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# Income Shocks and the Intergenerational Transmission of Executive Function

Based on BFI Working Paper 2026-30, "[Income Shocks and the Intergenerational Transmission of Executive Function](#)," by Ariel Kalil, University of Chicago, and Mauricio Koechlin, University of Chicago

Unconditional cash transfers may help attenuate the mother-child transmission of low executive function during early childhood. Providing unconditional cash support to low-income families could help close intergenerational skill gaps, particularly benefiting children at risk of inheriting cognitive and noncognitive disadvantages.

Children born to disadvantaged parents face significantly worse economic outcomes than their peers, yet the mechanisms driving this persistence remain poorly understood. While economists have thoroughly documented the degree to which a parent's income predicts a child's future income, less research examines the specific skills and behaviors that carry economic status from one generation to the next, or whether policy interventions can disrupt this transmission.

A growing body of research challenges the assumption that cognitive ability (as measured by IQ or academic achievement tests) is the primary driver of economic success. Noncognitive skills like self-regulation, persistence, patience, and impulse control predict adult economic outcomes comparably to cognitive measures. If these capacities are themselves transmitted from parent to child, and if they are shaped by economic conditions, then poverty may

perpetuate itself partly by impairing children's developing capacity for self-regulation.

How to measure the effect of economic conditions on this parent-child transmission? This paper focuses on executive function (EF) to shed empirical light on this question. EF consists of three neurocognitive capacities: working memory or holding and manipulating information in the mind; inhibitory control, suppressing automatic or impulsive responses; and cognitive flexibility, shifting between mental tasks or perspectives.

In economic terms, EF is the cognitive foundation of patience and self-control in decision-making where costs and benefits are spread over time,

**Executive function (EF) may represent a mechanism through which economic disadvantage translates into human capital deficits.**

forcing a trade-off between immediate, smaller rewards and delayed, larger ones. A longitudinal study following children beginning at age 54 months until they turned 26 found that early EF significantly predicts adult educational attainment and impulse control, even after accounting for adolescent EF levels, suggesting that early childhood represents a uniquely important developmental window.

Disparities in EF by family **socioeconomic status** (SES) emerge early and are substantial. Before children even enter kindergarten, those in the highest SES quartile score 0.45 **standard deviations** higher on comprehensive EF measures than those in the lowest quartile. While this gap is somewhat smaller than SES gaps in early reading and math (roughly 0.8 SD), EF is particularly important because it partially mediates the relationship between family poverty and academic achievement. In other words, disadvantaged children perform worse in school partly because poverty has impaired their EF development. This indirect pathway is strongest in early childhood and suggests that EF may represent a mechanism through which economic disadvantage translates into human capital deficits.

The economics literature documents meaningful intergenerational transmission of noncognitive skills, though evidence remains largely descriptive. For example, research on behavior problems finds that parents' childhood difficulties predict more problems in their own children. Evidence on EF transmission specifically is more limited, coming largely from small psychological studies, with the most compelling evidence from the **Perry Preschool experiment**, in which treatment effects on adult participants' EF extended to their untreated children: children of treated parents were 17 percentage points less likely to be suspended from school and 26 percentage points more likely to be employed.

Several mechanisms connect economic circumstances to EF transmission, including:

**poverty-related cognitive load:** economic pressure can affect performance on cognitive tasks equating to a drop in IQ of roughly 13-14 points, comparable to chronic alcoholism or the effects of a sleepless night;

**parenting quality:** economic stress can make parents less capable of the consistent, sensitive responses that support healthy child development;

**household routines:** stable, predictable routines at home are known to foster children's EF development, and are at risk under economic pressure; and

**material investments:** fewer bandwidth constraints may induce parents to make better economic investments in their children.

Given that economic pressure has a debilitating effect on a child's EF, it is fair to assume that giving money to these families would have an ameliorating effect. And indeed, analyses of data from Baby's First Years (BFY), the first randomized controlled trial of unconditional cash transfers to low-income mothers in the United States, unconditional cash transfers can improve parenting. Mothers receiving higher cash gifts spent an average of \$67.68 more per month on child-specific goods, a 19% increase, with the largest effects on books, toys, and activities. They also spent roughly 11 additional minutes per week on enriching parent-child activities like reading, storytelling, and building play.

The OpenResearch Unconditional Income Study, a large, randomized trial providing \$1,000/month to low-income adults for three years, further supports this picture. Cash transfers produced modest but significant improvements in parenting quality overall, with effects concentrated among

**socioeconomic status:** the social standing or class of an individual or group, often measured as a combination of education, income, and occupation

**standard deviation:** measures the spread or dispersion of a dataset relative to its mean (average). A low standard deviation means data points are clustered tightly around the mean, while a high standard deviation indicates data is spread out over a wider range.

**Perry Preschool experiment:** a groundbreaking longitudinal experiment in Ypsilanti, Mich. (1962-67), that provided high-quality, active-learning preschool to 123 at-risk African American children. Following participants to age 40, the study demonstrated long-term gains in education, employment, and health, while significantly reducing crime and welfare dependency.

the lowest-income families, where reductions were seen in corporal punishment, inconsistent discipline, and poor supervision. Among parents of young children with the lowest baseline incomes, the transfer also increased childcare use, hours, and quality. Also, the cash transfer produced modest but statistically significant improvements in parenting quality as measured by the Alabama Parenting Questionnaire.

With such evidence in place, the authors predict that cash transfers will attenuate intergenerational EF transmission most strongly among low-EF mothers, where bandwidth constraints bind most tightly. To test that prediction, they employ an empirical strategy that examines heterogeneous treatment effects by maternal EF, testing whether and how income intervenes in the intergenerational process. Under BFY, mothers were randomly assigned to receive either \$333/month (high-cash group) or \$20/month (low-cash group), representing approximately an 18% income boost for the treatment group.

Importantly, the intervention showed no effect on child EF in the full sample, meaning cash did not raise average EF levels across all children. However, the authors argue that an intervention can promote intergenerational mobility by loosening the link between parent and child EF, even if average outcomes remain unchanged. That is, breaking the transmission chain matters for mobility even when the mean doesn't move. This work makes the following contributions:

- Across 769 low-income mother-child pairs, the authors document that the correlation between maternal EF and child EF is not uniform across the maternal EF distribution. Statistically significant mother-child EF correlations exist only among mothers in the bottom tertile (third) of the maternal EF distribution.
- Among bottom-tertile mothers, the cash transfer mattered. Among the mothers with the lowest EF, having a low-EF mother strongly predicted low child EF in the control group, but this relationship broke down entirely among families who received the cash transfer.
- Cash transfers increased cognitive stimulation activities and modestly improved caregiving routines among low-EF mothers specifically, suggesting that improvements in the day-to-day quality of parenting, not just material resources, may explain why the transfer disrupted intergenerational transmission.

While the broad implications of these findings are significant, the authors counsel caution as the statistical power of the data is limited, some tests have tenuous significance thresholds, and replication is needed. Additionally, more research is needed into alternative approaches to cash-transfer programs. That said, this work does add to our understanding of the cognitive tax of poverty on parents and their children.

## READ THE WORKING PAPER

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