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Explaining changes in educational attainment over time

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At least since the 1970s, researchers have been documenting the close connection between educational attainment and labor market outcomes. In general, people with more education do better in today's high-tech economy than those with less education. More specifically, people with at least a bachelor's degree are among the highest paid workers in the labor force and are less likely to be unemployed than people with less education. According to the U.S. Bureau of Labor Statistics, among workers age 25 and older, median weekly earnings for those with at least a bachelor's degree were $1,249 per week in the second quarter of 2016, compared with $690 per week for those with a high school diploma (no further schooling). Similarly, the unemployment rate for college graduates was 2.5 percent in July 2016, compared with 5.0 percent for high school graduates with no further schooling. Since World War II, the number of people who have at least a 4-year college degree has increased dramatically. Data from the U.S. Census Bureau show that in 1940, just under 5 percent of the population 25 years and older had bachelor's degrees. By 1990, that figure was just over 21 percent, and in 2015 it had reached nearly a third (33 percent). In a recent article titled "Explaining the evolution of educational attainment in the United States" (*American Economic Journal: Macroeconomics*, July 2016), economists Rui Castro and Daniele Coen-Pirani examine some of the changes in education levels over the last several decades and reach some interesting conclusions.

The authors focus their study on single-year birth cohorts for the white male population born from 1932 to 1972. They employ a human capital investment model that accounts for changes over time in "skill prices," tuition costs, education quality, and heterogeneous learning ability. To calibrate average learning ability for each birth-year cohort, Castro and Coen-Pirani use data from the Congressional Budget Office on standardized test scores for U.S. elementary and secondary school students from the relevant periods. To measure educational attainment, the authors use data from the Current Population Survey (1964–2010) and the 1950 and 1960 censuses. One of the novel features of this study, and a crucial aspect of the authors' analysis, is its inter-cohort comparisons. For example, the 1932–48 cohorts experienced a cumulative increase in their college-graduation rates of more than 14 percentage points. For those born in the years 1949 through 1960, however, the rates actually declined by 10 percentage points. College-graduation rates began to increase again for the 1961–72 cohorts, but the rate for the 1972 cohort remains 3 percentage points lower than the rate for the 1948 cohort. The authors try to explain these trends in their study.

The authors' model uses static expectations, which means that it relies on current skill premiums for future expectations. People deciding whether to attend college in the 1960s were largely unaware that the returns to college-educated workers would decline in the 1970s. As a result, static expectations helped generate the increase in college-graduation rates during the early period, when skill prices were high. They also help explain the decline

in college attainment during the 1970s, when skill prices were lower, as well as the gradual recovery in the 1980s, when they began to increase again.

One of the more striking findings of the study is the relative decline in learning ability, as measured by standardized test scores, beginning with people born in the late 1940s and continuing through those born in the mid-1960s, especially those born during the 1953–63 period. The data from the Congressional Budget Office show a marked decline in scores on the eighth-grade Iowa Test of Basic Skills beginning with the 1953 birth cohort and ending with the 1963 cohort. According to the authors' quantitative model, increasing labor market returns for college graduates during the 1950s and 1960s explain nearly two-thirds of the increase in college-graduation rates for the 1932–48 cohorts. But such “skill prices” do not explain the stagnation in the rates for the later cohorts. Instead, the authors attribute roughly half of the stagnation to increases in college tuition and half to lower learning ability. To illustrate the latter point, Castro and Coen-Pirani assert that the college-graduation rate for the 1972 cohort would have been 2.5 percentage points higher if average learning ability had stayed constant at the level of the 1953 cohort. Further, the authors claim that the decrease in learning ability is “the single-most important factor” in the decline in graduation rates for the 1948–60 cohorts. They suggest that decreased learning ability might also be the primary factor in the relative slowdown in college attainment over the last several decades, as well as in the stagnation in high school graduation rates during that same period. In sum, Castro and Coen-Pirani demonstrate that variations in educational attainment among the different cohorts can be attributed to changes in skill prices, tuition costs, and the quality of education over time, as well as to differences in average learning ability between the cohorts.