



Wheelhouse

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Community College Quality

The Promises and Pitfalls of Measurement

POLICYMAKERS AND HIGHER EDUCATION LEADERS have long sought to identify the conditions and practices of postsecondary institutions that produce better outcomes, namely student success. But any examination of outcomes must take into account the educational backgrounds of the students enrolling in those colleges. Ignoring the “inputs” students bring into college may confound college effectiveness with students’ pre-college characteristics.

This brief examines whether there are significant differences in student outcomes across California’s extensive community college system, which is the largest system of higher education in the U.S. and includes 114 campuses. Our results show considerable differences across campuses in various student outcomes. However, a significant portion of these differences is accounted for by the educational and life experiences that students bring with them when they enroll in college. Nevertheless, after controlling for these inputs, our results show that important differences in college quality can still be clearly identified.

Background

Determining a “school effect” has long been done in K-12 research. Most research finds that the school itself accounts for less than 20 percent of the variation in student outcomes, with student characteristics or “inputs” accounting for the rest. Even less is known about the effects of colleges on higher education outcomes. Previous work in college quality has largely focused on the relationship between the institution a student attended and their subsequent degree completion and earnings after graduation. But it is often hard to disentangle the true effect of what happens in college from the self-selection of students into specific institutions, because students are not randomly sorted into higher education institutions. Often, they choose their colleges. Other times, and particularly in the case of

TOPLINES

> Identifying successful community colleges requires nuanced analysis that accounts for the “inputs” students bring with them to the campuses where they enroll.

> Quality analyses that account for student characteristics yield college rankings that look very different from those that don’t. When student inputs were considered, one college in this analysis jumped up by 75 rankings out of 108, while another dropped by 49 rankings.

> With inputs accounted for, individual colleges show wide variation in student success across key measures: transfer, persistence, and degree/certificate completion.

> As policymakers and practitioners look for measures of college quality, they should take care to avoid blunt instruments that don’t consider wide variation in student inputs across colleges.

It is often hard to disentangle the true effect of what happens in college from the self-selection of students into specific institutions.

community colleges, students matriculate because of proximity, low cost, and the ability to access higher education regardless of their past school experience.

Not much is known about campus differences in effectiveness at the community college level. Community colleges serve multiple goals, including facilitating transfer to four-year universities, conferring associate degrees and certificates, providing career and technical education, offering basic skills instruction, and supporting lifelong learning. This broad array of students and missions makes it difficult to determine which outcomes should be measured or emphasized. Furthermore, community colleges are open-access institutions, and, as such, selection of students into campuses differs substantially from selective four-year institutions. In fact, most community college students enroll at the community college nearest to their home.

California community colleges serve 2.4 million students, or two-thirds of all California students in higher education. These students come from a wide range of demographic and academic backgrounds. The CCCs are situated in urban, suburban, and rural areas of the state, and their students come primarily from public high schools that are considered to range widely across the spectrum of school quality.

Despite the challenges and contextual factors described here, however, we implemented a means to identify differences in quality that take into account the student inputs that individual CCCs receive. This approach is intended to highlight questions about college quality with the nuance and care that such questions deserve.

Data and Methods

To explore institutional differences between community colleges, we use an administrative dataset that links four cohorts of first-time freshmen enrolled in the community college system to their California high school records.¹ We measure four outcomes intended to capture community college effectiveness:

- transfer units earned in the first year.
- persistence into year two.
- transfer to a four-year institution.
- completion of a degree or certificate.

Policymakers interested in comparing institutions often simply compare raw outcomes across campuses (i.e. by comparing differences in graduation rates from one college to the next, or as compared to the state or national average). But these simple comparisons may be misleading due to differences in student characteristics across campuses. That is, the mean differences in student outcomes may not only be due to real differences in college quality, but rather due to differences in student-level inputs that are the primary predictors of college success (inputs such as prior ability, family income, quality of prior educational experiences, or motivation).

To address the important contribution of these inputs, we use regression and econometric methods to adjust our estimates of campus quality differences for important background information about students' high school academic performance, including the following five inputs:

- 11th grade standardized test scores.
- level of math course taken in 11th grade.
- a high school quality measure.
- academic goals at entry.
- peer characteristics at the college.

¹ These data were provided by the California Community College Chancellor's Office and the California Department of Education as part of a larger project looking at alignment and college readiness between California's K-12 and postsecondary systems of education.

Results

Our results show considerable differences across campuses in both short-term and longer-term student outcomes. Much of these differences is accounted for by student inputs, namely 11th grade test scores, demographic characteristics, college goals, high school quality, and peer differences. However, even after controlling for these inputs, our results show that important differences between colleges remain. They also provide a very different lens through which to consider “college quality.”

Figure 1 shows two box plots of the distribution of transferable units in year one across the colleges before adjusting for campus inputs (the blue box on the left), and after adjusting for inputs (the gold box on the right). The box in the plot covers the 25th to 75th percentiles of units while the outer lines represent the 10th and 90th percentile of units. From this figure we note, first, that the distribution in the outcome—transferable units in year one—is considerably reduced once we account for student inputs. Second, we note that there remains important differences in outcomes across campuses once you adjust for student inputs. Specifically, the difference in the average transferable units in year one between the campus at the 10th percentile versus the 90th percentile is about 3.68 units (a little over one transferrable course).

Even after controlling for these inputs, our results show that important differences between colleges remain.

Figure 1
Distribution of college average transferable units in the first year.

