Compiling the *Forbes*/CCAP Rankings

By the Staff of the Center for College Affordability and Productivity[1]

Ranking Factors and Weights

The Center for College Affordability and Productivity (CCAP), in conjunction with *Forbes*, compiled its college rankings using five general categories, with several components within each general category. The weightings are listed in parentheses:

1. Student Satisfaction	(27.5%)
Student Evaluations from *RateMyProfessor.com*	(17.5%)
Actual Freshman-to-Sophomore Retention Rates	(5%)
Predicted vs. Actual Freshman-to-Sophomore Retention Rates	(5%)
2. Post-Graduate Success	(30%)
Listings of Alumni in *Who's Who in America*	(10%)
Salary of Alumni from *Payscale.com*	(15%)
Alumni in *Forbes/CCAP* Corporate Officers List	(5%)
3. Student Debt	(17.5%)
Average Federal Student Loan Debt Load	(10%)
Student Loan Default Rates	(5%)
Predicted vs. Actual Percent of Students Taking Federal Loans	(2.5%)
4. Four-year Graduation Rate	(17.5%)
Actual Four-year Graduation Rate	(8.75%)
Predicted vs. Actual Four-year Graduation Rate	(8.75%)
5. Competitive Awards	(7.5%)
Student Nationally Competitive Awards	(7.5%)

School Selection

The 650 institutions of higher education in this ranking are schools which award undergraduate degrees or certificates requiring "4 or more years" of study, according to the U.S. Department of Education, and only those schools categorized by The Carnegie Foundation as Doctorate-granting Universities, Master's Colleges and Universities, or Baccalaureate Colleges are included in this sample of schools.[2] Of the 650 schools included in the sample, 608 were included in the 2010 college ranking. (A total of 610 schools were ranked in 2010, but two of

them, Bryant University and Missouri University of Science and Technology are now classified as "Special Focus" institutions by the Carnegie Foundation). We have accounted for any name changes that have occurred over the past year.

The 42 schools added this year to the sample are all institutions classified by the Carnegie Foundation as "Doctoral/Research Universities" and were added based upon undergraduate enrollment size.

Student Evaluations from *Ratemyprofessors.com* (17.5%)

RateMyProfessors.com, founded in 1999 as *TeacherRatings.com*, is a free online service that allows college students from American, Canadian, British, New Zealand, and Australian Institutions to assign ratings to professors anonymously.

The participation of students in this web site has been quite significant: around 10 million evaluations have been posted to this site; however, we used only those evaluations for professors who have taught at the schools in our sample. University administrations have no control over the process of evaluation, meaning schools would find it difficult to try to "game" the process by manipulating student participation. Furthermore, this database is useful because it provides a uniform evaluation method for all instructors at all schools in the country.

Any student (for that matter, any registered user) can enter in ratings of professors via *RateMyProfessors.com*. All categories are based on a 5 point rating system, with 5 as the highest rating. The categories students evaluate classes on are Easiness, Helpfulness, and Clarity. Overall Quality is determined by averaging the Helpfulness and Clarity ratings given by students. There is also a chili (hotness) component that assesses the professor's physical appearance, which we ignored in the determination of this component of the rankings.

Why This Measure?

In one sense, students are consumers who attend college to learn and acquire knowledge and skills. The core dimension of the learning experience comes from attending classes taught by instructors. Asking students what they think about their courses is akin to what some agencies like Consumers Report or J.D. Powers and Associates do when they provide information on various goods or services. As Otto, Sanford and Ross noted, students who post ratings on the website can be viewed as experts due to their significant experience with the professors they are evaluating. [3] Considering the popularity of *RateMyProfessors.com* (RMP), with students themselves using the ratings to develop expectations about faculty members and set their schedules, we agree with these scholars when they argue that online ratings should be taken seriously, albeit in a defined and limited manner.

To be sure, the use of this instrument is not without criticism. Some would argue that only an unrepresentative sample of students complete the forms. In some cases, the results for a given instructor might be biased because only students who are unhappy with the course complete the evaluation, while in other instances perhaps an instructor urges students liking the course to complete the evaluation, biasing results in the opposite direction.

It is possible that the concern regarding biases has some validity as it applies to individual instructors. But when the evaluations of dozens or even hundreds of instructors are added together, most examples of bias are washed out—or any systematic bias that remains is likely relatively similar from campus to campus. What is important for our purposes is the average course evaluation for a large number of classes and instructors, and the aggregation of data should largely eliminate major inter-school biases in the data. In fact, on an institutional level, there is some evidence that higher RMP scores are correlated with fewer evaluations; that is, the lower the number of RMP evaluations per enrollment, the higher the school's composite RMP score.

