Overview of the Volume

Steven Brint, Charles T. Clotfelter

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STEVEN BRINT AND CHARLES T. CLOTFELTER

The chapters in this volume add new empirical evidence and new thinking to issues of system-level, campus-level, and classroom-level effectiveness. They were chosen by the editors from among sixty-two proposals submitted to the Russell Sage Foundation. Our choices were based on the quality of the data and analyses.

The papers concerned with system-level issues address both market and regulatory influences on institutional behavior. On the market side, they focus on the consequences of tuition increases (Dahill-Brown et al., Hemelt and Marcotte) and price deregulation (Kim and Stange). On the regulatory side, one of the papers focuses on performance funding, a state policy to improve accountability for outcomes (Dougherty et al.). The other system-level paper examines the value of sub-baccalaureate credentials as compared to college attendance without completion on a range of student outcomes (Rosenbaum et al.). The single campus-level paper focuses on variation in retention and degree production across California community colleges (Kurlaender, Carrell, and Jackson) with current proposals for institutional performance ratings, promoted by the Obama administration among others, in mind. The classroom-level paper focuses on how well the National Academy's "promising instructional practices" perform when examined relative to traditional methods (Reimer et al.). The penultimate paper in the volume provides a broader context for understanding national concerns about the production of STEM baccalaureates by examining the performance of American high school students compared to their peers in other countries (Han and Buchmann).

One of the most prominent trends in public financing of higher education in the last decade is the marked decline in state support from state governments. As noted, real per student appropriations declined in the aftermath of the Great Recession in 2008. To make up for these cuts, states and their universities have opted to raise tuition levels. Between the 2004–2005 and 2014–2015 school years, the inflation-adjusted tuition and fees at public four-year institutions increased on average by 3.5 percent a year, faster than that of private four-year and two-year institutions (2.2 and 2.5 percent, respectively) (College Board 2015). Such tuition hikes were more pronounced in some states than others. In their paper, Steven Hemelt and David Marcotte seek to determine what effect these tuition hikes had on students' choices about where to apply and attend. They ask whether students reacted to higher tuition by choosing two-year colleges, out-of-state institutions, or private institutions, over public four-year universities in their own states, and they show that tuition increases lead many students to choose lower-priced alternatives.

In light of the important role that higher education plays in shaping the structure of opportunity and the distribution of income, few issues have more urgency in debates over domestic public policy than the incomes of students who enroll in the country's heavily subsidized public flagship universities. As noted, many commentators have argued that public four-year universities, in particular elite public universities, are increasingly serving an affluent clientele. Whether there have been changes in the income profile of students attending

these universities is hard to establish, however, because comparable data on the family income of entering students is difficult if not impossible to locate. Surveys are subject to error, and detailed data from financial aid applications cover only some students. In their paper, Sara Dahill-Brown, John Witte, and Barbara Wolfe develop a new measure, based on census block data, and they apply it over thirty-six years for Wisconsin's flagship institution, the University of Wisconsin, Madison, showing an increase in upper-income students applying to the state flagship university.

An idea that has long been a pet policy proposal among economists is tuition rates differentiated according to marginal costs (see, for example, Berg and Hoenack 1987; Karelis 1989). In 2003, in a burst of deregulatory zeal, Texas gave its universities the flexibility to set tuition levels, and to raise them at different rates across programs. Jae-on Kim and Kevin Stange examine what universities in Texas chose to do with this newly found flexibility. In particular, they compare changes across universities and between programs within them, showing that deregulation has led to higher costs of attendance in high-demand fields that tend to be well-remunerated in the labor market.

In an effort to improve the effectiveness of public higher education and rationalize the allocation of funds across competing institutions, more than half of the fifty U.S. states have turned to some form of "performance funding." Under this approach, annual appropriations would be apportioned according to objective, measurable criteria, rewarding institutions that improve persistence and graduation rates, for example. To see how these systems have operated in the real world of state budgetary and institutional decision making, Kevin Dougherty and his colleagues use qualitative research methods, including numerous interviews with state budget and university administrators. They explore both the responsiveness of university administrators to performance funding and some unintended consequences, such as stricter regulation of admitted students to boost graduation rates.

In the college-for-all system, students are encouraged to finish baccalaureate degrees. But only a minority of those who begin postsecondary education finish in six years, and underrepresented minorities finish at much lower rates. James Rosenbaum and his colleagues raise the question of whether this push to encourage as many students as possible to complete four-year degrees is rational for the country or for students themselves. They compare students who have "some college" attendance but have not finished their degrees with those who have finished subbaccalaureate degrees, including credentials. They find that on a wide range of economic and job satisfaction measures, holders of subbaccalaureate credentials outperform those who start but do not complete four-year colleges. Rosenbaum and his colleagues provide evidence for a change in national policy to publicize the value of subbaccalaureate credentials, particularly for students who have low chances of completing college due to limited financial means or weak levels of academic preparation.

President Barack Obama and many state governors have proposed rating colleges' institutional performance using metrics such as graduation rates, affordability, and accessibility to low-income students. Many institutional rating systems fail to take into account the characteristics of students who enter the colleges and universities under consideration. These "input characteristics" include students' socio-demographic backgrounds and high school records. Using data from all 128 California community colleges, Michal Kurlaender, Scott Carrell, and Jacob Jackson show the extent to which failures to control for input characteristics skew quality rankings. By correcting for these input characteristics, they establish that community colleges may move by as many as forty ranks in outcome measures, such as retention and graduation, compared to ratings that do not control for students' input characteristics.

The National Academy of Sciences has promoted what it terms "promising practices" in STEM education. These include instructional practices that help students "think like a scientist," active learning opportunities, and frequent formative and summative assessments. Using data from a large number of STEM classrooms at a major research university and fo-

cusing on the same students who took multiple classes, Lynn Reimer and her colleagues examine the effectiveness of these promising practices relative to traditional instructional practices. They find little evidence that these practices matter greatly for most students, but find some evidence that they matter more for low-income, first-generation, and underrepresented students, precisely the students whose completion rates in science will need to increase if the United States is to remain competitive with other developed countries.

More than half who begin college science, technology, engineering, and math (STEM) curricula nationwide fail to complete their degrees. These statistics have led to many efforts to improve students' performance and learning experience in STEM through such innovations as mandatory learning communities, mandatory group tutoring sessions, intensive advising, early research exposure, career workshops and instructional innovations such as those described in the introduction to this volume. However, the largest part of the problem precedes enrollment in college. Siqi Han and Claudia Buchmann show that U.S. students score low in both science interest and science performance on standardized international tests. Standard deviations are also much higher for American students than for students in most of the developed world. Han and Buchmann investigate whether standardized science curricula matter for students' performance on these tests, controlling for individual-level and country-level characteristics. They find evidence that standardization has a modest net effect on mean science scores, suggesting that a rigorous common core curriculum in secondary school science would contribute to higher STEM baccalaureate degree production.

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