A Counterfactual Approach to Analyzing the Effect of College Expansion on Health

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Abstract

A large body of research documents the presence of an education-health gradient in which people with higher levels of education enjoy better health than people with lower levels of education. The purpose of this study is to examine a potential source of heterogeneity in the education-health gradient—heterogeneity stemming from the expansion of higher education. Drawing on ESS data for UK respondents in pre- and post-expansion of higher education cohorts, this study uses a counterfactual approach to identify individuals who were able to attain a higher education degree with the expansion and to compare their self-rated health against individuals who either attained a higher education degree regardless of the expansion or did not attain a higher education degree regardless of the expansion. The pattern of results are consistent with the possibility that the expansion of higher education is particularly beneficial for people on the margins of attaining a degree.

Objectives

A large body of research has documented the presence of an education-health gradient in which people with higher levels of education on average enjoy better health than people with lower levels of education. Recent studies have identified a couple sources of heterogeneity in the education-health gradient. In particular, the size of the gradient appears to be increasing over time (across birth cohorts), to be larger for whites than for blacks, and, to a lesser extent, larger for men than for women. In addition, a few studies have found that the health returns to higher education are greater for people from disadvantaged backgrounds, though results are mixed across studies.

The purpose of this study is to examine an alternative source of heterogeneity in the education-health gradient—heterogeneity stemming from the expansion of higher education. One potential explanation for the cohort-based trends in the education-health gradient stems from the changing composition of the population with a higher education degree. One approach to assessing how the expansion of higher education might have influenced health is to distinguish three groups: (1) people who would not have attained higher education before the expansion but who would after the expansion (CD: "conditional degree earners"), (2) people who would have attained higher education regardless of the expansion (AD: "always degree earners"), and (3) people who would not attain higher education regardless of the expansion (ND: "never degree earners"). Distinguishing the health returns to a college degree for the CDs from the ADs and NDs allows for an assessment of the impact of the expansion of higher education on health and captures an additional source of heterogeneity in the education-health gradient.

Methods

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The data for the analysis come from UK respondents to the European Social Survey (ESS). The ESS is comparable to the GSS and offers a range of respondents for birth cohorts that span the expansion of higher education in the United Kingdom. The United Kingdom experienced the expansion of higher education later than the United States and have unique education systems that represent an important contrast to the system in the United States.

The analysis proceeds in three steps. The first step draws on a counterfactual framework and propensity score models to identify the three subgroups outlined above (the CDs, ADs, and NDs) in pre- (born 1938-1942) and post-expansion (born 1952-1956) cohorts. The second step involves characterizing the three subgroups with respect to sociodemographic characteristics. The third step utilizes a difference-in-difference model to estimate the education-health gradient for the three subgroups.

Preliminary Findings

Figure 1 illustrates the distribution of self-rated health, the primary outcome for the analysis, and postsecondary degree attainment stratified by pre- and post-cohort membership for the ESS UK respondents (N = 1,191).
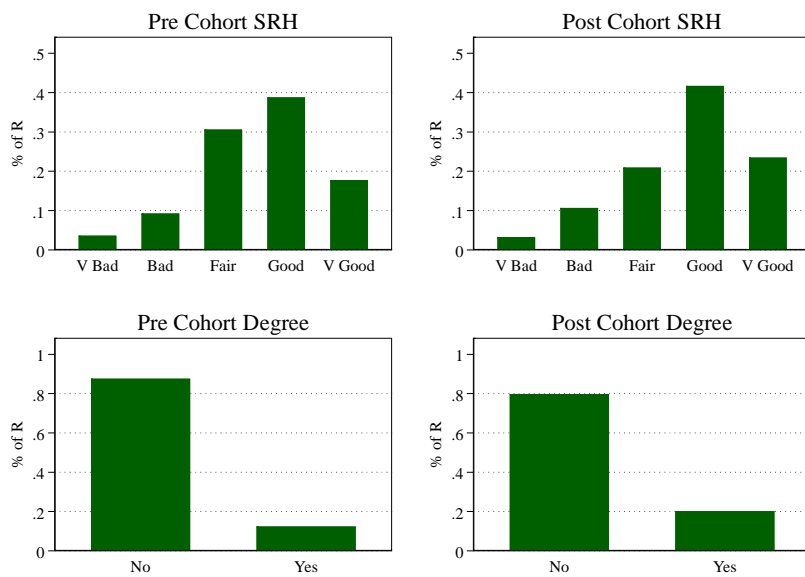

Figure 1. Distributions of key covariates.