The other main objection to the RMP measure is that instructors can "buy" high rankings by making their course easy and giving high grades. Again, to some extent the huge variations in individual instructor rigor and easiness are reduced when the evaluations of all instructors are aggregated— nearly every school has some easy and some difficult professors. Nonetheless, we took this criticism seriously and did observe some inter-institutional variation in course easiness, as perceived by the students themselves. Other things equal, an institution's score on this factor should be enhanced if it has a relatively high proportion of "hard" instructors or courses, for two reasons. First, there is a negative correlation between student overall evaluation of a course and student perception of ease, and we should control for this factor in order to get evaluations relatively unbiased by this factor. Second, there is a case that can be made that where difficulty is perceived to be high, there is likely more learning occurring—students on average are being challenged more. For these reasons, we gave special consideration to the difficulty factor in the measurement of this factor, as discussed below.

Scholarly Assessments of RateMyProfessors.com

There have been a number of studies assessing the validity of the RMP evaluations. The general approach is to relate the results on this web site to the more established student evaluations of teaching (SET) that are routinely performed by most North American institutions of higher education. Since the schools themselves think their SET provides useful information in assessing the effectiveness of faculty and instruction, if these institutional evaluations correlate well with the RMP results, it enhances the likelihood that RMP is a valid instrument.

The research to date cautiously supports the view that RMP is relatively similar to the SET used by universities themselves. As one study puts it, "The results of this study offer preliminary support for the validity of the evaluations on RateMyProfessors.com."[4] Thomas Coladarci and Irv Kornfield, surveying instructors at the University of Maine, note that "...these RMP/SET correlations should give pause to those who are inclined to dismiss RMP indices as meaningless," although they also expressed some concerns that the correlation between the two type of instruments was far from 1.00.[5] Otto, Sanford and Ross concluded that their analysis of ratings on RMP revealed what would be expected if the online ratings of professors were in fact valid measures of student learning.[6] More recently, Bleske-Rechek and Michels, in an analysis of students across majors at a single state university, contradicted the popular notion that students who use RMP only post highly negative or highly positive ratings.[7] Bleske-Rechek and Michels

also concluded that the evidence does not support the common assumption that students who post on RMP are not typical of the whole student body.

To be sure, the research is not all enthusiastically supportive of RMP. Felton, Koper, Mitchell, and Stinson suggest that the positive correlation between RMP quality ratings and ease of course assessments make this a questionable instrument.[8] Bleske-Rechek and Michels confirmed the existence of a positive relationship between student evaluations of quality and easiness at the instructor level, Bleske-Rechek and Michels warned that "it is misguided to jump to the conclusion that the association between easiness and quality is necessarily a product of just bias" and suggest that the RMP data may only be reflecting that "quality instruction facilitates learning."[9] However, regardless of the precise causes of positive relationship between student assessments of quality and easiness, we have adjusted the RMP score for course easiness to correct for this potential bias.

In spite of some drawbacks of student evaluations of teaching, they have apparently have value for the 86% of schools that have some sort of internal evaluation system. RMP ratings give similar results to these systems. Moreover, they are a measure of consumer preferences, which is what is critically important in rational consumer choice. When combined with the significant advantages of being uniform across different schools, not being subject to easy manipulation by schools, and being publicly available, RMP data is a preferred data source for information on student evaluations of teaching – it is the largest single uniform data set we know of student perceptions of the quality of their instruction.

Calculating the Schools' Scores

We took the average overall quality rating for all instructors at each school based on the quality ratings of individual professors listed on the RMP website, reported on a scale of 1 to 5. We also derived an estimate for student perception of course rigor from the reported RMP easiness variable. The RMP easiness variable, like the overall quality variable, is based on a scale from 1 to5, with 5 being the easiest. To establish a measure of course rigor, we invert the scale of the rating by subtracting the easiness score from 6.

We computed the overall RMP score by summing the quality weighting with the derived rigor rating, such that the weighting for the quality rating was three times higher than the weighting for the derived rigor rating. This composite score was then updated using Bayesian methods that consider the number of votes submitted.[10] This composite score, ultimately derived from *RateMyProfessors.com* evaluations accounts for 17.5% of the final score for each school in the *Forbes* ranking.

