

Study refutes theory linking cognition, genes and income

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Credit: Northwestern University

Researchers have cast doubt on a widely-held belief that connects family income with cognitive development, according to a new study published in *Proceedings of the National Academy of Sciences*.

A popular theory holds that genes play a larger role in brain development for children from advantaged environments than in those from poorer

backgrounds, especially in the United States.

But in the largest study to date using matched birth and school records, the researchers from Northwestern University, Stanford University and the University of Florida found [family income](#) won't necessarily mitigate the effects of genetics on cognitive outcomes.

"While children from higher socio-economic status backgrounds have much better cognitive outcomes on average than those from lower socio-economic status households, genetics appear to [matter](#) just as much for both groups," said Northwestern economist David Figlio, study lead author and dean of the School of Education and Social Policy. "Genes matter. Environment matters. But we find no evidence that the two interact."

Some studies suggest that the difference in genetic influence between rich and poor families is particularly pronounced in the U.S., but the Florida data, which includes records of siblings and twins, calls this idea into question, the researchers said.

The finding mildly surprised Figlio, but he said it falls in line with his previous work published in *American Economic Review*, which indicated that heavier babies do better in school. In that study of Florida children, Figlio and his coauthors found that those who were heavier at birth scored higher on math and reading tests in the third to eighth grades, and that the relationship between birth weight and [test scores](#) is essentially the same for everybody.

"It's definitely still true that, from the point of view of test scores, you'd rather be a tiny baby from a wealthy [family](#) than a big baby from a poor family," said Figlio, faculty fellow at Northwestern's Institute for Policy Research. "But [birth weight](#) matters, and it matters for everyone. It seems the same effect is at play here."

A full understanding of how genes interact with the environment for cognition is more complex and elusive than previously supposed, the researchers said.

"Being able to say that 'genes' matter more for this group versus that group is appealing partly for its simplicity," said study co-author Jeremy Freese of Stanford. "We suspect the truth is more complicated: Some genes may matter more in richer families and other [genes](#) may matter in poorer families. There's no overall characterization."

Freese emphasized that genetic differences do matter in [cognitive development](#). "But we are still far from understanding how in any useful way," he said. "Meanwhile, we know poor children face many social disadvantages, and there is much we can do to address those to help promote the flourishing of all children."

More information: David N. Figlio et al. Socioeconomic status and genetic influences on cognitive development, *Proceedings of the National Academy of Sciences* (2017). [DOI: 10.1073/pnas.1708491114](https://doi.org/10.1073/pnas.1708491114)

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