

Researcher finds that poverty's 'cognitive cost' translates to as many as ten IQ points

For people struggling to live paycheck-to-paycheck, daily life can sometimes seem like a gauntlet of impossible-to-answer questions – Can I afford to put food on the table? Will I make rent this month? What will happen if I lose my job? What if my kids get sick, or my car breaks down?

For many, those questions become so persistent it's hard to concentrate on anything else. And that's exactly the problem, says Harvard economist Sendhil Mullainathan.

The accumulation of those money woes and day-to-day worries leaves many low-income individuals not only struggling financially, but cognitively, Mullainathan said. In a study published August 29 in *Science*, he showed that the "cognitive deficit" caused by poverty translates into as many as 10 IQ points.

"Our results suggest that when you're poor, money is not the only thing in short supply. Cognitive capacity is also stretched thin," Mullainathan said. "That's not to say that poor people are less intelligent than others. What we show is that the same person experiencing poverty suffers a cognitive deficit as opposed to when they're not experiencing poverty. It's also wrong to suggest that someone's cognitive capacity has gotten smaller because they're poor. In fact, what happens is that your effective capacity gets smaller, because you have all these other things on your mind, you have less mind to give to everything else."

"Imagine you're sitting in front of a computer, and it's just incredibly slow," he continued. "But then you realize that it's working in the background to play a huge video that's downloading. It's not that the computer is slow, it's that it's doing something else, so it seems slow to you. I think that's the heart of what we're trying to say."

To understand the cognitive load that comes with financial constraints, Mullainathan and colleagues conducted studies of two dramatically different groups – shoppers at a mall in New Jersey and sugar cane farmers in rural India.

In the mall study, researchers gathered dozens of low- and middle-income shoppers and subjected them to a battery of tests to measure IQ and impulse control. Half of those who took part in the study, however, were first prompted with a "teaser" question – what would they do if their car broke down, and the repair cost \$1,500 – designed to get participants thinking about their own financial worries.

"For the poor, because these monetary concerns are just below the surface, the question brings them to the top," Mullainathan said. "The result was, for that group, the gap between the rich and the poor goes up, in both IQ and impulse control. There was no gap in the other group, but ask them anything that makes them think about money and you see this result."

For an even starker example of how financial concerns can weigh on people's minds, Mullainathan and colleagues traveled to rural India, where sugar cane farmers typically are paid only once per year.

"The month after the harvest, they're pretty rich, but the month before – when the money has run out – they're pretty poor," he said. "What we did is look at the same people the month before and the month after the harvest, and what we see is that IQ goes up, cognitive control, or errors, goes way down, and response times go way down."

"The effect here is about two-thirds of the size of the effect found in the mall study – it's at least nine or 10 IQ points, just between these months," Mullainathan added. "Between these two studies, you both see the

mechanism at work, and you see that, in the real world, these effects are enormous.

While such a "cognitive tax" can translate into a lower IQ, its impact can reach much further.

"For many behaviors that we might consider 'good,' there is a pattern where we tend to find that the poor do less," Mullainathan said. "When we look at an issue like drug adherence – whether or not people stick to drug regimens for conditions like diabetes or HIV – studies consistently find that the poor adhere less.

"That's a major public health issue," he added. "But what's interesting is that income does not appear to be a factor – for low-income individuals, medications are covered by Medicare, while middle-income people have to pay – but adherence is still lower among the poor."

In some ways, Mullainathan said, the study's results turn much of social science on its head – rather than explaining disparities between low- and high-income people as a result of environment, or behavior, "we're saying it's none of that – it's that the poor get their bandwidth taxed," Mullainathan said. "The implication here is that we have to realize that everyone, from a public health official working on drug adherence to someone working to provide child care to low-income families, they're all stumbling on a very similar problem without realizing it."

Those findings, Mullainathan said, could have wide implications for policy-makers, and suggests that the solutions to the problems associated with poverty isn't merely more money, but targeting the specific concerns that increase the cognitive load people are forced to carry.

"This is very clearly saying that the moments of acute poverty, those are the moments when people's bandwidth is taxed," he said. "If you isolate those periods and address the issues that are causing that cognitive load, you can really get a big bang for your buck."

As an example, Mullainathan cited an issue that's widely recognized as one of the largest obstacles facing working parents – the cost and availability of child care.

"One of the major challenges for low-income individuals in the U.S. is having to juggle and find child care," he said. "That's a big cognitive load. Seamlessly solving the child-care problem would not just allow people to go to work, it would actually increase their IQ. Rather than simply looking at these challenges as a lack of money very broadly, if we could break it up and simply target the biggest concerns and deal with them, we might begin to solve other problems as well.

"This says things that no one would ever think of measuring," he added. "If we have the right heating assistance program in place, drug adherence will go up, or people will become more involved parents. Rather than thinking of child care as something that frees up people's time to go to work, it suggests that we should think about it in a totally different way."

More information: "Poverty Impedes Cognitive Function," by A. Mani et al *Science*, 2013.

Provided by Harvard University

This document is subject to copyright. Apart from any fair dealing for the purpose of private study, research, no part may be reproduced without the written permission. The content is provided for information purposes only.