

Financial Return on Investment: An Analysis of the Top-Ranked Private Universities in the United States

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Abstract

The increasing cost of an undergraduate education in the United States of America has caused alarming degrees of student loan debt with deleterious consequences to the lives of graduates. Although there are myriad considerations when choosing an institution to attend, the avoidance of unmanageable debt should be prioritized. In this regard, institutions of interest should be examined based upon potential earnings in light of the actual cost of attendance. The purpose of this study was to examine the return on investment for an undergraduate education (i.e., the ratio of median annual earnings after attendance to the average annual cost of attendance) between the top-ranked private universities in the United States as per the *U.S. News & World Report* top-20 rankings for 2024. Annual earnings and cost of attendance data were gathered from the College Scorecard. Findings for 18 private universities reveal major differences between published tuition and fees and the actual cost of attendance (on average, the latter is 32% of the former) with an average return on investment of 6.6; however, there is a wide range of return on investment (2.9–24.4). Findings further reveal that the Massachusetts Institute of Technology, Stanford University, and Princeton University are the top three institutions with respect to both the ROI and *U.S. News & World Report* rankings

Keywords: private universities, student loan debt, return on investment.

1. Introduction

The cost of an undergraduate (i.e., baccalaureate) education in the United States of America continues to rise. From the academic years 2000–2001 to 2020–2021 (i.e., a 20-year change), average annual tuition and fees for an undergraduate education has risen 78% at public institutions and 41% at private institutions (see Table 1). McGurran (2023) stated that this increase has been due to an increase in support services (e.g., counseling services, instructional support), a decrease in government financial support, and an increase in the cost to produce an education (e.g., increases in total executive compensation; cf. Ponton, 2023). Note that these tuition and fee costs do not include living expenses such as food and lodging, which have also increased due to inflation and modernization efforts.

Table 1. 20-Year Change in Annual Average Undergraduate Tuition and Fees at 4-Year Institutions in the United States

	Average Tuition and Fees ¹ at Public 4-Year Institutions	Average Tuition and Fees ¹ at Private (Nonprofit) 4-Year Institutions
Academic Year: 2000–2001	5,261	23,251
Academic Year: 2020–2021	9,375	32,825
20-Year Change	+78%	+41%

Note. ¹Constant 2020–21 United States dollars. Source: National Center for Education Statistics (2022).

Due to these rising costs, student loan debt per borrower has increased, and “the total average [student loan debt] balance (including private loan debt) may be as high as \$40,505” (Hanson, 2023, para. 1). Bahadir and Gicheva (2022) stated “outstanding student debt [in the United States] reached \$1.5 trillion in 2019, representing the second largest type of household credit after mortgage debt” (p. 2273); Mir and Toor (2023) recently updated this total student loan debt to \$1.7 trillion.

Top ranked universities in the United States represent high levels of not only quality but also tuition and fees. Fortunately, these universities also typically offer cost-containment opportunities (i.e., scholarships and grants) in order to attract the most capable students regardless of financial need. As a result, the actual cost of attendance (tuition, fees, and living costs) for an undergraduate education can be significantly lower than published tuition and fees, which will be shown in the data provided.

The purpose of this study was to examine the return on investment (ROI) for an undergraduate education between the top-ranked private universities in the United States. For this study, ROI was defined as the ratio of median annual earnings after attendance to the average annual cost of attendance. Due to significant differences in tuition and fees at a given public university depending upon whether or not the student resides in the university’s home state (which can then influence the average annual cost of attendance), public universities were not included in this study. Ostensibly, there is great parity in the academic quality of all

of the examined private universities; thus, the findings of this study can be used to differentiate the universities from the perspective of financial ROI.

Carnevale et al. (2022) analyzed ROI (defined in their study as earnings minus cost of attendance) for low-income students (annual family income not exceeding \$30,000) for a wide variety of public, nonprofit private, and for-profit private institutions with myriad primary undergraduate credential offerings from certificates to bachelor's degrees. More recently, Lovenheim and Smith (2023) reviewed "the literature on the returns to different types of postsecondary institutions and paths of study" (Introduction, para. 2). Because graduation rate and ROI are correlated due to the correlation between graduation rate and subsequent earnings (Carnevale et al., 2022, p. 10), the very high undergraduate graduation rates for the institutions examined in the present study ($\geq 93\%$, $M = 96\%$; data will be provided) greatly controlled for this effect. In addition, the present analysis was performed for institutional level data without regard to family socioeconomic status; thus, the findings presented will offer a macroview of ROI differences for an undergraduate education between the highly reputed private universities analyzed.

2. Method

The top-ranked (i.e., top 20) U.S. universities were identified using the *U.S. News & World Report* rankings for 2024 ("Best National University Rankings," 2023). Public universities were then eliminated for the ROI analysis.

