FAQ for College Value-Added Paper

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1. What does value-added mean?

Here, value-added refers to the relative contribution made by schools to alumni economic success. A value-added score of zero means the college’s alumni perform no better or worse than average college alumni with similar test scores and demographic characteristics from schools that grant degrees at similar award levels.

It is analogous to the concept of value-added in other areas. In economics, value-added often refers to the difference between the dollar value of output (say, a product like a smartphone) and the inputs (like the cost of materials and production equipment). In K-12 education, value-added often refers to the contribution teachers make to student learning.

2. Is this a comprehensive assessment of the benefits of individual colleges?

Absolutely not. Students and parents seek a range of experiences and benefits from the college experience besides a curriculum that can lead to a high-paying job. This study narrows the analysis to salaries and other earnings-related outcomes primarily because these are the metrics for which data are most available.

Of course, there are other economic outcomes that individuals and elected officials care about, such as the prospects for becoming a great leader or an accomplished artist, scientist, or entrepreneur. These outcomes may also be indicative of economic success but are extremely difficult to measure, and it would be easy to mistakenly attribute rare individual accomplishments (like Academy Awards or Nobel Prizes) to the institutions the recipient happened to attend.

Educators may be more interested in the extent to which students acquire knowledge. Presently, however, there are no reliable post-alumni exams administered at a scale wide enough to assess individual colleges, and it would be difficult to determine what alumni should be tested in or expected to know. The OECD’s Program for the International Assessment of
Adult Competencies may be the best candidate exam, but it has not widely administered. Moreover, it measures broad scores on cognitive ability in certain domains, like mathematical reasoning, that are likely less relevant to a person’s well-being than the acquisition of practical skills and knowledge used in a particular occupation. Regardless of the content of the exam, it should be administered before and after attendance to get a sense of how knowledge has grown.

Others may prefer to know how alumni contribute to public well-being, social justice, or their likelihood of living good lives. In principle, the method used here could be applied to such outcomes, if they could be measured and predicted accurately, but a great many practical limitations make that unlikely.

3. **Does a school with negative value-added harm a student’s economic prospects?**

Not necessarily. A negative value-added measure means that the predicted outcomes for alumni success, on a given measure, exceed the actual outcomes. There are many reasons why this could be the case:

- The predicted level of success may be inaccurately estimated, because of imperfections in the model and/or data;
- The actual outcomes may be inaccurately estimated, because of bias in the sample size, or the college may contribute to student economic success on other unmeasured dimensions;
- Even the lowest-scoring schools on value-added measures may be contributing substantially to student learning and economic success, just not as much their peer colleges.

4. **Why not just rank or rate colleges based on alumni outcomes?**

Ranking colleges based only on alumni outcomes biases the results in favor of colleges that admit the students most likely to have favorable post-graduation outcomes, without shedding light on the college’s contribution to that success.

Colleges have very different missions and serve diverse populations with varying levels of academic preparation. Value-added measures attempt to account for these differences in order to evaluate colleges on an even playing field. Highly selective research universities admit only the most highly prepared students, as measured by high school grades and admission test scores, while many two-year colleges have open admissions policies, accepting students who struggled to finish high school and have very low test scores. Because the most prepared students tend to earn higher salaries than the least prepared students, evaluations of college quality should consider student characteristics and adjust predicted outcomes and final ratings accordingly.

5. **How do these rankings differ from popular college rankings like U.S. News?**
The Brookings value-added measures differ conceptually and empirically in important ways from popular college rankings.

*The Brookings rankings are less biased by student characteristics.* Conventional college rankings consider a range of college characteristics that they consider good or bad and add up performance on these characteristics, using a weighting scheme deemed reasonable by the organization’s staff. They do not use value-added measures for their overall measure, though some, like *Money*, use some value-added measures for sub-components of their final rank. As a result, conventional rankings largely reflect the characteristics of students who attend the various colleges and do not shed much light on the college’s contribution to student success.

