

Income inequality can harm children's achievement in maths—but not reading, 27-year study suggests

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Inequalities in income affect how well children do in maths—but not

reading, the most comprehensive study of its kind has found.

Looking at data stretching from 1992 to 2019, the analysis, published in the journal *Educational Review*, revealed that 10-year-olds in US states with bigger gaps in [income](#) did less well in maths than those living in areas of America where earnings were more evenly distributed.

With income inequality in the US the highest in the developed world, researcher Professor Joseph Workman argues that addressing [social inequality](#) may do more to boost academic achievement than reforming schools or curricula—favored methods of policymakers.

Income inequality—a measure of how unevenly income is distributed through a population—has long been associated with a host of health and social problems including mental health issues, lack of trust, higher rates of imprisonment and lower rates of social mobility.

It may also affect academic achievement, through various routes.

For instance, income inequality is linked to higher rates of divorce, substance abuse and child maltreatment, the stresses of which may affect a child's development. It is also associated with higher odds of babies being of a low weight a birth—something which can raise their risk of developmental delays as they grow up.

Income inequality may also lead to some schools having a high concentration of children from disadvantaged backgrounds, making it more difficult for them meet each child's needs.

Professor Workman, a sociologist at the University of Missouri, Kansas City, compared almost three decades of fourth graders' maths and reading results from the National Assessment of Educational Progress (NAEP) with data on income inequality from all 50 states.

Also known as the Nation's Report Card, the NAEP measures student achievement nationally, using a representative sample of youngsters from each state.

Income inequality in the US has followed a U-shaped pattern over the past century. Levels were high in the 1910s to 1930s before falling off between the 1940s and 1970s and then rising again. Today, the income gap is the highest in the developed world.

The analysis showed that scores in maths were lower, on average, in states with higher levels of income inequality.

It also revealed that that income inequality didn't just affect the poorer students but was associated with lower achievement for both poor and non-poor students alike.

The results couldn't be explained away solely by poorer areas having more social problems and educational issues. Instead, it seemed that the concentration of income among top earners was driving down [academic achievement](#).

Further analysis showed that the states that experienced the biggest rises in income inequality over time also recorded the smallest increases in maths results.

Scores in these states rose by an average of 17.5 points—compared to an increase of 24.3 points in states in which the income divide didn't widen as quickly.

Reading grades were, however, not linked to income inequality overall.

Professor Workman explains: "For maths, income inequality was associated with lower achievement for both poor and non-poor students

alike.

"But for reading, income inequality benefited non-poor students and harmed poor students. So, for reading the benefits and harms cancel out to no association overall." With preliminary evidence suggesting the same patterns apply to other age groups, Professor Workman believes his findings have important implications for policymakers.

He says: "Assessments of the No Child Left Behind Act, which attempted to raise achievement and reduce achievement disparity by reforming schools, have provided scant evidence of the policy being effective in achieving its goals.

"An effective strategy to raise [achievement](#) may be to reduce income inequality. Policies such as progressive tax rates, wealth tax, inheritance tax and annual wealth tax can effectively reduce inequality.

"Higher tax revenues could be used on programs that support child development, such as universal pre-kindergarten or summer learning programs."

It isn't known, however, if a similar pattern exists in other developed nations with high levels of income [inequality](#), such as the UK.

Professor Workman concludes that while it has been argued that [income inequality](#) provides motivation for success, rates in the US have "perhaps reached levels that are dysfunctional for society".

More information: Income inequality and student achievement: trends among US States (1992–2019) *Educational Review*, www.tandfonline.com/doi/full/10.1080/00131911.2021.1974349

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