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

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Introduction

Students face many barriers as they strive to obtain college degrees. This is especially true for students who are first generation, racial/ethnic minorities, and/or from low-income families. These barriers to college completion can be financial, informational/behavioral, and/or academic, and often students from traditionally underserved populations experience additional constraints of implicit and explicit discrimination (Page & Scott-Clayton, 2016). In this study, we sought to identify those institutions helping students overcome these barriers, attain a college degree, 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 these groups as traditionally underserved students.

This study builds on a recent report by the Illinois Education Research Council, which identified five Missouri postsecondary institutions that successfully supported Black and Latino students, low-income students, and first-generation students to degree completion with less debt by developing a new metric for success based on publicly available data (Holt, White, & Terrell, 2017). Holt et al. also explored effective strategies and practices at these institutions through interviews of administrators and students. The current study develops a conceptually similar success metric and applies this metric to higher education institutions in Illinois. We identify the top Illinois 4-year institutions for graduation and job success of underserved students with less debt and explore institutional correlates that relate to these success patterns.

Background

College Affordability

Some of the many reasons students do not complete college or take longer to complete include lack of college readiness, the pitfalls of remedial college work, taking fewer credits per term, unnecessary graduation requirements, and insufficient student advisement (Complete College America, 2014; Holt, White, & Lichtenberger, 2013; Lichtenberger & Dietrich, 2012; Mattern, Shaw, & Marini, 2013). However, college affordability, or lack thereof, is recognized as one primary reason why postsecondary students have not been able to complete an associate's or bachelor's degree (Davenport, 2013; Jackson & Reynolds, 2013). Affordable postsecondary options for students from low-income families are increasingly rare, despite a large amount of financial aid intended for students from low-income families. Many colleges expect low-income families to spend an amount equivalent to one-half of their families' annual income for a college education (Burd, 2016). In fact, only five colleges and universities in the U.S. enroll a percentage of low-income students that is proportionate to the national average, while also keeping prices affordable and giving students at least a 50% chance of graduation (i.e., University of North Carolina at Greensboro, CUNY Queens College, California State University – Fullerton, CUNY Bernard M. Baruch College, and California State University – Long Beach; Lynch, Engle, & Cruz, 2011). These institutions set tuition for low-income students proportionate to the family income of the average middle-income student. Conversely, the 138 U.S. colleges and universities that hold 75% of all postsecondary endowment wealth each have tuition that exceeds 60% of the annual family income for low-income students and are all in the bottom 5% for enrolling first-time, full time Pell Grant recipients (Nichols & Santos, 2016). Further, researchers have documented recent trends toward providing institutional aid to wealthier students and students who are most likely to increase the institution's academic profile (Burd, 2016), while decreasing state support for public institutions (Mitchell, Leachman, & Masterson, 2016).

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Unfortunately, in-state public 4-year institutions do not guarantee a low-cost option. In the eight year period since the great recession (academic year 2007-2008 to 2015-2016), in-state tuition at public 4-year institutions increased 33% ($2,333), on average (Mitchell et al., 2016). Researchers tie the rising tuition costs to decreased state funding that resulted from the recession. On average, states have spent 18% less ($1,598 per student; Mitchell et al., 2016), during the same period. These trends are concerning given the role finances play in determining which students are able to afford college. College costs have the largest effect in deterring college enrollment for low-income families. Further, high-performing students from low-income families tend to enroll in cheaper and less selective institutions that do not match their qualifications (Dillon & Smith, 2013). Moreover, for every $1,000 increase in college tuition, there is an associated drop of 6% in the diversity of the student population (Allen & Wolniak, 2015).

From 2004 to 2015, the average amount of student loans increased 62%, from $18,550 to $30,100.

In response to rising tuition prices, students have accrued debt at an increased rate. From 2004 to 2015, the average amount of student loans increased 62%, from $18,550 to $30,100 (The Institute for College Access & Success, 2015, 2016). Fortunately, the 3-year

cohort default rates on federal student loans have been steadily decreasing, from 14.7% in 2014 to 11.3% in 2016 (U.S. Department of Education, 2016).[1]

Socioeconomic and Other Demographic Gaps

College affordability and other barriers to college completion disproportionately affect students from racial and ethnic minority populations, first-generation students, as well as students from the lowest socioeconomic levels (Goldrick-Rab, Kelchen, Harris, & Benson, 2016; Warburton, Bugarin, & Nunez, 2001). If these completion gaps continue, the U.S. will not meet the projected workforce demand, which increasingly requires postsecondary degree attainment (Carnevale, Smith, & Strohl, 2013).

Students from families in the bottom income quartile had much lower rates of college completion within six years (26%) than those in the highest income quartile (59%).

While there were increases in completion rates across income levels for children born in the 1980s, those from high-income families increased by 18 percentage points, whereas those from the lowest income families increased by only 4 percentage points (Bailey & Dynarski, 2011). Students from families in the bottom income quartile had much lower rates of college completion within six years (26%) than those in the highest income quartile (59%; Cahalan, Perna, Yamashita, Ruiz, & Franklin , 2016).

Racial and ethnic breakdown of completion rates reveal that White students have an 11 percentage point higher 6-year graduation rate than their Black peers and a 22 percentage point higher rate than their Latino peers (Yeado, 2013). Concomitantly, Black students and students from low socioeconomic backgrounds are acquiring larger amounts of debt than their White peers from higher income backgrounds (Houle, 2014; Jackson & Reynolds, 2013). Furthermore, Black and Latino students are more likely to default on student loans than White, middle- and upper-class students (Hillman, 2014; Jackson & Reynolds, 2013).

There is evidence that a better match of institution and qualifications can greatly increase bachelor's degree completion rates

There is potential to close these completion gaps with stronger student-college fit. Two seminal reports identified the issue of college undermatch (i.e., attending a less selective college than one is qualified to attend) and found that students who attend the most selective colleges that they qualify for have higher college completion rates (Bowen, Chingos, & McPherson, 2009; Roderick, Coca, & Nagaoka, 2011). Since the release of these two reports, college match has been a focus of several organizations. There is evidence that a better match of institution and qualifications can greatly increase bachelor's degree completion rates under some constraints. For example, the rate of bachelor's degree completion for low-income students in Georgia is dramatically higher if students have access to 4-year colleges as compared to open enrollment 2-year colleges (Goodwin, Horwitz, & Smith, 2015).

Illinois' Higher Education Landscape

Illinois represents a microcosm of the current demographic trends and educational attainment challenges being experienced across the country. Illinois is the most representative of the shifting racial and ethnic populations of all the states (Khalid, 2016). From 2010 to 2014, Latino enrollment at public 2- and 4-year Illinois institutions increased from 77,799

[1] The decline in cohort default rates follows a series of Obama Administration's initiatives to reduce the tuition burden on students, including increasing Pell Grants, income-driven repayment plans, and increased college debt and cost transparency, among other initiatives. https://www.ed.gov/news/press-releases/national-student-loan-cohort-default-rate-declines-steadily

to 90,927 students; simultaneously the number of Black students decreased from 81,164 to 68,333 students (IBHE, 2015). It is worth noting that this shift caused Latino and Black populations to flip as the first and second largest undergraduate minority populations in Illinois. Additionally, Illinois' makeup of city, suburban, and rural locales is representative of the U.S. as a whole (Khalid, 2016).

To meet the education needs of the future workforce, Illinois has committed itself to increasing college completion to 60% among its residents by the year 2025 (IBHE, 2017). As of 2014, Illinois ranked in the top 10 for undergraduate degrees conferred (NCES, 2014). Yet, the completion rates for Latino and Black students at Illinois public universities are behind similar institutions in other states (IBHE, 2015).

Tuition and fees at Illinois public 4-year institutions have increased 151% ($8,737) from 2000 to 2016. These increases have been tied to a decrease in state funding.

Tuition and fees at Illinois public 4-year institutions have increased 151% ($8,737) from 2000 to 2016 (Boelscher, Johnson, Snyder, & Bassett, 2017). These increases have been tied to a decrease in state funding; since 2008, Illinois has seen the second highest drop in education funding for public 4-year universities at 54.0% or $3,479 per student in inflation-adjusted dollars (Mitchell et al., 2016).[2] This alarming decrease in state funding per student is at least partially due to a 2-year state budget impasse. Moreover, the state has not been mandated to fund the pension system on an annual basis and lack of payment has resulted in $130 billion in unfunded pension liabilities (Bae & Lazarra, 2017), and retroactive repayment is putting a strain on the budgets of many public institutions of higher education. Additionally, restructuring the Illinois university system in 1995 allowed public universities[3] to form individual university boards, which resulted in less oversight from the Governor, legislators, and the Illinois Board of Higher Education in setting tuition for the public universities (Boelscher et al., 2017).

The purchasing power of both the Pell Grant and the Illinois' state aid program, the Monetary Award Program, have declined.

Increasingly, students have a larger gap in what they can afford because the purchasing power of both the Pell Grant and the Illinois' state aid program, the Monetary Award Program (MAP), have declined. The purchasing power of the Pell Grant has declined by ⅔ since 1979 despite an increase in Pell Grant awards (Education Trust, 2014). Likewise, in 2000, the largest MAP grant covered 100% of the average tuition and fees at public 4-year institutions, yet in 2016, the largest grant only covered 32% (Boelscher et al., 2017). For private nonprofit institutions, the largest MAP grant in 2016 only covered 14% of tuition and fees.

Choosing a College

The postsecondary options for students are more varied and competitive than ever before. This complexity is reflected in the emergence of new systems of college advisement and access, such as private college counselors and coaches to help students apply and get admitted to the best colleges (Kinzie et al., 2004). Additionally, college match organizations strive to connect students with 4-year colleges that match their qualifications while college access organizations (http://www.gettingsmart.com/2017/02/smart-list-organizations-boosting-college-access-success) boost college access for low-income and first-generation students.

[2] This value is being revised, as Illinois experienced an unusual period of lack of a higher education full budget during FY16 and FY17. See http://www.sheeo.org/projects/shef-%E2%80%94-state-higher-education-finance

[3] Outside of the University of Illinois and Southern Illinois University systems

Further, extensive information is available for all potential college students over the internet for evaluating 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.

