



Return on Educational Investment: 2014

A District-by-District Evaluation of U.S. Educational Productivity

By Ulrich Boser July 2014

Center for American Progress



Return on Educational Investment: 2014

A District-by-District Evaluation of U.S. Educational Productivity

By Ulrich Boser July 2014

Contents

- 1 Introduction and summary**
- 7 Background**
- 9 Following the money**
- 11 Recent efforts to address budgeting practices**
- 13 Recent state productivity efforts**
- 17 Methodology: Our approach to measuring educational ROI**
- 25 Findings**
- 31 Recommendations**
- 35 Conclusion**
- 36 About the author and acknowledgements**
- 37 Appendix A: Frequently asked questions**
- 41 Endnotes**

Introduction and summary

In 2011, the Center of American Progress released the first-ever attempt to evaluate the productivity of almost every major school district in the country. That project developed a set of relatively simple productivity metrics in order to measure the achievement that a school district produces relative to its spending, while controlling for factors outside a district's control, such as the cost of living and students living in poverty.

The findings of that first report were worrisome and underscored the fact that the nation suffers from a productivity crisis. The data suggested that low productivity might cost the nation's school system billions of dollars a year. What's more, too few states and districts tracked the bang that they received for their education buck.

In this updated report, CAP uses these same metrics to once again examine the productivity of the nation's school districts. We embarked on this second evaluation for a number of reasons. In many areas, education leaders continue to face difficult budget choices, and more than 300,000 education-related jobs have been lost since the start of the Great Recession.¹ At the same time, the advent of the new, more rigorous Common Core standards will demand that far more from educators, including better, tougher exams. In short, many educators are being asked to do more with less.

But still, school productivity has not become part of the reform conversation, and with this project, our hope is to shine a light on how productivity differs across districts, as well as to identify key areas of reform. Moreover, for the first time, we conducted a special analysis of educational fiscal practices, diving deep into state budgeting approaches. We believe that if our education system had a more robust way of tracking expenditures, it could do more to increase productivity. Together with this report, we have also released analysis by CAP Senior Policy Analyst Robert Hanna on twin districts. Hanna's analysis looks more closely at the programs and practices of more effective districts.

As noted in our previous report, the emphasis on productivity does not mean that CAP endorses unfettered market-based reforms. We continue to believe, for instance, that school vouchers do not further the cause of public education. Nor do we argue that policymakers should spend less on education. Indeed, we believe neither of these approaches can solve the nation's pressing education challenges, and together with this report, CAP is releasing a paper by Bruce Baker titled "America's Most Financially Disadvantaged School Districts and How They Got that Way," which looks at some of the severe inequities that plague our nation's school system.

The bottom line is that we believe policymakers and educators need to focus on what works in education and scale up those practices. This means focusing on effectiveness *and* on equity. We need, in other words, to look at both who gets education dollars and what they do with those dollars.

What's more, it is clear is that schools and districts can boost outcomes, and in recent years, a number of districts and states have significantly raised student achievement. But these success stories are not enough. We also need to figure ways to do more with what we have.

Here is a summary of our most recent findings:

- **Low educational productivity remains a deeply pressing problem, with billions of dollars lost in low-capacity districts.** Thousands of school districts ranked poorly on at least one of our productivity metrics; hundreds showed low scores on all three of our productivity metrics. The lowest productivity school districts serve about 3 percent of the more than 41 million students covered by our study. (Note that the productivity rankings for 2014 cannot be compared to the rankings in previous years, due to methodological limitations)
- **Some of the nation's most affluent school systems show a worrying lack of productivity.** Our analysis showed that after accounting for factors outside of a district's control, many high-spending districts posted middling productivity results. For example, only slightly more than one-third of the districts in the top third in spending were also in the top third in achievement.

- **In some districts, spending priorities are clearly misplaced.** Texas is one of the few states that report athletic spending at the district level, and the state’s data suggest that more than 100 districts in Texas spend upward of \$500 per student on athletics.² A few districts in Texas spend more than \$1,000 per student annually on athletics. To keep these numbers in perspective, the average unadjusted per-pupil operating expenditure in the state in 2013 was around \$10,000.
- **State approaches to improving fiscal effectiveness vary widely.** Only a few states, such as Rhode Island, currently take a weighted-student funding based approach to education, where money is distributed to schools based on student need. What’s more, only two states, Florida and Texas, regularly rate the productivity of local school dollars. Some policymakers are taking on the issue of productivity, however, and some states, such as New York and Virginia, have taken smart capacity-building approaches.
- **States have failed to make fiscal equity a priority and large funding gaps exist across school districts.** In our analysis, we calculated the expenditure difference between a district that spends near the top and near the bottom in each state. This is a long-standing approach to measuring school finance inequity, and using the latest spending data provided by the federal government, we found that gaps among school districts remain high. In New Jersey, the difference between the wealthiest districts and the least wealthy district was \$6,200, after adjusting for cost of living and student demographics. For this reason, we took significant steps in our report to control for funding disparities.
- **State budget practices are often inconsistent and opaque.** Key expenditure-related definitions vary, and while almost every state now has a common chart of accounts—a type of budget dictionary—the specifics are not comparable across states. This means that what might count as curriculum spending in one state is most likely different than what counts as curriculum spending in another state.

Plus, some state practices are difficult to follow. In Washington state, for instance, school districts are allowed to release two different sets of financial statements.³ The first set of statements is for the state’s annual financial accounting system. The second set of statements meet a different set of accounting procedures. According to the state, the second set of financial statements are “considered to be ‘special reports’ or ‘supplemental schedules’ and are not basic financial statements.”

Brief description of the productivity ratings used in this study

This work builds on our 2011 productivity study, and for the most part, we used the same methodology as in the previous report.⁴ Specifically, the spending data come from the 2010-11 school year, the most recent year for which data are available. For achievement, we relied on the results of 2010-11 state reading and math assessments in elementary, middle, and high school. All three of our metrics use a green-to-red color-coding system, and the first two approaches use the matrix shown below to evaluate districts. The same color legend is used on the interactive companion website at www.americanprogress.org/ROI.

ROI evaluation matrix

	Lowest achievement	Medium achievement	Highest achievement
Lowest cost			
Medium cost			
Highest cost			

Basic Return on Investment index rating

The Return on Investment, or ROI, index is a measure that rates school districts on how much academic achievement they realize for each dollar spent, relative to other districts in their state. To avoid penalizing districts where education costs are higher, we adjusted for a variety of factors, including cost-of-living differences and higher concentrations of low-income, non-English-speaking, and special education students.

Adjusted Return on Investment index rating

This measure uses the same approach as the Basic ROI but applies a different statistical method, called a regression analysis, to account for the higher costs associated with serving larger concentrations of low-income, non-English-speaking, and special education students. The adjustments, or weights, used in the Basic ROI are not always sensitive enough to account for spending differences within states.

Predicted Efficiency index rating

The Predicted Efficiency rating measures whether a district's achievement is higher or lower than would be predicted after accounting for its per-pupil spending and concentrations of low-income, non-English-speaking, and special education students. Under this approach, a low-achieving district could get high marks if it performed better than predicted. Lowering academic expectations for students from disadvantaged backgrounds is not a policy position supported by CAP.

As we have noted before, our measures are far from perfect, and individual district evaluations should be interpreted with caution. The connection between spending and achievement is complex, and our methods cannot capture everything that goes into creating an efficient school system. Nor can we control for everything that is outside of a district's control, and our adjustments for factors such as poverty and students in special education are estimations and do not account for variations in severity and type within those demographic groups.

Most of the variation in student achievement is within schools, and so district-level productivity results mask significant variations in productivity within districts. Furthermore, one cannot compare productivity ratings across years due to the nature of our approach. Finally, we are aware that some of the data reported by states and districts have reliability issues, with agencies sometimes using inconsistent definitions and weak data collection practices.

Despite these important caveats, we believe our district-level ratings use the best available methods and reveal important results. Our work has been guided by a panel of experts, who reviewed our approach and provided helpful feedback. However, we take full responsibility for the methodology and resulting evaluations.

This report recommends the following:

- **States should build capacity for productivity gains through targeted grants, assistance teams, and performance metrics.** When done well, performance metrics can provide local leaders with better information on their district's productivity levels and also guide best practices. We also believe that states should consider creating grants that link increases in funding to improved student achievement and recommend that states build technical assistance teams that assist districts in increasing productivity.
- **Education leaders should improve accounting procedures and create a multistate initiative that will focus on building more robust education budgets.** Educators can do a lot within their communities to make accounting and budgets more transparent and actionable. Some states have detailed school-level fiscal databases, which make it easier to evaluate local levels of equity and effectiveness. Other states such as Texas have made their fiscal database highly robust, which allow observers to easily compare district spending on discrete categories such as athletics.
- **Educators should also improve the quality of fiscal data across states, and the Common Core State Standards Initiative provides an example of how states can work together to create a stronger, more innovative education system.** Something similar should be done within the fiscal space, with states coming together to develop more rigorous budgeting procedures. Such a group of state education leaders could create a common chart of accounts, set out best accounting practices, and generally build capacity.
- **States and districts should encourage smarter, fairer approaches to school funding, such as student-based funding policies.** Policymakers should develop funding policies that direct money to students based on their needs. This will go a long way to give all schools and districts an equal opportunity to succeed. At the same time, the gross funding inequalities between school districts cannot be ignored, and policymakers must take steps to improve fiscal equity across schools, districts, and states. Specifically, we recommend weighted student funding, which has the potential to both solve equity and efficacy issues with current school funding approaches.

