How public education can use productivity metrics to drive continuous improvement

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We propose a set of policies designed to disrupt business-as-usual routines in school districts by getting leaders to use productivity data—that is, data that pairs spending with existing data on outcomes at each school. Doing so would prompt the system to seek ways to leverage every dollar to drive measurable improvements for students.

In contrast to most other sectors, education systems rarely monitor progress using productivity metrics. The term "ROI" itself can raise hackles among those in the system. In message testing, the term is received poorly by educators and parents who worry the system will view their students as widgets and their staff as interchangeable. But significantly, in that same message testing, what *does* receive support is the phrase "leveraging dollars to do the most for students"—the literal translation of ROI in schooling. So, semantics aside, the concept of improving productivity appears broadly popular even if rarely used in practice.

In schooling a focus on productivity would mean comparing spending against outcomes for students. In practice those two sets of data (financial data and academic outcomes data) are rarely used alongside each other, seldom considered in the same conversation. Rather, academic or strategy leaders scrutinize academic data in a meeting one day, with financial data scheduled for a separate meeting with separate leaders on a different day. While the very concept of productivity is to explore the relationship between outcomes data and spending data, in school districts, never the twain shall these two data sets meet.

Why aren't school systems focused on productivity?

Clearly many other industries use ROI measures, even those in non-profit generating sectors. In corrections, policymakers compare programs on cost and rate of recidivism. On homelessness, city leaders compare costs of various interventions alongside numbers moved into housing.

Governments tend to use these metrics in part because the public wants to know whether their investments are working (e.g., for accountability). But in many private sector industries, leaders are using productivity measures to get better at what they do. They actively gather and use data from their processes so they can learn about what's working and what's not, and make continuous improvements. Education needs to do the same.

For years, the challenge in education was one of missing data. States were measuring outcomes at the unit of the school, which made sense since school is the critical unit when examining performance.

However, all financial reports were consolidated to the level of the district. There were no financial data at the unit of the school. Literally none.

Some efforts sought to roll up ROI metrics to the district level. (S&P created graphics to show which districts delivered more for the dollar than peers.) But ultimately, the unit of the district was too large and clunky to provide useful comparisons, particularly as school-by-school spending can vary substantially within a single district. Another effort has put forth a concept of A-ROI ("academic return on investment") to nudge district leaders to consider the return on different interventions (often within the context of a specific student type or grant program). These efforts are promising, but haven't had the effect of orienting the larger system to one of improving productivity.

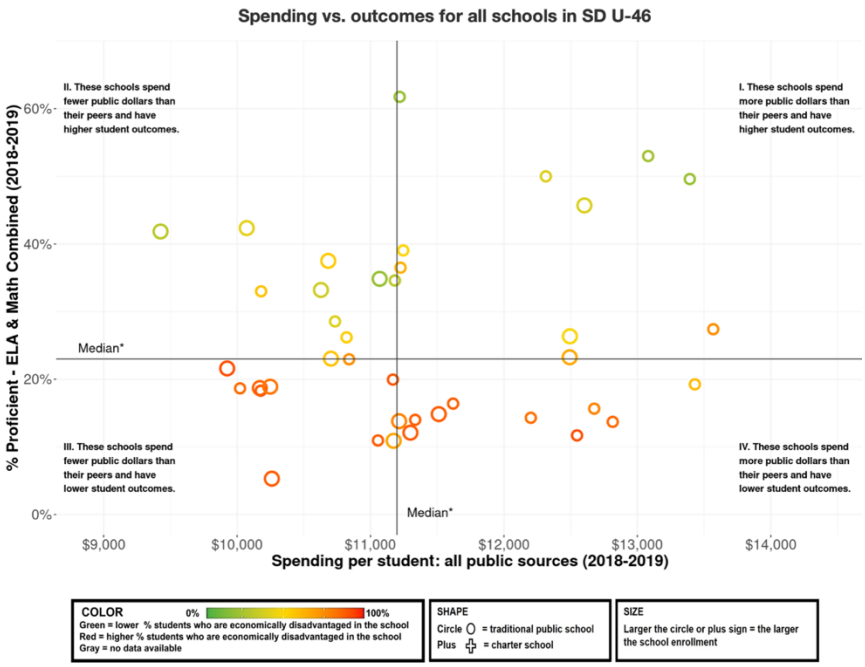
But as the data challenge got resolved, new challenges emerged. In 2015, the federal ESSA legislation required publishing spending on a school-by-school basis. It took states up to five years to build reporting systems (with lots of help from Edunomics Lab). As of 2020, we now have school-by-school expenditure data for essentially every school in the country. The federally funded National Education Resource Database on Schools (NERD$) compiles this data into the first-ever, easy-to-access dataset of public K-12 spending by school.

