

ECONOMIC FINDING

The Social Side of Early Human Capital Formation: Using a Field Experiment to Estimate the Causal Impact of Neighborhoods

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This work reveals the importance of public programs and neighborhoods on human capital formation at an early age, highlighting that human capital accumulation is fundamentally a social activity.

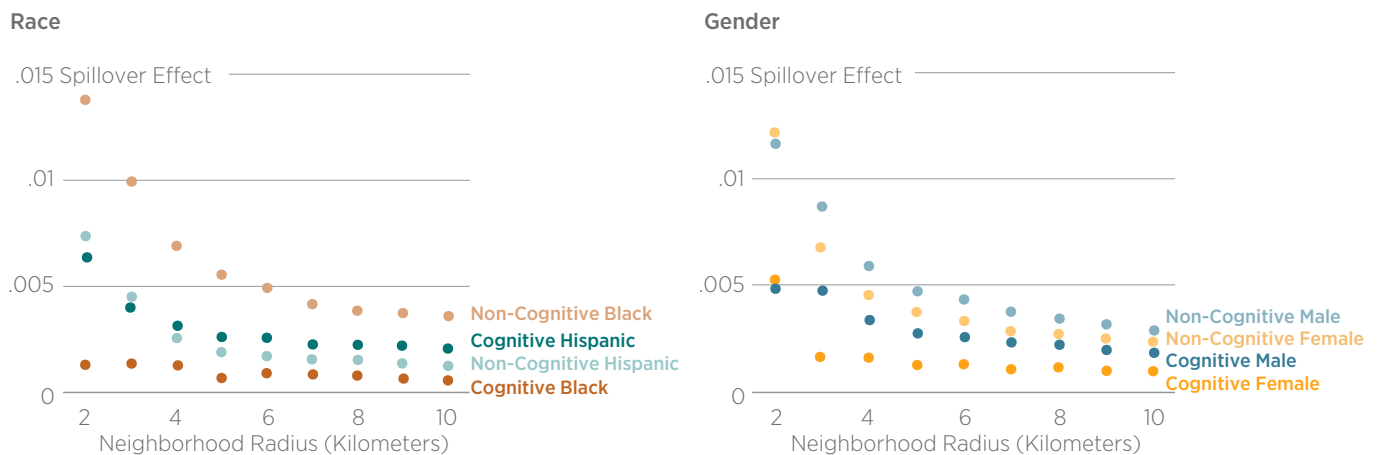
Human capital theory has offered insights on the nature and causes of inequality in personal incomes by focusing on such measures as years of schooling completed and education's relationship to labor market outcomes. One line of research has explored individual choices, for example, regarding education, while another branch has investigated determinants of human capital, such as standardized tests that signal potential skills for employers. To date, economics research and related work in the contemporary psychology of education literature are dominated by an empirical and theoretical focus on the individual.

In contrast, this working paper explores a new line of economics research that incorporates insights from

sociology, which is concerned with explaining human phenomena through group settings, including how such interactions shape individuals and their choices, such as those that augment human capital.

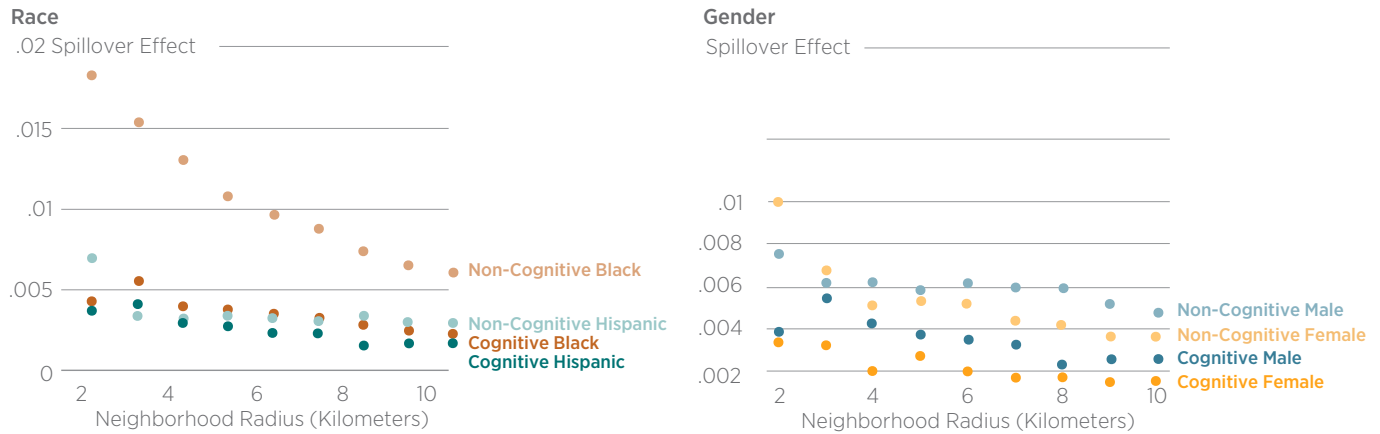
The authors apply this analytical lens to a series of early childhood programs delivered to low-income families in Chicago's South Side. The goals of the intervention were to examine how investing in cognitive and non-cognitive skills of low-income children aged 3 to 4 affects their short- and long-term outcomes, and to evaluate the effectiveness of investing directly in the child's education versus indirectly through the parents. To that end, families of over 2,000 disadvantaged children were randomized into (i) an incentivized parent-education program, (ii) a

Figure 1 • Spillover Effect from a Low-Income Child's Standardized Cognitive and Non-Cognitive Scores — Fixed-Effects Model



Notes: The spillover effect from an additional treated neighbor on a child's standardized cognitive and non-cognitive scores, estimated from the fixed-effects model. Panel (a) presents the effects separately for African American and Hispanic children, and panel (b) presents the effects separately for males and females.

Figure 1 • Spillover Effect from a Low-Income Child's Standardized Cognitive and Non-Cognitive Scores — Lagged Dependent Variable (LDV) Model



Notes: The spillover effect from an additional treated neighbor on a child's standardized cognitive and non-cognitive scores, estimated from the LDV model. Panel (a) presents the effects separately for African American and Hispanics, and panel (b) presents the effects by gender.

high-quality preschool program (Pre-K), or (iii) a control group. The children's cognitive and non-cognitive skills were assessed on a regular basis, starting before the randomization and continuing into the middle and end of the programs. Follow-up assessments were also conducted on a yearly basis.

Exploring insights from sociology to focus on explorations of group interactions, the authors find:

- Large and significant spillover effects on both cognitive and noncognitive skills, with non-cognitive spillover effects about two times larger than the cognitive spillover effects. Interestingly, the spillover effects are localized and fall rapidly as the distance to a treated neighbor increases.
- Non-cognitive spillover effects are significantly larger for Blacks than Hispanics, with no significant racial differences in cognitive spillover effects. Regarding gender, the authors' estimates suggest that boys tend to benefit more than girls from cognitive and non-cognitive spillovers, although these gender differences are not significant at the conventional levels.

- Program effects spill over through two main channels: direct social interactions between children who were randomized during the intervention, and parental interactions.

Given the importance of non-cognitive skills in children's future labor market and educational outcomes, these findings provide practical insights into designing early interventions to better foster such skills. Specifically, this research suggests that interventions that promote social interactions both within participants and between participants and non-participants are likely to generate larger positive externalities on non-cognitive skills. This research also offers insights to policymakers interested in the science of scaling programs.