Freshman-to-Sophomore Retention Rates (10%)

Data on freshman-to-sophomore retention rates are quite common, and are often used in college rankings, guides and databases. For our purposes, we use retention rates as an indicator of student satisfaction with the education offered by the college or university which they attend. We interpret higher retention rates as suggestive of higher student satisfaction while lower retention

rates indicate (other things being equal) a lower level of student satisfaction. Like any other metric used in assessing colleges and universities, retention rates is limited in the amount of reliable information it can convey. However, because retention rates are readily available and are a respected measure of college's performance, they provide some of the best available data on college students' satisfaction.

The data on freshman-to-sophomore retention are part of the data annually collected by the U.S. Department of Education from any college or university which receives federal funding. These data is available within the U.S. Department of Education comprehensive database (IPEDS).[11] For those schools in our sample which do not report retention rates to the U.S. Department of Education (notably Hillsdale College), we obtained the data by other means. The data we used were the retention rates reported in IPEDS for Fall 2009.

In the final computation to obtain the rankings, the data were weighted so that they constituted a 5% percent importance in determining the final *Forbes* ranking.

Summary of the Statistical Model

In addition to incorporating the actual retention rate component, this year we included a statistical model to predict an institution's retention rate based upon a variety of demographic and institutional input factors. The primary source of the data used in the model is the U.S. Department of Education IPEDS database, with the lone exception being data from Hillsdale College. We used a wide range of student demographic factors in our model including the proportion of undergraduate students who are African-American, Asian, Hispanic, the descendants of two or more ethnic groups, as well as the percentage of students who are female (or, equivalently, the percentage that are male). Similarly, we also included the percentage of the undergraduate population who are between the ages of 25-65 while we also use the percentage of students attending part-time. Additionally, we use student financial aid variables, such as the percentage of students receiving any grants, percentage receiving Pell grants, average amount of Pell grant received, the percentage taking out federal loans and the average amount of federal loans students borrow. We also included measures of institutional selectivity, in the form of the 25th percentile SAT scores, percent of applicants admitted and the matriculation rate. We also included various measures of per student spending, the student-faculty ratio, tuition and enrollment. Finally, we also used various urbanization and regional dummy variables in the model.

In constructing the model, we first transformed the retention rate variable with the logistic transformation (also known as the log of the odds ratio) to account for the bounded nature of the retention rate data. We then regressed this new variable against the aforementioned independent variables using the least squared method. As with the graduation rate model, due to the data transformation, we do not encourage interpretation of coefficient estimates on retention rates and therefore suppress them in this methodology. [12]

For the actual rankings, schools increase their final score by having actual retention rates that exceed those predicted by the logistic model. Conversely, schools decrease their final score if the actual retention rate fell below the predicted figure. The differences in the actual versus predicted

rate, also known as the residual, were standardized and used for the rankings. In the overall *Forbes* rankings, this retention model accounts for 5%.

Listings of Alumni in *Who's Who in America* (10%)

Published by Marquis Who's Who, *Who's Who in America* has contained biographical sketches of influential and noteworthy men and women since its first appearance in 1899.[13] The *Who's Who* volumes are routinely purchased by libraries as a standard biographical reference. We used *Who's Who in America Online* to look at those persons born 1956 or later who had received college degrees and are included in *Who's Who*.

Why use Who's Who in America?

Who's Who in America, while far from perfect, is a sampling of America's successful citizens. By recording the college attendance of persons in *Who's Who*, our rankings attempt to account for achievements of persons once they leave college and allows us to determine how many graduates of a particular college reach a significant level of accomplishment. No fee is charged of those whose bibliographies are listed in *Who's Who,* and the purchase of the publication is not a factor in deciding which biographies are included. According to the Preface of the 62nd edition, neither a person's wealth, social position, nor desire to be listed are sufficient reasons for inclusion. Researchers employed by Marquis consult lists such as the Forbes Celebrity 100, the Fortune 500, general interest magazines, special interest magazines and lists specific to various industries and professions when deciding whom to include.[14]

We are aware that this approach is not perfect. There are cases— relatively few in our judgment— of individuals with decidedly modest vocational achievement being included in the *Who's Who* volumes. And while Marquis's team of researchers completes biographies for the most prominent members of society, there are other cases of accomplished individuals who simply refuse to fill out the forms and are thus not included. While these deficiencies exist, they apply to graduates of all universities and do not work to create any known bias, insofar as we know, in favor of a particular institution or class of institutions within our sample.

Developing the Data Set

We selected the year 1956 as the earliest birth date of those sampled based on our more extensive analysis of *Who's Who* data in the past.[15] We recorded the number of entries for each university that were born after 1955 and earned undergraduate degrees. Since the typical student born in 1956 graduated from college no earlier than 1977, our analysis focuses on graduates of the 1970s, 1980s, 1990s, and, in a few cases, this past decade.