Background

In late 2013, the federal government released the latest results from the National Assessment Education Progress, or NAEP. The exam is widely known as the Nation's Report Card, and the test provides state-level student achievement scores in reading and math. The results from NAEP were promising, and a number of areas, including the District of Columbia and Tennessee, showed significant improvement in the scores of both their fourth and eighth graders.⁵ Nationally, there was also a slight improvement in overall scores.

What the results suggest is that education reform can make a difference. But there is an issue here, which is that we do not do enough to figure out what these achievement gains cost—and how we can get more for our education dollar. Think about it this way: While many areas have made real but modest gains on NAEP, per pupil spending in the U.S. has tripled in the past four decades, even after adjusting for inflation.⁶ What's more, the United States is not seeing the gains that other nations are making on international assessments. Over the past 14 years, for instance, the United States has only shown a one-year gain on international tests.⁷ Compare that to other countries, such as Portugal, Liechtenstein, and Lithuania, which made gains at twice the rate of the United States and spend considerably less.⁸

This report is not an argument that money does not matter in education. Lots of evidence suggests that dollars do make a large and significant difference, and some of the schools and districts that posted large achievement gains in recent years have done so by spending more money. Rather, we are arguing that money matters when it is spent wisely, and this project is an effort to gain more attention to the policy solutions around school productivity.

Our effort does not ignore the fact that many school districts are often inequitably funded. Indeed, education funding in this country remains consistently unfair. Other reports by the Center for American Progress have shown, for instance, that before recent funding reforms, a 10 percent increase in the rate of low-income

students in California equaled a \$411 drop in average teacher salary.⁹ (see the Methodology section on page 17 for a detailed description of how we adjust for poverty in our productivity analysis)

But as a nation, the United States cannot pretend that education dollars are endless, and we must address the issue of spending effectiveness. This is not an academic point, given lackluster education revenues. In fact, for many districts—both wealthy and poor—spending cuts are becoming a fact of life. More than 30 states have provided schools with less money than they did prior to the Great Recession, according to one recent analysis.¹⁰ Another survey showed that more than 80 percent of school administrators now view their district as inadequately funded.¹¹ Consider just one state, Oklahoma: From 2008 to 2014, spending per student dropped a whopping 23 percent.¹²

These funding rollbacks hurt kids, and in far too many cases, educators are eliminating effective programs and making short-sighted roll backs. Sequestration, for instance, has led to the loss of access to pre-K programs for nearly 60,000 children.¹³ Others states and districts are scrapping or curtailing extended learning time programs, and last year, the Los Angeles Unified School District cut funding for its summer program by more than \$1 million.¹⁴

At the same time, educators are keeping in place programs that have shown little or limited research. For instance, many states and districts continue to pay extra for teachers to receive master's degrees even though the practice has shown little efficacy. One recent study by researchers Raegan Miller and Marguerite Roza, in fact, found that the nation spends almost \$15 billion a year on so-called “master's degree bumps,” despite the fact that the programs do not boost student achievement.¹⁵

The bottom line is that much has changed since our last productivity report. An increasing number of states and districts have realized that productivity is a pressing issue, and they have begun to focus on the issue. But more broadly, too much has stayed the same. Schools still spend money on less-than-effective programs, and as we will see in the following pages, educators still fail to track their education dollars to see how exactly they are being spent. But first, we will look at the state of education finance data.

Following the money

There are many reasons for the uneven levels of productivity in our nation's schools. In our previous productivity report, we looked closely at the issue of school management systems. In this report, we wanted to focus on a different aspect of productivity improvement—and that begins with data. More specifically, it begins with tracking exactly how education dollars are spent.

Educators have long bemoaned the lack of high-quality spending data. In the late 1950s, a number of states tried to bring some clarity to the issue of education budgeting, and states such as Tennessee passed laws reforming their educational accounting procedures, mandating, among other things, a uniform, statewide chart of accounts. The idea behind many of these efforts to improve district was simple: Without robust fiscal reporting consistency and transparency, there cannot be robust fiscal management. Or as officials in Wyoming put it in the state's *School Budgeting, Accounting and Reporting Manual*, the purpose of a common chart of accounts “is to ensure that school district fiscal data can be reported in a comprehensive and uniform manner.”¹⁶

Over the past few years, some states have pushed additional fiscal reforms. But they have not been enough. Our nation's education funding system has grown far more complex over the years, and school systems today receive funds from a variety of sources, including from state, federal, and philanthropic sources. Plus, Americans' expectations of school systems are much higher than ever before, not to mention that taxpayers want to know that their dollars are being spent wisely. Finally, recent technological developments allow for far more innovation and development within the budgeting space.

As part of this report, we decided to look more closely at the issue of fiscal data, and as part of our study, we visited the education department websites of all 50 states and the District of Columbia and searched for charts of accounts and other fiscal information. We also did a special analysis on intrastate chart of accounts and looked closely at state fiscal databases. What was clear was that in some areas,

states and districts cannot easily compare their spending. Definitions are loose; standards differ. Perhaps worst of all, many states and districts simply have no idea what kind of bang they are getting for their education buck.

The issue is compounded by the way in which states and the federal governments hand out their education dollars. Most districts receive education funds through so-called categorical programs, which direct money to specific programs or initiatives. As a consequence, the dollars come to the district with their own set of policies and procedures. What's more, some districts will set up a separate budget for these programs in order to adhere to the regulations, but when a district has a separate budget for a program, it makes it difficult to examine overall spending. Furthermore, these categorical programs create incentives for local leaders to create varying budgets and accounting procedures, which, as we will see below, often make it hard to closely track spending and connect that spending to results.

A not-so common chart of accounts

As part of this study, we looked closely at the charts of accounts of California, Michigan, and Alaska.¹⁷ We found that these states' definitions for a variety of spending procedures and functions differ, making it difficult to do a comparison across states using only a chart of account code.

Consider, for instance, the definition of principal duties. California nests principal duties under the school administration classification. However, Michigan goes a step further to create a code specifically for the "office of the principal" within the school administration category. There are other

issues too. Alaska has a stand-alone expenditures category for library books. Michigan does not. California provides a clear definition of "workstations," but neither California nor Alaska do. Michigan provides a line item for "advertisement" expenditures. The other two states do not.¹⁸

These sorts of differing definitions make it difficult to track spending across state lines, and if someone wanted to easily compare spending on library books in Greenville, Alaska, to Greenville, California, they would have to dig deep into the data in order to create meaningful comparisons.

Recent efforts to address budgeting practices

Over the past few years, some education leaders have realized that more needs to be done to improve education budgeting practices. Some outside organizations have been developing their own approaches, and a few years ago, the Council of Great City Schools published a report on *Managing for Results in America's Great City Schools*, which includes self-reported data from 61 member districts on more than 300 data points relating to big-city school operations.¹⁹

States have also been looking at the issue of fiscal budgeting more closely. In 2012, for instance, Connecticut Gov. Dannel Malloy (D) announced the passage of a set of education reform initiatives that included a mandated chart of accounts.²⁰ The budget project is currently in development and should be released by the 2014-15 school year.

A task force in Kansas has also recently made recommendations on fiscal practices. The effort started when a school efficiency task force in the state tried to detail administrative cost-savings strategies.²¹ But the task force found that it was difficult to differentiate what qualifies as instructional spending as opposed to administrative costs, and so the group recommended forming another group, which would create a common definition of instructional spending.

Rhode Island has established one of the more promising reforms. To address a chronically inequitable and ineffective funding system, the state reformed its school funding system in 2010, and as part of that effort, the state required districts to enact a uniform chart of accounts. But the state did more than build a robust fiscal system, as education researcher Ken Wong has noted.²² The state also connected the fiscal data to other programmatic activities. Wong writes that, under the new statewide fiscal system, “district and state policymakers will be able to compare, for example, how a particular district or school is spending their state and local dollars to support math or reading learning.” This means, in other words, that education leaders will now be able to examine specific instructional practices, such as technology-enhanced math classes, in terms of the dollars spent.

