Gifted Children Programs' Short and Long-Term Impact: Higher Education, Earnings, and the Knowledge-Economy

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Abstract

We estimate the short-run and longer-term effects of gifted children programs (GCP) in high schools in Israel. The program tracks the most talented students into gifted children classes, starting 10th grade. They receive more resources in smaller classes, a unique curriculum, access to high-quality teachers, and courses in universities. We use test scores in exams that measure intelligence and ability to select a comparison group of equally gifted students from other cities where GCP was not offered at the time. Based on administrative data, we follow 14 cohorts of GCP participants who graduated high school in 1992-2005. We measure treatment effects on outcomes, ranging from high school to the labor market in their 30s and 40s. The evidence on the impact of GCP on academic achievements in high school is mixed, some compulsory subjects are affected negatively, and fewer are affected positively. The effect on the most chosen elective studies (computer science, physics, biology, and chemistry) is zero. The impact on the average composite score is negative, driven mainly by the effect on boys. However, all these estimates are relatively small, implying a tiny effect size. These results stand in contrast to the abundance of educational resources enjoyed by GCP participants, in addition to better peers in terms of SES background and outcomes. We discuss in this context the objective of the program to widen the scope and area of interest of its participants beyond the regular curriculum. We also highlight the potential adverse effect of the Big-Fish-Little-Pond Effect. In the longer run, we find meaningful positive effects of GCP on higher education attainment. All gifted children achieve a BA degree, but a much higher share of GCP participants graduate with a double major. The effect of getting a MA and Ph.D. in Elite Universities is also positive; for the latter, it is statistically significant, with an effect size of about 50 percent increase. Examining choice of field of study shows that gifted children in GCP study more math, computer, and physical sciences but engage much less in engineering programs. The net effect on STEM degrees is, therefore, zero. However, among GCP participants, a much higher share graduated with two STEM majors. This evidence, along with the significant effect on a double major, suggests that GCP enhances the impact of "multipotentiality," which characterizes many gifted adolescents. We find no effect of GCP on employment and earnings. Nor do we find that they work more than other equally talented children in the various sectors of the knowledge economy: hi-tech manufacturing, hi-tech services, and academic institutions. We examine marriage and family formation patterns as mediating effects and find no discerned GCP effects either. As robustness check, we used different samples based on the age at which students took the intelligence and ability test to match a control group to the treatment group. Our results are fully robust to variations in the sample we use. In addition, as an alternative matching of a control group, we used 8th-grade national exams test scores instead of the intelligence/ability measures. The results are very similar, and the estimated effects on all university schooling outcomes are even identical.

In the short-term, medium-run, and into adulthood, these comprehensive sets of results are not qualitatively different for females and males gifted children who participated in GCP. Treatment heterogeneity by giftedness level allows us to compare our results to earlier studies that used regression discontinuity designs to identify GCP effects on only marginally eligible students for such programs. We find meaningful differences in treatment effect between marginal and inframarginal gifted children, suggesting that it is essential to examine GCP's impact over the whole spectrum of Giftedness.