With the financial data widely available, one might assume that states and districts would start engaging with it, even if they weren't using it in an ROI capacity. But very few did. Rarely did district or state leaders pull the data to examine spending patterns across their own schools, even to flag outliers consuming disproportionate dollars.

For leaders to use financial data, it needed to be delivered in consumable data visualizations. Part of the challenge was that the data existed in spreadsheets that made it difficult to connect the dots. School districts aren't staffed with data analysts so making datasets publicly available wasn't helpful. The data were also posted on school report cards, but without a set of comparisons, the numbers didn't mean much. We found that leaders at all levels in the education system still didn't know the school-by-school financial data existed, and thus were unlikely to use it as part of any productivity analyses.

That finding fueled another effort at Edunomics Lab: to convert the data into engaging visualizations to help tell the story of what was happening in a system. With federal funding, we messaged tested these data visualizations and tweaked them until they worked to engage leaders in what mattered. Now districts have access to timely data visualizations that track school-by-school productivity and can be easily incorporated into district budget and strategy meetings.

Take for example the following display of elementary schools in Illinois' U-46 district.



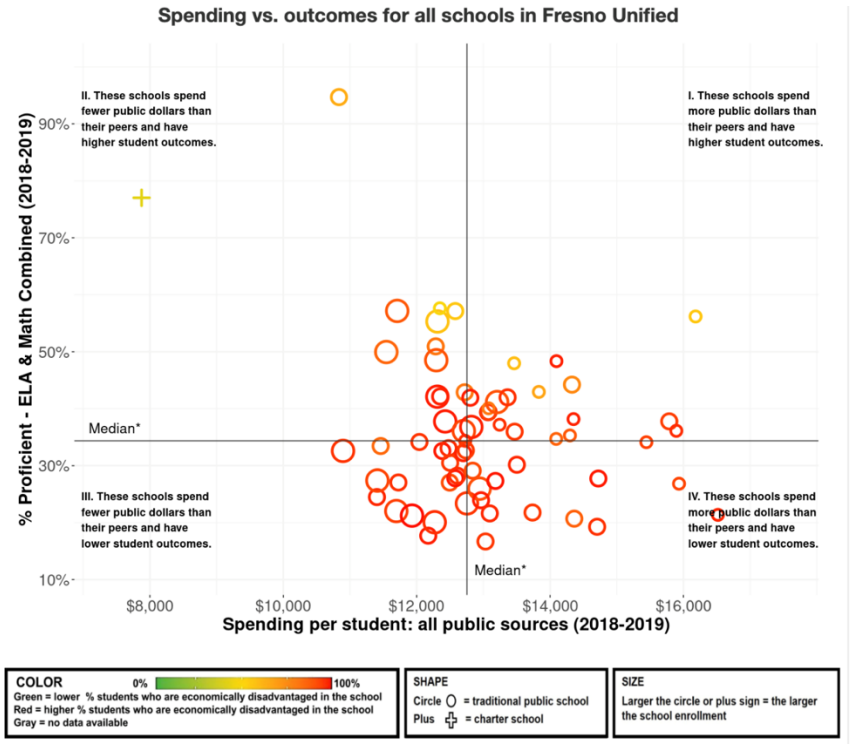
The data surface several challenges with clear implications for both budget and performance management. Notice first that the district isn't systematically sending more funds to schools with high-needs students. In fact, in some cases it is doing the opposite. Use of these data in a school budget workshop could establish a clear priority to work toward more equitable distribution of district dollars across schools.

And in terms of outcomes, treating all of U-46's lower-performing schools similarly would be a mistake. In some cases, lower performance coincides with fewer dollars, while in others, the lower performance doesn't correspond to lower resource levels at all. For a school in the lower left quadrant, it would make sense to consider insufficient resources as part of the problem. At the same time, principals from schools in the lower right quadrant should know that their schools draw down disproportionately greater resources, and yet the school isn't able to deliver on student outcomes. It's not a money issue, but rather a performance issue.

In our focus groups with districts, we found that the displays worked to prompt a productivity mindset. Leaders dug in to ask: Is the problem one of the mix of resources? Do funds need to be redirected to existing challenges? Are staff appropriately focused on the problems at hand?

And yet, in our interviews with principals, most couldn't even guess which quadrant their school was in—evidence that their district hadn't been focused on trying to ensure investments deliver the maximum value for students.