We standardized college names, especially for schools that have aliases (while also searching under all known school alias names). In the case of different schools that have the same name but exist in different states (e.g., Augustana College, St. John's University, and Westminster College), when the state was not listed in the entry, every entry was re-examined to check for recording errors. Some schools (e.g., Rhodes College and the College of Idaho) have changed

their names significantly over time; we accounted for these changes while we developed the dataset.

For entries which omitted the campus name (e.g., University of Michigan, University of Arkansas, and California State University) we also re-examined the entries for additional information and searched through online databases. For entries without a specified campus, we apportioned the remaining undetermined entries using the following apportionment method: Entries were apportioned based upon the campus ratio already existing in *Who's Who*. For example, if there were 100 entries for the University of Michigan, Ann Arbor and only two for both the University of Michigan, Dearborn and the University of Michigan, Flint, we took this into account when apportioning the unspecified campuses, by using this. This differs from our method in the past, which involved using historical enrollment and graduation rates.

The typical college graduate in our sample attended school between 1980 and 1995, so we calculated the average FTE undergraduate enrollments for 1980, 1985, 1990 and 1995 and divided the absolute number of *Who's Who* entries for each school by this historical average enrollment. Given the varying graduation dates of entries and given changing enrollments, this is not a precise method of adjusting for enrollment variation, but it combines the virtue of simplicity with relative accuracy.

In the final computation, the enrollment-adjusted data were weighted so that they constitute a 10 percent importance in determining the final ranking.

Salaries of Alumni from *PayScale.com* (15%)

PayScale.com is a market leader in global online compensation data. Both employers and employees use the website to better gauge the current job market. The "*PayScale* Salary Survey," which is updated frequently, is one of the largest online salary surveys in the world. Persons complete the "*PayScale* Salary Survey" in exchange for a free salary report that anonymously compares them to other people with similar jobs in similar locations. In addition to individual surveys, *PayScale* receives data from employers administered on behalf of trade associations.

Why this measure?

To many (if not most) college students, the bottom line of higher education is whether it helps them get a good job after graduation. Other things being equal, students will choose a school that provides them the opportunity to earn the highest possible salary upon graduation.

The use of *PayScale.com* in formulating our rankings comes with some criticism. The sample size of some of the schools could create the potential for bias to large or small schools. A statistical analysis shows that the mean number of salary observations for the 610 schools in this year's ranking was 795 and the median was 358. Unfortunately, four institutions had insufficient available data, leaving a school sample size of 606 out of 610.[16]

Another criticism is that schools with a higher sample size do better on this portion of the rankings. We analyzed this claim and found that there is essentially no correlation between the number of surveys completed and the median salary of 1-4 years experience. The same holds true for salaries of persons with salaries of persons with 10-19 years experience.

Another criticism is that the website does not differentiate between bachelor's and graduate salaries. There is a statistical significant difference between baccalaureate (schools that do not have graduate programs) and the schools that do have graduate programs. We found that if a student went to a school that offered graduate studies, they were likely to earn a little over $5,000 more than in a baccalaureate school. However, this difference is minimized because of the methodology used.

Calculating the Schools' Scores

We used salary data for 1-4 years experience and data for 10-19 years experience. The 1-4 years experience data made up 50% of the rating. The other 50% came from the growth rate between the 1-4 year and 10-19 year experience. Because someone from a larger and more prestigious school typically earns more directly after graduation, there is naturally a bias upwards in the 1-4 year after graduation rate. Taking the growth rate between 1-4 year and 10-19 year is a good indicator of value-added skills that were learned during school, both technical and soft skills. In other words, we believe that the acceleration of growth in salary is just as important starting salary throughout a career. The composite salary score was weighted at 15% of the overall rankings.

Alumni in *Forbes/CCAP* Corporate Officers List (5%)

Why This Measure

Another measure of an individual's postgraduate success is serving as a Chief Executive Officer (CEO) or as a member of the Board of Directors (BODs) of a leading American company. While obviously this is a measure of success in the field of business, it can also be a mark of success in other fields as well. A good college education should prepare students to be leaders in their fields, and by examining the educational backgrounds of those individuals who currently serve in such leadership positions allows us to evaluate the effectiveness of the many institutions ranked by Forbes.

