Impact Evaluation of the Program for Promoting the Integration of Women in the High-Tech Industry

Findings of a Randomized Controlled Trial

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Abstract

Background

The high-tech industry is one of the most significant growth engines of Israel's economy and high-tech employees are among the highest wage earners in Israel. However, over the last decade, the Israeli high-tech industry has been faced with a shortage of skilled workers. Government Resolution 2292 (National Program for Increasing and Developing Skilled Human Capital in the High-Tech Industry), adopted on January 15, 2017, entrusted the Director General of the Labor Branch at the Ministry of Economy and Industry with the task of implementing programs for the integration of underrepresented populations in the high-tech industry. As part of her responsibilities, the Director General of the Labor Branch was assigned to develop and implement a three-year program for promoting the integration of women in the high-tech industry (hereinafter: the program). At the end of 2017, the Labor Branch partnered on the implementation of the program with she codes; (a non-profit organization that promotes computer programming among women).

The goals of the program are: to integrate women with no formal technological education or professional background into the high-tech industry; to place women with relevant professional technological education and background (e.g., software engineers, software developers, systems analysts, etc.) in key positions in the high-tech industry; and to encourage young women to opt for technological higher education. To that end, the program has established and is developing a community of women whose field of interest is programing, provides participants with high-quality technological training, and offers tech lectures and diverse community events for women generally. The program is implemented through branches operated by volunteer program team members. By 2022, 45 branches have been opened throughout Israel.

The Myers-JDC-Brookdale Institute conducted an impact evaluation study of the program from 2019 to 2021. The present report summarizes the study findings regarding the program as it was implemented in 2019.

Study Goals

The goals of this study were: to examine the implementation of the program operating model; to examine the participants' status with reference to the outcome indicators defined by the program; and to evaluate the impact of the program on the participants' employment and education.

Study Method

The study was based on a randomized controlled trial (RCT) design. In 2019, the program operators randomly assigned 5,772 women who applied to participate in the program: 3,855 women were assigned to the experimental group (whereby their application to participate in the program was accepted) and 1,917 women were assigned to the control group (whereby their application to participate in the program was not accepted). The random assignment was made possible given the high demand for participation in the program vs. the limited availability of places. The impact of the program was measured using logistic regression and ordinary least squares (OLS) models, applied to offset any differences between the experimental and control groups caused despite the random assignment.

The information sources used included 19 in-depth interviews with women on the headquarters team of the program and with employers, both men and women, from 11 high-tech companies; four focus groups with program participants and with program team members; and a telephone survey among 1,759 women – 1,119 of them assigned to the experimental group and 640, to the control group – conducted about two years following their application to participate in the program.

Findings

Examination of the implementation of the program operating model, which was based on the in-depth interviews, showed that:

- The program provided a peer network for the participants and exposed them to inspirational women who served as role models.

- The program provided the participants with a supportive and safe learning environment, and the study courses were described by all the interviewees as providing the participants with hands-on, real-world experience in programming and learning that simulated the work environment in high-tech companies.

- The program had a unique contribution in that it enhanced the confidence of the volunteer program team members in their programming ability and strengthened their management skills.

- In the course of the study, the program offered responses to several of the challenges that it faced: a dedicated course was opened to acquaint the participants with the world of high-tech recruitment, prepare them for a tech job interview, and guide them through the process of negotiating a job offer; several study courses were expanded to include a range of diversified topics and more study levels; and efforts were focused on the younger age group of women ahead of their academic studies.

The program impact study, which was based on the large-scale survey, showed that:

- The main impact of the program was on the likelihood of women with no formal technological education or relevant professional background to integrate into the high-tech industry: their probability of integrating into a high-tech company or being appointed to a technological position was 2.3 times higher in the experimental group than in the control group (about 13 percentage points higher, according to the OLS and PSM (propensity score matching) methods, used to examine the impact; $p < .001$).

- No impact of the program was found on the probability of young women ahead of their academic studies to enroll for higher education in the field of computer science (such an impact may not have been identified due to the small sample size in this group).

- No impact of the program was found on the wage level or employment of women with a professional background in the high-tech industry.

Summary

The study findings showed a significant positive impact of the program on the integration of women in the high-tech industry among women with no formal technological education or relevant professional background. The impact of the program was found to be significant even when compared with similar programs around the world. Given the need for skilled human capital in the high-tech industry in Israel, on the one hand, and the gender employment gap in the local high-tech industry, on the other hand, it is recommended that the model offered by the program be applied along with other methods and tools used by the State of Israel to cope with the issues that arise in this context; that efforts be focused on the population of women with no formal technological education or relevant professional background and on the younger age group of women ahead of their academic studies; and that the program be expanded and implemented on a wider national scale.