



What Gender is STEM? The Segregation of Science and Engineering and What to Do About It

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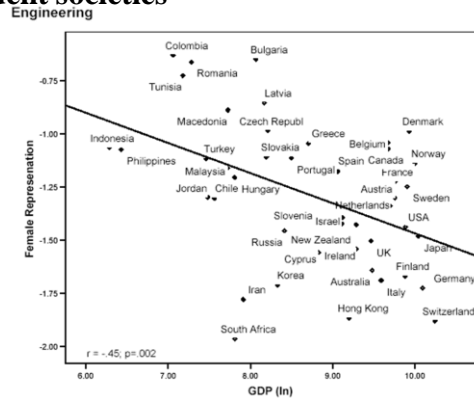
Scientific, technical, engineering, and mathematical (STEM) fields are strongholds of segregation in the contemporary United States. Women today make up nearly half of the US labor force but less than 15% of engineers and 25% of computer scientists. Gender disparities extend across educational, class, race, and citizenship lines. Although segregated career outcomes are commonly attributed to hardwired gender differences in aspirations and abilities, women's representation in STEM fields varies a great deal across time and space – often in surprising ways. Professor Charles demonstrates that engineering is more gender-integrated in less affluent societies, and the gender gap in 8th-graders' aspirations for STEM careers grows with societal affluence. Women also earn a larger share of degrees in STEM fields in countries and US-states where high-school requirements include courses in the respective fields. This contextual variability suggests a strong role of social and cultural factors.

Women today comprise more than half of all university students in the United States, and their representation has grown exponentially among doctors, lawyers, and other elite professionals. Engineering and the physical and computer sciences are notable exceptions to these equalizing trends. Women – especially Black and Latina women – remain extreme minorities in many STEM fields, despite decades-long diversification efforts by policymakers, educators, and industry leaders concerned about recurrent labor shortages, reduced global competitiveness, and constrained economic opportunities.

Key Findings:

- The gender composition of STEM occupations varies a great deal over time and across countries.
- A large body of social science research links the segregation of STEM to taken-for-granted cultural beliefs about the nature of men and women and the nature of scientific and technical work.
- In affluent societies, people are encouraged to “follow their passions” in choosing career paths. But because adolescents often have little direct exposure to gender-nonconforming work, efforts to “do what they love” often results in choices that reproduce the prevailing gender order (e.g., by leading girls to opt out of high school STEM courses).

Figure 1 – Fewer women engineering students in affluent societies



Implications for Policy

Integrating STEM fields depends on the erosion of stereotypes that depict women as ill-suited for STEM work and stereotypes that depict scientific and technical work as uncreative, solitary and fundamentally masculine. New high school requirements in computer science or engineering might decrease reliance on stereotypes and increase girls' confidence in their ability to do this work. But such mandatory early experiences will backfire without careful attention to the culture and structure of STEM classrooms. Encouraging a sense of belonging for underrepresented groups requires work and study environments that include diverse role models, a supportive peer network, and are free of gender stereotypes and discrimination.

Research reported in this publication was supported by the US National Science Foundation (NSF #1036679).