

Invest in Kids Working Group Meeting Summary

James J. Heckman, University of Chicago

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At the July Invest in Kids working group meeting Professor James Heckman of the University of Chicago presented “The Technology and Neuroscience of Skill Formation.” He began his presentation by showing that both cognitive and non-cognitive abilities predict later education, crime, and earnings outcomes, and that early disparities narrow little during the school years. The rate of return to human capital is highest for early interventions during the preschool years while later interventions, such as schooling and job training, yield lower economic returns.

Professor Heckman used evidence from human and animal studies to demonstrate the existence of critical and sensitive periods in development. Experiments with monkeys and rats, for example, have shown that certain foundational emotional and social behaviors are shaped dramatically by early experiences, illustrating the importance of positive early environments. He continued with human examples (such as Romanian orphans adopted within the United Kingdom) that showed the impact of early environments on human development.

Professor Heckman reviewed economic theory showing that if early or late investments in a person were perfect substitutes then the timing of the investment would not be important. Remediation would be possible – even late in life. However, investments in a person are more important early in life and without them, further development that builds on past investments may be difficult or may not occur at all.

Using data from the Children of the National Longitudinal Survey of Youth (1979), Professor Heckman modeled the importance of both cognitive and non-cognitive test scores as well as other factors, such as parental time, activities, and family resources, on children’s outcomes. His model focused on the outcomes of six-year-old children from disadvantaged families. The results show that disadvantaged children with limited parental investments from ages 8 to 13 had a 29 percent chance of graduating from high school; adding a high-quality preschool experience, the probability of graduating from high school rose to 53 percent. Disadvantaged children with high parental investments from ages 8 to 13 had a 63 percent chance of graduating from high school, but with the addition of a high-quality preschool the probability increased to 85 percent.

After the formal presentation, the working group discussed the following topics:

Fixed early conditions—Professor Heckman’s research describes a large increase in high school graduation rates for disadvantaged children that attended preschool, even without additional school interventions or investments. Another consequence of high-quality preschool is that the chance of graduating from high school increases for all disadvantaged students regardless of increases in parental investments.

Age range—Can the model be used to analyze differences from even earlier ages? Professor Heckman can make the model age-specific, but thus far has not. One obstacle is that there are fewer accepted measures of childhood progress before age three.

Data sets—Could other data be used in the model? Professor Heckman will use other studies, such as the Chicago Child Parent Center, Perry Preschool, Abecedarian, and Brooks-Gunn, as well as child health records that track children from birth.