Developing the Dataset

This component derives from educational data of persons who lead the 536 American companies listed among the *Forbes* "Global 2000 Leading Companies." We assembled a dataset which included the CEOs and members of the BODs of these companies and determined the undergraduate institution from which each person had obtained a bachelor's degree. In total, our database includes 4,714 unique entries (in more than one case, a single person serves on multiple boards; all duplicates have been removed from the composite dataset.)

For our purposes, we are interested solely in the institution from which these persons obtained an undergraduate college degree. We gathered educational and background data on the persons in the composite dataset mainly from the websites *Businessweek.com*, *Infoweek.com*, *NNDB.com*, and the Marquis *Who's Who* online database. In the cases where those databases did not include a particular person, we gathered data from various news articles, company memos, or another such source. There were several entries within our composite dataset for which educational data was unattainable or where the only data available was for graduate or professional degrees, rather than undergraduate degrees. The names for individuals whose undergraduate institution could not be determined, as well as the names of those who received an undergraduate degree from a foreign institution, were excluded from our final composite dataset.

Each school is awarded a point for each CEO/director that graduated from that institution. The institution's raw score was then divided by its historical full time enrollment average since 1980 to obtain an enrollment weighted score. This final figure earns a 5% weighting in the overall *Forbes* ranking.

Average Federal Student Loan Debt Load (10%)

Student debt is incorporated in the ranking as a measure of the relative affordability of attending a particular school. The weighting of this component decreased to 10 this year from the 12.5% weighting it received in the 2010 ranking, as we shifted the residual 2.5% weighting to the new debt model component we added this year.

The figure used for student debt is the average federal student loan debt for the entire undergraduate population at the various institutions. The data for the student debt is obtained from the U.S. Department of Education database (IPEDS), and the figure is the average federal student loan taken out (the average among only borrowers) by all undergraduates. In prior years we had looked only at students who actually borrowed and all loan debt (not just federal loans) taken out by first-time full-time students (summed over four years).

Three other schools (Hillsdale College, Grove City College, and Principia College) did not have any students who took out federal student loans in 2009. To account for the fact that the average debt level at these school's is not necessarily zero, for these schools, we estimated the level of debt based upon the ratio of each of these three school's sticker tuition as a percentage of the average tuition for private institutions. The debt data were weighted at 12.5% of the overall *Forbes* ranking.

Student Loan Default Rates (5%)

Student loan default rates are a measure of quality for an institution, in that default rates may provide insight into whether students can manage the debt accumulated from attending the institution. Schools of a higher caliber would enhance a student's post graduate opportunities and the ability to pay back student debt. The opposite is true for schools of poor quality. Therefore, a low student loan default rate is considered better in our rankings.

Student loan default rates are gathered and calculated by the U.S. Department of Education. We use the two year cohort default rate in these rankings; this default rate is the percentage of people defaulting on either Federal Family Education Loans (FFEL) or William D. Ford Federal Direct Loan within two fiscal years after entering the repayment period. Our rankings took a three year average of the Fiscal Years 2006, 2007 and 2008cohort default rates.

Several schools in our sample do not take federal monies, and therefore have no student loan default rate. Grove City College and Hillsdale College do not accept federal funding, making their students incapable of defaulting on federal loans. Because of this, their default components were calculated assuming a zero percent default rate. Additionally, Principia College did not have a default rate. For these three schools and the military academies, we assigned them a default rate of zero.

The default rate data were weighted at 5% of the overall *Forbes* rankings.

Percent of Students Taking Federal Loans (2.5%)

We have, for the first time this year, incorporated a model which predicts the percentage of students at a given institution that take out federal student loans.[17] We created the predictive model so that we could evaluate institutions on how affordable they are, given certain characteristics of the schools and their respective student bodies. For this measure, we use only results of the statistical model as a component of the rankings; the actual percent of students taking out federal student loans does not directly factor into the overall rankings.

Our model predicts the percentage of total undergraduate students receiving federal loans based upon the following control variables: the percentage of undergraduates who are African-American, Asian, and Hispanic; the percentage of undergraduates that are non-resident aliens; the 75th percentile SAT score; the percentage of applicants who are admitted; the matriculation rate; the percent of undergraduates receiving any grant aid; the average amount of grant aid received; the percentage of students receiving Pell grants; enrollment; tuition; endowment funds per student; geographic regional dummy variables; the degree of urbanization; and a control variable for Historically Black Colleges and Universities (HBCUs).

We regressed the dependent variable against the aforementioned variables using the ordinary least squares (OLS) method. For the rankings, schools increased their final score by having their actual percentage of students receiving federal loans fall below the value predicted by the OLS model. Conversely, schools decreased their final score if the actual value was above the predicted figure. The residual, or the difference between the actual and predicted values, is the figure that was standardized and used for the rankings. In all, this model accounts for 2.5% of the overall *Forbes* rank.

