GETTING STARTED WITH THE
SCHOOL FINANCE INDICATORS DATABASE

The **School Finance Indicators Database** (SFID) is a collection of resources on K-12 school funding compiled and published by researchers at the Albert Shanker Institute and Rutgers University Graduate School of Education. SFID products are specifically designed to be easy to use for policymakers, educators, journalists, advocates, parents, and other stakeholders.

This short guide will help you get started.

A quick introduction to the SFID

School finance is incredibly important. But finance research can be a challenge. Every year, federal, state, and local governments collect reams of finance data, which feed an endless supply of papers and reports from academics and organizations, often reaching conflicting conclusions. The purpose of the SFID is to cut through this clutter by giving you what you need to evaluate and compare state and district finance systems with rigorous but accessible measures.

But the SFID isn't just a compilation of simple data all thrown into a spreadsheet. Our measures, while easy to understand and interpret, are calculated using sophisticated methods and over a dozen different data sources.

The key idea behind our approach is the fact that comparing funding measures within and between states requires accounting for differences in context. For instance, comparing raw per-pupil spending between Massachusetts and Alabama doesn't tell you much about whether spending is "high" or "low" in either place, since these are two very different states serving two very different student populations. And the same point applies for comparisons *within states*: you can't compare spending in New York City with spending in suburban or rural upstate New York districts without accounting for the differences between these districts.

Our 3 guiding principles

1. Proper funding is a necessary condition for educational success (money matters).

2. The cost of education varies by context, and resources should be targeted at students who need them most (equity).

3. The adequacy and fairness of school funding are largely a result of policy choices (good policy → good outcomes).

$$\text{(In)}\textbf{SCHOOL} = b_0 + b_1 \text{State}_i + b_2 \text{LaborMarket}_{ij} + b_3 \text{CWI}_{ij} + b_4 \textbf{FINANCE}_{ij} + b_5 \text{PopulationDensity}_{ij} + b_6 \text{Enrollment}_{ij} + b_7 \textbf{INDICATORS}_{ij} + b_8 \text{Scale}_{ij} + b_9 \text{Poverty}_{ij} + b_{10} \text{SchlType}_{ij} + b_{11} \textbf{DATABASE}_{ij} + e$$

Accordingly, most SFID measures, such as revenue, spending, adequacy, staffing ratios, and other important indicators, are provided by district poverty level (using poverty data from the U.S. Census Bureau), and they are also statistically adjusted for factors such as labor costs, population density, and district size. All of these factors affect the "value of the education dollar" (e.g., you have to pay teachers more in districts where the cost of living of high). Accounting for context permits more "apples to apples" comparisons—that is, comparisons between *similar districts* within or between states.

Before we get started, let's quickly describe our two major datasets: The **State Indicators Database (SID)** and the **District Cost Database (DCD)**. Rather than discussing the full list of variables included in each dataset, the table below provides examples of the kinds of questions you might examine using the variables, as well as other basic information about each dataset. Full lists of variables with extensive discussion are included in the user's guide for each dataset.

SFID datasets and sample research questions		
	The State Indicators Database	**The District Cost Database**
Measures apply to	States (including D.C.)	Districts
Years available	1993-latest year (not all variables available for all years)	2009-latest year
Description	Measures of revenue, spending, adequacy, and resource allocation for each individual state.	Measures of spending adequacy and relevant characteristics for over 12,000 individual school districts.

Types of questions addressed by measures include (but are not limited to)**:**	By state:
	• How do spending and revenue in your state compare between high- and low-poverty districts (or between states in districts at a given poverty level)?
	• Is spending in your state adequate to achieve common outcome goals (overall or by district poverty level)?
	• How much of your state's total economy is devoted to K-12 schools?
	• How do teacher/student ratios and class sizes compare between high- and low poverty districts?
	• How does teacher pay compare to that of similar non-teachers (by age)?
		By district:
		• Is spending in your district adequate to achieve common outcome goals?
		• How do average (combined) math and reading test scores in your district compare to the U.S. average?
		• How does spending adequacy vary by district characteristics, including:
		  • Census poverty rates
		  • Percent Black students
		  • Percent Latinx students
		  • Percent special education
		  • Percent English language learners
		  • Enrollment

Those interested in comparing *state* finance systems might use the SID, whereas the DCD focuses on one particular type of measure: the adequacy of spending in individual school *districts* (the same adequacy measures, but across entire states [or within states by poverty level], are included in the SID). Since school finance in the U.S. is primarily in the hands of states, the SID includes more measures than the DCD, and the former is generally the more commonly-used dataset.

