Students receiving state merit-based scholarships less likely to earn STEM degrees

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State merit-based scholarships reduce the likelihood a student will earn a degree in a science, technology, engineering and mathematics (STEM) field, according to researchers at Georgia State University and Oklahoma State University.

Their study, published in the *Journal of Labor Economics* in October, examined the effect of state merit-based financial aid programs, such as Georgia's HOPE Scholarship, on students' choice of major.

"We find that as a result of these merit aid programs, there was a significant drop in the probability of students majoring in STEM," said David L. Sjoquist, co-author of the study, professor of economics and affiliated faculty in the Center for State and Local Finance and the Fiscal Research Center in the Andrew Young School of Policy Studies at Georgia State.

The results suggest that adopting a strong merit aid program reduces a state's number of STEM graduates by 6.5 percent, and possibly by as much as 9.1 percent. In addition, the decrease in the likelihood of earning a STEM degree as a result of a strong merit aid program was more dramatic for male students than for female students.

Further analysis is needed to explain why merit aid affects the choice of college major. If the effect is a result of students' concern with earning the grade-point average (GPA) necessary to maintain scholarship eligibility, one policy solution would be to lower the GPA requirement

for STEM majors. If high school students avoid courses that would prepare them for STEM majors to maintain eligibility for merit aid, basing their eligibility on SAT or ACT scores could reduce that problem, Sjoquist said.

The researchers considered 27 states that adopted merit-based aid programs between 1991 and 2005, but focused on strong programs in nine states: Florida, Georgia, Kentucky, Louisiana, Nevada, New Mexico, South Carolina, Tennessee and West Virginia. These nine programs are considered strong because of their eligibility criteria, the number of students in the program and the size of the award.

The researchers compared enrollment data of students majoring in STEM subjects before and after merit aid scholarships were adopted in these states. They also made comparisons to states with no merit aid programs and considered the effect of merit aid on non-STEM majors.

Since 1991, more than two dozen American states have adopted merit-based student financial aid programs, which award scholarships to in-state students who meet merit requirements based on high school GPA and sometimes SAT or ACT scores or class rank. The programs also require students to maintain a certain college GPA to renew the reward. GPA requirements and award values can vary. A goal for these programs is to improve the quality of the state's workforce by increasing the number of college-educated workers in the state.

Georgia's HOPE Scholarship, adopted in 1993, is among the largest and most notable of the state merit-based financial aid programs in the country. In another recent study published in the IZA Journal of Labor Economics, the researchers examined student administrative records from the University System of Georgia to determine whether Georgia's HOPE Scholarship has affected students' college major decisions.

They found Georgia's HOPE Scholarship reduced the likelihood of a student earning a bachelor's degree in a STEM field. There was a 12.6 percent decrease in the number of STEM graduates, with the effects being greater for males. The decline in STEM majors is primarily the result of initial STEM majors switching to another major, according to the study.

Few studies have explored the effect of merit aid on the choice of college major, which has a significant impact on a student's post-college earnings. Many officials are concerned the United States is not producing enough majors in STEM fields, which are major drivers of innovation and economic growth. Only one-fifth of all college graduates major in a STEM field.

More information: David L. Sjoquist et al. State Merit Aid Programs and College Major: A Focus on STEM, *Journal of Labor Economics* (2015). DOI: 10.1086/681108

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