Four-Year Graduation Rates (17.5%)

Graduation rates measure how effectively institutions of higher education deliver the education they provide to their students. The higher a college's four-year graduation rate, the higher the proportion of students who fulfill the requirements for their academic program of study within the normal time of study. The higher this proportion of students, other things equal, the lower the cost for a student to obtain a college education. Our measure for graduation rates includes two components: the actual four-year graduation rate and the difference between the actual graduation rate and a predicted graduation rate based on the characteristics of the students who attend each individual institution.

Why Use Four-Year Graduation Rates?

Traditionally, college education in America has been viewed, particularly by students and their parents, as a four-year educational investment. In recent times, the higher education sector has increasingly relied upon five or even six-year graduation rates as a measure for student completion success at American colleges and universities. Consistent with our approach in constructing previous rankings, we have chosen to incorporate the four-year graduation rate rather than the five or six-year graduation rates used in other college rankings. Because all of the schools (except for Hillsdale College) included in this sample are classified as offering instructional programs which are "4 years or more" by the U.S. Department of Education, it is perfectly legitimate for assessing these schools using a four-year graduation rate. After all, prospective students arguably view that "4 years or more" classification as an implication that they can graduate from any of these schools within four years.

Using the four-year graduation rate is not beyond criticism. Several schools included in this sample focus heavily on five-year academic programs (this is particularly true of some of the STEM intensive schools which require not only four years of academic study but also one year of co-op/internship experience). For these schools, many students take more than four years in order to satisfy the requirements for graduation. However, we believe that using a four-year graduation rate is valid, because these schools are included in the traditional four-year college classification and because some students even at these schools do in fact graduate within four years. Arguably, a four-year graduation rate is a more meaningful measure than either a five or six-year rate, because according to the U.S. Department of Education, "normal time" for completion of a bachelor's degree is four years.

Summary of the Statistical Model

We rely upon a statistical model to predict what a school's four-year graduation rate is expected to be based on a number of input criteria which measure the academic quality of incoming students. In order to capture the quality of students, we use 25th percentile composite SAT scores, acceptance rates, full-time enrollment rates (how many admitted students actually matriculate), percentage of students receiving Pell Grants, percentage of students enrolled in STEM majors,[18] a dummy variable for public or private institutional control, and regional dummy variables. We first transformed the four-year graduation rate data with the logistic transformation (occasionally referred to as the log of the odds ratio) to account for the particular bounded nature of that variable. We next regressed this transformed variable against the list of regressors mentioned above using the least squares method. Due to the nature of the logistic

transformation, and the history of even respected academics misinterpreting the coefficient estimates, we do not encourage interpretation of coefficient estimates on graduation rates and therefore suppress them in this methodology.

Schools increased their final score by having actual graduation rates that exceeded those predicted by the regression model. They decreased their score if the actual graduation rate fell below the model's predicted rate. The differences in the actual versus the predicted rate for all schools were standardized similar to other components of the index previously discussed.

A Note on the Data Sources

The primary source for the data used was IPEDS; the actual graduation rate, according to IPEDS, is computed by dividing "the total number of students completing a bachelor degree or equivalent within 4-years (100% of normal time)… by the revised bachelor sub-cohort minus any allowable exclusions." The IPEDS database is also the source of the data for the variables used in the statistical model, with a few exceptions. There were several schools (notably Hillsdale College) where the data came from other sources. In cases where current data was unavailable at any of these sources, we developed estimates based on the most recent publicly available data.

The graduation rate component accounted for 17.5%, apportioned equally between the actual graduation rate (8.75%) and the graduation performance of a school relative to its predicted graduation rate (8.75%).

Student Nationally Competitive Awards (7.5%)

Every year students from colleges and universities across the country compete for highly prestigious student awards. Analyzing the number of award winners per school serves as an indicator of how well an institution is preparing its students to successfully compete for these awards. Winning a nationally competitive award assumes that the student is not only thoroughly academically prepared and qualified but also possesses other qualities such as a high level of motivation or initiative, leadership, etc.