The overlapping populations of students of color, low-income students, and first-generation students[4] have disadvantages in both college access and completion. First-generation students who do attend college are more likely to attend a college near their home and make college choice decisions based on financial needs, such as living at home or working more than 20 hours while in college. For instance, in 2005, 50% of first-generation students were likely to select a college within 50 miles of their home compared to 35% of continuing-generation students (Lohfink & Paulsen, 2005; Saenz, Hurtado, Barrera, Wolf, & Yeung, 2007). Additionally, even when they are more prepared for college, first-generation students are more likely to attend less selective colleges, including 2-year colleges (Engle, Bermeo, & O'Brien, 2006; Pascarella, Pierson, Wolniak, & Terenzini, 2003). Besides location and financial aid packages, the college choice decisions of potential first-generation college students are more likely to stem from advice from adult influences, such as relatives, high school guidance counselors, and teachers, than their continuing-generation peers (Saenz et al., 2007). Although, more than half of both first-generation and continuing-generation students consider the college's reputation when choosing a college, first-generation students are less likely to consider academic factors such as reputation, rankings, and preparation for graduate school than their continuing-generation peers (Saenz et al., 2007). In general, when making college choices, first-generation students tend to focus on very tangible financial and practical needs, while being influenced by adult role models and mentors, such as high school counselors and teachers, when making college choices.

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College Ranking Systems

Many prospective students lack the resources of a college counselor or a college graduate family member who can provide guidance on the costly investment of attending college. Institutional ranking systems can help prospective students navigate the extensive options available for postsecondary education. However, these ranking systems have differing methodologies, metrics, assumptions, and audiences. For example, one ranking system may focus solely on institutional culture, whereas another considers the likelihood of acceptance, expense, and academic expertise. We categorized the existing ranking and rating systems into those focused on (a) prestige, (b) economic mobility, and (c) access and social mobility.

As the name suggests, the prestige ranking group is concerned with the reputations and perceptions of institutions. Ranking systems within this group include *U.S. News and World Report*, *Kiplinger Best Value List*, *Forbes Best College List*, *Princeton Review*, and *Parchment Student Choice*. These ranking systems focus on gauging the perception of institutions from

[4] Black students and Hispanic students are much more likely to be first-generation than White students (42%, 48%, & 28%, respectively). Moreover, continuing-generation students come from families with a median income more than 2.5 times that of first-generation student families (Postsecondary National Policy Institute, 2016).

faculty, students, and/or administrators. In one example, *Forbes Best College List* uses data from Ratemyprofessor.com to measure student satisfaction with professors. The ranking systems within the prestige group also set themselves apart by serving as a resource for faculty and administrators. Both *U.S. News and World Report* and *Forbes* discuss how academics compare the reputation of their own institutions to others in terms of academic standing or work place attractiveness.

Ranking systems within the economic mobility group serve students and their families who view higher education as investment; these ranking systems are concerned with which college/major will have the best financial return on potential future earnings. Systems that fall under the economic mobility group include: *Niche College Ranking*, *The Economist Rankings*, *College Scorecard*, *Brookings College Rankings*, *Money Magazine Best Colleges List*, and *Unigo*. For example, *The Economist Rankings* use value-added methodology to determine which colleges are likely to boost students' future salaries by the greatest amount, given their qualifications and preferences regarding career and location.

The ranking systems within the access and social mobility focus on institutional variables that make education accessible to students and help them move up the socio-economic ladder by completing a degree. The ranking systems within the access and social mobility group emphasize institutions that educate and graduate economically disadvantaged populations without a large financial burden. The access and social mobility group is comprised of *Washington Monthly's College Ranking*, *Ed Trust's Pell Graduation Rate Tool*, *Social Mobility Index*, *PayScale College ROI Report*, and *Pro Publica's Debt by Degrees*.

Although, our intended outcomes overlapped with both the economic mobility and the access and social mobility rankings, there were distinct differences with our goals. Our examination of these ranking systems led us to conclude that our study would benefit from the development of a new metric that took into account graduation rates for minority students; earnings after graduation; student debt and default rates; and had good coverage of Illinois' 4-year institutions. We also sought a ranking system that emphasized academically strong Illinois institutions that have attainable and realistic options for students who have average ACT scores and high school GPAs.

By creating a tailored or personalized ranking formula, we were better able to identify those Illinois institutions that are leading the way by fostering success for underserved students.

Purpose

We applied the ranking methodology used in Holt et al. (2017), with some adaptations, to generate a new metric and identify which Illinois postsecondary institutions underserved students have the most success with graduation and employment, while accruing minimal student debt. By creating a tailored or personalized ranking formula, we were better able to identify those Illinois institutions that are leading the way by fostering success for underserved students.

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. Excluded institutions were those which primarily grant certificates, associate's degrees, or graduate degrees. Some 4-year institutions that primarily grant bachelor's degrees were excluded due to a special focus in their curricula, such as medical schools, faith-related institutions, and art institutions. However, Concordia University-Chicago and University of Phoenix-Illinois were both coded as special-focus in IPEDS, but given their wide array of disciplines, they were included in the analysis. An additional five institutions were excluded due to missing data; at least one institution from each sector (public, private nonprofit, private for-profit) had missing data. In total, there were 55 four-year colleges or universities included in the analyses. This included 4-year public (*n*=11), private nonprofit (n=38), and private for-profit (*n*=6) 4-year colleges and universities from across the state (see Figure 1).

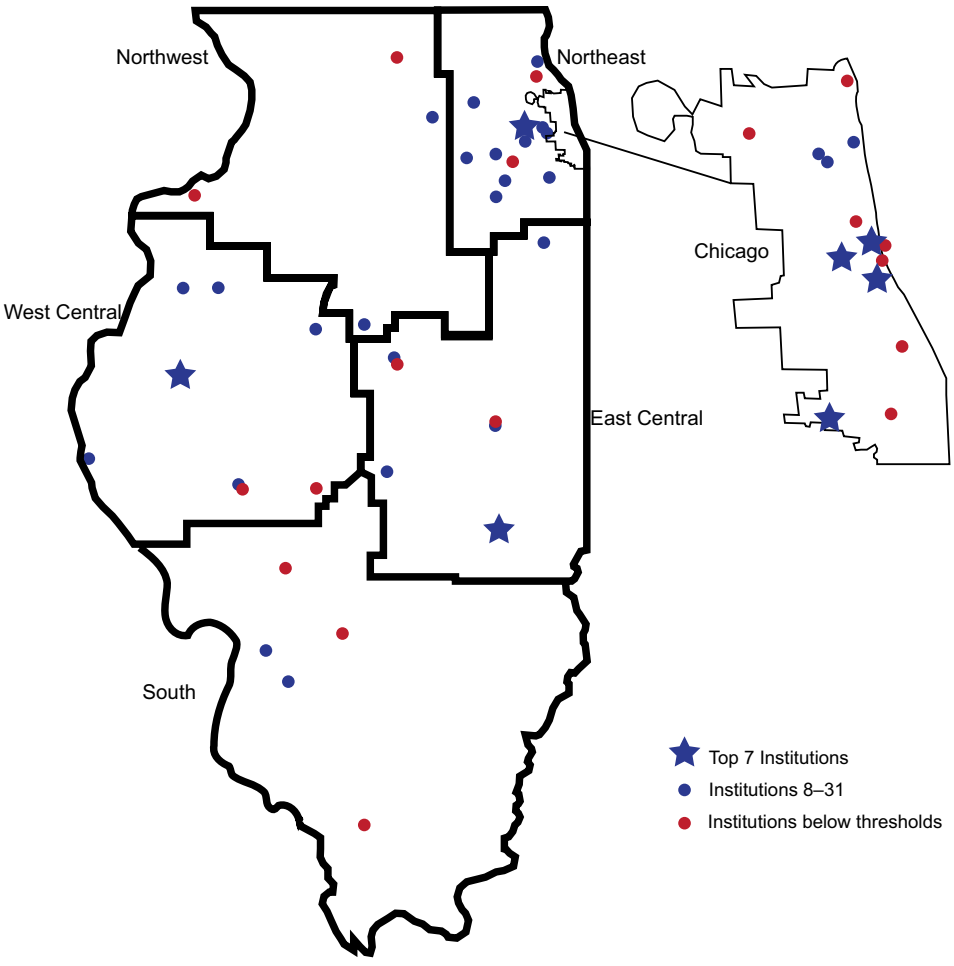

Figure 1. Map of universities study with Top 7 indicated by blue stars.

Data and Metrics

Most data used in this study originated from the 2013-2014 and 2014-2015 College Scorecard[5] and IPEDS[6] data files, with a few variables from the from 2012-2013 data file.[7] To account for anomalies in one-year data points, particularly for smaller institutions or when data were stratified by student demographics, we averaged the two most recent years of available data for each variable. Averages between multiple years were not computed for variables that were pooled and/or already contained multiple years of data (e.g., 3-year cohort default rates).

Variables of interest were identified by the researchers and sorted into three categories: *categorical predictors*, *continuous predictors*, and *outcome variables*. Categorical Predictors (see Figure 2A) included *sector*, *locale size*, *locale type*, and *region* within the state. Continuous predictors included three sub-categories of variables that consisted of undergraduate student enrollment, pricecost, and percentages of degrees awarded by field[8] (see Figure 2B for further details). These degrees by major field variables were computed from the "*percentages of degrees awarded in . . .*" from IPEDS collected via College Scorecard. Our categorization of fields follows the method of Nash and Zaback (2011). Outcome variables (see Figure 2C) included *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.*

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

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

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

[8] 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; and science technologies/ technicians.