Note: There is a lag in the collection and release of federal school finance data. As a result, the latest year of data in the SID or DCD is always about 2-3 years behind. For example, the datasets released in late 2022 go up to 2020 (the 2019-20 school year).

Three ways to access SFID data and resources

How to access SFID resources **1** | **Publications**

SFID publications present important selected measures from the state and district datasets. These publications include an **annual report**, one-page **state profiles**, and **research briefs**.

Annual report
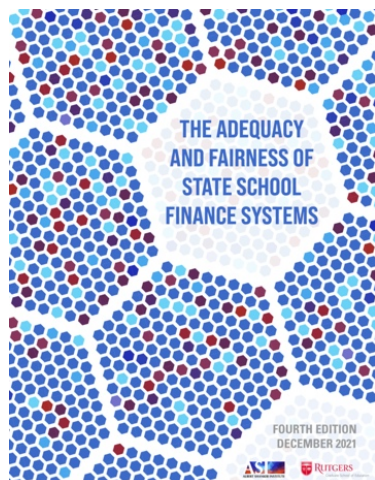
The annual report is published every year at the same time as the state database, and it presents key findings from the SID. The report, "*The Adequacy and Fairness of State School Finance Systems*," is currently in its fifth edition, and it focuses on three "core" state-level measures:

1. **Fiscal effort**: how much does each spend on K-12 education as a percentage of its total economic capacity?
2. **Statewide adequacy**: how many of each state's students attend schools in underfunded districts?
3. **Equal opportunity**: is funding less adequate in high-poverty districts than in low-poverty districts?

These three measures provide a concise overview of each state's K-12 finance system. The report presents data on each of the "core" measures for each state, along with "high level" findings such as national averages and trends over time. In addition, it includes extensive discussion of these indicators and how to interpret them.

Read the latest annual report, or those from previous years, here: https://www.schoolfinancedata.org/annual-report/
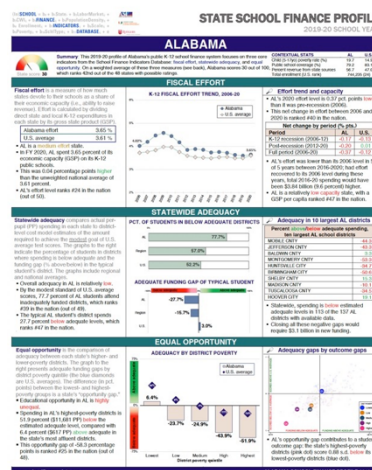
State profiles

These one-page profiles are also published every year at the same time as the state database, updated with the latest data. Like the annual report, the profiles focus on the three "core" measures of effort, statewide adequacy, and equal opportunity.

The profiles are designed for those who are interested in a particular state. They provide a detailed look at the key results all in one place.

The data are presented in clear language, with descriptions of each measure (and more detailed information on the back). There are also comparisons of each state with national averages and trends in the measures over time.

You can download the latest state profiles (or the full set of 51 profiles) here: https://www.schoolfinancedata.org/state-school-finance-profiles-2020/
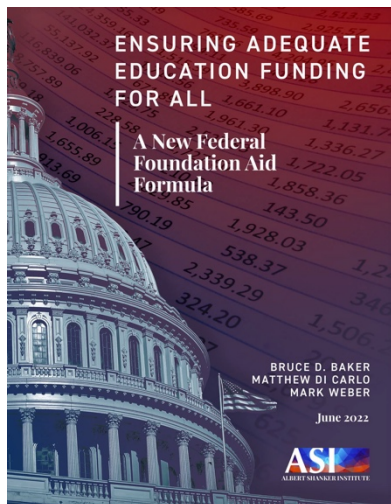
The state and district databases include many potentially useful and important measures not presented in the state profiles or annual reports. This is why we also publish regular research briefs that spotlight these other variables and/or provide timely analysis not covered elsewhere. We try to publish at least one research brief per year.

The briefs so far have dealt with topics such as teacher pay competitiveness, the impact of the 2007-09 "Great Recession" on school finance, and a proposal for a new approach to federal education aid. In 2021, we also published a research brief introducing the District Cost Database and offering some overall analysis of the results for the 12,000 districts included in the dataset. This report is a good place to start for those interested in the DCD.

