

The Formation and Evolution of Childhood Skill Acquisition: Evidence from India

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Recently, psychology and economics literature have argued that the true determinants of a child's success in life are formed during early childhood rather than during school years. Most of this research has been undertaken in developed countries. Little is known as to how a child's cognitive and non-cognitive skills interact, and how her environment affects these skills in a developing country context. Building on this literature and using a rich data set for two cohorts of children aged 1 and 12 in India, we investigate determinants of a child's development of cognitive and non-cognitive skills over various phases of childhood.

Methodology

The data comes from the India part of the Young Lives project, which is a long-term study of childhood poverty set in Ethiopia, India (Andhra Pradesh), Peru and Vietnam over a 15-year period. In Round 1, which took place in 2002, 2,000 children aged 1 (Younger Cohort) and 1,000 children aged 8 (Older Cohort) were surveyed. Following up, Round 2 tracked the same children and surveyed them in 2006 at ages 5 and 12 respectively.

We use data for both cohorts of children, which allows us to investigate two distinct periods of childhood. Between the ages of 1 and 5, a child is entirely dependent on her parents. She learns how to control her attention, emotions and behaviour, and acquires crucial cognitive skills, especially language acquisition. Thus, we can analyse factors influencing the foundations of skill formation. The data on the Older Cohort provides information on school-age children. Children at that age are concerned with the development of their own and others' thinking. They make plans for the future, assuming responsibility for their actions. Apart from developing cognitive skills, it is important for children to build confidence during this time, as it will be crucial at later stages. During this period, an important change in a child's life is a shift in importance of interaction with parents to peer interaction, even though parents remain at the centre of her life. Their role shifts towards regulating her behaviour through monitoring and discipline.

The data on older children allows us to analyse the dynamics of cognitive and non-cognitive skill formation and influences exerted by a child's immediate environment. Using this data, we estimate a linear structural relations model that allows the estimation of latent cognitive and non-cognitive skill levels and parental investment. It also allows the possibility of linking these variables to observed child and household characteristics.

Findings

We find that

- For the Younger Cohort, household poverty and psycho-social risk factors influence health at age 1. Child health, parents' education and a household's social network positively affect cognitive skills.
- For the Older Cohort, child health, number of siblings and social networks positively affect cognitive outcomes. Households' ownership of assets and belonging to an urban household positively affect non-cognitive skills, while living in a larger household has negative effects.
- Cognitive skills acquired by age 8 positively affect cognitive and non-cognitive skills at age 12. However, it appears that non-cognitive skills acquired by age 8 do not significantly affect cognitive and non-cognitive skills at age 12.
- Parental investment has a positive effect on cognitive and non-cognitive skill acquisition for both cohorts.
- Children belonging to wealthier households and non-agricultural households show higher cognitive and non-cognitive skills, while those belonging to a non-wage/agricultural household have lower cognitive and non-cognitive achievements
- While 8-year-old children who attend a private primary school have better cognitive and non-cognitive skills, we observe that at age 12, it is their public school counterparts who perform better.

Policy implications

For the Older Cohort, we find the presence of self-productivity for cognitive skills and cross-productivity of cognitive on non-cognitive skills during the transition from 8 to 12 years. There is evidence that parental investment contemporaneously exerts a positive influence on skill formation for 5-, 8- and 12-year-old children. Other important determinants of skill formation include child, caregiver and household characteristics and school type. For our Younger Cohort, psycho-social risk factors significantly effect child health at age 1. These factors are reflected in parental care during pregnancy and during the first few months of a child's life. Since we also find child health, as measured for children at age 1, to be a significant determinant for a child's cognitive ability at age 5, this highlights the need to provide parents with support from early in the pregnancy.

