



Why Women Find It Harder to Get Math-Based Jobs

Research by professor **Luigi Zingales** suggests unconscious biases and prevailing stereotypes hold back progress.



Chris Lake

Luigi Zingales

Larry Summers caused waves when, as president of Harvard, he made a 2005 speech about why men still significantly outnumber women in STEM (science, technology, engineering, and math) careers. Summers controversially suggested that innate differences between men and women might explain the trend, but also posited that the gender disparity could be caused by different career preferences or discrimination.

Research by **Luigi Zingales**, Robert C. McCormack Distinguished Service Professor of Entrepreneurship and Finance, suggests that discrimination may indeed be a culprit. Zingales, along with Ernesto Reuben of Columbia Business School and Paola Sapienza of the Kellogg School of Management, designed a series of laboratory experiments to measure how potential employers respond to female applicants when hiring for a job that involves arithmetic. The paper, "How Stereotypes Impair Women's Careers in Science," was published in the January issue of *Proceedings of the National Academy of Sciences*.

In each experiment, researchers asked 45 male and female subjects to add up as many sets of four two-digit numbers as possible in four minutes. This task was specifically chosen because there is strong evidence that men and women perform it equally well.

Under one condition of the experiment, potential employers were in the same room as the candidates and simply observed them. Zingales and his collaborators found that male and female employers were twice as likely to hire a man than a woman when the only factor they observed was physical appearance.

In another condition, candidates had the opportunity to tell potential employers how well they expected to do on a second, upcoming arithmetic test. The researchers considered this "cheap talk," as candidates could boast about skills they didn't have. Male candidates tended to inflate

their abilities, while the female candidates tended to underestimate their abilities.

The findings suggest that discrimination is an integral reason for the low numbers of women in STEM careers. If the evidence holds outside the lab as well, it implies that real-world employers may often be choosing less-qualified male candidates over more-qualified female ones.

The experiments showed that bad decisions in favor of a male candidate occurred 14 percent more often than bad decisions in favor of a female candidate, regardless of the scenario. Hiring less-qualified candidates leads to costly consequences for the companies involved.

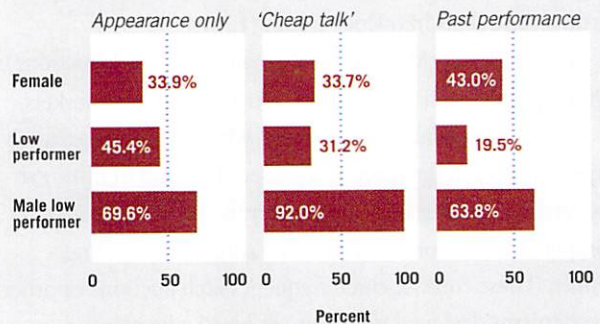
But the cost to women is even greater. In the condition in which potential employers knew only the gender of the candidate, the expected earnings of the female candidates were 19.4 percent less than those of their male counterparts. Perhaps the researchers' most important finding is that both men and women discriminate against women without realizing they are doing so.

—Robin Mordfin

This Doesn't Add Up

In an experiment, employers were more likely to choose men for a job, even if those men had performed poorly on an arithmetic test.

Probability of picking a candidate, based on the following conditions



Source: Reuben, Sapienza, and Zingales, 2014