*Only the Brookings measures consistently predict better alumni economic outcomes, once student test scores and family income are considered.* There is a modestly high correlation between the conventional rankings and the Brookings rankings, but this is largely because students with higher family incomes and test scores tend to go to better schools, in terms of both the conventional rankings and the Brookings value-added rankings.

6. **How should prospective college students use these data?**

The value-added measures, quality measures, and alumni outcomes can be used to help decide where to apply and where to attend, but many other considerations are at least as important.

If comparing schools with different admission standards, the value-added measures will be particularly helpful in showing which colleges contribute the most to student success.

For two schools with similar admission standards (or predicted outcomes), comparing the economic outcomes of students may be the most relevant.

There are also useful data here even for colleges missing alumni economic outcomes or value-added data. Schools that score well on STEM orientation, alumni skills, or curriculum value will likely prepare you for a high-paying job, provided you persist through school to complete your degree program. If you are at high risk of dropping out (your high school grades and test scores were mediocre or worse or you have to work full time or take care of a child), choosing a college with high retention and graduation rates may be particularly important, as they suggest that the college is better at helping students finish.

7. **What alumni outcomes does this research analyze and why?**

This study reports and analyzes data on alumni earnings (for those who have worked at least 10 years), student loan repayment rates within three years after enrollment (a measure of economic self-sufficiency), and occupational earnings power (a measure of career prospects).

These measures were chosen for three primary reasons: They are important to individual and collective well-being; they can be measured with precision; and they are available for a large number of colleges.
8. Are PayScale and LinkedIn accurate sources of information about alumni?

Yes, with qualifications.

The PayScale data are highly correlated with actual earnings of alumni, as shown through state tax records. Moreover, PayScale national data on earnings by major are highly correlated with data from the U.S. Census Bureau on earnings by major. Bias at the college level, however, could not be determined.

LinkedIn data come from a much larger sample size of users, but there does appear to be a significant bias in favor of higher-paying majors. In other words, people with degrees in high-earning fields like computer science and business are more likely to have created a LinkedIn profile than people with degrees in lower-earning fields like education or blue-collar trades. This bias also differs by college, but, fortunately, an estimate of this bias could be calculated for each college and is used to adjust predicted earnings in the value-added model. Finally, data from LinkedIn alumni records are highly correlated with administrative data from the Department of Education, suggesting that there is a fairly high level of accuracy in using these data to measure college quality and alumni outcomes.

We conclude that these social media sources provide highly useful information that is not otherwise available to the public or to researchers.

9. What are some of the limitations or weaknesses with regard to this study?

There are a number of important limitations to this research that readers should consider.

- This is an observational study, not an experimental study.

Since students are not randomly assigned to college, we cannot be sure that our measures of school quality and value-added are not biased by unmeasured factors, such as the student’s level of academic preparation or family resources. In practice, these factors may be correlated with certain quality variables in our model or the x-factor, making either appear larger or smaller than they should be.

- Many of the variables used in the model are imprecisely measured, especially those measuring student characteristics.

Ideally, our study would use data on student test scores, high school grades, family income, and even parental education to predict student outcomes. Instead, we are forced to rely on less precise proxy measures such as imputed test scores (for most colleges), Pell grant awards, the percent of students taking out federal loans, age, and racial/ethnic demographics. Thus, the final value-added measures have a range of possible values above and below the actual.

- The model does not perform as well in predicting community colleges outcomes as it does in predicting outcomes of four-year colleges.

For community colleges, the model does not fit the data as well, meaning that the predictive power is weaker. If run for two-year colleges only, the adjusted R-squared of the models, a
measure of fit, is about 30 to 60 percent of the R-squared for four-year colleges. This is partly the result of lower data coverage for community colleges, but it could also reflect increased measurement error or greater diversity of outcomes across colleges of two years or fewer that make broader patterns harder to find.