The following eight nationally competitive student awards were considered with the years of award observations included in parentheses:

The Rhodes Scholarship (2003-11)

The British Marshall Scholarship (2003-11)

The Gates Cambridge Scholarship (2003-11)

The Harry S. Truman Scholarship (2007-11)

The Barry M. Goldwater Scholarship (2011)

National Science Foundation (NSF) Fellowships (2011)

The Fulbright U.S. Student Program (2010)

USA Today All-Academic First and Second Teams (2002-10)

The Rhodes, Marshall, and Gates-Cambridge Scholarships are included because they are widely recognized as three of the most selective and prestigious of all postgraduate awards to undergraduate students. Additionally, each year, USA Today names approximately 40 students to its ―All-Academic first and second teams. Winners of this award come from across the country and are some of the most accomplished college students across many different academic disciplines.

The remaining four awards attempt to encompass a variety of different academic backgrounds. The Truman award is directed toward students interested in pursuing careers in public service while the Goldwater Scholarship targets students pursuing careers in the natural sciences, mathematics or engineering. National Science Foundation (NSF) Fellowships are awarded to students wishing to pursue graduate study in the sciences (including social sciences), mathematics and engineering. Finally, the Fulbright U.S. Student Program offers fellowships to U.S. graduating undergraduate students (in addition to young professionals and artists) to travel abroad for one academic year to conduct research, study or teach English as a second language.

Due to varying number of awards given in a single year among these eight awards, it is necessary to use multiple years of data to expand the sample size. However, several of these awards include a sufficient number of awards every year for the single most recent year‘s data to be sufficient for use in the study.

After calculating the raw number of each award students from an institution have won over the examined period, each award is weighted to reflect the award‘s competitiveness and prestige. Because the Rhodes Scholarship is the most competitive and prestigious undergraduate award, we give it a higher weighting relative to the other awards. The same is true, although to a lesser extent, of the Marshall and Gates-Cambridge Scholarships. Therefore, the Rhodes Scholarship is weighted five times, and the Marshall Scholarship and Gates-Cambridge three times, relative to the other five awards. If a school has one scholarship winner for each award we use, that institution‘s total number of awards would be recorded as sixteen. In the few rare cases where award winners studied for a significant amount of time (at least two years) at an institution before transferring to the institution at which they were current students upon winning the award, credit for the student‘s award was divided equally among the two institutions.

We accounted for the enrollment size of an institution as well. A school with a greater number of students, other things equal, has a better chance of winning an award. Thus, the number of award winners is adjusted by the school’s average full-time equivalent undergraduate enrollment. These enrollment adjusted numbers for student award recipients account for 7.5% of the final score for each school in the overall ranking.

A Note on the "Best Value Ranking"

For many students, the price of a school is equally as important a factor in deciding where to go to college as its quality. Knowing where you can get the most quality for each tuition dollar spent is important for those shopping on a budget. Answering this question is the goal of this year's "Best College Buy" ranking for 2011. To produce the ranking, we divided each school's overall quality score (which was computed using the methodology described earlier) by its 2009 published in-state tuition and fees, the most recent year for which IPEDS data are available.[19]

Published tuition is the amount of tuition and fees required of students as payment for the cost of receiving their collegiate education. Published tuition does not include any financial aid (whether scholarships, grants, or other forms of aid which do not need to be repaid) that students directly receive from government, institutional or other sources. For those schools which charge $0 tuition and fees to students (e.g., the service academies) or those schools which automatically offer all students scholarships or grants valued at the full price of tuition (e.g., College of the Ozarks and Cooper Union),[20] we arbitrarily set their tuition and fees at $0.01. After obtaining this list of schools, we remove those schools with four-year graduation rates that fall below 20 percent, using this 20 percent rate as a baseline level of quality (since the overall list contains only 610 schools, it is possible that some which are low quality appear on the best value list simply because they have low tuition. In the spirit of maintaining a list that indicates high "quality," and not just low tuition, this adjustment is necessary).

Conclusion

Any set of rankings is subject to criticisms such as: the variables used are inappropriate or mis-measured, key factors are neglected, etc. Yet, what is the alternative? No rankings at all? We feel, and many independent observers agree with us, that these rankings provide a good assessment of the quality of the educational experiences at over 600 institutions. They further improved student choices and provide external assessments of the often inflated institutional claims of excellence. We hope they prove interesting, informative, and valuable to those using them.

Endnotes

[1] The compilation of these rankings was done at the Center for College Affordability and Productivity, although in cooperation and active consultation with the staff of *Forbes*. At *Forbes*, the CCAP staff worked particularly closely with Michael Noer. At CCAP, Director Richard Vedder took overall charge of the project. The work on the rankings was done by a team working with Prof. Vedder: Ryan Brady, Andrew Cadamagnani, Christopher Denhart, Matthew Denhart, William Drabold, Daniel Garrett, Onnalee Kelley, Michael Koslen, Jonathan Leirer, Christopher Matgouranis, and Jonathan Robe.