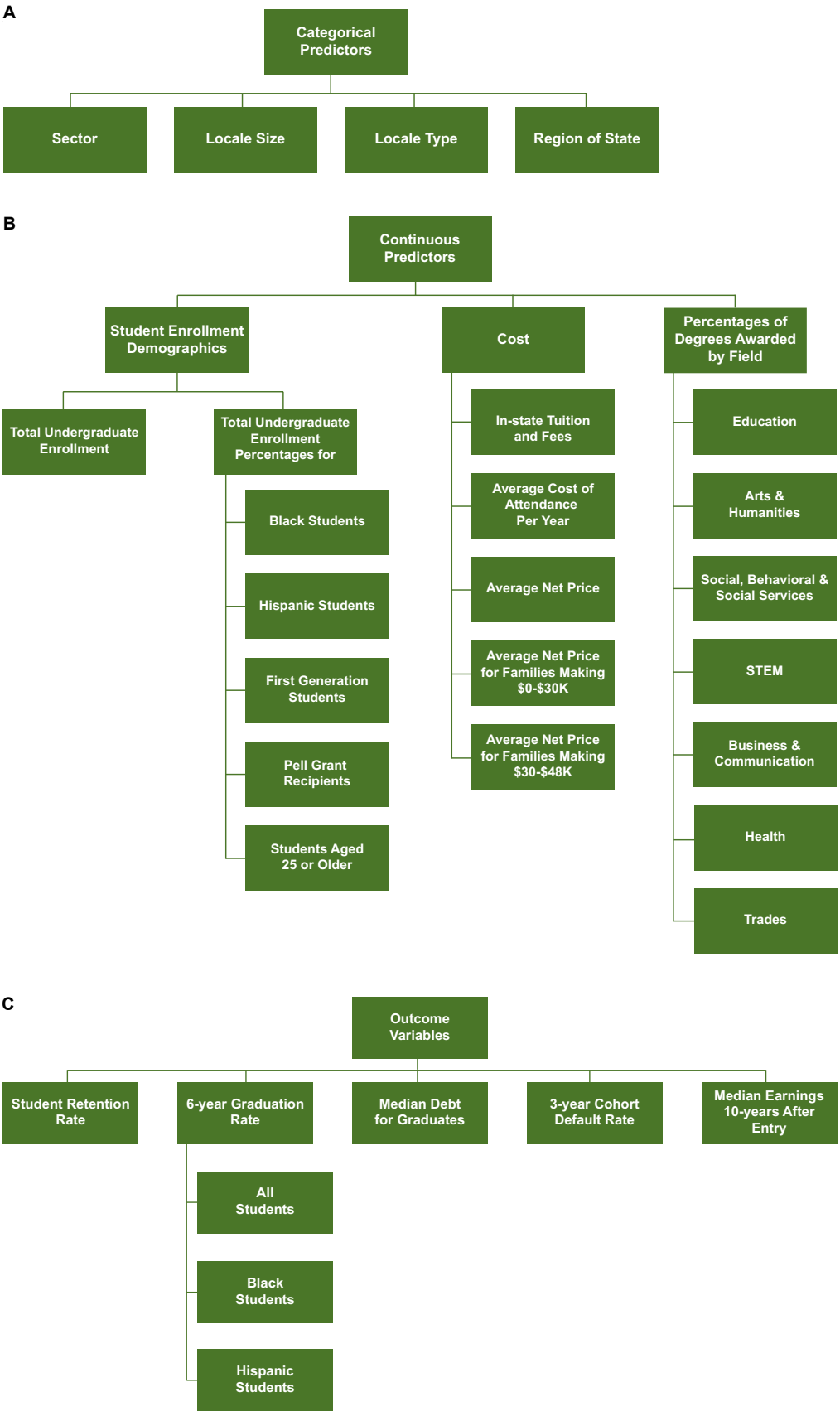

Figure 2. The variables in this study were sorted into three categories: A: categorical predictors; B: continuous predictors; and C: outcome variables.

Analysis

To identify the top institutions supporting underserved students, the analysis proceeded in three phases. In the first phase, multiple regression analyses were conducted according to Equation 1, regressing each outcome variable on four predictors representing the underserved student context. The outcomes, Y_i, were 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 completers, 3-year cohort default rate, and median earnings after 10-years after entry. The four predictor variables for each model, X_i, were the percentage of Black students, the percentage of Hispanic students, the percentage of first-generation students, and the percentage of Pell Grants recipients. The residuals, e_i, or $(Y - \hat{Y})$ 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. By using only the residuals in future analyses, we are controlling for outcome variance that may arise solely due to differences in underserved student context across institutions. This step was designed to remove the advantage in the outcome variables that institutions might have by admitting fewer numbers of underserved students.

$$Y_i=\alpha+X'_i\,\beta+e_i \qquad (1)$$

In the second phase, the residuals were factor analyzed with principal components analysis (PCA) to generate a set of composite variables or components that underlie the correlations among the outcome variables. This step was incorporated to allow our analysis to be both sensitive to the complex set of intercorrelations among the outcome variables and to reduce the dimensionality to a smaller set of components that share this variance. By doing so, we expected to be able to generate scores on a smaller number of composite variables for our metric. A scree plot was created to determine the number of components to retain from the PCA. The component matrix was orthogonally rotated to yield a set of independent principal components. Variable-component correlations of .4 (or a shared variance of 16%) were used as the cut-off value to retain a variable on a component. Additionally, we required a difference across components of at least .2 to prevent the retention of variables which cross-loaded on multiple components.

In the third phase, we applied thresholds to the institutions and ranked them. The threshold values were adopted from Holt et al. (2017) and required institutions to have both an overall 6-year graduation rate of at least 50% and at least 25% Pell Grant recipients enrolled at the institution. These thresholds were designed to ensure that the highly ranked institutions were serving a moderate number of underserved students and had reasonably high overall graduation rates. This phase was included to avoid recognizing institutions with poor overall performance or those not prioritizing service to low-income students. The threshold values were adopted from Holt et al. (2017) and required institutions to have both an overall 6-year graduation rate of at least 50% and at least 25% Pell Grant recipients enrolled at the institution.

Results

The PCA of the residuals from the regression analyses were graphed in a scree plot to determine the number of components to retain. The scree plot indicated a 2-factor solution which accounted for 55% of the variance. The two-factor solution was orthogonally rotated to generate independent components using Varimax rotation. The .4 factor loading cut-off resulted in five variables loading on component one: retention rate; 6-year completion rates overall, for Black students, and for Hispanic students; and median earnings 10-years after entry. We named this component Success. The variables that loaded on the second component included median debt at graduation and 3-year cohort default rates. We named this component Debt. The rotated structure matrix is given in Table 1.

Table 1
Rotated Loading Matrix

	Component	
Variable	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**

Note. Loadings > 0.4 are bolded.

We then derived the final formula from the scores on the two principal components. 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 (e.g., better student support services, better trained faculty, more institutional financial aid, even lower standards) but not institutional selectivity. Examining ACT composite scores and admission rates of the Top 7 compared to institutions 8 – 31 and to the institutions below the thresholds, we found that the admissions rate and ACT composite scores were tightly clustered and were within 2 standard errors across the three groups (see Figures 3 & 4). Therefore, the internal processes that occurred at the top identified institutions resulted in students having more success as defined by our metric (higher graduation rates, better earnings, and/or less debt) and this did not appear to be due to higher selectivity. However, we cannot rule out other possible explanations for the ROI scores, such as some institutions being better able to identify students with a good institutional fit, or local effects, such as institutions located in areas with more resources and stronger labor force demands.

We assume that higher ROI scores were due to internal processes (e.g., better student support services, better trained faculty, more institutional financial aid, even lower standards) but not institutional selectivity.

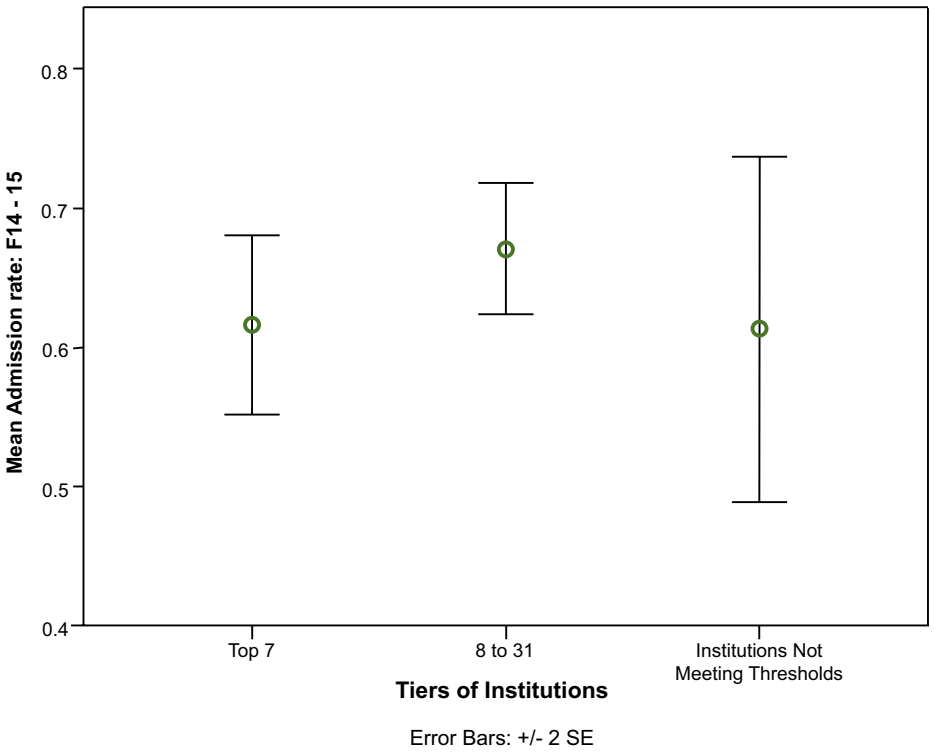

Figure 3. Admissions selectivity by tier of institution.

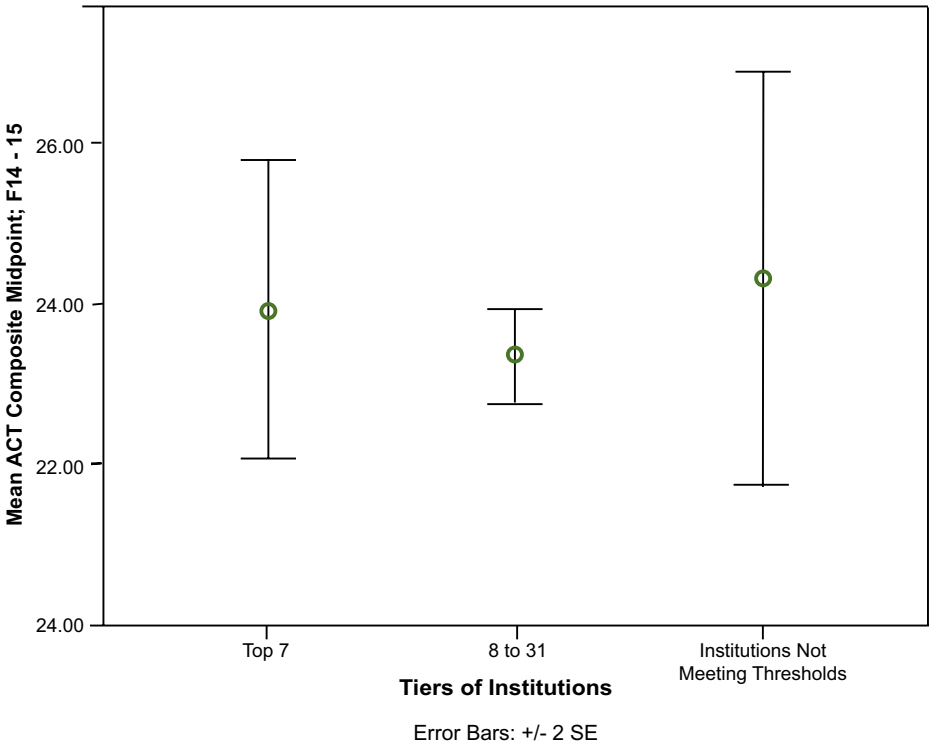

Figure 4. ACT selectivity by tier of institution.