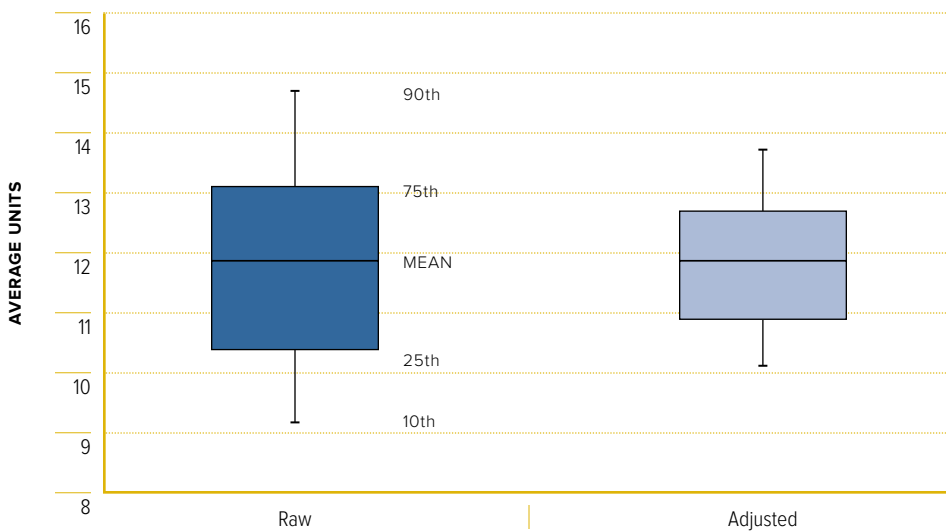
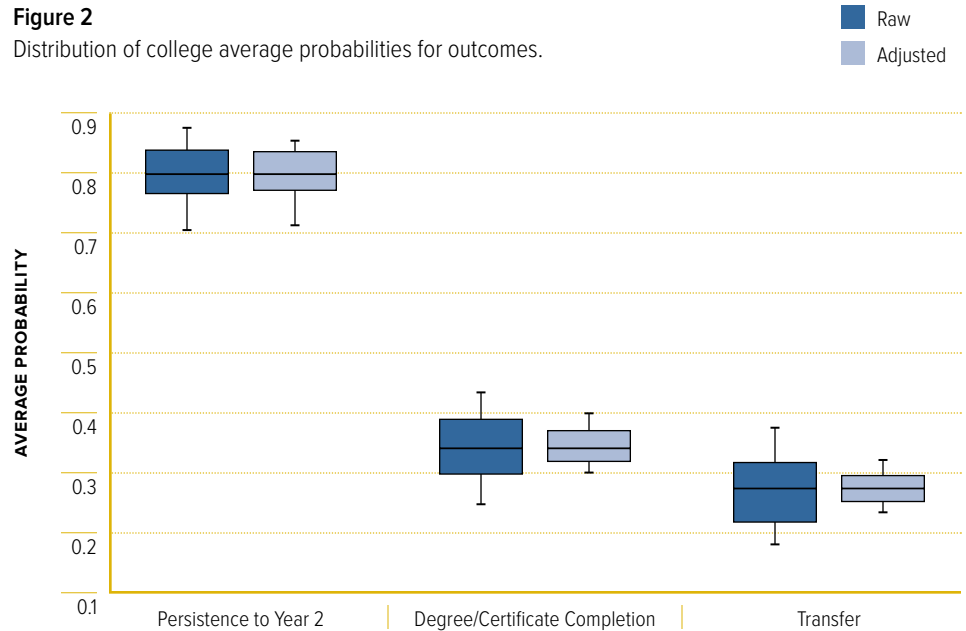


Figure 2 has identical plots for the other three outcomes we look at: average probability for persisting to year two, completing a degree or certificate, and transferring to a four-year college. What is the marginal impact of being at a more effective college? Our estimates indicate that going from the 10th to 90th percentile of campus quality is associated with a 37 percent increase in student transfer units earned, 21 percent increase in the probability of persisting, a 42 percent increase in the probability of transferring to a four-year college, and a 27 percent increase in the probability of degree/certificate completion. Those are, indeed, powerful differences in the outcomes achieved by students at these colleges.

These results suggest caution to policymakers and other observers who may be tempted to rank or judge the efficacy of colleges based on unadjusted mean outcome measures such as graduation rates or post-graduation wages.

Figure 2

Distribution of college average probabilities for outcomes.



The rank ordering of the most effective campuses on our measured outcomes (transfer units earned in the first year, persistence into year two, transfer to a four-year institution, and completion of a degree or certificate) changes considerably after controlling for student characteristics. The average campus changed plus or minus thirty ranks on a list of the 108 colleges included in the analysis.² The largest positive change being 75 positions up in the ranking and the largest negative change, 49 positions down in the ranking.

Conclusion

Controlling for differences in student-level observable characteristics accounts for some but not all of the differences in student outcomes across CCCs. Our results show that college rankings or comparisons based on unadjusted mean differences can be quite misleading. After adjusting for student-level differences across campuses, the average school rank in our sample changed by about 30 ranks out of 108.

These results highlight the importance of considering student-level inputs when estimating college quality. They also suggest caution to policymakers and other observers who may be tempted to rank or judge the efficacy of colleges based on unadjusted mean outcome measures such as graduation rates or post-graduation wages. Our results suggest that a more thoughtful and comprehensive ranking of the effectiveness or quality of open-access campuses should first adjust such rankings for differences in the characteristics of the students those campuses serve.

*This brief was written by Michal Kurlaender, University of California, Davis, professor of education; Scott Carrell, University of California, Davis, professor of economics; and Jacob Jackson, research fellow at the Public Policy Institute of California. It is based on a paper they co-authored that originally appeared in *The Russell Sage Foundation Journal of the Social Sciences*, 2(1), 174–190 (2016).*

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² Our analysis only includes the 108 colleges for which we had enough data to estimate models.