

Non-technical summary for the GDN research project

“Cognitive and non-cognitive skills: substitutes, complements, or independent inputs?”

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This summary provides non-technical information on the outcome of the above research project, a paper entitled “Why Are Extraverted Young Men Less Likely to Receive Higher Education? Evidence from Hungary”. Details on the history of the project are to be found in the Executive summary.

Using a unique dataset from Budapest, Hungary, we analyzed the role of extraversion on enrolment into higher education. Doing so, we have joined a growing body of literature looking at the effect of cognitive and non-cognitive skills on labor market outcomes. While new in economics, personality traits have been the focus of an entire field within psychology for decades. A recent paper by Borghans et al. (2008) has called for more systematic research on non-cognitive traits by incorporating more results of psychology research. We have focused on the indirect effect of such skills, operating through the enrolment into higher education. We believe that our contribution is unique, as we know only one paper providing similar analysis, with the notable difference that the measure of non-cognitive traits is not a well-comparable and commended indicator (although the sample size is larger than ours). We, on the other hand, could work with the Big Five battery of personality traits, focussing on extraversion, the core element of any personality factor model.

In order to answer our question, we made use of the Budapest Longitudinal Survey of Child Development (BLSCD). The BLSCD is a unique longitudinal dataset that collects detailed information on a few hundred respondents from their birth through age 22. Although the number of relevant observations is relatively low at around 320, the richness of the survey enables us to improve upon existing studies in measuring cognitive and non-cognitive skills and to remedy some of the endogeneity problems, based on the longitudinal dimension.

Our main results are coming from a stylized model of higher education attainment, empirically estimated using a multinomial probit specification. The model embodies agents' choice between the three mutually exclusive options on the basis of their expected value. The choices are driven by several characteristics, among which cognitive skills (IQ) and noncognitive skills (extraversion) play an important role (other states being non-student work and non-work). The chosen econometric specification allows for unobservable characteristics to be correlated across choices, making the empirical model true to the actual situation. In our estimates, we separated the effects on participation according to gender to uncover substantial differences. Similarly to different approaches, we have found that non-cognitive skills have a significant negative effect on the higher education attainment of young men, while such effect is missing for women. Using proxies for earlier behavioral problems, we obtained results suggesting that non-cognitive traits work mostly through increasing the returns of early entry to the labor market, rather than the cost of higher education.

Our empirical model was agnostic about the sources of the gender differences and the size of our data was enough only to show the existence of the gender-differences. Although our result fits well into the related literature, it will be interesting to see why such differences emerge and what longer term effects do they have. To carry out such an analysis, we have yet to see data that is both long and rich enough not only to follow individuals, but to do so for a long time and such a large number of them that several outcomes are observable over time.