Another crucial part of Rhode Island’s fiscal reform is that it relies on a form of weighted student funding.²³ This approach to funding has a number of names—including “student-based budgeting”—and it ensures that funding “follows every student to whatever public school he or she attends.”²⁴ There are a number of benefits to the approach. It improves transparency and local autonomy by reducing the reliance on categorical programs. Just as important, the approach makes school funding more equitable. As Wong writes of the Rhode Island fiscal strategy, “the student success factor in the funding formula creates incentives for schools and districts that receive children who come from at-risk backgrounds.”²⁵

When it comes to productivity, the Rhode Island reforms offer an important lesson that robust fiscal data alone are not enough. Expenditure data also need to be connected to information on practice, programs, and student outcomes. In this way, leaders should be able to find answers to questions such as: What is the ROI on the district’s new math curriculum? What is the productivity increase of extending the school day by one hour? Are iPads in science classes paying off? And perhaps most important: Can leaders take action? Another way of understanding the idea of nuanced expenditure data is to imagine it like this: If educators have access just to fiscal data, they can understand only how their districts spends its money. But if educators have linked fiscal, programmatic, and outcome data, they can understand how their district can spend their money in order to gain better results.

Recent state productivity efforts

As part of our 2014 ROI report, we also decided to look more closely at state approaches to improving productivity, and as part of the study, we visited the education department websites of all 50 states and the District of Columbia and searched for any efforts or initiatives to improve fiscal effectiveness. Additionally, we conducted interviews with some key leaders in the field, both in and outside of state government.

The results of that research varied widely. The most common approach was for states to create a taskforce or write a one-off report. For instance, a half-dozen states hired school finance experts Picus Odden & Associates to write an analysis and offer solutions to their productivity issues. The firm relies on an evidence-based approach, which identifies school-level reforms that are research-based and then creates a spending model for implementing these reforms in practice. Wisconsin, Wyoming, Virginia, North Dakota, West Virginia, and New Jersey contracted with Picus Odden & Associates to create such reports.

There are issues with the Picus Odden & Associates approach, however. First, one-off efforts do not generally provide long-term solutions to the issues that haunt school productivity. In many cases, the problems are systemic and need deep and forward-thinking solutions. Moreover, some economists, such as Eric Hanushek, argue that the approach of Picus Odden & Associates is limited because it looks at potential gains of certain programs rather than taking a holistic view. The Picus Odden & Associates approach, argues Hanushek, is “essentially a selective review of the published literature on program effects.”²⁶ Finally, the approach is limited because it’s executed at the state level and does not address local needs or goals.

Other states have taken different approaches. Since 2003, Virginia has been conducting district-level fiscal analysis in order to “realize cost savings in non-instructional areas in order to redirect those funds towards classroom activities.”²⁷ Outside consultant reviews—think of them as a type of efficiency SWAT team—

conduct the analysis for the districts, and both the state and the district share the costs. Since the program began, more than 30 districts in Virginia have gone through the program with more than \$40 million in estimated savings.²⁸

Part of the success of the Virginia program lies within the fact that it is tailored to the context of specific districts. In 2012, for instance, Arlington Public Schools went through the efficiency review process, and the report recommended, among other things, that the district drop its “full 30-minute, duty-free lunch period to teachers.” As the document noted, “Food services leadership indicated that there is a requirement to provide a full 30-minute, duty-free lunch period to teachers, which influences their lunch period scheduling; however, based on research conducted by the review team, this does not appear to be a federal, state or local requirement.”²⁹

New York State has taken a more targeted approach, and the state recently began offering District Management Efficiency grants. Gov. Andrew M. Cuomo (D) began the program—which, according to the grant language, “rewards school districts that have implemented innovative strategies to improve the overall efficiency of school district management, while maintaining or improving student achievement.”³⁰ Districts in the state can apply for the grant by writing up a plan for cost savings in their districts. In 2013, four districts received the grants after identifying more than \$20 million in cost savings.³¹

“The simple truth is that New York State spends more money per pupil than any other state in the nation, yet continually lags behind in student performance,” Cuomo said when the state announced the grant winners.³² “We cannot continue to ask taxpayers for more and more money; rather our education system must become more efficient and focus spending on student achievement.”

Many of the New York grant award-winners have created innovative programs. For instance, the state gave the Middletown School District more than \$100,000 to create a self-check-in and check-out library system.³³ The next-generation library system relies on radio frequency identification to track books, and it is estimated to save the district more than \$500,000 over two years.³⁴

As for actually evaluating the productivity of schools and districts, today, only two states, Florida and Texas, regularly examine education bang for the buck. The Texas program—known as FAST—began in 2009, and it uses a sophisticated modeling technique to control for factors outside of a district’s control such as student poverty. The program evaluates schools and districts each year and offers a set of “smart practices” gathered from local interviews. Some of the recommendations include basic leveraging of technology, such as moving to Internet-based phones. Others are more sophisticated—for example, some districts have used outside vendors to build instructional capacity. Florida has been running a productivity evaluation program for years. But this year, the state decided to reform the approach to better align with the state’s data system. The new approach is currently awaiting approval from the State Board of Education.

Perhaps the one thing that is clear is that all 50 states and the District of Columbia currently have the technical ability to provide school and district leaders with additional tools to improve productivity. For one, all the states have data on student outcomes, and all are required under the No Child Left Behind Act of 2001, or NCLB, to evaluate student performance. At the same time, all the states have data on expenditures. What states fail to do, however, is to combine these data in any meaningful way and provide district leaders with the tools that they need to make better choices. Some states have been exploring the idea, and in 2010, Oregon ran productivity evaluations on all of its districts and provided them to the districts on an informal basis.³⁵

In Colorado, the administration of Gov. John Hickenlooper (D) has floated a proposal to make school funding more transparent and require all schools and districts to place their budgets online.³⁶ Hickenlooper hopes to bring the proposal to the state legislature this year and recently told a reporter:

So far, no state’s ever had total transparency on how their tax dollars are spent to every school ... So you can create a Web site where every dollar to every school every day is tracked. How much goes to the teacher, how much goes to their pension, how much goes to the bureaucracy, how much goes to maintaining the facility. Really focus on making each school an enterprise.³⁷

Methodology: Our approach to measuring educational ROI

One of our goals in this project was to measure academic achievement relative to a district's educational spending, while controlling for factors outside their control, such as cost of living and degree of student poverty. This work builds upon a great deal of previous work by ourselves and others. For a history of our approach, including our technical advisory board, please consult our 2011 report, "Education ROI."

In this year's analysis, we produced productivity evaluations for more than 7,000 districts that enroll more than 80 percent of all U.S. students.³⁸ We were unable to produce results for Alaska, the District of Columbia, Hawaii, Kansas, Maine, Montana, Nebraska, New Hampshire, North Dakota, Oklahoma, South Dakota, and Vermont. Hawaii and Washington, D.C., are single-district jurisdictions, so within-state comparisons were not possible. Alaska, Arizona, Kansas, Maine, Montana, New Hampshire, North Dakota, Oklahoma, South Dakota, and Vermont did not have enough comparable districts.

Spending data came from the Local Education Agency Finance Survey, or F-33, produced by the federal government's National Center for Education Statistics, or NCES. These data are from the 2010-11 school year, the most recent year for which complete data are available. Since that time, many districts may have taken steps that might have significantly changed their efficiency ratings.

As we noted in our previous report, we used the "current expenditures" category, which includes salaries, services, and supplies.³⁹ It does not include capital expenses, which tend to have dramatic increases from year to year and thus are unreliable for comparisons. The expenditure data include money from all revenue sources, federal, state, and local.

We restricted our study to districts with at least 300 students who took tests and that offered schooling from kindergarten through the 12th grade. We also excluded districts classified as a charter school agency, state-operated institution, regional education services agency, supervisory union, or federal agency.⁴⁰ Furthermore, we relied on a federal database, which placed further restrictions on the size of the district. To protect student privacy, the U.S. Department of Education reported exact student proficiency data for districts with more than 300 student test takers.⁴¹ Data from New York City Public Schools were also aggregated into a single district. And to ensure that we had a sufficient number of comparable districts in each state, we included states only if more than 50 percent of their districts were covered by our analysis. If more than 50 percent of students in a district were special education students, that district was also removed from the analysis.

We also relied on NCES to calculate district-level demographic indicators for the 2010-11 school year, the number of students receiving free and reduced-price lunches, the number designated as English language learners, and the number that participate in special education.

Many districts did not report demographic data for the 2010-11 school year, necessitating the use of proxies. If a school district was missing a demographic indicator, we substituted data from the 2011-12, 2009-10, or 2008-09 school year. In no instance did we use proxies for achievement or expenditure data.

