
IMPACT OF EARLY COGNITIVE AND NON-COGNITIVE SKILLS ON LATER OUTCOMES

*Pedro Carneiro, Claire Crawford & Alissa Goodman
Centre for the Economics of Education*

Background / Introduction

Each of us is endowed with a unique set of skills that we use in all aspects of our everyday life. If we were asked to name the skills that we thought were valuable, we would find ourselves enumerating a never-ending list of attributes. Nevertheless, when describing the determinants of economic or social outcomes - or even the learning process - economists often have a very simplified view of skill. Failure to take into account the fact that skill is intrinsically a multidimensional object may misguide both research and the design of social policy.

In this paper, the authors analyse the consequences and determinants of cognitive and non-cognitive (social) skills at age 11, using data for Great Britain from the National Child Development Survey (NCDS). They document the importance of these skills for schooling attainment, labour market outcomes and social behaviours at various ages, and analyse the role of family background and the home learning environment in the formation of these skills.

Key Findings / Recommendations

- Non-cognitive skills are important determinants of schooling and labour market outcomes - both directly and indirectly (through their effect on educational attainment).
- Poor non-cognitive skills are very strong predictors of engagement in risky behaviours – for example, involvement in crime or exclusion from school - which impose costs not only for the individual, but also for society as a whole.
- Both cognitive and non-cognitive skills are strongly dependent on family background and other characteristics of the home learning environment. This is due to both genetic and environmental reasons.

Methodology

The authors use the National Child Development Study (NCDS) to analyse the consequences and determinants of cognitive and non-cognitive (social) skills at age 11. The NCDS comprises detailed longitudinal records for all children born in Great Britain in a single week in March 1958. There have been eight sweeps, the first of which was carried out at birth, with follow-ups at ages 7, 11, 16, 23, 33, 42 and 46. The authors make use of background characteristics for both the child and their family at birth and age 7, of social and cognitive test results at ages 7 and 11, and of various schooling, behavioural and labour market outcomes at ages 16 and 42.

The authors then use a regression analysis to determine the impact of cognitive and non-cognitive skills on a series of education, labour market and social outcomes. Within this analysis they control for a range of child, parental and local characteristics.

Other Findings

The authors find that an overall measure of non-cognitive skill is important for a host of outcomes, including whether or not an individual stays on at school beyond the age of 16, whether they have obtained a degree by age 42, employment status at age 42, work experience between ages 23 and 42, wages at age 42, smoking at age 16, truancy before age 16, exclusion from school, teenage pregnancy, involvement with crime (ages 16 and 42), and health at age 42.

Furthermore, the impact of this measure of non-cognitive skill does not differ in any systematic way across particular subgroups of interest (including those defined according to parental education, or father's socioeconomic status).

The authors then split this measure of non-cognitive skill into twelve different domains. For example, they find that "inconsequential behaviour" at age 11 (for example, misbehaviour in class) is associated with a reduction in the probability that an individual will stay on at school beyond age 16, a reduction in their wages at age 42, an increase in the likelihood that they will be a heavy smoker at age 16, and an increase in the probability that they will have played truant or been involved in crime by age 16.

They also find that depression at age 11 is associated with a reduction in the probability that an individual will have obtained a degree by age 42, an increase in the probability that the individual will be a heavy smoker at age 16, an increase in

the likelihood that they will have been excluded from school, and an increase in the probability that they will report symptoms of depression at age 42.

Conclusions and Implications

These findings demonstrate the importance of not viewing skill as a one-dimensional object. It is important to examine both the cognitive and non-cognitive side.

The authors show that both cognitive and non-cognitive skills are strongly dependent on family background and other characteristics of the home learning environment.

The research suggests that social skills may be more malleable than cognitive skills, which – if true – suggests that there may be greater scope for education policy to affect social skills rather than cognitive skills.

Additional information

To obtain the full report, visit the web-site: <http://cee.lse.ac.uk/> This report can be freely downloaded. .

DCSF Research Briefs and Research Reports can be accessed at www.dcsf.gov.uk/research/

Further information about this research can be obtained from Deborah Garniss, N6, DCSF, Moorfoot, Sheffield S1 4PQ.

Email: deborah.garniss@dcsf.gsi.gov.uk

The views expressed in this report are the authors' and do not necessarily reflect those of the Department for Children, Schools and Families.