



How has education funding changed over time?

Technical appendix

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Methodology

We calculate a measure of school funding progressivity that estimates average spending on all poor kids (those from families below the federal poverty level) relative to nonpoor kids.¹ Specifically, for each state, we calculate a weighted average of each district's per-student funding, where the weights are the number of poor kids in each district. We then calculate the same figure weighted by the number of nonpoor kids.

Our progressivity measure for each state is the ratio of the average district-level funding for poor and nonpoor kids. For example, an estimate of 1.1 implies that, on average, poor students attend districts that receive 1.1 times (i.e., 10 percent more than) the per-student funding than the districts nonpoor students attend. Of course, both poor and nonpoor students are enrolled in every district—our measure estimates whether poor students tend to be enrolled in districts with higher (or lower) funding levels than nonpoor students.

We measure progressivity for all states except for Hawaii (which is a single district) and Washington, DC, (which only includes one traditional school district). However, we include both of these places (as single districts) in our national estimates of progressivity. We also present average levels of school funding (revenue) in 2015 dollars for all 50 states and DC.

Both our funding progressivity and level measures are based only on data on traditional public school districts, defined as those that have a geographic district footprint. Districts only containing charter schools are excluded,² as are other nontraditional districts, such as online and alternative education programs. As a result, the funding levels we report may differ from other data sources that include all school districts, especially in jurisdictions with many students in nontraditional districts (e.g., DC, where more than 40 percent of students attend charter schools). In addition, changes over time in the share of students enrolled in nontraditional districts may affect the trends in funding progressivity and levels that we report.

Data

We calculate our measures of funding progressivity and levels using data on the federal, state, and local revenues of nearly all regular public school districts in the United States from the US Department of Education's Common Core of Data Local Education Agency Finance Survey (F-33) for each year from 1994–95 to 2013–14 and from the Census Annual Survey of School System Finances for 2014–15.³ The

Census data may be updated before they are incorporated into the F-33 survey, a process which takes about a year.⁴

We merge the finance data with district-level poverty data from the Census Bureau's Model-based Small Area Income and Poverty Estimates (SAIPE) from 1995 through 2015 (matched to the later calendar year of the school finance data (e.g., 2015 SAIPE is matched to 2014–15 school finance). We calculate district-level poverty rates by dividing the number of children ages 5–17 in poverty by the total number of children ages 5–17. SAIPE data are not available for 1996 and 1998, so for these years we use the average of the surrounding years (e.g., for 1996, we use the average of 1995 and 1997).⁵

We apply the estimated poverty rates from SAIPE to each district's total enrollment to obtain the estimated numbers of poor and nonpoor students, which function as weights in our progressivity measure (as described). The SAIPE data cover all students who live in a geography-based school district, some of whom are not enrolled in that district.

The default option of our tool presents funding progressivity and level measures that are adjusted for an estimate of the costs districts face. Specifically, we divide each district's funding data by a Comparable Wage Index (CWI), which is a measure of the salaries of college graduates who are not teachers in the district's labor market.⁶ This adjustment implicitly uses the wage index as a proxy for all costs districts face, including labor and nonlabor costs.

The CWI is consistently measured at the district level for each year from 1997 to 2013, which we associate with the spring of the academic year in the finance data (e.g., linking 1996–97 finance data to the 1997 CWI). We extend the data series by using the 1997 values for 1995 and 1996 and the 2013 values for 2014 and 2015. The year-to-year correlation in the CWI is very high (0.9975 for 1996–97/1997–98 and 0.9984 for 2011–12/2012–13).

We renormalize the CWI to have a mean of approximately 1 in each year by dividing by the national CWI for that year. In other words, we adjust for estimated cost differences across districts (and states) in each year (and allow those relative costs to change over time), but we do not adjust for aggregate changes over time in the costs districts face.

Notes

1. Our description of this measure is adapted from Matthew M. Chingos and Kristin Blagg, “Do Poor Kids Get Their Fair Share of School Funding?” (Washington, DC: Urban Institute, 2017).
2. We include traditional districts that have charter schools.
3. The Census data only include traditional school districts, a limitation that is not important for our analysis because we impose the same restriction on the F-33 data.
4. In general, the correlations between funding levels in the 2014 F-33 data and 2015 Census data are very high, but there are large swings in the mix of state and local funding in Arkansas, Kansas, and Nevada.
5. If only one adjacent year is available, we use that value rather than computing an average.
6. For more on the CWI, see “Extending the NCEC CWI,” Texas A&M University, 2016, http://bush.tamu.edu/research/faculty/Taylor_CWI/. In Chingos and Blagg, “Do Poor Kids Get Their Fair Share of School Funding?” we used a CWI based on the American Community Survey, but here we use the district-level measure that is calculated consistently for 1997 to 2013.

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