The U.S. Department of Education (n.d.-a) provided data on the average annual cost of attendance as well as median earnings for various institutions using the following definitions:

- Average annual cost: "The average annual cost is the average *net price* for students who receive federal financial aid (e.g., Pell grants, federal loans) for one academic year of study. Net price is calculated by adding the advertised price for tuition, fees, books, supplies, and the average living costs at the school (on-campus, off-campus not with family, and off-campus with family) and subtracting the average grant and/or scholarship aid (e.g., Pell grants, school-based grants, merit scholarships). Net price is calculated as the average over all full-time, first-time students who receive federal financial aid and may not reflect a specific student's annual costs" (U.S. Department of Education, n.d.-b, "Average Annual Cost").
- Median earnings: "The median annual earnings of individuals that received federal student aid and began college at this institution 10 years ago, regardless of their completion status" (U.S. Department of Education, n.d.-a, "Median Earnings").

ROI was then calculated as the ratio of median annual earnings to average annual cost. Note that the data and, thus, the findings are associated with an undergraduate (i.e., baccalaureate) education.

3. Findings

The top-ranked U.S. private universities analyzed are presented in Table 2. For all institutions, the graduation rate is 93% or higher ($M = 96\%$, range = 93–98%) and the annual tuition and

fees exceeds \$58,000 ($M = \$63,703$, range = \$58,128–68,230). Princeton University and Harvard University have the highest graduation rate (98%), and Brown University has the highest tuition and fees (\$68,230).

Table 2. Top-Ranked Private U.S. Universities: Tuition and Fees and Graduation Rate

Ranking ¹	Institution	Annual Tuition and Fees ¹	Graduation Rate ²
1	Princeton University	\$59,710	98%
2	Massachusetts Institute of Technology	\$60,156	96%
3	Harvard University	\$59,076	98%
3	Stanford University	\$62,484	96%
5	Yale University	\$64,700	97%
6	University of Pennsylvania	\$66,104	97%
7	California Institute of Technology	\$63,255	94%
7	Duke University	\$66,172	96%
9	Brown University	\$68,230	96%
9	Johns Hopkins University	\$63,340	93%
9	Northwestern University	\$65,997	95%
12	Columbia University	\$65,524	94%
12	Cornell University	\$66,014	96%
12	University of Chicago	\$65,619	95%
17	Rice University	\$58,128	94%
18	Dartmouth College	\$65,511	96%
18	Vanderbilt University	\$63,946	94%
20	University of Notre Dame	\$62,693	97%

Notes. ¹“Best National University Rankings” (2023); ²U.S. Department of Education (n.d.-a; graduation rate defined as “the share of students who graduated within 8 years of entering this school for the first time”). The following public universities (rank) are not listed: University of California, Berkeley (15), University of California, Los Angeles (15), and University of Michigan, Ann Arbor (20).

The average annual cost of attending the 18 private universities examined is presented in Table 3 ($M = \$20,402$, range = \$5,084–33,023) as well as the percentage of this cost to the annual tuition and fees ($M = 32\%$, range = 8–52%). In general, there is a great disparity between the actual cost of attendance with respect to the published tuition and fees with only two institutions—Dartmouth College and University of Notre Dame—with percentages slightly above 50%. The lowest percentages are for the Massachusetts Institute of Technology (8%) and Stanford University (12%).

Table 3. Top-Ranked Private U.S. Universities: Tuition and Fees and Annual Cost

Institution	Annual Tuition and Fees ¹	Average Annual Cost ²	Annual Cost/Tuition and Fees
Princeton University	\$59,710	\$11,080	19%
Massachusetts Institute of Technology	\$60,156	\$5,084	8%
Harvard University	\$59,076	\$13,259	22%
Stanford University	\$62,484	\$7,200	12%
Yale University	\$64,700	\$16,341	25%
University of Pennsylvania	\$66,104	\$14,851	22%
California Institute of Technology	\$63,255	\$29,279	46%
Duke University	\$66,172	\$31,416	47%
Brown University	\$68,230	\$26,308	39%
Johns Hopkins University	\$63,340	\$14,254	23%
Northwestern University	\$65,997	\$28,230	43%
Columbia University	\$65,524	\$12,836	20%
Cornell University	\$66,014	\$29,011	44%
University of Chicago	\$65,619	\$22,690	35%
Rice University	\$58,128	\$17,805	31%
Dartmouth College	\$65,511	\$33,023	50%
Vanderbilt University	\$63,946	\$22,204	35%
University of Notre Dame	\$62,693	\$32,369	52%

Notes. ¹“Best National University Rankings” (2023); ²U.S. Department of Education (n.d.-a).

The median annual earnings 10 years after initial matriculation at the 18 private universities is presented in Table 4 as well as ROI (i.e., the ratio of median annual earnings to average annual cost; $M = 6.6$, range = 2.9–24.4). In general, there is a great disparity between ROI values with only three institutions of approximately 10 or greater: Massachusetts Institute of Technology (24.4), Stanford University (14.9), and Princeton University (10.0). Dartmouth College and University of Notre Dame had the lowest ROI (2.9).