Download and read all the research briefs here:
https://www.schoolfinancedata.org/research-briefs/

How to access SFID resources **2 | Online data visualizations**

For those who are interested in viewing and visualizing the data for an individual state or district (or a small group of states or districts) without downloading the full datasets or reading through the reports, we publish online tools with which users can get results by state or district (and year, when applicable) for a select group of SFID measures.

These tools are always updated with the most recent data, and although not all measures are accessible via the visualizations, we have been adding new ones every year, so check the SFID website periodically.

A few of these visualizations are similar to those in the state profiles, but the visualizations also allow you to look at the data for previous years, and to switch between states without having to download separate profiles.

The table below includes very brief descriptions of each visualization that is currently available, along with samples of output. Five of these six visualizations present state-level data from the SID. The sixth and final tool in the table ("District spending adequacy") is the only one that presents DCD measures (i.e., data for individual districts), but it is a dashboard-style tool that displays numerous measures organized into different tabs (the sample output in the table is just one of those tabs). This visualization actually presents every single variable in the DCD for each district.

SFID data visualizations

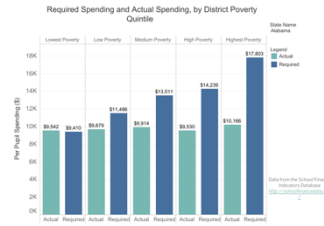### FISCAL EFFORT

LEVEL: by state   **YEARS**: 2004-curr.
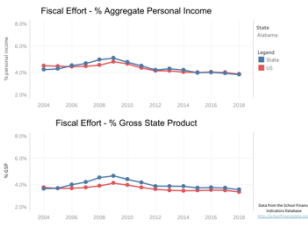
How much does your state spend on education as a percentage of its total "economic pie?" Select a state to display the trend in effort for that state (back to 2004).

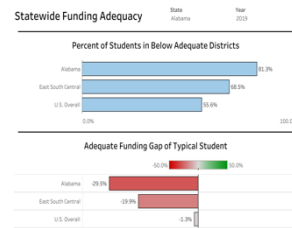### EQUAL OPPORTUNITY

LEVEL: by state   **YEARS**: 2009-curr.

Are high-poverty districts more adequate funded than low-poverty districts? Select a state to compare actual and required per-pupil spending by district poverty level.

STATEWIDE ADEQUACY

LEVEL: by state   **YEARS**: 1993-curr.

How adequate is funding in your state overall? Select a state to display percent of students in underfunded districts and average adequacy gaps.

TEACHER WAGE PENALTIES

LEVEL: by state   **YEARS**: 2000-curr.
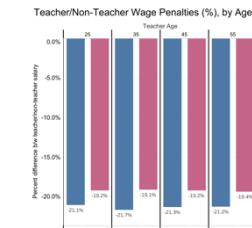
How do teachers' wages compare with those of similar non-teacher professionals? Select a state to compare teacher and non-teacher pay at different ages.

RELATIONSHIP B/W MEASURES

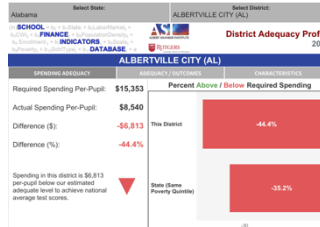**LEVEL**: by state   **YEARS**: Current year

What is the association between different variables in the state database? Select two variables to display a "scatterplot" visualizing the correlation between those variables.

DISTRICT SPENDING ADEQUACY

LEVEL: by district   **YEARS**: Current year

Does your district spend enough to achieve U.S. average test scores? Select a district to display a dashboard with actual/required spending and other measures.

Once you create your visualizations, you can also download them as graphic or PDF files for use in your own reports or websites.

All data visualizations can be accessed here:
https://www.schoolfinancedata.org/analyze-data/

How to access SFID resources **3** | **Download the full datasets**

The SID and DCD datasets include many variables not yet analyzed in our publications and/or not yet available via the data visualizations. In addition, even the variables that are included in the publications or visualizations can be analyzed in numerous different ways. **This is why we make all our full datasets freely available to the public** (in Excel or Stata format), and we strongly encourage users of the SFID to explore the data themselves and perform their own analyses.