Achievement data came from the U.S. Department of Education, which collects data from the states on district-level student outcomes. We used these data to create an achievement index, developing a score for each district by calculating the percent of students who scored proficient or above on the state assessment in reading or math in third grade through eighth grade and high school for the 2010-11 school year.⁴²

Our three productivity measures

As noted in our previous report, to emphasize the complexity of measuring a district's productivity, we offer three different approaches to measuring productivity rather than a single ranking.⁴³ The companion website to this report allows the public to compare districts in a state using each of our metrics and also provides comparisons of school systems with similar demographics and size. The site also

details each district's achievement and spending data. We used shades of colors when ranking the districts to emphasize the fact that we did not evaluate districts against an external benchmark but rather on their relative performance.

Basic Return on Investment index rating

This measure rates school districts on how much academic achievement they get for each dollar spent, relative to other districts in their state.

Because it costs more to educate certain populations than their peers, we adjusted the expenditure data for students in special programs, such as students who receive subsidized lunches or are in special education. This is a common practice in school finance research, and we derived the weights by calculating the average weight used in a half-dozen research studies and policy papers.⁴⁴ Based on those calculations, we used a weight of 1.4 for free and reduced-price lunch, 1.4 for English-language learners, and 2.1 for special education.

To understand how this works, consider the following. Research indicates that each student who qualifies for a subsidized lunch costs about 40 percent more to educate. So, for each additional student in the free and reduced-priced lunch program, we subtracted 40 percent from the district's per-student spending.

To adjust for cost-of-living differences, we used the Comparable Wage Index, or CWI, a measure of regional variations in the salaries of college graduates who are not educators. Lori Taylor at Texas A&M University and William Fowler at George Mason University developed the CWI to help researchers fine-tune education finance data to make better comparisons across geographic areas.⁴⁵ We used adjustments from 2011, the most recent year for which data are available.

To calculate the adjusted costs for each district, we created a needs index designed to measure how much additional funding a school district should have received based on its students in special programs, including the percentage of students in the subsidized school lunch program, special education students, and English-language learners, or ELL. We created the index by multiplying the number of students in these special programs by their respective weight. We then divided the weight by the enrollment to get the average additional amount of funding that a given school district should have received. To avoid penalizing districts with greater needs, we then divided the raw per-pupil expenditure by the weighted

index to produce the amount of money a district would have spent if it had no students in special programs. Finally, we adjusted this measure by the CWI to make it comparable across different geographic localities.

We then distributed districts in each state into three equal tiers based on their position on the achievement index, with the highest achievers in the top tier and the lowest achievers in the bottom tier. We also divided the districts into three equal tiers based on their adjusted expenditures, with the highest adjusted spenders in the top tier and the lowest adjusted spenders in the bottom tier. We then used an evaluation matrix to assign colors to each district based on their achievement tier relative to their spending tier, with green being the most productive and red being the least productive.

The matrix rewards districts that had low spending and high achievement relative to other districts in their state. So if a district was in the top third of achievement and the bottom third in spending, it would receive a rating of green.

ROI evaluation matrix

	Lowest achievement	Medium achievement	Highest achievement
Lowest cost			
Medium cost			
Highest cost			

Adjusted Return on Investment index rating

This measure uses the same approach as the Basic ROI rating but applies a different statistical method, called a regression analysis, to account for factors outside a district's control, such as the added costs of educating low-income, non-English-speaking, and special education students. The adjustments, or weights, used in the Basic ROI are not always sensitive enough to account for spending differences within states. For example, states might provide districts with additional funding for students in special education, and thus a weight of 2.1 for a student in special education might be too high.

In this approach, we predicted what a district would spend relative to other districts in the state. We ran the regression models separately for each state to account for variation within each state’s educational financing system. Here is the process depicted as an equation:

$$\ln(\text{CWI adjusted ppe}) = \beta_0 + \beta_1 \% \text{ free lunch} + \beta_2 \% \text{ ELL} + \beta_3 \% \text{ Special Ed} + \varepsilon$$

We predicted each district’s spending based on the percentage of students in special programs, including the percentage of students receiving free or reduced-price lunches, the percentage designated as ELLs, and the percentage who participate in special education. Thus, we predicted how much more or less the school district is spending than what we predicted it should be spending—also known as a residual—and we used this as our measure of spending.

We then divided the districts into three tiers based on how much more or less the district spent than what we predicted it should have spent. Districts with lower-than-predicted scores went into the lowest tiers, and those with higher-than-predicted scores into the highest tier.

We then used the achievement index to separate the districts into three tiers, as in the Basic ROI rating. Finally, we assigned each district a color on the evaluation matrix based on its placement on the achievement and predicted-spending tiers.

Predicted Efficiency index rating

This measure is significantly different than the first two measures.

The first two measures rate districts based on the achievement school systems produce compared to their expenditures after controlling for factors outside the district’s control. In contrast, the predicted efficiency measure does not compare achievement to spending. Instead, the approach rates districts on the results of their predicted achievement after controlling for factors outside their control. This distinction is important. The first two approaches attempt to measure how much “bang for the buck” a school district gets. This third approach attempts to eliminate the effects of spending and other factors such as students with additional needs and then evaluates districts by how much more or less achievement the district produced than would be expected.

Technically, then, this approach does not evaluate districts against an evaluation matrix nor does it weight or predict the amount that a school district spends on education. Instead, we used a regression analysis to predict what achievement a district should have relative to other districts in the state given its spending and percentage of students in special programs.

To calculate this estimate, we used a production function, a type of regression analysis that examines the relationship of inputs to an output, and we predicted the achievement index as a function of the district's cost of living-adjusted per-pupil expenditure, the percentage of students participating in the free and reduced-priced lunch program, the percentage of students who are ELLs, and the percentage of special education students.

This approach is shown in equation form below:

$$\text{achievement} = \beta_0 + \beta_1 \ln(\text{CWI adjusted ppe}) + \beta_2 \% \text{ free lunch} + \beta_3 \% \text{ ELL} + \beta_4 \% \text{ Special Ed} + \varepsilon$$

To control for differences in state finance systems, we calculated individualized production functions for each state. Then, after predicting each district's achievement, we divided the results into six bands and awarded colors to districts that produced higher or lower levels of achievement than would be expected, with green being the most productive and red being the least productive. Districts with negative scores—or those that produced a lower level of achievement than would be expected—were given the least desirable rankings.

One of the limitations of the Predicted Efficiency index is that districts with high overall achievement can receive low productivity scores. That is not the case with the first two productivity approaches. The measure also adjusts academic expectations for students from disadvantaged backgrounds. While this is an accepted research practice in the education policy community, the Center for American Progress opposes the lowering of academic expectations as a matter of policy. The reasons are both philosophical and practical. They are philosophical because we do not believe that a country that declares that everyone is created equally should have lower educational standards for students who are from low-income families or speak English as a second language. And they are practical because we believe that unless schools have high-academic expectations, it will not be ensured that all

students—regardless of family background—will succeed. But as we researched various productivity measures, we found that this approach provided important insight into a district’s productivity and helped provide a more well-rounded understanding of its overall efficiency.

Important caveats

As we have note before, one of the aims of this project is to bring attention to the large variance in productivity within states, and while we believe that our district-level evaluations rely on the best available methods—and show important results—we caution against making firm conclusions about the ratings of an individual district.⁴⁶ We also encourage readers to closely examine the data and our approach to evaluating productivity.

The literature on productivity is limited, and there is a lot we do not know about the relationship between spending and achievement. It appears, for instance, that the link between outcomes and money is not always linear. In other words, even in an efficient school system, the first few dollars spent on a program or school might not have the same effect as subsequent expenditures, with additional dollars not boosting outcomes as much as initial investments. We also know that additional resources are often provided to districts that already have high achievement and that this can potentially mask inefficiencies in spending.

Because of the limitations of the research, we could not evaluate the efficiency of a district against an external benchmark. We therefore rated districts based on their relative performances. That means a few things: First, we slotted districts into different evaluation levels even though in some cases the numerical value that separated the districts may not have been significant. It also means that states with a smaller number of districts had different cutoff points between rating categories than did states with larger numbers of districts.

Our measures also cannot account for all of the variables outside the control of a district, in large part because the field of education suffers from a lack of high-quality data. Some states do not have robust school-by-school spending data, for instance. That is why we were able to produce only district-level productivity results, which likely mask significant variation within a district. And apart from excluding small districts, we did not adjust for economies of scale. There are

issues with the data, as well as debate within the research community about what economies of scale say about the quality of a district's management.⁴⁷ However, given the potential impact that size can have on spending, we made it easy to sort by both enrollment and geography on our interactive website so that users can compare similar districts.

The available data are also problematic. State and district data often suffer from weak definitions and questionable reliability. For instance, the federal government requires that every school report the number of students who participate in the free and reduced-price lunch program. But schools rely on parental self-reporting to determine eligibility, and so schools that are more aggressive about recruiting families into the program often have higher participation rates, even though they might not necessarily have larger percentages of low-income students.

