

Progressive School Spending Is Efficient

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School spending is associated with larger gains for children in disadvantaged communities. That is, progressive spending on K-12 schools does not necessarily trade efficiency for equity.

According to the U.S. Census Bureau, public K-12 education spending in the U.S. totaled \$752 billion in 2019. How should states invest that money for equity and efficiency? Progressive school spending—spending more in communities with fewer financial resources—is typically justified for reasons of equity, not efficiency. The equity rationale is that these communities invest less in children and it therefore costs more for schools to help children reach a given level of academic achievement (see, for example, Baker 2017). This rationale is in line with the equity-efficiency tradeoff (Okun 1975), which suggests that promoting equity requires sacrificing efficiency: spending more in communities with lower previous investment and fewer resources (higher equity) predicts lower returns (lower efficiency).

In recent research, Rauscher and Shen (2022), show that equality and efficiency are not necessarily a trade-off: Progressive investments in children can be both equalizing and efficient. The authors examined whether and how the relationship between school spending and student achievement varies by previous investments. They linked annual county-level panel data on educational achievement and school spending in the years 2009-18 from the Stanford Education Data Archive 4.0 (SEDA) and Census Finance Survey (F-33) to county infant health data from National Vital Statistics to estimate achievement returns to school spending. They assessed how achievement returns vary between counties with low and high levels of previous investments, including initial human capital (as measured by birth weight), child poverty rate, and previous school spending. All estimates account for stable differences in achievement across counties, as well as national changes in achievement over time. Because local changes over time could influence both spending and achievement in a county, the research uses state supreme court decisions on school finance court cases as an external influence on spending. They focus on counties in the 19 states with a Supreme Court case decision during 2009 to 2018. In those counties, they compare the change in achievement from before to after the court decision by whether the decision favored more funding.

Rauscher and Shen (2022) found that achievement returns to school spending are consistently higher among counties with low previous investment. Even controlling for previous-year spending, the achievement return in low-birth-weight counties is over 20 times larger than that in high-birth-weight counties. Spending benefits are also larger in counties with high child poverty and low previous school spending and, in these counties, benefits emerge mainly among low-income rather than high-income students.

Why does school spending yield larger benefits among children in disadvantaged communities? In other words, why is more equitable school spending also more efficient? The authors examined several potential explanations, including diminishing returns, changes in the distribution of spending, ceiling effects, and relative spending changes. Results are most consistent with diminishing returns to school spending at high levels of previous investment. That is, returns to school spending are higher in areas with low previous investment and diminish in areas with higher investment. If we use a sponge analogy, children soak up a great

deal like sponges, but once a sponge is saturated, additional water cannot be retained and will run off. Similarly, child academic achievement improves from educational investments, but additional spending among children with already high levels of investment yields lower benefits (analogous to a saturated sponge).

What do those counties with low initial human capital look like? One important attribute of such counties is their high proportion of Black students (30% in low-birth-weight counties compared to 2% in high-birth-weight counties). Higher returns to school spending in low-birth-weight counties therefore suggest higher returns in counties with a high proportion of Black students. Directing more education funds to low-birth-weight counties thus has the potential to reduce Black-White achievement gaps, given higher returns to spending and higher concentrations of Black students in those counties compared to others. Further, the findings suggest that community reparations invested in local organizations, including schools, can help increase racial equality.

Rauscher and Shen (2022) find that investing in low resource areas can be both efficient and equitable. At the same time, compared to other interventions (for example, investment in preschool education or infant health), they find relatively small effect sizes of K-12 spending in low-birth-weight counties. Earlier or other types of investments may increase equality more effectively. The results of this study show the value of investing in low-resource communities, but cannot identify the most effective target or timing of that investment.

Overall, this study finds that equality and efficiency are not necessarily a trade-off and that progressive investments in children can be both equalizing and efficient.

Several policy implications emerge from these findings. First, directing more K-12 education funds to low birth weight counties can improve equity and efficiency and increase equality in achievement by income and race. Secondly, policies that base school funding on previous investments or local need, rather than on achievement, can improve equity and efficiency. Finally, the small effect sizes for K-12 spending echo evidence that earlier or other types of investments may increase equality more effectively. These more effective investments need to be better identified and then made.

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