Both datasets are published along with their own user's guides that list and describe all the variables in non-technical language (for those interested, technical discussion is also included in the guides). These guides are the best place to start for those interested in downloading the data themselves, and they are available on the same webpage as the datasets (see the link below).

We understand that downloading and analyzing data can be difficult and time-consuming. But we have tried to make it as easy as possible, and getting the hang of it opens up a range of possibilities for informative, policy-relevant analyses that are specifically tailored to users' needs and interests.

Note: For users who wish to merge our state or district databases with other datasets, the DCD includes a variable for NCES district identification number, and the SID includes a state FIPS code variable.

A quick example for beginner-level Excel users

For those who have a basic familiarity with Excel but haven't yet had a lot of experience using different kinds of datasets, let's walk through a quick and simple example of how to access a specific SID measure for a given state in a given year.

Suppose you wanted to take a look at how **teacher/student ratios** (or "staffing ratios") varied between high- and low-poverty districts in the state of **Alabama** in **2018**.

Staffing ratios are not covered in our annual report or in the one-page state profiles, and they are not (yet) in any of the data visualizations. If you wanted to look at this important variable, you would therefore have to download the data and take a look for yourself. Since this measure applies to entire states (in this case, Alabama), you would use our state database (the SID).

Your first step is optional but recommended: *consult the SID user's guide for some quick discussion of how we measure staffing ratios and how they might be interpreted*. The user's guide will tell you that, in the SID, staffing ratios are measured as the number of teachers for every 100 students. Staffing ratios, of course, are correlated with average class sizes—more teachers per student means smaller classes—but they are not a "direct" measure of class size measure (the SID includes a direct class size measure, but it can only be calculated every four years due to data availability).

In addition, as is the case for most SID variables, we provide staffing ratios at different district poverty levels for each state and year. The ratios are also statistically adjusted for factors such as labor costs and district size. This, to reiterate, means you are comparing similar districts within or between states (in this case, between high- and low-poverty districts in Alabama that are otherwise similar in terms of labor costs, size, etc.).

Since, in this sample exercise, you have already figured out what you want to look at and you have a good sense of how it is measured (hopefully by consulting the SID user's guide), your next step is to *download the full SID dataset in Excel format* (link below). It is not a large file, and it should download quickly. When you open the spreadsheet, you will see that there are two tabs: one lists the variables and the other contains the actual data.

Now follow these three simple steps:

1. Find the variables you want to use

- In the first tab in the spreadsheet, scroll down to the section of variables called "Predicted staffing ratios and fairness."
- There are staffing ratios in each state at four different Census district poverty levels – 0%, 10%, 20%, and 30%. A Census district poverty rate of 30% is very high, roughly equivalent to 60-70% free-/reduced-price lunch eligibility.
- You can choose any poverty levels you want, but let's say you want to compare 30% with 0%. The two variables you want are called **predicted_tchph30_** and **predicted_tchph0_**.
- *Note:* you can also find the variable names in the SID user's guide (in which case you can skip this step).

2. Sort the spreadsheet

- You can search manually for your state and year (Alabama in 2018), but it's often easier to select and sort the whole spreadsheet (the sort command is in the "Data" menu).
- In our example, we sort by state and then by year (make sure the "My data has headers" box is checked)
- Once you sort the data, you can see that there are 26 "Alabama rows," one for each year between 1993 and the latest current year (2018 in our example).
- Each column to the right is a variable; the columns are in the same order as they are listed in the first tab.
- The first row below the header (which contains the variable names) is Alabama in 2018; that's where you're looking.

3. Scroll right to find your variables

- Scroll to the right until you find the columns labeled (in the top row) with your desired variable names (predicted_tchph0_ and predicted_tchph30_).
- For Alabama in 2018 (the row directly under the header row), these variables (highlighted in yellow in the screenshot) have values of 6.04 and 5.69, respectively.
- In other words, high-poverty districts employ, on average, 5.7 teachers for every 100 students, and the lowest-poverty districts employ 6.0 teachers for every 100 students.
- In a district serving 1,000 students this is equivalent to about 30 teachers (a big difference!).