There are problems with achievement data as well. Many of the state assessments currently in place do not rigorously assess what students know and are able to do. Some of the exams use only multiple-choice questions to test students' mastery of a subject, thus providing limited perspective on student skills. Other exams are not properly aligned with state curriculum standards and may be too easy. Moreover, our study looks only at reading and math test scores, an admittedly very narrow slice of what students need to know to succeed in college and the workplace.

Despite these caveats, we believe our evaluations are the best available, given existing traditions and knowledge. We designed our color-rating system to empower the public to engage the issue of educational productivity, and we have produced an interactive website that allows users to compare the productivity of similar districts. We hope this project promotes not just further talk and deeper research but also thoughtful action to maximize school spending.

Findings

This report is designed to continue to press for a national conversation about educational productivity and to identify districts that generated more relative achievement per dollar spent. Below are our major findings:

Far more can be done to boost educational productivity.

Our research suggests there is large and significant lost educational capacity in our school system, and highly inefficient districts exist in almost every state, with more than 1 million students nationally enrolled in low-productivity districts. More than 275 school districts around the country were rated highly inefficient on all three of our productivity metrics. These districts serve about 3 percent of the more than 41 million students covered by our study.

To be clear, the issue here is not that any districts are necessarily wasting money on their education efforts. Rather, the issue is that too many districts are spending taxpayer money in ways that do not appear to dramatically boost reading and math scores, and some districts are able to gain similar levels of reading and math achievement with the same population of students but at lower levels of per-student spending. In other words, we need to do more to follow the lead of the top-performing districts and ensure that school dollars go to improving results.

Some of the country's richest school systems show a clear lack of productivity

Our analysis showed that after accounting for factors outside of a district's control, many high-spending districts posted middling productivity results. For example, only 37 percent of 2,397 districts in the top third in spending were also in the top third in achievement. (Note that the productivity rankings for 2014 cannot be compared to the rankings in previous years, due to methodological limitations)

To cite an example, consider Rondout Valley School District in New York. In 2011, the district spent around \$25,500 per student in unadjusted expenditures, which puts the district in the upper tier of the state in terms of spending.⁴⁸ But the district gets lower achievement relative to other districts with similar demographics, and in fourth grade math in 2011, 58 percent of Rondout students scored proficient. The state average was 87 percent.⁴⁹ This suggests a gap between what the districts spends and what it might actually get for those dollars.

Too many state states and districts are spending dollars on programs that fail to improve student outcomes

In the few states that do produce robust and detailed district budgets, funding priorities in some districts seem misguided. Texas, for instance, is one of the few states we found that published spending data at the state level on athletics, and we found that more than 100 districts in the state spent \$500 or more per student on athletics in 2013.⁵⁰ Three districts in the Lone Star state spend more than \$1,000 per student on athletics. Or consider the fact that a district could give each student his or her own iMac computer for that same amount of money.

We looked more closely at these Texas districts that spend significant amounts of money on athletics, and many of them were highly rural districts. Given the nature of the data, we were not able to determine why they allocated so much on athletics. But the results suggest that much of the costs of the athletics program went toward transportation costs.

Still, some of these high-athletic spenders have middling academics. Take Crane Independent School District in Crane, Texas, for example. The district has a graduation rate of 77 percent, which is slightly lower than expected given its characteristics, according to one analysis.⁵¹ Moreover, the district's test scores are below average in some areas, and in 2011, only 48 percent of its 10th graders scored proficient on the state's math test. The state average was 74 percent.⁵² And yet in 2013, the Crane Independent district spent more than \$600 per student on athletics, according to the state's fiscal data. That is not to say, however, that the money spent on athletics is wasted—Crane's boy's track team won the state title some years ago.⁵³ Rather, we would argue that some districts may have their priorities wrong and would be better off spending their dollars in ways that boost student outcomes in the classroom.

As Marguerite Roza, the director of the Edunomics Lab at Georgetown University, argues, districts often lack the ability or even make the effort to break-down per pupil spending.⁵⁴ And Texas should be praised for divulging these data. Indeed, as part of our research, we looked across the states and could not find another state that reported this detailed level of information about athletic spending. A handful of states such as New Jersey provided information on extracurricular spending, but even those states did not break out the data. More than that, most states do not provide any fiscal data on spending on extracurricular activities.

Many states fail to track fiscal effectiveness

Our research shows that without focused programs and policies, education spending does not always boost test-scores. In more than half of the states included in our study, there was no clear relationship between spending and achievement after adjusting for other variables, such as cost of living and students in poverty. Still, far too few states track this issue and are able to show that school dollars are spent well.

We found only two states, Florida and Texas, that regularly analyzed the productivity of their schools and districts. What's more, only a few states, such as Rhode Island, have taken a weighted student funding approach to education, which can boost equity and effectiveness. This is not enough, and state and districts need to do far more to get a better education bang for their buck.

We examined what states have been doing to improve productivity and found some bright spots. A number of states, for instance, have been taking efforts to improve productivity since our last report. One of those states, New York, has taken an innovative approach to boost educational efficiency by offering efficiency grants to districts, as we describe above in the section on recent state productivity reforms.

Virginia also continues to bolster local efforts at productivity increase by creating a type of efficiency “SWAT” teams, as we detailed above as well. These teams visit local school systems and help build capacity by provide technical assistance. Both New York and Virginia should serve as models to other states looking to promote efficiency.

States fail to equitably fund schools and low-income students are more likely to be in least productive districts

In our analysis, we calculated the expenditure difference between a district that has expenditures near the top—the 95th percentile—and near the bottom—the 5th percentile—in each state. This is a long-standing approach to measuring school finance inequity.⁵⁵ For our report, we used the most recent spending data available and found that the spending gaps among school districts remain high. In Nevada, the difference between the wealthiest districts and the least wealthy district was more than \$6,000.⁵⁶ In Louisiana, the difference between the wealthiest districts and the least wealthy district was more than \$7,000.⁵⁷

For this reason, we took significant steps in our report to control for funding disparities among populations of students, yet low-productivity districts are also more likely to enroll students from low-income households. Like in our previous analysis, our study showed that students who participated in free and reduced-price lunch programs are twice as likely to be enrolled in the nation's least-productive districts, even after making allowances for the higher cost of educating lower-income students. We also found similar results with students of color. In particular, Hispanic students are twice as likely to be in the least productive districts than in the most productive districts, and black students are eight times more likely to be in the least productive than in the most productive districts.

State budget practices are often weak, vague, and inconsistent

Within and across states, budgeting procedures differ widely, making it difficult to track expenditures. In the state of Washington, for instance, school districts are allowed to keep two different financial statements: One set of financial statements to conform with the state's legal requirements and the other set to meet general accepted accounting principles.⁵⁸ In an email, Daniel Lunghofer, the state's acting supervisor of school district accounting, told us that state law requires that districts report their budgets in a way that meets state requirements. He said that the two sets of accounting approaches “are not a perfect match” but “they are comparable.” Whatever the case, having two sets of budgets impedes transparency. It also makes it difficult for outsiders to figure out if the district is spending its money effectively, since analysts cannot easily compare across budgets.

Inconsistency is a problem in Idaho as well, and in the state, charter districts and non-charter districts can use different accounting procedures.⁵⁹ For people not deeply familiar with the accounting procedures, this makes it hard to compare spending across districts types. The budget systems are also often opaque. Vermont, for example, allows a district to report expenditures both with or without certain tuition and fees in the state’s annual statistical report.⁶⁰

This issue of inconsistency and transparency gets far worse once we look across the 50 states. While almost every state now has a common chart of accounts, the definitions are not comparable. This means that what might count as curriculum spending in one state is different than what counts as curriculum spending in another state. For instance, we found that some states gave clear technical definitions around certain fiscal items, while other states did not.

Varying definitions are even an issue with the federal government’s education programs. Take long-term debt, for example. The Department of Education’s National Public Education Financial Survey defines long-term debt as “revenues received from bond sales, other borrowing, and the sale of fixed assets.”⁶¹ In contrast, the U.S. Census Bureau, which also collects education expenditures data, defines the term as “debt payable more than one year after date of issue” and uses “four data items detailing the debt at the beginning and end of the year, as well as the debt issued during the year and the debt retired during the year.”⁶² These sorts of differences cause additional burdens for districts. It also causes confusion for educators, analysts, and other outside observers who examine this data.

As we discuss in the Rhode Island example above, data alone are not powerful. What make data powerful are how exactly they are used, and in many states, there is not a robust way to link fiscal data to program and outcome data. According to the Data Quality Campaign’s 2014 survey, 25 states cannot connect their expenditure databases to the state’s longitudinal data system.⁶³ These kinds of disconnects make it difficult to figure out if a program is cost-effective. More than that, the Data Quality Campaign reports that only two states currently can report their fiscal data at the classroom level.⁶⁴

Recommendations

Our analysis leads us to the following recommendations:

States should build capacity for greater productivity gains through benchmarking, targeted grants, and assistance teams

Currently, many districts lack the capacity to do more with less. That is to say, in a time of sagging budgets, districts lack the know-how—or even the data—to jumpstart productivity gains. This cannot continue, and we believe that states should consider providing grants that link funding increases to improved student achievement. As noted earlier, the state of New York has been a pioneer in this area.

