cluster. The top ranked seven institutions are given in Table 3.

Table 3

Top 7 Illinois 4-Year Institutions

Institution	Abbreviated Name	ROI
University of Illinois at Chicago	UIC	4.1
Illinois Institute of Technology	IIT	1.5
Elmhurst College	Elmhurst	1.3
Saint Xavier University	SXU	1.3
Eastern Illinois University	EIU	1.1
DePaul University	DePaul	1.1
Western Illinois University	WIU	1.0

Table 3 depicts the rank of the Top 7 institutions as defined by their overall ROI score, as well as their name and abbreviation. The top institution, an outlier with an overall ROI score of 4.1, is the University of Illinois Chicago. The remaining six institutions, Illinois Institute of Technology, Elmhurst College, Saint Xavier University, Eastern Illinois University, DePaul University, and Western Illinois University, each had an ROI score between 1.5 and 1.0.

Location of Top 7

- Four of the Top 7 (57.1%) fall within a city, one within a suburb, and two within a town or rural area.

- Five of the Top 7 (71.4%) institutions fall within a large municipality, one is in a midsized locale, and one is within a municipality with a small population.

- Four of the seven (57.1%) are located within Chicago, one is located in the Northeast, outside of Chicago, one is located in the West Central region, and one is in the East Central region.

Characteristics of High-Ranking Institutions

Our research indicates that there are public and nonprofit private institutions that rank highly on the ROI metric. The for-profit sector had considerably worse outcomes as a whole than the other sectors and none of the for-profit institutions ranked in the Top 7. Public institutions made up 11 of the 55 institutions (20%) included in our analysis but three of institutions in the Top 7 (43%). This over-representation suggests that *Illinois public universities are successfully fulfilling their missions of providing affordable educational options for students, including those traditionally underserved*.

It is important to note that the *institutional sector with the highest proportion of underserved students was the for-profit private sector. Yet, none of the Top 7 or 31 ranked institutions were from this sector* and the outcome variables were considerably less positive for this sector. This indicates a mismatch between the type of institution that most benefits underserved students according to our study and the institutions with the highest enrollment of underserved students.

Of the cost variables we analyzed, the only ones that were consistently lower for the Top 7 than the other tiers of institutions were net price overall and net price for those students from the lowest income families. These variables are probably the most salient for underserved students, certainly for students from low-income families. It is also interesting to note that *CDRs were dramatically higher for for-profit private institutions*. Cohort default rates are a reflection of institutional affordability to the students post-graduation. If college costs are high but job placement and salaries are high, we would not expect high CDRs.

Limitations

1. **This study was limited by availability of public data from IPEDS**, which currently does not report graduation rates for part-time, non-traditional, and graduate students. Further, limitations on earnings data include a lack of information on students currently in graduate school and these data are not representative of institutions with a low proportion of Title IV-eligible students (College Scorecard, 2017).

2. **We selected Illinois institutions with a physical presence for this study**. As higher education is increasingly moving online, there may be online higher education institutions which serve a large number of students in Illinois that were not listed in IPEDS or College Scorecard as Illinois institutions.

3. **Rankings are related to this study's purpose and assumptions**. We acknowledge that these rankings are directly related to this study's purpose and assumptions and rankings with different purposes or assumptions would yield different results.

Implications for Policy and Practice

1. ***Personalize Rankings for a Good Institutional Match.*** College ranking systems have different methodologies, metrics, assumptions, and audiences. High school counselors, students, teachers, parents, and access organizations should consider matching the students' characteristics with the success characteristics of the institution.

2. ***Identify and Recognize Institutions Supporting Underserved Students in their Community.*** To expand affordable and promising higher education options to underserved populations it is important to identify successful strategies and to replicate and adapt these strategies at similar institutions.

3. ***Increase College Affordability.*** Advocacy is needed to keep tuition and fees proportional to increases in cost of living at both private and public universities, so that college costs do not price out underserved students from the college market. In Illinois, the state need-based financial aid program, the Monetary Award Program (MAP), has not kept up with increases in tuition and fees and therefore it does not close the gap for low-income students, as it did in past years. If fully resourced, however, the MAP program could play an important role in closing the tuition gap for low-income students in Illinois.

References

College Scorecard (2017, September). *Data documentation for college scorecard* (Version: September 2017). College Scorecard. Retrieved from: https://collegescorecard.ed.gov/assets/FullDataDocumentation.pdf

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