Similar data on elementary schools in Fresno (see below) show that some schools with higher-poverty students (red circles) can be more successful for their students, even on less than $12K per pupil, while peers with near $16K per pupil continue have far lower outcomes.



Using these data in budget and school management conversations seems like an obvious opportunity.

Why aren't districts using these data? In the end, despite availability of usable visualizations, we find that districts continue to follow hidebound routines that don't involve examination of ROI data. Take for example the process of developing and passing an annual district budget—a process that usually runs on something approaching autopilot. The process is designed to replicate the same spending patterns year after year—even when districts face long-standing challenges like chronic low performance or frustrating spending inequities. The standard routine rarely involves any examination of new data, which means problems go unaddressed for years on end.

That routine starts in the fall with projected revenues and proposed expenses based on prior-year spending, all organized into a set of figures that can't be cross-walked to any performance metrics. There's some back and forth between the finance staff, the executive team, and a subset of the school board to balance the budget. Then maybe, just maybe, there's some public debate about what the budget will do for students when the school board votes on it in late spring. But by then, it's too late for any meaningful change in course.

ROI data is conspicuously M.I.A. in this routine. That means that nowhere in the process are leaders prompted (or even scheduled) to have data-based discussions about how current spending varies across

the district schools, spending trade-offs, the effect of the spending on students, and changes that might do more for students.

In our view, the future of data in K-12 education is all about getting people to use it.

We propose a set of policies to alter these routines to get leaders at all levels of the system to use productivity data.

The district budget routine above demonstrates the downsides of an ROI-free process. Because education is so bound by routine, we believe the system needs an external stimulus to shift standard operating procedures such that leaders use productivity data *as they are making spending decisions*.

Once the metrics are used in budgeting, it makes sense to engage all levels of the system in *using them in a continuous improvement process*. Fostering a productivity perspective becomes an orienting principle that can be embedded in existing policies and practices. Below we offer some suggestions for where and how to insert productivity data.

1. **In districts' budget approval processes.**

   The impetus could come from states or districts themselves. Districts' well-worn budget approval routines could be adapted to require inclusion of data on spending and outcomes by school. For example, states often dictate minimum requirements (e.g., budget approval with specified data fields) that must happen at a public meeting. Adding a requirement to include ROI data in annual district budget approval meetings would ensure the data get reviewed regularly in that development process. Doing so could nudge districts to examine how well the budget is performing on behalf of students (that productivity lens).

   Asking districts to review interim student assessments could prompt mid-year spending changes (something that rarely happens today) when a course correction is needed to better help students. Embedding productivity data in this process could help nudge districts leaders to reorient their thinking toward pursuing improvements for the dollar, not just inputs.

2. **In administrator preparation programs.**

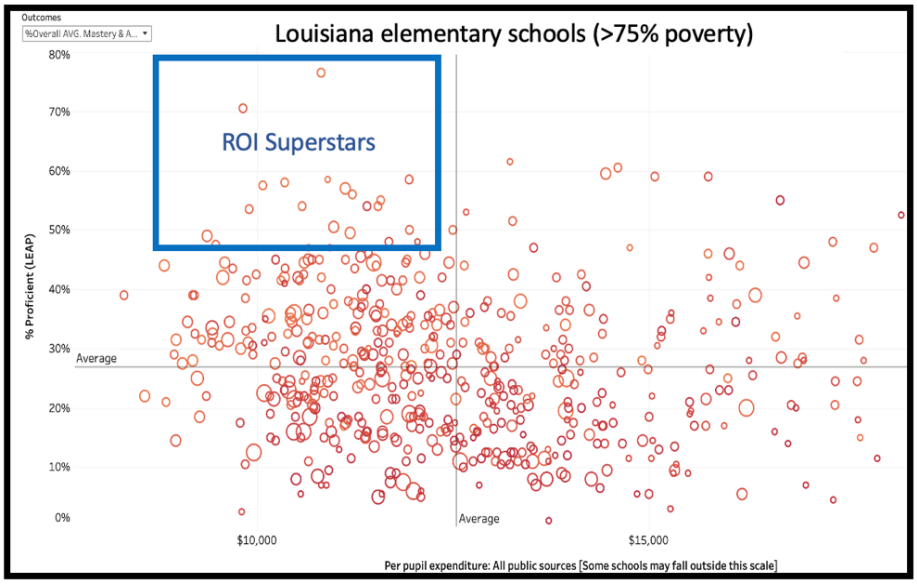
   It's unsurprising that leaders aren't routinely harnessing productivity data to drive benefits for students: They're simply not trained to do so. It would be a sea change for every leader to walk in the door with the needed skills to engage in data that can inform decisions toward leveraging limited resources to do the most for students. Yet today, state-certified administrator programs at universities and other programs typically don't include a focus on strategic use of productivity data. Administrator preparation programs are a key link in the chain to train the next generation of leaders. Standards for administrator certification programs are set by state boards of education and those standards should be updated to ensure they require instruction on finance and productivity.