Figure 2 illustrates the assignment of respondents to the three unobserved categories: always degree earners, conditional degree earners, and never degree earners with the numbers in brackets indicating the range of assignments across simulations.
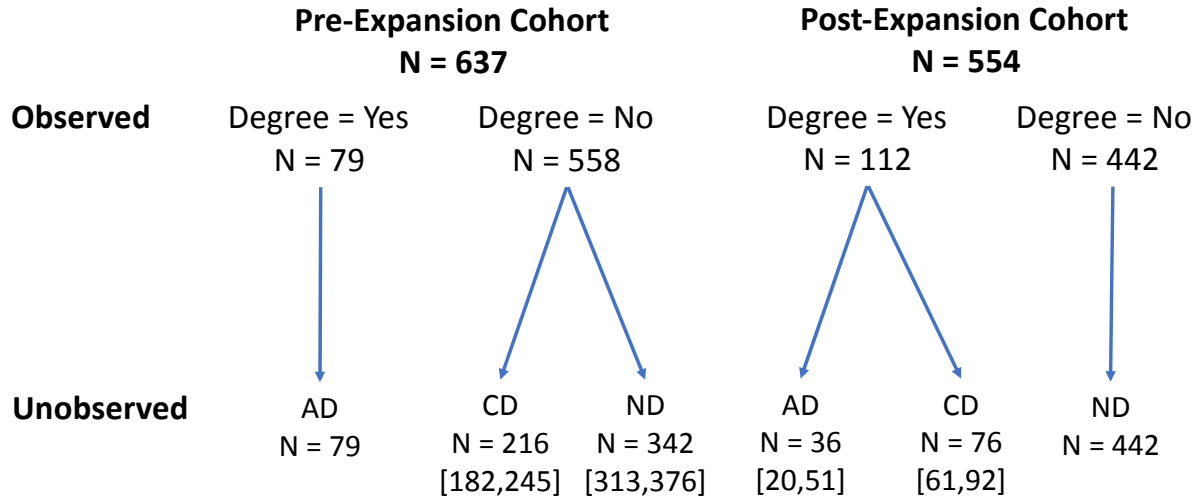
Figure 2. Assignments of respondents to always earner, conditional degree earner, and never degree earner across simulations [range in brackets].

Finally, Figure 3 illustrates the estimates from the difference-in-difference model predicting self-rated health. The model adjusts for age, sex, race/ethnicity, two-parent household, mother's and father's education and occupational status, and citizenship and immigrant status. The estimates indicate that always degree earner, as one would expect, is associated with higher self-rated health, but no more so in the post-cohort than in the pre-cohort. Conditional degree earner is associated with higher self-rated health only in the post-cohort. This pattern is consistent with the expansion of higher education being particularly beneficial for the people able to attain a degree who would not have prior to the expansion of higher education.
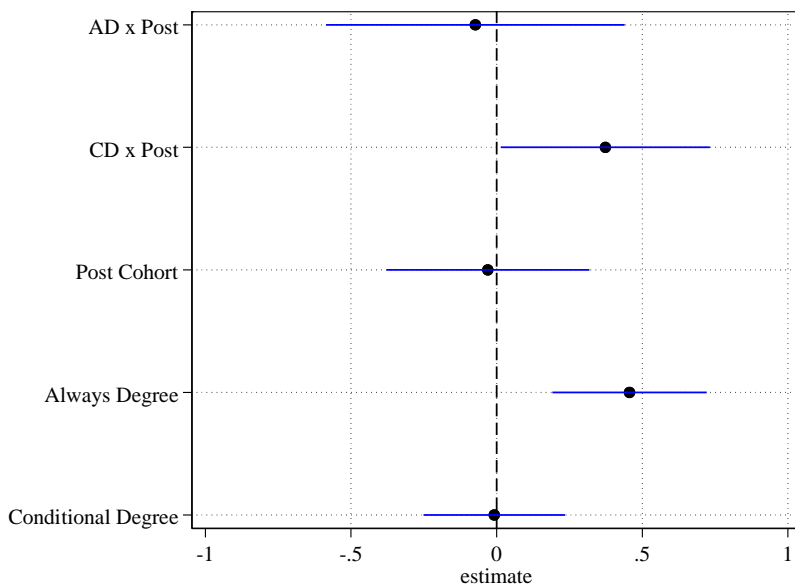

Figure 3. Parameter estimates from difference-in-difference models predicted self-rated health.