The Returns to College(s): Estimating Value-Added and Match Effects in Higher Education

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Abstract

Students who attend different colleges in the United States end up with vastly different educational and labor market outcomes. We estimate value-added of individual institutions to decompose these differences into causal contributions of colleges versus selection bias from student sorting. Linking administrative registries of high school records, college applications, admissions decisions, enrollment spells, degree completions, and quarterly earnings spanning the Texas population, we identify institutional value-added across the diverse distribution of Texas public universities by comparing the outcomes of students who apply to and are admitted by the same set of institutions, as this "matched applicant" approach strikingly balances student ability measures across college treatments and delivers value-added estimates impervious to additional controls. We find that differences in causal value-added across colleges are nearly an order of magnitude smaller than raw differences in mean outcomes, and value-added on earnings is uncorrelated with selectivity. Colleges that modestly boost persistence, BA completion, and STEM degrees also tend to modestly boost earnings, and college input measures like instructional expenditures and full-time faculty share are moderately correlated with value-added. We also probe the potential for (mis)match effects by allowing value-added to vary flexibly by student characteristics, including race, gender, family income, and pre-college measures of cognitive and non-cognitive skills. At first glance, black students appear to face small negative returns to attending more selective colleges, but this pattern of modest "mismatch" is entirely driven by the presence of two large historically black universities in Texas that have low average incoming SAT scores but yield value-added for black students; across the non-HBCUs, black students face very similar returns to selectivity as their peers from other backgrounds.

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