For-profit universities had significantly higher scores on the Debt component than public institutions.

Component scores were tested for associations with institutional variables. There were not any associations with locale type, locale size, or region of the state (all p's > .05); however, there was a statistically significant association of Debt and the 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 (see Figure 5). University of Illinois Chicago (UIC) was an extreme outlier with a low Debt score, identified as such because the institution was less than three times the interquartile range below the first quartile of the public institutions.

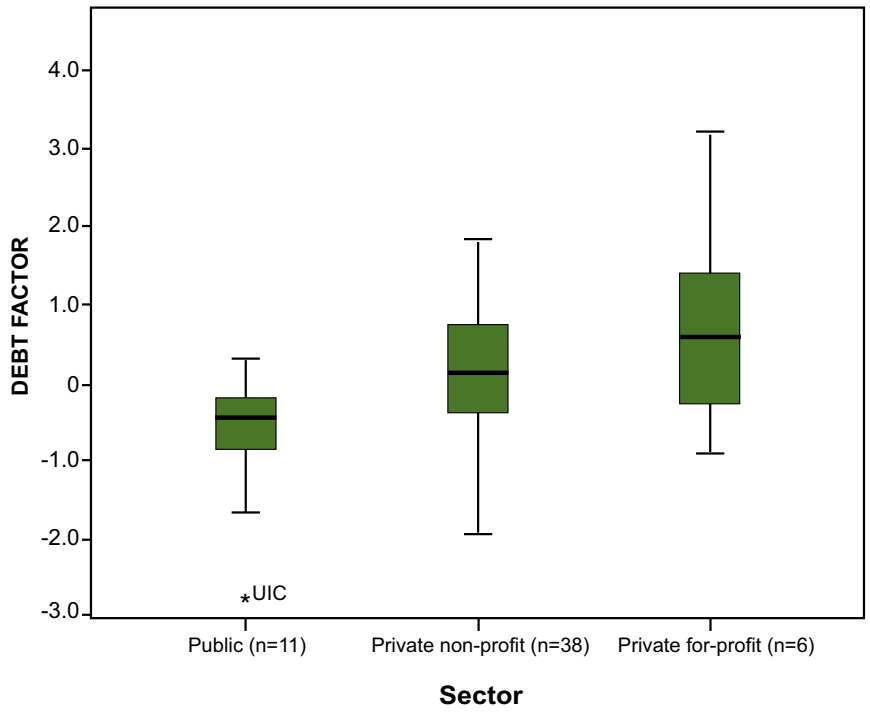

Figure 5. Boxplot of Debt component by sector showing a higher median score for private for-profit institutions than public institutions. UIC was an extremely low outlier on the Debt factor among the public institutions, as indicated by the star.

The median Success metric was similar across sectors. Northeastern Illinois University (NEIU) was a low outlier on Success, identified as such because the institution was more than 1.5 times the interquartile range below the first quartile of the public institutions (see Figure 6).

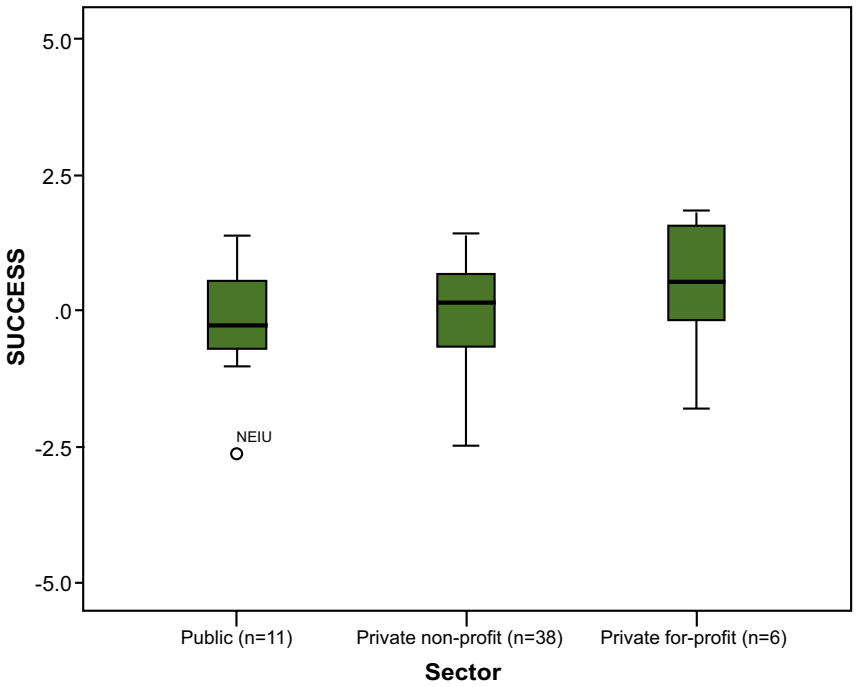

Figure 6. Boxplot of Success component by sector showing similar median levels of Success across sectors. NEIU was a low outlier on Success among the public institutions, as indicated by the open circle.

UIC was a high outlier on ROI among the public institutions.

The median ROI was similar across sectors as shown in Figure 7. UIC was a high outlier on ROI among the public institutions and Columbia College was a low outlier among the private nonprofit colleges, identified as such because they were more than 1.5 times the interquartile range from the 3rd and 1st quartiles of their sectors, respectively.

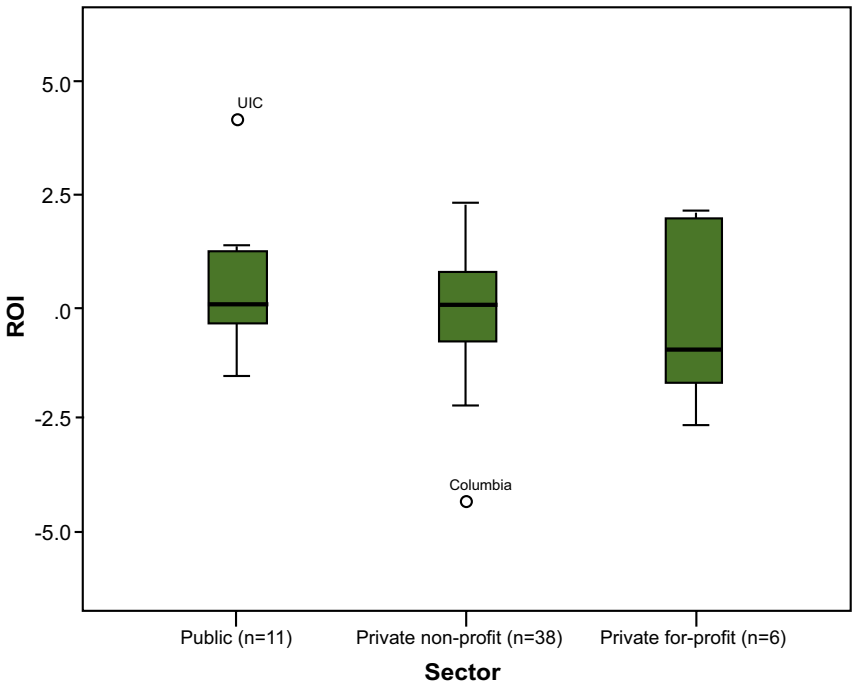

Figure 7. Boxplot of ROI by sector showing similar median levels of ROI across the sectors. UIC was a high outlier on ROI among the public institutions and Columbia College was a low outlier on ROI within the nonprofit private sector, as indicated by the open circles.

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.

Our Success component was positively correlated with institutions that had a higher number of degrees awarded in STEM fields and negatively correlated with net price for $0 - $30,000 income families. Debt and ROI were significantly correlated with net price for $0 - $30,000 income families and overall net price (positive correlations for Debt and negative correlations for ROI). Additionally, the correlation of ROI with STEM degrees approached significance (p = .05; see Table 3).

Table 3
Correlations between Components and Outcome Variables

Component		STEM	Ave. Net Price ($0–$30K Family Income)	Average Net Price
Success	*r*	.32*	-.29*	-.09
	p	.02	.03	.50
Debt	*r*	-.05	.39**	.38**
	p	.71	.003	.005
ROI	*r*	.26	-.48***	-.33*
	p	.05	<.001	.014

Note: N = 55 for all correlations; *p <.05, **p <.01, ***p <.001.

Institution Rankings

The thresholds for the minimum percentage of Pell Grant recipients and the minimum graduation rates were applied to the 55 institutions. These two thresholds removed 24 of the 55 institutions from the final analysis, resulting in 31 institutions for ranking. See Table A1, Appendix A for institutions meeting these thresholds. The overall ROI scores of the remaining 31 institutions were calculated and rank ordered. The cut off was drawn between the 7th and 8th ranked institutions rather than reporting the top five institutions because the ROI scores were 0.1 or less among the 5th, 6th, and 7th ranked institutions; however, there was a small gap between the 7th institution and the next cluster. The ranking of the Top 7 institutions is given in Table 5. For a detailed ranking of the top 31 institutions for each component and the overall ROI score, see Table A1, Appendix A.

Highest Ranked Institutions

The top ranked institution with an overall ROI score of 4.1 is the University of Illinois at Chicago.

Table 4 depicts the rank of the Top 7 institutions as defined by their overall score on the PCA, 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 (IIT), Elmhurst College, Saint Xavier University (SXU), Eastern Illinois University (EIU), DePaul University, and Western Illinois University (WIU), each had an ROI score between 1.5 and 1.0. Table 5, includes classification information (i.e., sector and location) about each Top 7 institution. Table 6 reports the outcome variables as compared to all (N=55) institutions. Tables 7 - 10 report other characteristics of the Top 7 institutions.

