

Research finds a college degree remains a sound investment despite rising tuition

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A new analysis of 5.8 million Americans finds that earning a college degree is still a sound investment, although the rate of economic return varies across college majors and student demographics. The findings

come as skepticism continues to grow over the value of a degree in the face of rising college costs, a decline in college enrollment, and a transforming economy.

[The study](#) was published today in the *American Educational Research Journal*. It was conducted by Liang Zhang from New York University, Xiangmin Liu from Rutgers University, and Yitong Hu from New York University.

The study estimated the lifetime rates of return of a [college degree](#), analyzing the current and future economic benefits and costs to graduates. Comparing individuals who completed a bachelor's degree to those who had finished only high school, the researchers found that earning a degree provided a rate of return on investment of 9.88% for women and 9.06% for men, based on median earnings. In other words, a [college education](#) is expected to yield an annual rate of 9% to 10% throughout an individual's career.

The analysis considered the wage differentials between college and high school graduates as well as a host of other factors, including tuition and other expenses, financial aid received, job earnings during college, and the opportunity costs that come with deferring full-time entry into the workplace. The study relied on 2009–2021 data from the U.S. Census Bureau's American Community Survey for 2.9 million individuals with college degrees and 2.9 million individuals with high school diplomas only, between the ages of 18 and 65.

"Our cost-benefit analysis finds that on average a college degree offers better returns than the [stock market](#)," said study co-author Liang Zhang, a professor of higher education at the NYU Steinhardt School of Culture, Education, and Human Development. "However, there are significant differences across college majors, and the return is higher for women than men."

Looking across 10 broad fields of study, engineering and computer science majors had the highest median returns, exceeding 13%, followed by business, health, and math and science majors, with returns ranging from 10% to 13%. Biology, agriculture, and social science majors had returns of approximately 8% to 9%. At the lower end of the spectrum, education and humanities and arts majors had returns of less than 8%.

Female graduates generally had higher returns than male graduates, both for college education overall and for specific majors. For men in the education and humanities and arts grouping of majors, the returns were less than 5%. These differences do not mean that female graduates have higher overall earnings than male graduates over their lifetimes, but that the gap between college and high school graduates is larger for women than for men.

College graduates from racial minority groups also tended to have slightly higher returns than the White graduates, although these gaps were not as large as the gender gaps.

The study found that while the rates of return remained strong from 2009 to 2021, they declined modestly over the period. When broken into three periods, the rates of return dropped from 10.12% for women and 9.33% for men in 2009–12 to 9.48% and 8.83%, respectively, in 2017–20.

"The slight decline in returns is likely attributable to the faster increase in college expenses compared to the earnings growth of college graduates relative to that of [high-school graduates](#)," said Zhang.

"Our findings suggest that selecting majors with high returns is a sound financial decision, but at the same time, if a student has decided to pursue a major with a lower return, they may want to consider pursuing additional training or education to improve their labor market

prospects," Zhang said.

"From a public policy perspective, if certain majors are deemed essential to society but have low returns, policymakers may consider increasing financial aid for students in those majors or increasing pay levels for workers in related occupations," said Zhang. "This can help ensure that the social benefits of these majors are recognized, even if their individual returns are lower."

Zhang noted that it is likely that the variations in returns across college majors will persist or even increase as technology advances and shapes the demand for skills.

"Given the substantial gap in returns across college majors and the anticipated job growth in the information technology and health sectors, these trends will likely continue before reaching a new equilibrium," Zhang said. "That would have a profound impact on higher education as an industry and on individuals who are making decisions about where and what to study."

More information: Liang Zhang et al, Degrees of Return: Estimating Internal Rates of Return for College Majors Using Quantile Regression, *American Educational Research Journal* (2024). [DOI: 10.3102/00028312241231512](https://doi.org/10.3102/00028312241231512)

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