Colleges and universities of all types strive to meet the urgent need for STEM-educated workers and citizens. Further, educating a STEM workforce that reflects American diversity is a widely-acknowledged national priority.

The Council of Independent Colleges asked noted research organization NORC at the University of Chicago to study how well various types of colleges and universities perform when it comes to STEM outcomes, especially for students from underrepresented backgrounds.

The results show that small and mid-sized private colleges and universities play a key role in developing the STEM workforce of the future.

The study documents distinct advantages of attending a smaller private college or university for underrepresented students in STEM.

- Students from underrepresented groups are more likely to persist in STEM majors at private colleges and universities than at public ones;
- Students in STEM programs at smaller private colleges, on average, complete their degrees faster than do students at other types of colleges and universities; and
- Underrepresented students at smaller private colleges report very high levels of satisfaction with their interactions and relationships with faculty members in STEM fields.

Sixty-nine of the top 100 institutions whose undergraduates go on to earn STEM PhDs are small and mid-sized private colleges and universities.

Ninety-six percent of women STEM majors at smaller independent colleges report satisfaction with their interactions with faculty members.
Highlights

78% of women at smaller private colleges completed their STEM degrees in four years, a higher rate than at any other kind of college or university.

70% of STEM graduates from smaller private colleges find employment in STEM fields, as compared with 67% of graduates from regional public colleges and universities.

64% of all students at smaller private colleges who graduate with STEM degrees do so within four years. For graduates from regional public colleges and universities the average is 24%.

58% of Latino/Latina students who declare a major in a STEM field at smaller private colleges persist in a STEM field, compared with 40% at regional public institutions.

To be sure, challenges remain. For example, 62% of African American students who declared a STEM major at smaller private colleges left college with no degree. And only 30% of Latino/Latina students completed STEM degrees at smaller private colleges in four years. Determined efforts must be made to improve outcomes for these cohorts of students.
Next Steps and Implications

Policy makers, funders, and business and community leaders need to know that smaller private colleges and universities are productive and cost-effective in diversifying the STEM pipeline.

Higher education leaders should:
- Make the case to students and families: Share data about the effectiveness of private higher education in producing STEM graduates.
- Analyze institutional data to understand and promote their institutions’ contribution to diversity in the STEM pipeline.
- Set institutional goals with regard to recruiting, retaining, and graduating underrepresented students in STEM fields. Data suggest that retention for African American and Latino/Latina students in STEM is an area in which many small and mid-sized colleges and universities can increase their impact.

Students should:
- Ask colleges what percentage of their majors in specific fields—say, chemistry or biology—graduate in four years.
- Ask for employment data on graduates in STEM fields.

Funders should:
- Ask institutions for key data about STEM students, especially those from underrepresented groups. Also ask about:
  - Program completion rates;
  - Graduation rates;
  - Employment statistics; and
  - Doctoral degree achievement.
- Ask about the total cost of producing a graduate in a specific field. What is the institution’s total cost of producing a graduate in, say, physics?

Policy makers should:
- Consider all institutional types—not just public universities—when evaluating policy proposals to promote STEM education.
- Support policies that allow student choice of institution, so that all students can experience the benefits of private higher education.
Results

Overall, small and mid-sized private colleges outperform public institutions of all types when it comes to STEM education.

For example:

- When colleges and universities are ranked by the proportion of their STEM graduates who go on to earn STEM doctorates, 69 of the top 100 are smaller private colleges.
- When colleges and universities are ranked by the proportion of their women graduates who go on to earn STEM doctorates, 75 of the top 100 are smaller private colleges.
- A number of small and mid-sized private colleges excel at producing African American and Latino/Latina graduates in STEM. For example, Historically Black Colleges and Universities (HBCUs) such as Morehouse College and Spelman College, both CIC members, rank higher than institutions such as Harvard and UC Berkeley.

Methodology

The report examines data from the U.S. Department of Education’s National Center for Education Statistics and the National Science Foundation using the most recently available data. Full information about methodology is available in the report published online at www.cic.edu/STEMreport.