Table 4
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

The Top 7 institutions were split across sector, with three public universities (42.9%), and four private nonprofit institutions (57.1%). There were no private for-profit institutions in the Top 7. In terms of type of location, four of the Top 7 (57.1%) fall within a city, one (14.3%) within a suburb, and two (28.6%) within a town or rural area. In terms of population size around the institution, five of the Top 7 (71.4%) institutions fall within a large municipality, one (14.3%) is in a mid-sized locale, and one (14.3%) within a municipality with a small population. For the region of the state, four of the seven (57.1%) are located within Chicago, one (14.3%) is in the Northeast (does not include Chicago) fraction of the state, one (14.3%) is located in the West Central region, and one (14.3%) is in the East Central region (see Table 5).

Table 5
Top 7 Illinois Institutions by Categorical Predictors

Rank	Institution Name	Sector	Locale Type	Locale Size	Region of Illinois[1]
1	UIC	Public	City	Large	Chicago
2	IIT	Private Nonprofit	City	Large	Chicago
3	Elmhurst	Private Nonprofit	Suburb	Large	Northeast
4	SXU	Private Nonprofit	City	Large	Chicago
5	EIU	Public	Town/Rural	Mid-Sized	East Central
6	DePaul	Private Nonprofit	City	Large	Chicago
7	WIU	Public	Town/Rural	Small	West Central

Source: College Scorecard, AY 2014-15 sector (control of institution); computed Locale Size and Type from AY 2015-16 Locale.
[1] Adapted from other IERC publications (see, e.g., Smalley, Lichtenberger, & Brown, 2010), this study divides the state of Illinois into six distinct geographic—Chicago, Northeast, Northwest, West Central, East Central, and South.

Table 6
Outcome Variables by Sector

	Sector		Student Retention Rate	6-yr. Graduation Rate	6-yr. Graduation Rate - Black Students	6-yr. Graduation Rate - Hispanic Students	Median Debt for Completers ($)	3-yr. Cohort Default Rate	Median Earnings 10-yrs. After Entry ($)
Top 7 Institutions	Public (*N*=3)	*M*	74.6	57.7	43.4	52.7	22,030	4.7	44,033
		SD	6.2	2.4	0.3	0.7	2,872	1.3	6,149
	Nonprofit (*N*=4)	*M*	81.9	64.9	53.8	61.2	24,188	3.6	52,800
		SD	5.4	10.2	15.8	14.2	2,095	1.2	11,402
	Total (*N*=7)	*M*	78.8	61.8	49.3	57.5	23,263	4.1	49,043
		SD	6.6	8.3	12.5	11.0	2,505	1.3	9,978
All Institutions	Public (*N=11*)	*M*	72.1	51.0	37.3	43.7	21,875	5.7	42,809
		SD	11.0	19.0	17.1	18.3	3,934	3.2	6,548
	Nonprofit (*N=38*)	*M*	76.1	58.3	41.3	53.5	24,594	5.2	43,987
		SD	11.9	15.8	20.2	17.2	3,008	3.2	8,813
	For-profit (*N*=6)	*M*	45.4	31.3	18.0	44.3	28,238	14.0	36,967
		SD	15.0	12.7	13.6	29.9	3,105	3.5	7,647
	Total (*N*=55)	*M*	72.0	53.9	38.0	50.5	24,447	6.2	42,985
		SD	15.2	18.0	20.0	19.2	3,594	4.2	8,444

Source: College Scorecard, AY 2014-15 sector (control of institution); average fall 2012 & fall 2013 full-time student retention rate; pooled cohorts AY 2007-08 & 2008-09 completion rate for full-time students; average of AY 2007-08 & 2008-09 completion rates for full-time Black and Hispanic students; pooled cohorts AY 2013-14 & 2014-15 median debt for completers; Fiscal Yr 2012 3-yr default rate cohort (only one year available); pooled cohorts AY 2001-02 & 2002-03 median earnings after 10yrs after entry.

None of the for-profit institutions ranked in the Top 7.

The outcome variables, listed in Table 6, are better (i.e., higher retention and graduation rates, higher earnings, lower debt, and lower default rates) for the Top 7 as compared to all institutions within their sector, except for median debt for public institutions which is slightly higher in the Top 7 sample (although still within 1 *SD*). As mentioned, none of the for-profit institutions ranked in the Top 7 and it is evident from Table 6, that these outcomes were much worse for for-profit institutions than for institutions from the other sectors. For instance, the 3-year cohort default rate is 2.5 times higher in the for-profit sector than the public sector and 2.7 times higher than the nonprofit sector.

Table 7
Top 7 Illinois 4-Year Institutions by Undergraduate Populations

Institution		Total Undergraduate Enrollment	% Black Students	% Hispanic Students	% 1st-Generation Students	% Pell Grant Recipients	% Students Aged ≥25 Rate
UIC		16,618	7.9	25.6	41.7	50.1	11.1
IIT		2,951	6.5	14.4	32.3	31.4	14.6
Elmhurst		2,796	4.5	14.2	31.4	30.9	10.7
SXU		2,916	15.4	25.6	45.7	49.6	16.4
EIU		7,890	18.4	5.2	35.3	39.4	13.9
DePaul		15,989	8.3	17.4	31.2	34.8	20.2
WIU		9,759	17.6	8.7	37.1	43.6	14.3
Total (*N*=7)	*M*	8,417	11.2	15.9	36.4	40.0	14.4
	Min	2,796	4.5	5.2	31.2	30.9	10.7
	Max	16,618	18.4	25.6	45.7	50.1	20.2
	SD	6,033	5.7	7.8	5.6	8.1	3.2

Source: College Scorecard, average of fall 2013 & fall 2014 total undergraduate enrollment and 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.

As indicated in Table 7, the enrollment of the Top 7 ranged from less than 3,000 for IIT, Elmhurst College and SXU, to between 3,000 and 10,000 for EIU and WIU, and large enrollments of more than 15,000 for UIC and DePaul University. The percent of Black students comprising the institutions' undergraduate populations ranged from a low of 4.5% for Elmhurst College to a high of 18.4% for EIU. The percent of the institutions' undergraduate student body that was comprised of Hispanic students ranged from a low of 5.2% at EIU to a high of 25.6% for both UIC and SXU. The proportions of the institutions' undergraduate student body that was first generation ranged from 31.2% at DePaul University and 31.4% at Elmhurst College to 45.7% at SXU. The percent of Pell Grant recipients at the institutions ranged from 31.4% at IIT to 49.6% at SXU. Non-traditionally aged students were least prevalent at Elmhurst College (10.7%) and most prevalent at DePaul University (20.2%) among the Top 7 (see Table 7).

Table 8
Top 7 Illinois 4-Year Institutions by Price Data

Institution		In-state Tuition and Fees ($)[1]	Avg. Cost of Attendance per AY ($) [1]	Average Net Price ($)[2]	Avg. Net Price ($0-$30K Income)[2]	Avg. Net Price (>$30K-$48K Income)[2]
UIC		13,522	25,197	13,678	9,641	10,505
IIT		40,881	50,256	19,326	15,088	15,881
Elmhurst		33,435	42,808	20,035	13,841	16,820
SXU		29,535	35,718	16,151	13,966	14,528
EIU		11,126	23,579	17,434	13,370	13,769
DePaul		34,531	47,274	27,303	22,333	23,628
WIU		11,992	24,725	18,181	14,450	16,331
Total (*N=7*)	*M*	25,003	35,651	18,872	14,670	15,923
	Min	11,126	23,579	13,678	9,641	10,505
	Max	40,881	50,256	27,303	22,333	23,628
	SD	12,438	11,358	4,273	3,810	4,006

[1]Source: College Scorecard, average of AY 2013-14 & 2014-15 in-state tuition and fees; average of AY 2012-13 & 2013-14 average cost of attendance for each student.
[2]Source: College scorecard, merged variables for public and private institution's average net price for Title IV institutions (Public and Private, average net price for $0-$30,000 family income (Title IV institutions), and average net price for $30,001-$48,000 family income (all Title IV institutions); Average from AY 2012-13 & 2013-14.

Table 8 depicts the price data for the Top 7 institutions. Tuition and fees and average net price of attendance were lowest for the public institutions and highest for the nonprofit private institutions. The net price takes into consideration what the student pays, after accounting for aid from federal, state/local government, and institutional sources. Once this financial aid was taken into account, the public institutions did not always have the lowest price. For instance, SXU had a lower net price ($16,151) than EIU and WIU. University of Illinois Chicago had the lowest net price, net price for families with $0 - $30,000 income, and net price for families with $30,001 - $48,000 income among the Top 7; while DePaul University consistently had the highest net price among the Top 7 (see Table 8).

University of Illinois Chicago had the lowest net price.

Table 9
Top 7 Illinois 4-Year Institutions Outcome Variables

Institution		Student Retention Rate	6-yr. Graduation Rate	6-yr. Graduation Rate - Black Students	6-yr. Graduation Rate - Hispanic Students	Median Debt for Graduates ($)	3-yr. Cohort Default Rate	Median Earnings 10-yrs. After Entry ($)
UIC		79.7	58.1	43.7	52.3	18,750	3.2	51,100
IIT		86.4	63.9	50.0	68.3	27,000	2.6	69,300
Elmhurst		79.9	74.0	70.2	66.9	22,000	2.5	48,400
SXU		75.1	50.9	33.6	40.0	24,250	5.0	43,200
EIU		76.3	59.9	43.1	53.5	23,250	5.5	39,900
DePaul		86.3	70.8	61.4	69.6	23,500	4.3	50,300
WIU		67.7	55.2	43.4	52.2	24,091	5.5	41,100
Total (*N*=7)	*M*	78.8	61.8	49.3	57.5	23,263	4.1	49,043
	Min	67.7	50.9	33.6	40.0	18,750	2.5	39,900
	Max	86.4	74.0	70.2	69.6	27,000	5.5	69,300
	SD	6.6	8.3	12.5	11.0	2,505	1.3	9,978

Source: College Scorecard, average fall 2012 & fall 2013 full-time student retention rate; pooled cohorts AY 2007-08 & 2008-09 graduation rate for full-time students; average of AY 2007-08 & 2008-09 graduation rates for full-time Black and Hispanic students; pooled cohorts AY 2013-14 & 2014-15 median debt for completers; Fiscal Yr 2012 3-yr default rate cohort; pooled cohorts AY 2001-02 & 2002-03 median earnings after 10yrs after entry.