Table 4. Top-Ranked Private U.S. Universities: ROI Analysis

Institution	Average Annual Cost ¹	Median Annual Earnings ¹	ROI
Princeton University	\$11,080	\$110,433	10.0
Massachusetts Institute of Technology	\$5,084	\$124,213	24.4
Harvard University	\$13,259	\$95,114	7.2
Stanford University	\$7,200	\$106,987	14.9
Yale University	\$16,341	\$95,961	5.9
University of Pennsylvania	\$14,851	\$112,761	7.6
California Institute of Technology	\$29,279	\$104,209	3.6
Duke University	\$31,416	\$97,418	3.1
Brown University	\$26,308	\$87,811	3.3
Johns Hopkins University	\$14,254	\$89,551	6.3
Northwestern University	\$28,230	\$85,796	3.0
Columbia University	\$12,836	\$97,540	7.6
Cornell University	\$29,011	\$98,321	3.4
University of Chicago	\$22,690	\$78,439	3.5
Rice University	\$17,805	\$87,254	4.9
Dartmouth College	\$33,023	\$95,540	2.9
Vanderbilt University	\$22,204	\$84,415	3.8
University of Notre Dame	\$32,369	\$93,220	2.9

Notes. ¹U.S. Department of Education (n.d.-a).

Table 5 presents the 18 private institutions in the order of ROI ranking; included also are the *U.S. News & World Report* ranking and the difference between the two rankings to show the ranking change using the ROI ranking method. Note the following:

- There was a zero ranking difference for only one institution: the University of Chicago.
- The lowest nonzero ranking difference of 1 was for the Massachusetts Institute of Technology (-1), Stanford University (-1), Cornell University (+1), and Dartmouth College (-1). In this regard, the Massachusetts Institute of Technology and Stanford University were near the top in both rankings whereas Dartmouth College was near the bottom.
- The largest ranking difference of 8 was for Columbia University (-8), Rice University (-8), Vanderbilt University (-8), and Duke University (8). In this regard, the ROI ranking was much lower for Duke University.

Table 5. Top-Ranked Private U.S. Universities: Ranked by ROI

Institution	ROI Ranking	<i>U.S. News & World Report</i> Ranking ¹	Ranking Difference ²
Massachusetts Institute of Technology	1	2	-1
Stanford University	2	3	-1
Princeton University	3	1	2
University of Pennsylvania	4	6	-2
Columbia University	4	12	-8
Harvard University	6	3	3
Johns Hopkins University	7	9	-2
Yale University	8	5	3
Rice University	9	17	-8
Vanderbilt University	10	18	-8
California Institute of Technology	11	7	4
University of Chicago	12	12	0
Cornell University	13	12	1
Brown University	14	9	5
Duke University	15	7	8
Northwestern University	16	9	7
Dartmouth College	17	18	-1
University of Notre Dame	17	20	-3

Notes. ¹“Best National University Rankings” (2023); ²ROI Ranking - *U.S. News & World Report* Ranking.

4. Discussion

As suggested previously, there is great parity in the academic quality of all of the 18 private universities examined as reflected by the *U.S. News & World Report* ranking of this category of institutions; thus, the addition of any of these institutions to the curriculum vitae of a graduate would likely have very similar merit. From the perspective of ROI, however, the findings reveal significant interinstitutional disparities that could be a major determinant in deciding an undergraduate institution to attend in order to avoid significant student loan debt.

Based upon ROI for an undergraduate education, the top ranked institutions are the Massachusetts Institute of Technology, Stanford University, and Princeton University that generally comports with their respective *U.S. News & World Report* ranking (i.e., top three in both rankings). The largest ranking difference of 8 places with ROI ranking being higher was identified for Columbia University, Rice University, and Vanderbilt University, which indicates that these three institutions are viewed more favorably through the lens of ROI ranking as compared to the *U.S. News & World Report* ranking.

5. Conclusion

There are myriad considerations for prospective undergraduate students and their families

when choosing an institution to attend. Though cost is only one, it has increasing significance due to the deleterious effects of excessive student loan debt such as an inability to attend graduate school, buy a home, live outside a parent's home (Williams, 2021); get married, or have children (Hembree, 2018). The inability to pay outstanding student loans can damage personal credit (Williams, 2021), and the associated stress can even lead to suicide ideations (Hembree, 2018).

Although the purpose of this study was to examine ROI for an undergraduate education between the top-ranked private universities in the United States (which revealed significant interinstitutional disparities), a greater significance to this study is highlighting this evaluative process using data available from the U.S. Department of Education. (n.d.-a). Data for myriad institutions at various strata of family income level are available via the College Scorecard, and prospective undergraduate students are encouraged to calculate ROI as a comparative factor in differentiating institutions of interest in order to avoid the encumbrance of unmanageable student loan debt.

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