



# How to Encourage Women to Choose Excellence Tracks Leading to High-Tech?

Aaron Institute for Economic Policy

Women make up only about 35% of the Israeli high-tech sector (20% in R&D positions). This gap is already evident in the education system. In middle school, female students represent 30% of the top performers on the PISA mathematics assessment. In high school, they make up about 40% of students in high-tech matriculation programs (a package consisting of five units in math, English, physics, and/or computer science). In the military, women hold only 14% of advanced technological roles. At the university level, women constitute 25% of graduates in high-tech fields (engineering, math, and computer science).

The Aaron Institute for Economic Policy aimed to investigate the reasons behind the gender gap at key decision points from middle school through to employment. The Institute's researchers analyzed data sets to identify trends and changes over the years and conducted in-depth surveys with female students in middle school, high school, military service, university, and women working in high-tech.

## Main findings

1. Studying in an excellence class in middle school was found to be the most significant predictor and springboard for integration into high-tech at all subsequent stages. The primary reason for not choosing an excellence class or a specialization in physics or computer science in high school is the absence of such classes or specializations in the school.
2. Of male students in excellence classes in middle school, 45% reported that their elementary school mathematics teacher recommended that they enroll in the excellence class, compared to only 17% of female students.
3. Among male students, 68% indicated that the end goal of their studying in an excellence class in middle school was to join a technology unit in the military, a science track in high school, engineering studies at university, and/or work in high-tech, compared to 48% of female students.
4. No gender differences were found regarding the importance of mathematics and science studies. Additionally, no differences were attributed to ability differences between boys and girls, nor in the perception of the challenge level in excellence tracks or in the social and emotional aspects related to learning in these tracks (belief in oneself, motivation, self-confidence, competence, friendships).
5. Female students in excellence and high-tech matriculation programs are more likely (52%) to participate in additional extracurricular activities (youth movements, academic programs, and various extracurricular activities). Thirty-five percent of them participate in science and programming clubs, compared to only 12% of male students in excellence classes.
6. The potential among male students is close to being realized. Eighty percent of male students studying five units of mathematics and English also study physics and/or

computer science, compared to 55% of female students. Twenty percent of female students in physics or computer science tracks study only 4-unit mathematics.

7. In schools with a high percentage of high-tech graduates, gender gaps are larger. In schools with more than 15% high-tech graduates, the gender gap is over 50%. In contrast, schools with less than 10% high-tech graduates show almost no gender gap.
8. Among Hebrew-speaking families, parents with higher education levels tend to encourage and push their sons to study in excellence classes and high-tech matriculation programs at twice the rate compared to their daughters. In contrast, among Arabic-speaking families, there is no gender gap in this regard.
9. Students who completed high-tech matriculation in high school have a very high probability of enrolling in high-tech degrees at university. However, male high school graduates with high-tech matriculation are twice as likely to enroll in high-tech degrees at university, compared to female graduates.
10. Women who completed high-tech matriculation in high school will earn an average salary 25% higher than those who completed matriculation with five units in chemistry or biology combined with five units in mathematics and five in English. The proportion of female students with matriculation in chemistry/biology combined with mathematics and English is 75%, whereas the proportion with high-tech matriculation is 40%.