Elmhurst College had the highest 6-year graduation rate (74.0%).

Table 9 provides the outcome variables for each of the Top 7 institutions. These institutions had different strengths with regard to student outcomes. Illinois Institute of Technology and DePaul University had the highest retention rates among the Top 7 (86.4% and 86.3%, respectively), while WIU had the lowest retention rate (67.7%). Elmhurst College had the highest 6-year graduation rate (74.0%) and SXU had the lowest rate (50.9%). Saint Xavier University also had the lowest 6-year graduation rates for Black students and for Hispanic students (33.6% and 40.0%, respectively); whereas Elmhurst College had the highest graduation rate for Black students (70.2%) and DePaul University had the highest graduation rate for Hispanic students (69.6%). Median student debt was lowest for UIC ($18,750) and highest for IIT ($27,000). However, the CDRs were lowest for IIT and Elmhurst College (2.6% and 2.5%, respectively). Median earnings were highest for IIT ($69,300) and lowest for EIU ($39,900; see Table 9). Note that these comparisons are only among the Top 7 institutions.

Elmhurst College had the highest graduation rate for Black students (70.2%) and DePaul University had the highest graduation rate for Hispanic students (69.6%).

Table 10
Percentage of Degrees Awarded by Field

Institution		Education	Arts & Humanities	Social Behavioral	STEM	Business & Communication	Health	Trades
UIC		3.3	11.6	26.1	30.3	18.1	6.6	4.1
IIT		0.0	0.8	4.3	89.2	5.7	0.0	0.0
Elmhurst		10.9	15.7	20.3	9.8	26.8	13.5	3.0
SXU		10.2	15.6	15.0	11.2	19.4	24.2	4.5
EIU		15.0	22.1	30.6	8.4	20.8	3.1	0.0
DePaul		4.0	24.8	16.9	10.1	42.8	1.4	0.0
WIU		6.3	19.9	19.4	13.5	20.3	3.4	17.2
Total (*N*=7)	*M*	7.1	15.8	18.9	24.6	22.0	7.5	4.1
	Min	0.0	0.8	4.3	8.4	5.7	0.0	0.0
	Max	15.0	24.8	30.6	89.2	42.8	24.2	17.2
	SD	5.2	8.0	8.4	29.4	11.2	8.6	6.1

Source: College Scorecard, average of AY2012-13 and AY2013-14 percentages of degrees awarded in various fields of study; in a similar manner as Nash & Zaback (2011), individual variables were categoried into program areas, see footnote 6 for breakdown of STEM.

Median earnings were highest for IIT ($69,300) and lowest for EIU ($39,900).

Table 10 shows a comparison of the percentage of students attaining degrees in each discipline area at the Top 7 institutions to determine if those with degrees with more labor force demand, such as STEM and business and communication, were associated with the Top 7 institutions. The most popular to least popular fields of study were as follows: STEM (M = 24.6, SD= 8.4, N = 7), business and communication (M = 22.0, SD = 11.2, N = 7), social behavioral sciences and human services (M = 18.9, SD = 8.4, N = 7), arts and humanities (M = 15.8, SD = 8.0, N = 7), health (M = 7.5, SD = 8.6, N = 7), education (M = 7.1, SD = 5.2, N = 7), and trades (M = 4.1, SD = 6.1, N = 7). The Top 7 institutions had a higher average percentage of degrees awarded in STEM (25%) compared to all 55 institutions (15%; see Table B8 in Appendix B). These findings indicate at least partial support for the conjecture that higher rankings occurred in those institutions emphasizing STEM disciplines.

Profiles of each of the Top 7 institutions are provided in the following section. The profiles describe information on institutional outcomes, student composition, price, and disciplinary emphases.

Institutional Profiles

These profiles provide statistics on the variables used in this study. However, readers may choose to emphasize the most relevant factors for their needs when evaluating the fit of a particular institution. For example, the institution that succeeds at a desired major, may not be the most successful at retaining students from a particular racial minority background. Institutions are ordered by their score on the ROI metric.

University of Illinois at Chicago scored much higher on the overall component than any other institution with an overall ROI score of 4.1. The next closest institution was Illinois Institute of Technology, which scored 1.5. University of Illinois at Chicago is located in Chicago and has an undergraduate enrollment of 16,5618 students; the highest of the Top 7. University of Illinois at Chicago had the highest percentage of Pell Grant recipients (50.1%), tied for highest for percentage of Hispanic students (25.6%), and second highest for first-generation students (41.7%) in the Top 7. Generally, public institutions in the Top 7, UIC, EIU, and WIU, reported lower tuition and prices than the top private schools. University of Illinois at Chicago reported higher in-state tuition and average price of attendance than the EIU and WIU. University of Illinois at Chicago, however, was lower than EIU and WIU (and lowest of Top 7) in net price ($13,678), net price for families with income between $0 and $30,000 ($9,640), and net price for families who make between $30,000 and $48,000 ($10,505). These low net prices may translate into low debt, as UIC had the lowest median debt for graduates in the Top 7 at $18,750. In addition to low debt, UIC graduates reported the second highest earnings in the Top 7 at $51,100, which was $9,000 higher than the average earnings for all 55 institutions.

The largest percentage of degrees completed at UIC fell within the STEM fields (30.3%), which was the second highest rate in STEM within the Top 7. University of Illinois Chicago also reported a large percentage of degrees from social behavioral sciences and human services disciplines (26.1%). University of Illinois Chicago had a relatively low concentration of education graduates (3.3%) in comparison to the averages across the Top 7 (7.1%) and all 55 institutions (8.6%).

ILLINOIS INSTITUTE OF TECHNOLOGY

Illinois Institute of Technology is ranked second in the Top 7 and is also located in Chicago, however, it is vastly different from UIC. Illinois Institute of Technology is a nonprofit private institution with an average undergraduate enrollment of 2,951 students. Illinois Institute of Technology had lower than the average percentages of underserved students for the Top 7. Further, IIT had the highest in-state tuition and fees ($40,881) and average price of attendance ($50,256) of the Top 7 institutions and did not report net prices that deviate far from averages. Illinois Institute of Technology's success on the ROI and Success metrics was related to its relatively good scores on most of the outcome variables. Graduates reported the highest earnings ($69,300) of the 55 institutions analyzed, and the second lowest 3-year CDR (2.6%) in the Top 7; however, IIT did have the highest median debt ($27,000) of the Top 7. In terms of retention and completion, IIT's retention rate of 86.4% was the highest of the Top 7, and it reports relatively high completion rates for all students (63.9%), Black students (50.0%), and Latino students (68.3%).

Illinois Institute of Technology sets itself apart from all other institutions in the state with its focus on STEM. Approximately 89.2% of degrees completed at IIT fell within the STEM field, which is highest of the 55 institutions analyzed. University of Illinois at Urbana-Champaign had the next highest percentage of STEM degrees with 42.8%. Other disciplines at IIT with over 1% graduates were business and communication (5.7%) and social behavioral sciences and human services (4.3%).

Elmhurst College

Elmhurst College is a small private institution located in Elmhurst, Illinois (Chicago suburb). It reported an average undergraduate enrollment of 2,796 students, which was the lowest of the Top 7 institutions. Similar to IIT, Elmhurst College did not have high enrollment rates for traditionally underserved populations or have remarkably low net prices or tuition and fees, but it did have exceptional graduation rates. In terms of the Top 7, Elmhurst College reported the highest 6-year graduation rate for all students (74.0%) and Black students (70.2%), and the third highest 6-year graduation rate for Latino students (66.9%). Moreover, all of these rates were much higher than the means of the 55 institutions. Further, Elmhurst College's 3-year CDR of 2.5% was the lowest of the Top 7.

In terms of concentration of degrees, Elmhurst College was well divided across the various disciplines. Its largest concentration of bachelor's degrees were in business and communication (26.8%) and social behavioral sciences and human services (20.3%).

Saint Xavier University

With an average undergraduate enrollment of 2,916 students, SXU is another small private nonprofit institution located in the Chicago area. In comparison to other private institutions in the Top 7, SXU was much more demographically diverse. Of the Top 7, SXU was tied for the highest rate of Latino student enrollment (25.6%), had the highest first-generation student enrollment (45.7%), and the second highest percentage of students enrolled who received Pell Grants (49.6%). In terms of price, SXU was the most economically feasible private institution in the Top 7 and rivaled EIU and WIU on many of the price variables. Saint Xavier University had the lowest in-state tuition and fees ($29,535) and average price ($35,718) of the private institutions in the Top 7 and had the second lowest net price ($16,151) of all Top 7 institutions. While SXU had a retention rate of 75.1%, its 6-year graduation rates for all students, Black students, and Hispanic students were the lowest of the Top 7 and below the means for all 55 institutions studied.

Saint Xavier University had the most evenly distributed percentages of degrees awarded by field. Its highest percentage was in healthcare (24.2%), which was the highest for Top 7 institutions. Saint Xavier's next highest concentrations were arts and humanities (15.6%) and social behavioral sciences and human services (15.0%).

Eastern Illinois University

Eastern Illinois University is the second of three public institutions ranked in the Top 7 and is located in Charleston, Illinois, which makes it the first institution in the Top 7 outside the Chicago metropolitan area. Its average undergraduate enrollment was 7,890 students, with the highest percentage of Black students (18.4%) and the lowest percentage of Hispanic students (5.2%) enrolled in the Top 7. It had the lowest in-state tuition and fees ($11,126) and average price of attendance ($23,578) of any other Top 7 institution. In terms of net price, EIU was the second lowest in the Top 7 for average net price for families with incomes between $0 and $30,000 ($13,369) and between $30,000 and $48,000 ($13,769). Among the Top 7, EIU did not score well on median earnings ($39,900) and the 3-year CDR (5.5%), which was tied for the lowest in the Top 7.

Eastern Illinois University awards bachelor's degrees in an array of disciplines. The institution reported the highest percentage of degrees awarded in social behavioral sciences and human services (30.6%), followed by arts and humanities (22.1%), business and communication (20.8%), and education (15.0%). These were the highest percentages of degrees awarded in social behavioral sciences and human services and education among the Top 7 institutions and the second highest percentage of degrees awarded in arts and humanities among the Top 7.