States should also consider following the lead of Virginia and build technical assistance teams that can help districts to find cost savings. States can also help boost capacity by providing better data. One crucial approach to improving data is providing districts with productivity evaluations. These sorts of performance metrics—when done well—can provide local leaders with more information on their districts, as well as guide best practice.

However, building better data procedures alone is not enough. It is crucial that districts connect their data to other information such as instructional or academic information and build local capacity to use that information in the most effective and meaningful ways. The federal government can play a role in establishing new data systems. As Harvard Professor Martin West notes, Washington should ensure that data systems funded with federal money can connect programmatic data and fiscal data so that leaders can examine the productivity of school reform efforts.⁶⁵

Education leaders should improve accounting procedures and create a multistate initiative that will focus on building more robust education budgets

Educators can do a lot within their communities to make accounting and budgets more transparent and actionable. Some states have released highly robust school-level fiscal databases, which make it easier to evaluate local levels of equity and effectiveness. Other states have built detailed state-level databases that provide very granular indicators on local spending. As we note above, Texas provides very detailed data—including information on spending on sports.

The Common Core State Standards Initiative provides an example of how states can work together to create a stronger, more innovative education system. Something similar could be done within the fiscal space, with states coming together to develop more rigorous budgeting procedures. Such a group of state education leaders and stakeholders could create a common chart of accounts—a type of budget dictionary—as well as set out best practices when it comes to linking fiscal data to other databases.

This is particularly important because fiscal data practices vary so widely across states, and a common set of approaches would do a lot to consolidate the field. At the same, this sort of process needs to make space for innovation. Over the past few years, education had changed dramatically. There have been major innovations around standards and assessments, for instance. New digital tools have also gone a long way to change how schools and districts work, and an updated accounting system would need to offer some flexibility for change.

States and districts should encourage smarter, fairer approaches to school funding such as student-based funding policies

Policymakers should develop funding policies that direct money to students based on their needs. This will go a long way to give all schools and districts an equal opportunity to succeed. At the same time, the gross funding inequality that lies between school district cannot be ignored; therefore steps must be taken to improve fiscal equity across schools, districts, and states. Specifically, we recommend weighted student-funding, which has the potential to solve both equity and efficacy issues with current school funding approaches.

States also need to do more to allow innovation and flexibility within funding programs. Today, funding arrives at the district accounting office with too many strings attached. The reliance on categorical grants—funds to districts with strict limits on their use—prevents innovation. Weighted student funding can help ease districts' dependency on grant money. Moreover, states can also help by rolling-back policies and procedures that limit local autonomy, such as class-size restrictions and seat-time policies.

Conclusion

The idea that social institutions should keep a close eye on improving productivity is not new. Within the field of health care, for instance, observers have long argued that the United States needs to do more with less. And as we noted in our 2011 report, good managers improve performance through organizational change. However, effective organizational change can only be achieved by using data, setting goals, and thoughtfully implementing incentive and consequence programs and processes to boost outcomes.

None of this is management rocket science, to be sure. Still, in education, we simply have not had a national conversation about what bang we get for our education buck. But given current trends, such as low revenues and increasing academic demands, we cannot continue to put off this conversation. We also recognize that there are myriad of other issues plaguing our school finance system—from issues of equity to a simple lack of good data.

But in the end, our nation's school finance system needs to address the productivity issue, and the reason is simple, as we've argued before. Fiscal accountability is central to our public education system, and educators need to spend school dollars well, if they want more school dollars. Looking forward, then, we must ask ourselves: How can we do more with what we have? How can we ensure that each school dollar is well spent? How can we make sure all education funds work for students? The answers to these questions should be at the core of our national education system's management, and they should be central to any debate over the future of our schools.

About the author

Ulrich Boser is a Senior Fellow at the Center for American Progress, where he analyzes education, criminal justice, and other social policy issues. Prior to joining the Center, Boser was a contributing editor for *U.S. News & World Report*. His writings have appeared in many publications, including *The New York Times*, *Wall Street Journal*, and *The Washington Post*. He is working on a book on learning.

Acknowledgements

The author wishes to express his gratitude for the tremendous research assistance of Rob Hanna. He did much of the data analysis for this report. Many others also did a great deal of research, including Tiffany Hsieh and Chelsea Straus. Other staff at the Center also offered a great deal of generous feedback and support, including Carmel Martin and Cynthia Brown.

Appendix A:

Frequently asked questions

In the text below, we reprinted, with slight modifications, the Frequently Asked Questions from the 2011 report that apply to this report as well

What is educational productivity?

In the business world, productivity is a measure of benefit received relative to spending. This project adopts that concept to measure public school districts' academic achievement relative to their educational spending, while controlling for cost of living, student poverty, the percentage of students in special education, and the percentage of English-language learners.

Why does CAP say that evaluations should be approached with caution?

The connection between spending and achievement is complex, and our data cannot capture everything that goes into creating an efficient school system. Nor can we control for everything that is outside of a district's control, and our adjustments for factors, such as poverty and students in special education, are estimations that do not account for variations in severity and type within those demographic groups. Additionally, some of the data reported by states and districts are unreliable, as agencies occasionally use inconsistent definitions and weak data collection practices. Therefore, while we believe our results are meaningful, we encourage readers to further examine the data and our approach to evaluating productivity, as well as caution against reading too closely into individual evaluations of districts.

Should the United States spend less on public education?

Our emphasis on educational productivity does not mean that we believe that lawmakers should spend less on education—quite the opposite. Transforming our schools will demand both real resources and real reform, and our project is an argument for dramatically improving our nation's school system so that dollars create results. What's more, we deeply believe that far more needs to be done to make school funding more equitable.

Why not create a single score for each district?

A single score would have masked wide variation in the rankings of districts across our three models. We produced three productivity measures because we wanted to emphasize the complexity of measuring a district's efficiency and expose educators, policymakers, and the public to different ways of measuring educational productivity.

Were districts evaluated against a benchmark?

No. We evaluated each district relative to the performance of other districts in the same state. That means that states with fewer districts have different evaluative cut points than states with larger numbers of districts. We believe this approach, which has been used in other education policy reports, is a fair way to evaluate within-state performance.

How was achievement measured?

We relied on data from the U.S. Department of Education, which collects achievement data from the states on district-level student outcomes. We used these data to create an achievement index for each state by assigning each district a score. We calculated the score by adding the number of students in 2011 designated proficient or above on statewide reading and math tests in third grade through eighth grade and in high school and divided by the number of test takers in those grades. The achievement index is a district's proficiency rate across these reading and math tests.

How were expenditures measured?

We used National Center for Education Statistics, or NCES, expenditure data from 2011, the most recent year for which complete data are available. We used "current expenditures," the preferred metric among educational leaders, which includes salaries, services, and supplies. We did not use "total expenditures," which also includes capital expenses, because these can fluctuate dramatically from year to year and are thus unreliable for comparisons.

How did CAP account for differences in revenue sources?

We did not. The fiscal database produced by NCES does not track educational expenditures by specific revenue source.

How did CAP adjust for differences in cost of living between districts?

We used the Comparable Wage Index, or CWI, a measure of regional variations in the salaries of college graduates who are not educators. Lori L. Taylor at Texas A&M University and William J. Fowler at George Mason University developed the CWI to help researchers make better comparisons across geographic areas. We used adjustments from fiscal year 2011, the most recent year for which data are available.

Why did CAP use the percentage of students at or above the “proficient” rather than “basic” level to create its achievement index?

The proficient level indicates a firm grasp of the knowledge and skills needed to succeed at grade level. Students scoring at the basic level have only partially mastered the necessary knowledge and skills.

My district scores well on standardized tests, so why does it do poorly on CAP’s Basic and Adjusted Return on Investment indexes?

We rate schools on how much academic achievement they get for each dollar spent, while controlling for factors outside a district’s control, such as cost of living and students in poverty. A district therefore received high marks on our basic and adjusted ROI indexes if it had both high achievement and low spending relative to other districts in the same state. Districts with high achievement and high spending by definition fare less well, as do districts with low achievement and low spending.

My district scores poorly on standardized tests. Can it do well on CAP’s Basic and Adjusted Return on Investment indexes?

No. School districts with low-student achievement cannot get a color rating higher than orange—or about average—on either the basic or the adjusted ROI indexes.

My district scores poorly on standardized tests, so why does it do so well on CAP’s Predicted Efficiency index evaluation?

