



PENNSYLVANIA

According to the latest data released by the National Science Board in its [2020 Science and Engineering Indicators](#) report, the United States leads in a number of science and engineering (S&E) measures. For example, the U.S. invests the most in research and development, attracts the most venture capital, awards the most doctoral degrees, and provides the most business, financial, and information services.

A state's S&E performance helps fuel its and the nation's economy. Four benchmarks of Pennsylvania's S&E performance are highlighted here: the cost of public higher education, the size of the STEM workforce, investment in research and development, and venture capital funding.

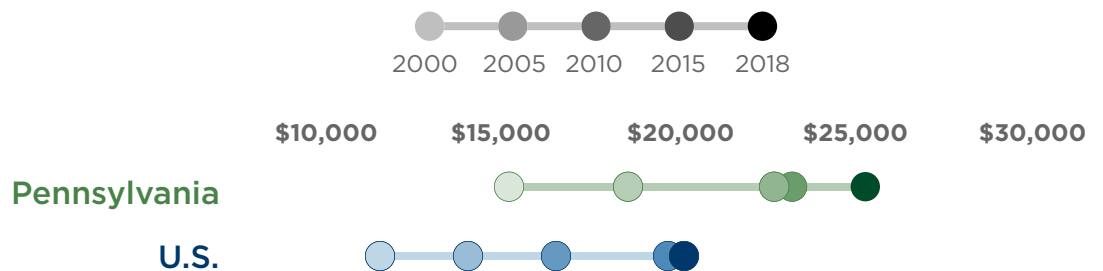
Rising Cost of a Bachelor's Degree

A bachelor's degree is one of several entry points to higher paying jobs associated with science, engineering, and many technical occupations.

Nationally, 34% of the total U.S. workforce has a bachelor's degree or higher. In contrast, 76% of workers in S&E occupations have a bachelor's degree or higher.

Average annual in-state cost of a public 4-year institution

(Adjusted for inflation to 2018 dollars)

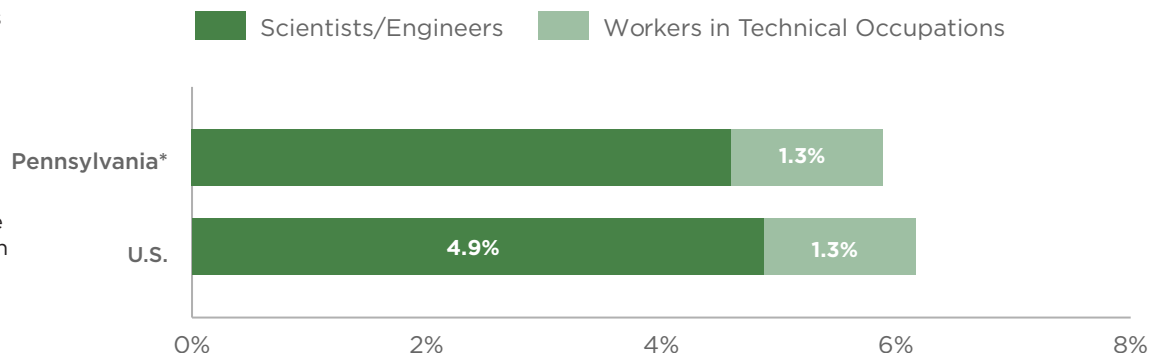


Source: National Center for Education Statistics, *Digest of Education Statistics*

STEM Workforce: People Working in STEM Occupations

Nationally, about 1 in 16 workers (6.2% or 9 million) have occupations as scientists or engineers (4.9%), or technical workers (1.3%). The STEM workforce is larger still when defined as either those who hold a bachelor's degree or higher in S&E (24.5 million) or those who use S&E technical expertise in their jobs (23.8 million), regardless of level of degree.

Jobs in S&E as a percent of all jobs in 2018



Source: U.S. Department of Labor, Bureau of Labor Statistics, Occupational Employment Statistics Survey
 *2017 data; 2018 data is not available for Pennsylvania.

Real Change in Research & Development Performed

Research and development (R&D) spending is a driver of innovation. Investing in science and technology today has ripple-effect benefits throughout the economy over the long term.