DePaul University

DePaul University in Chicago is the largest private institution in the Top 7 and has the second highest enrollment of all the Top 7 institutions, with an average undergraduate enrollment of 15,989 students. Similar to other private nonprofit schools in the Top 7, DePaul did not have the largest percentages of traditionally underserved students in its undergraduate student body, although they did have the highest percentage of undergraduates at or over the age 25 (20.2%) of the Top 7. Although, the percentage of Hispanic students (17.4%) was higher than the average of the Top 7 institutions. While DePaul did not have the highest tuition and fees and average price, this institution was the highest for all net price variables among the Top 7. However, the median debt for graduates was $23,500, which was near the mean for all 55 institutions. DePaul's retention rate (86.3%) was second only to IIT (86.4%) in the Top 7. Despite high tuition, DePaul's 6-year graduation rates for Latino students (69.6%) was the highest of the Top 7. Additionally, DePaul's 6-year graduation rate for all students (70.8%) and its 6-year graduation rates for Black students (61.4%) were the second highest in the Top 7.

DePaul reported the largest concentrations of degrees awarded in the Top 7 in the fields of business and communication (42.8%) and arts and humanities (24.8%) %), which were the highest percentages of degrees in these disciplines among the Top 7.

Western Illinois University

Western Illinois University, located in Macomb, Illinois, is the second highest ranked institution located outside the Chicago metropolitan area. It is a public institution with an average undergraduate enrollment of 9,759 students, and had the second highest percentage of Black students (17.6%) in the Top 7. Western Illinois University ranked second in the Top 7 for lowest in-state tuition and fees ($11,992) and average price of attendance ($24,724). Western Illinois University had the highest net price variables among the public institutions in the Top 7, but falls around $1,500 below the averages of all 55 institutions. WIU had the lowest retention rate (67.7%) for the Top 7 institutions and was below the mean of all 55 institutions. Additionally, WIU was tied for the highest 3-year CDR (5.5%) among the Top 7 institutions. However, its 6-year graduation rate overall, for Black students and for Hispanic students were higher than the average for all 55 institutions and for all public institutions.

Western Illinois University had the highest concentration in the Top 7 for degrees awarded in trades (17.2%); the next closest was UIC (4.1%). Western Illinois University also reported awarding a large number of degrees in business and communication (20.3%), arts and humanities (19.9%), and social behavioral sciences and human services (19.4%).

Characteristics of High-Ranking Institutions

Our study revealed the Illinois 4-year institutions that best supported underserved students to degree completion and into the workplace with less debt. Our research indicates that there are public and nonprofit private institutions that rank highly in this regard. 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. The identified Top 7 institutions included three public and four nonprofit private institutions, all from northern and central Illinois. No institutions from the southern region of the state were included among the Top 7, but there were only two institutions in the southern region that met the thresholds and were ranked. Although there are fewer racial/ethnic minorities in southern Illinois, this does highlight the lack of highly ranked 4-year institutions for underserved students from southern Illinois. 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 mission of providing an affordable educational option for students, including traditionally underserved students, in the state of Illinois.

Illinois public universities are successfully fulfilling their mission of providing an affordable educational option for students, including traditionally underserved students, in the state of Illinois.

Of the price variables we analyzed, the only ones that were consistently lower in the Top 7 than the other tiers of institutions in the sample were net price overall and net price for those students from the lowest income families (see Table B6 in Appendix B). 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 (see Table 6). Cohort default rates are a reflection of institutional affordability to the students post-graduation. If college prices are high but job placement and salaries are high, we would not expect high CDRs. However, if the price of college burdens students beyond their means to repay, then CDRs would be high. This appears to be the case for students attending for-profit institutions, on average.

The institutional sector with the highest proportion of underserved students was the for-profit private sector.

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 seven institutions or 31 ranked institutions (see Table A1 in Appendix A) were from this sector and the outcome variables were considerably less positive for this sector, indicating 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. For instance, none of the six private for-profit institutions included in our study passed the completion threshold. Despite having completion rates below 50%, these institutions still enroll more Black, Latino, low-income, and first generation students (see Table 2).

The outcome variables were considerably less positive for the for-profit sector, indicating 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.

A previous study of Chicago Public Schools (CPS) alumni found a similar pattern (Allensworth, 2006). The 6-year graduation rate for CPS alumni at their top six higher education destinations was 41%, while the completion rate at the next most popular six institutions was 49%. Included in these top six destinations were Northeastern Illinois University, Chicago State University, and Columbia University, with 6-year graduation rates for CPS alumni of 13%, 18%, and 21%, respectively. Our metric's leader, UIC, was the top destination for CPS graduates and had a 6-year graduation rate of 48% for these students.

The institution with the highest 6-year graduation rate for CPS students was the 9th most popular destination, DePaul University, with a CPS alumni 6-year graduation rate of 76%.

We speculate that several factors may contribute to the institutional mismatch found in the current study and in Allensworth (2006), including greater availability of online coursework, which caters to the needs of working college students, at for-profit private institutions; marketing to racial/ethnic minority and first-generation populations; less tacit knowledge about college options among underserved and first-generation students; and/or less resources for college counseling in high schools located in low-income neighborhoods. These findings support the need for increased advisement on college match and college fit among underserved students.

Higher proportion of degrees in STEM are associated with greater graduation rates and higher earnings.

The current study provides additional evidence that higher proportion of degrees in STEM are associated with greater graduation rates and higher earnings. Additionally, the Success metric, which included earnings, was significantly correlated with the percentage of STEM degrees (see Table 3). Although, two institutions are largely responsible for this relationship; IIT and UIC with 89% and 30% STEM degrees awarded, respectively.

High Impact Practices

In a previous study of the success of 4-year institutions attended by St. Louis (Missouri) graduates, we combined similar quantitative data with findings from interviews with students and administrators at our top-ranked institutions and identified the strategies these institutions used to support underrepresented students (Holt et al., 2017). The success strategies identified in the earlier study fell into five areas: (a) strong and committed university leadership, (b) a coordinated and caring community, (c) specific early college experiences for these students, (d) flexible and sufficient financial aid, and (e) just-in-time academic supports. Although these strategies were not investigated in the current study, it is reasonable to assume that these strategies also undergird the success of our top Illinois institutions. Further, as more institutions adopt these high-impact practices, we would expect to see institutions graduating more students with less debt and supplying an educated workforce needed to meet future demands.

Limitations

This study was limited by availability of public data. Currently, graduation rates used and reported in IPEDS are for first-time, full-time students only. Consequently, institutions that are successfully serving part-time and non-traditional students, may be under-emphasized in IPEDS and in this report. As IPEDS accumulates data on graduation rates for both part-time and non-traditional students, we expect to use these data to provide a more comprehensive picture of the success of all students. Further, limitations on earnings data include a lack of information about students currently in graduate school, and these data are not representative of institutions with low proportions of Title IV-eligible students (College Scorecard, 2017). Also, College Scorecard notes that, although data are not available yet, research suggests that differences for earnings data may be greater among programs at institutions (e.g. social work graduates versus engineering graduates) than between institutions. Additionally, the median debt at graduation only includes debt on federal student loans, but students and parents are known to use parent PLUS loans, second mortgages, and use credit cards to pay for college, so the actual amounts of debt students and their families accrue for may be considerably higher. Although cumulative debt matters to the student, it is also important to note that student defaults often occur for relatively small amounts of debt (Choy & Li, 2006; Hillman, 2014; Woo, 2002).

Although cumulative debt matters to the student, it is also important to note that student defaults often occur for relatively small amounts of debt.

We selected Illinois institutions for this study, however, identifying institutions without a physical presence in Illinois is challenging. As higher education is increasingly moving online, there may be higher education institutions which serve large numbers of students in Illinois that were not listed as Illinois institutions in IPEDS or College Scorecard. In this case, our analyses may have overlooked some of these institutions, particularly in the for-profit sector. We included those which were incorporated in Illinois or were known to us as serving a large number of Illinois students, such as University of Phoenix.

Finally, it is important to note that the institutions that rose to the top in our analysis may not have done so if different ranking metrics were used. For instance, other institutions would have ranked higher if there was not an emphasis on first-generation, low-income, and racial/ethnic minority students. Likewise, the thresholds used for this study (50% six-year graduation rate and at least 25% Pell Grant students) restricted the universities that could rise to the top. These assumptions were specific to the goal of the study, which, in this case, was to examine institutions serving a substantial number of underserved students and successfully meeting their needs. It should be acknowledged that these rankings are directly related to the study's purpose and assumptions. 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. Accordingly, colleges rising to the top on one ranking system may be toward the bottom on another. It is important for high school counselors, students, teachers, parents, and access organizations to match the students' characteristics with the success characteristics of the institution to ensure a good institutional match. This study personalized the ranking for underserved students interested in graduation, earnings, and less debt but ranking systems could be further personalized for one's specific interest. For instance, a Latino student interested in attending an institution with at least an average number of Latino students and high graduation rates for Latino students, might consider IIT, Elmhurst College, or DePaul University, among the Top 7. On the other hand, a student more interested in high earnings to debt ratio might consider UIC or IIT. What works for one student does not necessarily work for all.

It is important for high school counselors, students, teachers, parents, and access organizations to match the students' characteristics with the success characteristics of the institution to ensure a good institutional match.

2. ***Identify and Recognize Institutions Supporting Underserved Students in their Community.*** We determined that there is considerable variation in outcomes among higher education institutions, even among those with at least 25% Pell students and 50% overall graduation rates. Some institutions (both public and nonprofit private) are addressing the needs of local students by providing an affordable education which leads to graduation and good paying jobs. To expand affordable and promising higher education options to underserved populations, it is important to identify the strategies that these institutions are using and to replicate and adapt these strategies at similar institutions.

To expand affordable and promising higher education options to underserved populations, it is important to identify the strategies that these institutions are using and to replicate and adapt these strategies at similar institutions.

3. ***Increase College Affordability.*** There are two main ways to reduce net price for students: keep tuition and fees below the cost of living and increase options for need-based financial aid. Our study shows that public universities can play a critical role in balancing success and affordability for underserved students. This indicates the importance of preserving the affordability of public universities through adequate state funding and limiting unnecessary tuition and fees increases, while ensuring that the price of public institutions remains lower than private universities. Further, advocacy may be necessary 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 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. Research converges on the importance of making college affordable and focusing on students' unmet financial need (Long & Riley, 2007; Rudick, 2016). The MAP program, together with the federal Pell Grant program, can do this if it is fully resourced.