The Predicted Efficiency Index measures whether district achievement is higher or lower than its predicted achievement given per-pupil spending and percentage of students in special programs, such as subsidized school lunches. Under this approach, a low-achieving district could get high marks if it performed better than expected.

Can districts be compared across states?

Because each state has its own student assessment program, the Return on Investment measures listed on our website are restricted to within-state comparisons of districts, and comparisons of districts across states are not meaningful.

Why is my district not included in CAP's evaluation?

We restricted our study to districts that teach kindergarten through the 12th grade. We also excluded districts classified as a charter school agency, state-operated institution, regional education services agency, supervisory union, or federal agency. These restrictions were to ensure that districts were comparable to one another. We also excluded districts with inadequate demographic, achievement, or expenditure data or otherwise missing data.

Why is my state not included in CAP's evaluation?

We were unable to produce results for Alaska, the District of Columbia, Hawaii, Kansas, Maine, Montana, Nebraska, New Hampshire, North Dakota, Oklahoma, South Dakota, and Vermont. Hawaii and Washington, D.C. are single-district jurisdictions, so within-state comparisons were not possible. Alaska, Arizona, Kansas, Maine, Montana, New Hampshire, North Dakota, Oklahoma, South Dakota, and Vermont did not have enough comparable districts.

Endnotes

- 1 Council of Economic Advisors, the Domestic Policy Council, and the National Economic Council, *Investing in Our Future: Returning Teachers to the Classroom* (The White House, 2012), available at http://www.whitehouse.gov/sites/default/files/Investing_in_Our_Future_Report.pdf.
- 2 "Financial Allocation Study for Texas," available at <http://fastexas.org/> (last accessed June 2014). In this example, we used unadjusted expenditure data. Elsewhere in this report, expenditure data have been adjusted for cost of living and student demographics.
- 3 Daniel Lunghofer, "Accounting Manual for Public School Districts in the State of Washington" (Olympia, WA: Office of Superintendent of Public Instruction, 2013), available at http://www.k12.wa.us/safs/INS/ACC/1314/1314_SDAM_Complete.pdf. In the document, the author writes that "school districts might prepare two sets of financial statements—one that is in conformity with legal requirements as reported in the F-196 and one that is in conformity with GAAP. Financial statements prepared in conformity with legal requirements are considered to be 'special reports' or 'supplemental schedules' and are not basic financial statements."
- 4 Note that we borrowed much of the text to describe our methodology from our previous report. See Ulrich Boser, "Return on Educational Investment: A District-By-District Evaluation of U.S. Educational Productivity" (Washington: Center for American Progress, 2011), available at <http://cdn.americanprogress.org/wp-content/uploads/issues/2011/01/pdf/dwvroi.pdf>.
- 5 The Nation's Report Card, "Greater gains in mathematics for Black and Hispanic students than for White students since 1973," available at http://nationsreportcard.gov/ltr_2008/ltr0005.asp (last accessed June 2014).
- 6 National Center for Education Statistics, "Table 182: Total and Current Expenditures per Pupil in Public Elementary and Secondary Schools: Selected Years, 1919-20 through 2006-07," available at http://nces.ed.gov/programs/digest/d09/tables/dt09_182.asp (last accessed June 2014).
- 7 Eric A. Hanushek, Paul E. Peterson, and Ludger Woessmann, "Achievement Growth: International and U.S. State Trends in Student Performance" (Cambridge, MA: Harvard's Program on Education Policy and Governance and Education Next, 2012), available at www.hks.harvard.edu/pepg/PDF/Papers/PEPG12-03_CatchingUp.pdf.
- 8 Ibid.
- 9 Raegen Miller, "Comparable, Schmomparable: Evidence of Inequity in the Allocation of Funds for Teacher Salary Within California's Public School Districts" (Washington: Center for American Progress, 2010), available at <http://www.americanprogress.org/issues/education/report/2010/05/26/7746/comparable-schmomparable/>.
- 10 Michael Leachman and Chris Mai, "Most States Funding Schools Less Than Before the Recession" (Washington: Center on Budget and Policy Priorities, 2014), available at <http://www.cbpp.org/cms/?fa=view&id=4011>.
- 11 Noelle Ellerson and Daniel Domenech, "Weathering the Storm: How the Economic Recession Continues to Impact School Districts" (Alexandria, VA: American Association of School Administrators, 2012), available at http://www.aasa.org/uploadedFiles/Policy_and_Advocacy/files/Weathering_the_Storm_Mar_2012_FINAL.pdf.
- 12 Leachman and Mai, "Most States Funding Schools Less Than Before the Recession."
- 13 Clare McCann, "Head Start Data Show 57,000 Children Will Lose Access to Pre-K," The Ed Money Watch Blog, August 20, 2013, available at http://edmoney.newamerica.net/blogposts/2013/head_start_data_show_57000_children_will_lose_access_to_pre_k-90047.
- 14 Jed Kim, "Students feel deep cuts to L.A. Unified summer school program," The 89.3 KPCC Southern California Public Radio Blog, July 22, 2013, available at <http://www.scpr.org/blogs/education/2013/07/22/14220/students-feel-deep-cuts-to-l-a-unified-summer-school/>.
- 15 Raegen Miller and Marguerite Roza, "The Sheepskin Effect and Student Achievement: De-emphasizing the Role of Master's Degrees in Teacher Compensation" (Washington: Center for American Progress, 2012), available at http://cdn.americanprogress.org/wp-content/uploads/issues/2012/07/pdf/miller_masters.pdf.
- 16 Wyoming Department of Education: Finance Unit, "Wyoming School Budgeting, Accounting and Reporting Manual" (2010), available at <http://edu.wyoming.gov/downloads/schools/school-district-accounting-manual.pdf>.
- 17 Alaska Department of Education and Early Development, "Uniform Chart of Accounts and Account Code Descriptions for Public School Districts" (2012), available at http://www.eed.state.ak.us/publications/chart_of_accounts.pdf; California State Board of Education, "California School Accounting Manual" (2013), available at <http://www.cde.ca.gov/fg/ac/sa/documents/csam2013complete.pdf>; Glenda Rader, "Michigan Public School Accounting Manual Definition of Account Codes" (Lansing, MI: Michigan Department of Education, 2012), available at https://www.michigan.gov/documents/appendix_33974_7.pdf.
- 18 Ibid.
- 19 Council of Great City Schools, "Managing for Results in America's Great City School," PowerPoint presentation presented at the "A Penny Saved: How Schools and Districts Can Tighten Their Belts While Serving Students Better" conference hosted by the American Enterprise Institute and Thomas B. Fordham Institute, January 11, 2010., available at http://www.cgcs.org/cms/lib/DC00001581/Centricity/Domain/81/Managing%20for%20Results_2012.pdf.
- 20 *An Act Concerning Educational Reform*, Public Act 12-116, Connecticut General Assembly, July 1, 2012, available at <http://www.cga.ct.gov/2012/TOB/S/2012SB-00458-R00-5B.htm>.
- 21 LJ World.com, "Kansas lawmakers, education groups react with caution to efficiency task force report," January 22, 2013, available at <http://www2.ljworld.com/news/2013/jan/22/lawmakers-education-groups-react-efficiency-task-f/?print>.