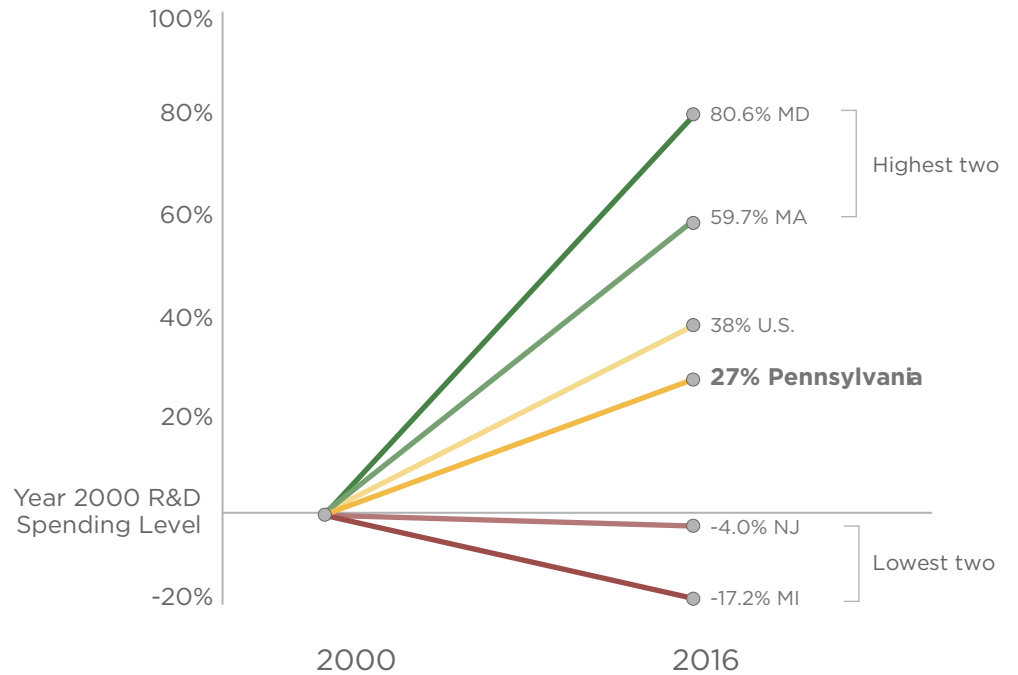
Annual state performance in R&D varies considerably, from \$289 million (SD) to \$135.1 billion (CA). Pennsylvania is one of 9 states that performs between \$15 to \$30 billion per year in R&D. In this figure, Pennsylvania's percent change in R&D spending is compared to the two highest and the two lowest state within this group.

Total 2016 Research and Development Performed

PA \$17.4B
U.S. \$515.3B

Percent change in R&D spending: 2000 to 2016

(Adjusted for inflation to 2016 dollars)



Source: NSF, National Center for Science and Engineering Statistics, National Patterns of R&D Resources

Venture Capital Investment

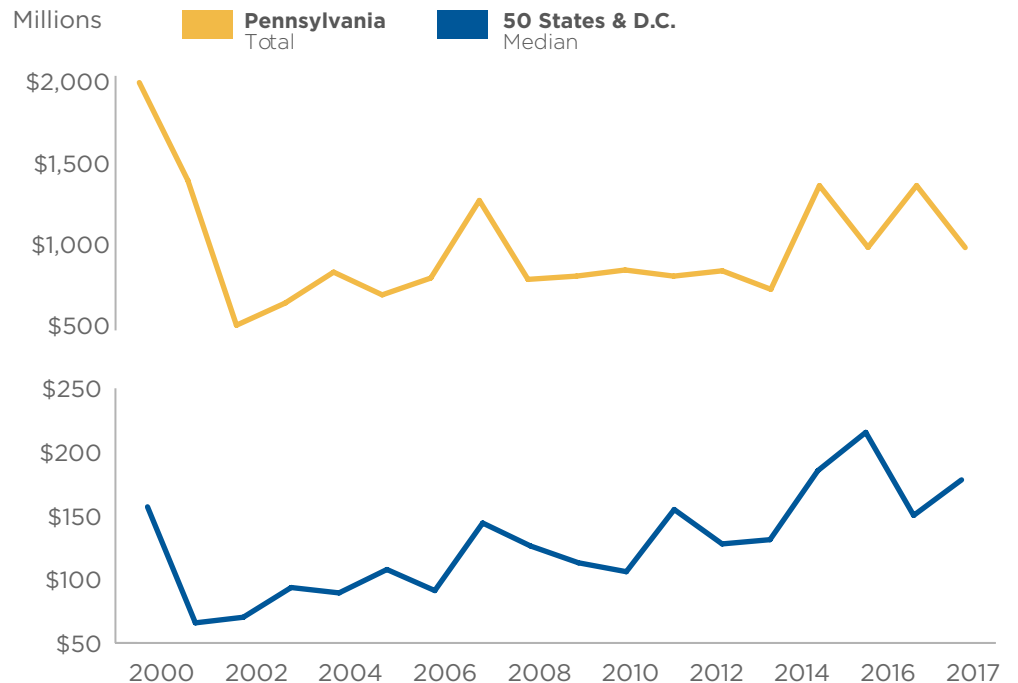
Venture capital investment supports U.S. businesses that take on the risk of developing and commercializing cutting-edge, emerging technologies. States with high values are successful at attracting venture capital to fuel new kinds of business, and ultimately, expand economic growth.

Total 2017 Venture Capital Investment

PA \$998M
U.S. \$80.6B

Total annual venture capital investment: 2000 to 2017

(Adjusted for inflation to 2017 dollars)



Source: Pitchbook Venture Capital and Private Equity Database