Research converges on the importance of making college affordable and focusing on students' unmet financial need. The MAP program, together with the federal Pell Grant program, can do this if it is fully resourced.

Appendix A

Table A1
Institutions (N=31) Ranked on each Metric

Rank	SUCCESS		Debt		ROI	
1	Illinois Institute of Technology	1.4	University of Illinois at Chicago	-2.8	University of Illinois at Chicago	4.1
2	University of Illinois at Chicago	1.3	Judson University	-1.4	Illinois Institute of Technology	1.5
3	DePaul University	1.1	Quincy University	-0.9	Elmhurst College	1.3
4	Elmhurst College	1.0	Saint Xavier University	-0.7	Saint Xavier University	1.3
5	Illinois College	0.9	Western Illinois University	-0.6	Eastern Illinois University	1.1
6	University of St Francis	0.8	Benedictine University	-0.5	DePaul University	1.1
7	Aurora University	0.7	Eastern Illinois University	-0.5	Western Illinois University	1.0
8	Dominican University	0.7	Southern Illinois University-Edwardsville	-0.4	Aurora University	0.8
9	Knox College	0.6	Eureka College	-0.4	Judson University	0.8
10	Eastern Illinois University	0.6	Concordia University-Chicago	-0.4	Benedictine University	0.6
11	Bradley University	0.6	Elmhurst College	-0.3	Quincy University	0.4
12	Saint Xavier University	0.5	Northern Illinois University	-0.2	Bradley University	0.4
13	Western Illinois University	0.4	Aurora University	-0.1	Loyola University Chicago	0.1
14	Millikin University	0.4	Olivet Nazarene University	-0.1	Illinois College	0.1
15	Illinois State University	0.3	Illinois Institute of Technology	0.0	Trinity Christian College	0.1
16	Loyola University Chicago	0.3	DePaul University	0.0	Illinois State University	0.0
17	Lewis University	0.3	Trinity Christian College	0.1	Dominican University	0.0
18	Trinity Christian College	0.1	Loyola University Chicago	0.2	McKendree University	-0.1
19	McKendree University	0.1	Monmouth College	0.2	Millikin University	-0.1
20	Benedictine University	0.1	Bradley University	0.2	Knox College	-0.1
21	Lake Forest College	0.0	McKendree University	0.2	University of St Francis	-0.2
22	Monmouth College	-0.2	Illinois State University	0.3	Northern Illinois University	-0.2
23	Northern Illinois University	-0.4	Millikin University	0.5	Concordia University-Chicago	-0.3
24	Quincy University	-0.5	Dominican University	0.7	Monmouth College	-0.4
25	Concordia University-Chicago	-0.7	North Central College	0.7	Southern Illinois University-Edwardsville	-0.6
26	North Park University	-0.7	North Park University	0.7	Lewis University	-0.8
27	Judson University	-0.7	Lake Forest College	0.8	Lake Forest College	-0.8
28	Southern Illinois University-Edwardsville	-1.0	Knox College	0.8	Eureka College	-1.1
29	North Central College	-1.0	Illinois College	0.8	Olivet Nazarene University	-1.4
30	Olivet Nazarene University	-1.5	University of St Francis	1.0	North Park University	-1.4
31	Eureka College	-1.5	Lewis University	1.1	North Central College	-1.8

Appendix B

Table B1
All Illinois 4-Year Institutions by Sector

		Frequency	%
Top 7 (*N*=7)	Public	3	42.9
	Private Nonprofit	4	57.1
	Total	7	100.0
All Institutions (*N*=55)	Public	11	20.0
	Private Nonprofit	38	69.1
	Private For-Profit	6	10.9
	Total	**55**	**100.0**

Source: College Scorecard, Control from AY 2015-16

Table B2
All Illinois 4-Year Institutions by Locale Size

		Frequency	%
Top 7 (*N*=7)	Large Locale	5	71.4
	Mid-Sized Locale	1	14.3
	Small Locale	1	14.3
	Total	7	100.0
All Institutions (*N*=55)	Large Locale	31	56.4
	Mid-Sized Locale	13	23.6
	Small Locale	11	20.0
	Total	**55**	**100.0**

Source: College Scorecard, computed Locale Size from AY 2015-16 Locale

Table B3
All Illinois 4-Year Institutions by Locale Type

		Frequency	%
Top 7 (*N*=7)	City	4	57.1
	Suburb	1	14.3
	Town/Rural	2	28.6
	Total	7	100.0
All Institutions (*N*=55)	City	29	52.7
	Suburb	16	29.1
	Town/Rural	10	18.2
	Total	**55**	**100.0**

Source: College Scorecard, computed Locale Type from AY 2015-16 Locale.

Table B4
All Illinois 4-Year Institutions by Region

		Frequency	%
Top 7 (*N*=7)	Chicago	4	57.1
	Northeast	1	14.3
	West Central	1	14.3
	East Central	1	14.3
	Total	7	100.0
All Institutions (*N*=55)	Chicago	17	30.9
	Northeast	15	27.3
	Northwest	4	7.3
	West Central	8	14.6
	East Central	6	10.9
	South	5	9.1
	Total	**55**	**100.0**

Source: This study divides the state of Illinois into seven distinct geographic—Chicago, Northeast, Northwest, West Central, East Central, and South.

Table B5
All Illinois 4-Year Institutions by Undergraduate Populations

Institution Tier		Total Undergrad Enrollment	% Black Students	% Hispanic Students	% 1-st Generation Students	% Pell Grant Recipients	% Students Aged ≥25
Top 7 (*N*=7)	*M*	8,417	11.2	15.9	36.4	40.0	14.4
	SD	6,033	5.7	7.8	5.6	8.1	3.2
Institutions 8-31 (*N*=24)	*M*	4,095	9.2	12.2	33.8	36.0	14.8
	SD	4,700	3.5	8.6	7.1	6.1	10.3
Institutions Below Thresholds (*N*=24)	*M*	4,246	22.7	12.2	38.3	48.1	34.6
	SD	6,844	21.1	8.4	13.2	21.1	28.0
Total (*N*=55)	*M*	4,711	15.4	12.7	36.1	41.8	23.4
	SD	5,954	15.5	8.4	10.2	15.7	21.9

Source: College Scorecard, average of fall 2013 & fall 2014 total undergraduate enrollment and 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.

Table B6
All Illinois 4-Year Institutions by by Price Data

Institution Tier		In-state Tuition and Fees ($)[1]	Avg. Cost of Attendance per AY ($)[1]	Average Net Price ($)[2]	Avg. Net Price ($0-$30K Income)[2]	Avg. Net Price (>$30K-$48K Income)[2]
Top 7 (*N*=7)	*M*	25,003	35,651	18,872	14,670	15,923
	SD	12,438	11,358	4,273	3,810	4,006
Institutions 8-31 (*N*=24)	*M*	26,939	36,739	19,313	15,403	15,885
	SD	7,584	6,923	3,164	2,681	2,636
Institutions Below Thresholds (*N*=24)	*M*	21,897	34,304	21,425	17,776	18,845
	SD	11,318	11,844	6,056	6,855	7,288
Total (*N*=55)	*M*	24,493	35,538	20,178	16,345	17,181
	SD	10,096	9,789	4,812	5,134	5,436

[1]Source: College Scorecard, average of AY 2013-14 & 2014-15 in-state tuition and fees; average of AY 2012-13 & 2013-14 average cost of attendance for each student.
[2]Source: College scorecard, merged variables for public and private institution's average net price for Title IV institutions (Public and Private, average net price for $0-$30,000 family income (Title IV institutions), and average net price for $30,001-$48,000 family income (all Title IV institutions); Average from AY 2012-13 & 2013-14.

Table B7
All Illinois 4-Year Institutions Outcome Variables

Institution Tier		Student Retention Rate	6-yr. Graduation Rate	6-yr. Graduation Rate - Black Students	6-yr. Graduation Rate - Hispanic Students	Median Debt for Graduates ($)	3-yr. Cohort Default Rate	Median Earnings 10-yrs. After Entry ($)
Top 7 (*N*=7)	*M*	78.8	61.8	49.3	57.5	23,263	4.1	49,043
	SD	6.6	8.3	12.5	11.0	2,505	1.3	9,978
Institutions 8-31 (*N*=24)	*M*	77.1	60.1	40.2	51.1	24,962	4.6	42,829
	SD	6.4	8.6	14.7	14.5	1,763	1.5	4,398
Institutions Below Thresholds (*N*=24)	*M*	64.9	45.5	32.4	47.9	24,278	8.5	41,375
	SD	19.9	23.2	24.7	24.4	4,985	5.4	10,402
Total (*N*=55)	*M*	72.0	53.9	38.0	50.5	24,447	6.2	42,985
	SD	15.2	18.0	20.0	19.2	3,594	4.2	8,444

Source: College Scorecard, average fall 2012 & fall 2013 full-time student retention rate; pooled cohorts AY 2007-08 & 2008-09 graduation rate for full-time students; average of AY 2007-08 & 2008-09 graduation rates for full-time Black and Hispanic students; pooled cohorts AY 2013-14 & 2014-15 median debt for completers; Fiscal Yr 2012 3-yr default rate cohort; pooled cohorts AY 2001-02 & 2002-03 median earnings after 10yrs after entry.

Table B8
All Illinois 4-Year Institutions Percentage of Degrees Awarded by Field

Institution Tier		Education	Arts & Humanities	Social Behavioral	STEM	Business & Communications	Health	Trades
Top 7 (*N*=7)	*M*	7.1	15.8	18.9	24.6	22.0	7.5	4.1
	SD	5.2	8.0	8.4	29.4	11.2	8.6	6.1
Institutions 8-31 (*N*=24)	*M*	10.5	15.9	19.5	13.3	25.1	12.5	3.2
	SD	6.8	9.1	5.4	6.9	8.9	11.2	4.9
Institutions Below Thresholds (*N*=24)	*M*	7.1	20.0	17.1	14.4	24.7	8.4	8.4
	SD	8.7	16.3	14.4	11.9	12.6	11.8	10.6
Total (*N*=55)	*M*	8.6	17.7	18.4	15.2	24.6	10.1	5.6
	SD	7.6	12.6	10.5	13.8	10.8	11.2	8.3

Source: College Scorecard, average of AY2012-13 and AY2013-14 percentages of degrees awarded in various fields of study; in a similar manner as Nash & Zaback (2011), individual variables were categoried into program areas, see footnote 6 for breakdown of STEM.

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