- 22 Kenneth K. Wong, "The Design of the Rhode Island School Funding Formula: Toward a Coherent System of Allocating State Aid to Public Schools" (Washington: Center for American Progress, 2011), available at http://www.americanprogress.org/wp-content/uploads/issues/2011/08/pdf/rhode_island_reform.pdf.
- 23 Education Resource Strategies, "Weighted Student Funding: Why Do Districts Decide to Implement Weighted Student Funding?" available at http://www.erstrategies.org/library/why_districts_implement_wsf (last accessed June 2014); Thomas B. Fordham Institute, "Fund the Child: Tackling Inequity & Antiquity in School Finance" (2006), available at http://www.edexcellence.net/sites/default/files/publication/pdfs/Fundthe-Child062706_7.pdf.
- 24 Thomas B. Fordham Institute, "Fund the Child."
- 25 Wong, "The Design of the Rhode Island School Funding Formula."
- 26 Eric A. Hanushek, "The Confidence Men," *EducationNext* 7 (3) (2007): 73-78, available at <http://educationnext.org/the-confidence-men/>.
- 27 Virginia Department of Education, "School Division Efficiency Reviews" (2013), available at http://www.doe.virginia.gov/school_finance/efficiency_reviews/.
- 28 Ibid.
- 29 http://www.doe.virginia.gov/school_finance/efficiency_reviews/arlington.pdf
- 30 Office of Governor Andrew M. Cuomo, "Governor Cuomo Awards Competitive Education Grants to Four Districts That Found More Than \$21 Million in Efficiency Savings and Can Serve as Models to Other Districts," Press release, March 5, 2013, available at <https://www.governor.ny.gov/press/03052013cuomo-awards-competitive-education>.
- 31 Ibid.
- 32 Ibid.
- 33 Middletown School District, "School Scene: A Look at Activities in the Middletown School District" (2013), available at <http://www.middletowncityschools.org/Portals/0/2012-13%20district/newspapers/winter13/winter%201.pdf>.
- 34 Ibid.
- 35 Personal communication with Brian Reeder, assistant superintendent, Analysis and Reporting, Oregon Department of Education.
- 36 Reid Wilson, "Colorado's Hickenlooper wants to put school budgets online," *The Washington Post*, December 22, 2013, available at http://www.washingtonpost.com/blogs/govbeat/wp/2013/12/22/colorados-hickenlooper-wants-to-put-school-budgets-online/?tid=hpModule_ba0d4c2a-86a2-11e2-9d71-f0feafdd1394.
- 37 Ibid.
- 38 There were 49,484,181 public school students in the 2010-11 school year. Author's calculation based on database described in the Methodology section; National Center for Education Statistics, "Public Elementary and Secondary School Student Enrollment and Staff Counts from the Common Core of Data: School Year 2010-11" (U.S. Department of Education, 2012), available at http://nces.ed.gov/pubs2012/snf201011/tables/table_01.asp.
- 39 Part of the text used in this section was used in our 2011 report, Boser, "Return on Educational Investment."
- 40 Many of New Hampshire's schools systems are classified by NCES as supervisory unions. We found the districts to be comparable, however, and thus we included them in our study. We made this exception only for New Hampshire.
- 41 *EDFacts*, "Results for State Assessments in Reading/Language Arts and Mathematics, School Years 2008-09, 2009-10, and 2010-11" (U.S. Department of Education, 2013), available at <https://explore.data.gov/api/assets/31D31F58-7D2D-45D9-8D70-3C4E37DF2372?download=true>. Some special restrictions applied for some districts with between 200 and 300 students. See documentation for more information.
- 42 The U.S. Department of Education reported proficiency rates greater than 99 percent as "GE99." We coded this as exactly 99 percent in our analysis.
- 43 Part of the text used in this section was used in our 2011 report, Boser, "Return on Educational Investment."
- 44 Many other research and policy organizations have used weights in school finance research, including *Education Week*, "Quality Counts 2010" (2010), which uses a poverty weight of 1.2 and a special education weight of 1.9. Also, the Education Trust, "Funding Gaps 2006" (2006), available at <http://www.edtrust.org/dc/publication/the-funding-gap-0>, which uses weights of 1.9 for disability, 1.6 for poverty, and 1.2 for English Language Learners. We conducted a literature review in order to gather studies from which we constructed an average weight. We limited our analysis to studies conducted at the state level, published after 2000, and commissioned by states or published in peer review journals. They included the following: John Augenblick, John Myers, Justin Silverstein, and Anne Barkis, "Calculation of the Cost of a Suitable Education in Kansas in 2000-2001 Using Two Different Analytical Approaches" (Topeka: Legislative Coordinating Council, 2002), available at <http://skyways.lib.ks.us/ksleg/KLRD/Publications/SchoolFinanceFinalReport.pdf>; Augenblick & Myers, Inc., "Calculation of the Cost of An Adequate Education in Maryland in 1999-2000 Using Two Different Analytical Approaches" (2001), available at <http://www.stateinnovation.org/Research/Education/Adequacy-Based-School-Funding/MarylandAdequacyStudysummary.aspx>; Justin Silverstein, Douglas Rose, Robert Palaich, John Myers, and Amanda Brown, "Estimating the Cost of an Adequate Education in Montana" (Helena: Montana Quality Education Coalition, 2007), available at <http://www.apaconsulting.net/uploads/reports/5.pdf>; Augenblick, Palaich and Associates, Inc., "Costing out the Resources Needed to Meet Pennsylvania's Public Education Goals" (2007), available at <http://www.apaconsulting.net/uploads/reports/6.pdf>; Allen Odden and Michael Goetz, "Wisconsin School Finance Equity Revisited" (Madison: Consortium for Policy Research in Education, 2005), available at <http://cpre.wceruw.org/finance/sf-equity.pdf>; R.C. Wood & Associates, "State of Rhode Island Education Adequacy Study" (2007), available at <http://webservice.rilin.state.ri.us/Documents/RIEFA.doc>.
- 45 See Lori Taylor's personal website: http://bush.tamu.edu/research/faculty/taylor_CW/
- 46 Please note that the text that we use here is similar to the caution text that we used in the 2011 report, Boser, "Return on Educational Investment."

- 47 The best available data on population density, for instance, are at the county level—not at the district level—and in many states, such as Maryland, a county will include a wide variety of geographic contexts. With regard to economies of scale and the quality of district management, see William Duncombe and John Yinger, “How Much More Does a Disadvantaged Student Cost?” *Economics of Education Review* 24 (5) (2005): 513-532. In that paper, the researchers write, “There is extensive evidence, for example, that small districts have higher costs per pupil than middle-sized districts. ... This can be interpreted as a cost difference, but it can also be interpreted as a sign that the small districts have refused to consolidate with their neighbors and thereby to lower their costs. Similarly, there is evidence that large districts have higher costs than middle-sized districts. This difference may reflect diseconomies of district scale, but it might also reflect mismanagement that arises in some large districts but not in others.”
- 48 Author analysis of federal datasets
- 49 New America Foundation, “Federal Education Budget Project,” <http://febp.newamerica.net/k12/NY/3624960> (last accessed June 2014).
- 50 “Financial Allocation Study for Texas.”
- 51 Education Research Center, “School District Graduation Report,” available at <http://www.edweek.org/apps/gmap/details.html?year=2013&zoom=6&type=2&id=4815540> (last accessed January 2014).
- 52 Great Schools, “Crane High School,” available at <http://www.greatschools.org/texas/crane/1645-Crane-High-School/?tab=test-scores> (last accessed January 2014).
- 53 Crane Independent School District, “Regular Meeting: Board of Trustees Crane Independent School District” (2006), available at http://www.craneisd.com/school%20board/Meetings/archive/archived_minutes/061506.pdf.
- 54 Marguerite Roza, “Now is a Great Time to Consider the Per United Cost of Everything in Education” (Washington: American Enterprise Institute and Thomas B. Fordham Institute, 2010), available at <http://www.aei.org/files/2010/01/11/Now%20is%20a%20Great%20Time%20to%20Consider%20the%20Per%20Unit%20Cost%20of%20Everything%20in%20Education-%20Roza.pdf>.
- 55 See, for instance, Sterling C. Lloyd and Christopher B. Swanson, “Equity in Achievement, Funding are Hurdles for States Amid Progress,” *Education Week*, January 3, 2014, available at <http://www.edweek.org/ew/articles/2014/01/09/16sos.h33.html?intc=EW-QC14-LFTNAV>.
- 56 Authors analysis of federal spending data. We adjusted these figures for cost of living and student demographics.
- 57 Ibid.
- 58 Office of Washington Superintendent of Public Instruction, “Accounting Manual for Public School Districts in the State of Washington” (2013), available at http://www.k12.wa.us/safs/INS/ACC/1314/1314_SDAM_Complete.pdf.
- 59 Tom Luna, “Idaho Financial Accounting Reporting Management System: A System for Public School Budgeting, Accounting, and Reporting” (Boise: Idaho State Department of Education, 2013), available at [http://www.sde.idaho.gov/site/finance_tech/finance_forms_docs/ifarms/IFARMS%20Manual%20March%202013%20\(2\).pdf](http://www.sde.idaho.gov/site/finance_tech/finance_forms_docs/ifarms/IFARMS%20Manual%20March%202013%20(2).pdf).
- 60 Vermont Department of Education, “Summary of the Annual Statistical Report of Schools: Describing and Summarizing the FY2012 School Statistical Report” (2012), available at http://education.vermont.gov/documents/EDU-SARS_12_Web_updated_version.pdf.
- 61 Frank Johnson, “Comparison of the NPEFS and the F-33 Surveys Should NCES Replace the NPEFS with State-Aggregated F-33 Data” (Washington: National Center for Education Statistics, 2008).
- 62 Ibid.
- 63 Data Quality Campaign, “Data for Action” (2013), available at <http://dataqualitycampaign.org/find-resources/data-for-action-2013/>.
- 64 Ibid.
- 65 Martin R. West, “The federal role in improving educational productivity” (Washington: Center for American Progress and American Enterprise Institute, 2012), available at http://www.americanprogress.org/events/2011/03/av/fed_role.pdf.

The Center for American Progress is a nonpartisan research and educational institute dedicated to promoting a strong, just and free America that ensures opportunity for all. We believe that Americans are bound together by a common commitment to these values and we aspire to ensure that our national policies reflect these values. We work to find progressive and pragmatic solutions to significant domestic and international problems and develop policy proposals that foster a government that is “of the people, by the people, and for the people.”

Center for American Progress

