

Unequal Chances Before School: Inequality of Opportunity in Preschool Cognitive Development in China

This paper examines how unequal cognitive chances are organised before formal schooling in China. Research on early childhood development has documented substantial socioeconomic and regional disparities, but less is known about how much of these early cognitive differences reflects circumstances beyond children's control, and how family resources, place-based contexts, and early education access jointly structure developmental opportunities. Drawing on Roemer's inequality-of-opportunity framework, this study focuses on preschool cognition because, at this age, children's cognitive development is shaped largely by family and caregiving environments rather than by choices for which they can reasonably be held responsible.

Using data from the China Family Panel Studies (CFPS), the analysis includes 1,216 children aged 3–6. The study adopts an ex-ante parametric measure of inequality of opportunity and applies the Shapley–Owen decomposition to assess how family resources, institutional-geographic context, and early childhood education access contribute to the observed opportunity component in overall cognition, numeracy, and reading.

Results reveal three patterns. First, observed circumstances explain a substantial share of preschool cognitive variation: 23.8% in overall cognitive development, 21.6% in numeracy, and 15.4% in reading. Second, the composition of this opportunity component varies across cognitive outcomes. Institutional-geographic context accounts for the largest share in overall cognition and reading, while family resources and institutional-geographic context contribute almost equally to numeracy. Third, the structure of opportunity inequality differs by urban–rural location: the circumstance-related component is larger among rural children, especially for overall cognition and numeracy, and numeracy inequality is more family-resource driven in urban contexts but more territorially structured in rural contexts. Together, these findings show that preschool cognitive opportunity inequality in China is not merely a family socioeconomic gradient, but a context-specific opportunity structure shaped by family, territorial, and educational conditions before school entry.