You can also see how this comparison of staffing rates in Alabama's high- and zero-poverty districts has changed over time since 1993 by looking at the same two columns in the rows directly below the 2018 row (each of which is a different year). Or you can look at the staffing ratio estimates for any other state simply by scrolling down and finding the 2018 rows for other states (since you sorted the spreadsheet). And, finally, you can do all this for any of the other variables included in the state database (just find the variables' names in the first tab [or in the user's guide] and scroll right to find them in the second tab).

Note: this same process can be used with the DCD dataset, but users interested in viewing the data for an individual school district or small group of districts are best-served using the online data visualization tool discussed above. This is because, unlike the visualizations and profiles that present SID data, the district visualization tool presents all DCD variables for each district.

You can download the full datasets and user's guides here:
https://www.schoolfinancedata.org/download-data/

Summing up

Diving into the field of school finance can seem daunting at first. There are essentially 51 separate school finance systems in the U.S. They are incredibly complicated, having evolved over decades through legislation and litigation. Typically, there are relatively few people in each state with comprehensive knowledge of how they work under the proverbial hood.

But you don't have to understand every little detail of a state's system to understand and describe its performance. We have tried to design and present the SFID such that everyone— even those without a background in finance or quantitative research—can use our data and analysis to inform and ultimately improve education funding policy.

We hope this short guide is a useful starting point, but we are also interested in your feedback as to how we can improve our products in terms of both what we offer and how we present it. In addition, we are happy to answer any questions you might have about our data or publications.

Contact us with suggestions, comments, or questions here:
https://www.schoolfinancedata.org/contact-us/

Recommended additional reading

Our reports and briefs contain a lot of discussion about general school finance concepts and data interpretation, but for those seeking a more thorough treatment, here are a couple of additional publications that we recommend.
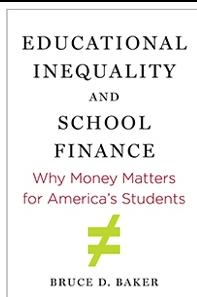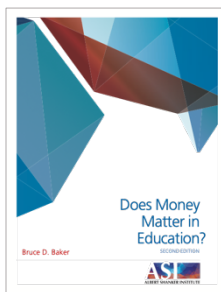
Educational Inequality and School Finance: Why Money Matters for America's Schools
Bruce D. Baker
Book published 2018 by Harvard Education Press

A comprehensive introduction to school finance concepts and research.

https://www.hepg.org/hep-home/books/educational-inequality-and-school-finance

Does Money Matter in Education?
Bruce D. Baker
Report published 2016 by the Albert Shanker Institute

A review of the research on the impact of spending and resource allocation on education outcomes (second edition).

https://www.shankerinstitute.org/resource/does-money-matter-second-edition

Stay updated about SFID products at schoolfinancedata.org or on Twitter @shankerinst

The Albert Shanker Institute, endowed by the American Federation of Teachers and named in honor of its late president, is a nonprofit, nonpartisan organization dedicated to three themes—children's education, unions as an advocate for quality, and both civic education and freedom of association in the public life of democracies. Its mission is to generate ideas, foster candid exchanges and promote constructive policy proposals related to these issues.

The institute commissions original analyses, organizes seminars, sponsors publications and subsidizes selected projects. Its independent board of directors is composed of educators, business representatives, labor leaders, academics and public policy analysts. This document does not necessarily represent the views of the members of its board of directors.

The University of Miami School of Education and Human Development's mission is to produce knowledge and prepare the next generation of leaders, researchers, and agents of change and well-being in education and the community.

Rutgers University Graduate School of Education (GSE) is committed to **Advancing Excellence and Equity in Education**. For nearly a century, the GSE has been a national leader in preparing educators, researchers, and leaders who create effective and equitable learning opportunities for diverse learners. Rutgers GSE is consistently ranked among the best schools of education in the country. In partnership with educators, our world-class faculty conduct innovative research to understand a broad range of educational issues and to advance educational practices and policies. GSE alumni have gone on to become effective practitioners, transformative leaders, and accomplished researchers in the United States and throughout the world.

$$(In)SCHOOL = b_0 + b_1 State_i + b_2 LaborMarket_{ij} + b_3 CWI_{ij} + b_4 FINANCE_{ij} + b_5 PopulationDensity_{ij} + b_6 Enrollment_{ij} + b_7 INDICATORS_{ij} + b_8 Scale_{ij} + b_9 Poverty_{ij} + b_{10} SchlType_{ij} + b_{11} DATABASE_{ij} + e$$