[2] The sole exception to this rule is Hillsdale College, which, as of 2010, is no longer classified by the Carnegie Foundation at all despite being classified as a Baccalaureate College- Arts & Science in 2005. For further information on the Carnegie Classification system, see The Carnegie Foundation for the Advancement of Teaching, "Classification Description," available at: http://www.carnegiefoundation.org/classifications/index.asp?key=791, accessed July 19, 2011.

[3] James Otto, Douglas A. Sanford Jr., and Douglas Ross. "Does ratemyprofessor.com really rate my professor?" *Assessment & Evaluation in Higher Education* 33, no. 4 (August 2008): 355-368.

[4] Michael E. Sonntag, Jonathan F. Bassett, and Timothy Snyder. "An Empirical Test of the Validity of Student Evaluations of Teaching Made on RateMyProfessors.com," *Assessment & Evaluation in Higher Education* (July 2008). See also, Scott Jaschik. "Validation for RateMyProfessors.com?" Inside Higher Ed, April 25, 2008, available at http://www.insidehighered.com/news/2008/04/25/rmp, accessed August 5, 2010.

[5] Theodore Coladarci and Irv Kornfield, "RateMyProfessors.com Versus Formal In-class Evaluations of Teaching," *Practical Assessment, Research & Evaluation* (May 2007).

[6] Otto, Sanford, and Ross.

[7] April Bleske-Rechek and Kelsey Michels. "RateMyProfessors.com: Testing Assumptions about Student Use and Misuse," *Practical Assessment, Research and Evaluation* 15, no. 5 (May 2010), available at: http://pareonline.net/pdf/v15n5.pdf, accessed August 5, 2010.

[8] James Felton, Peter T. Koper, John Mitchell, and Michael Stinson. "Attractiveness, Easiness, and Other Issues: Student Evaluations of Professors on RateMyProfessors.com," the abstract page of which is available on http://ssrn.com/abstract=918283, accessed on August 5, 2010.

[9] Bleske-Rechek and Michels, p. 9.

[10] For further discussion of Bayesian approaches to rankings see James O. Berger and John Deely. "A Bayesian Approach to Ranking and Selection of Related Means With Alternatives to Analysis-of-Variance Methodology" *Journal of the American Statistical Association* 83, no. 402 (June 1988): 364-373.

[11] Data on freshman-to-sophomore retention rates are also reported annually by schools to institutions such as the College Board and other publications which publish data on colleges or publish other college rankings.

[12] One prominent example of a misinterpretation of a logistic regression coefficient is discussed in the following letter to the editor. Andrew Gelman, "Letter to the editors regarding some papers of Dr. Satoshi Kanazawa" *Journal of Theoretical Biology* 245, no. 3 (April 7, 2007): 597-599

[13] Marquis Who's Who, "About Us," available at: http://www.marquiswhoswho.com/about-us, accessed August 5, 2010.

[14] William L. Hamilton, "Who Are You? Why Are You Here?" *New York Times* Nov. 13, 2005, available at:

http://query.nytimes.com/gst/fullpage.html?res=9507E0D6123EF930A25752C1A9639C8B63&sec=&spon=&pagewanted=2, accessed August 5, 2010.

[15] Richard Vedder, James Coleman, Jonathan Robe, and Thomas Ruchti. "An Outcomes Based Assessment of Universities: Using Who's Who in America." (Washington, D.C.: Center for College Affordability and Productivity, March 2008), available at: http://www.centerforcollegeaffordability.org/uploads/Who%27s_Who_final.pdf, accessed August 5, 2010.

[16] These four schools were: New College of Florida, Marlboro College, College of the Atlantic and Mount St. Mary's College (CA).

[17] Federal Loans are by far the most common form of undergraduate loans. In the 2009-2010 academic year, 90.3% of all undergraduate loans came from federal sources according to the College Board.

[18] This control variable was added to address the (valid) criticism that, other things equal, students enrolled in STEM majors tend to take more time to graduate because of the higher rigor associated with their fields of study. The addition of this control variable allows us to take into account that schools with higher percentages of students enrolled in STEM majors will likely have lower four-year graduation rates. Thus, these schools should not be "penalized" by the model because of the higher percentage of STEM students.

[19] For private schools, in-state tuition and fees is the same as out-of-state tuition.

[20] Berea College in Kentucky also offers their students full scholarship and grant coverage for the cost of tuition, but according to the IPEDS data, students are required to pay a $876 fee to the school for the year.