3. In ongoing professional development for school board members and leaders in SEAs and LEAs.

Just as newly minted leaders need to be prepared to use productivity data on behalf of students, so do people already in the system. States that want to make productivity a priority could require one time or annual professional development on new metrics, new data tools and ways to use the information. States could create a "data day" where every leader in the system takes the opportunity to examine key data on behalf of students. There could be a role for professional associations to play in delivering those training opportunities. The federal government, too, could embed a review of productivity data in its existing requirements for "resource allocation reviews" on chronically underperforming schools.

4. In intentional celebration of and learning from schools that are ROI superstars.

States and districts can celebrate schools that have cracked the productivity code. These are schools that have found a way to get better-than-expected outcomes for the students they serve without disproportionately more resources. Leaders can highlight schools that beat the odds with high-poverty students as a model for other schools, demonstrating what's possible with limited funds. Those Louisiana ROI superstars in the graphic below show that it's possible to get quality student outcomes and to do so without drawing more funds away from peer schools. Including the financial part of the picture takes away the oft-used excuse that better performance is only possible with new or more dollars. States and districts can do a deep dive into how these schools are deploying resources and getting great outcomes and share those lessons widely with peer schools. In that sense, it's about resetting aspirations. Highlighting ROI superstars helps orient the system toward seeking greater return on the dollar.



Why does the productivity lens matter for students?

We think policies like the ones outlined above would orient the system toward continuous improvement. The metrics are designed to engage leaders at all levels of the system in a mindset driven toward seeking ways to deliver more value for the dollars at hand.

How is it that a change in "*mindset*" could conceivably deliver value for students? Shouldn't we be instead focusing on what the research says is the best way to spend money and ensuring all districts follow that research? Unfortunately, the research here is frustrating: it tells us that *how* districts spend their money explains very little of the variation in student outcomes. Rather, what seems to matter more are the motivations of those leading these systems and working with students.

With that in mind, rather than prescribe one best way to spend money, this approach seeks to engage communities in wrestling with spending and cost-equivalent tradeoffs against the backdrop of constrained resources. These critical conversations should be rooted in individual community contexts, but at the same time stay laser-focused on seeking better outcomes for children. Toward that end, the productivity lens has the power to shape behavior, enabling teachers, principals, parents and students to do their part to drive improvement.

What are the risks and tradeoffs for adopting the productivity approach envisioned in this proposal?

The largest risk is the one mentioned in the opening. Parents and teachers will reject any metrics that reduce them to numbers on a spreadsheet, or become weaponized in ways that are used to beat up on schools and teachers.

Notice that this proposal hasn't yet mentioned the A-word: "accountability." That's because when metrics like the ones we've proposed are used for high-stakes decisions, they're guaranteed to backfire. This theme emerged front and center in our recent panel discussion about whether education has missed the data revolution. In other words, the risk is that productivity gets turned into a stick. And that talk of data and productivity in education makes people in the system feel they're being treated as widgets. That's certainly not going to win hearts and minds. Nor engender trust.

If productivity is coupled with consequences for poor outcomes, it will stop the continuous improvement process in its tracks. But that continuous improvement is what's at the center of our efforts. As such, we're putting forward an approach that isn't about punishing poor performers.

Rather, our focus in on cultivating a productivity lens *inside* the system. That requires that leaders trust in the power of the approach without fear of recrimination. Take other sectors and industries, where productivity data isn't necessarily made public, but used internally to drive continuous improvement. That's what we're after in education.

We must give those in the system the space to engage in, and see the value of, these new metrics alongside their communities. Our proposed set of policies aim to build that capacity by opportunistically inserting productivity into well-worn processes and routines that could use new insights on what investments are—and are not—delivering results for students.

The future of education data? Getting people to use it. We'll keep working on that.

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Edunomics Lab is a research center with the McCourt School of Public Policy at Georgetown University. Established in 2012, the center is dedicated to exploring and modeling complex education finance decisions to inform policy and practice, and growing the fiscal capacity and skills of education leaders. Led by Dr. Marguerite Roza, the center is nationally recognized as a leader in the field of education finance.

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