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# INNOVATION AMID FINANCIAL SCARCITY: THE OPPORTUNITY IN RURAL SCHOOLS

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## • ACKNOWLEDGEMENTS •

The Rural Opportunities Consortium of Idaho (ROCI) was launched by the J.A. and Kathryn Albertson Foundation of Boise, Idaho during the summer of 2013. Since then, Bellwether Education Partners and a task force of experts led by Dr. Paul T. Hill have been working to foster a better understanding of the issues that affect rural education, inform policy discussions, and bring attention to the unique needs and circumstances of rural school children. A series of reports, published over the next year, will examine issues including migration, technology, human capital, economic development, postsecondary enrollment and persistence, and more. Papers will be posted online at [www.rociidaho.com/research-publications](http://www.rociidaho.com/research-publications).

## ABOUT THE AUTHOR

**Marguerite Roza** is the director of the Edunomics Lab at Georgetown University and senior research affiliate at the Center on Reinventing Public Education (CRPE). Dr. Roza's research traces the effects of fiscal policies at the federal, state, and district levels for their implications on resources at school and classroom levels. Her calculations of dollar implications and cost equivalent trade-offs have prompted changes in education finance policy at all levels in the education system. She has led projects including the Finance and Productivity Initiative at CRPE and the Schools in Crisis Rapid Response Paper Series. More recently she served as senior economic advisor to the Bill & Melinda Gates Foundation. Her work has been published by Education Sector, the Brookings Institution, Public Budgeting and Finance, Education Next, and the Peabody Journal of Education. Dr. Roza is author of the highly regarded education finance book, *Educational Economics: Where Do School Funds Go?* (Urban Institute Press, 2010).

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ROCI brings together some of the nation's best thinkers to conduct research on the challenges of rural education and identify innovations, programs and models to address them. This effort informs a national body of work on rural education and explores implications for increasing the educational attainment and economic competitiveness of Idahoans and Americans.

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## • INTRODUCTION •

When it comes to education finance, most states have approached rural school districts as a problem of scale economies and talent deficiency. Schooling in rural areas, the thinking goes, is expensive and, even then, the outcomes are mediocre at best. The salaries of the principal, art teacher, librarian, and so on are divided among too few students, creating unavoidably high per-student costs. And with kids in rural communities living many miles apart, the transportation costs can be exorbitant. State leaders also see rural schools as having real challenges when it comes to staffing their schools as few physics or reading experts may be willing to commit to the rural lifestyle.

It is this kind of deficit thinking that has dominated state education finance strategies regarding rural districts. In order to mitigate these deficits, most states have layered on funding allocations to offset them—such as extra funds to ensure that small rural schools

**Schooling in rural areas, the thinking goes, is expensive and, even then, the outcomes are mediocre at best.**

can still afford the traditional school staffing structure or incentives to draw school staff to rural areas. The results in many states are expensive and relatively poorly-performing rural districts, as evidenced by the relationship nationally between spending and outcomes in those districts.

New data suggest that previous thinking on what rural districts need may be flawed. It is true that in many states, the average remote rural district is living up to expectations with regard to being expensive and performing poorly. But those results don't tell the whole story. Parsing data on a state-by-state basis shows that the state context matters. A closer look at the data reveals that some remote rural districts are beating the odds by producing higher than expected results and doing so without a higher per-pupil price tag. In other words, examining the relationship between spending and outcomes across all districts reveals that rural districts can be more productive, even when compared with their more urban peers; in fact, the odds of being a highly productive district are actually greater in rural districts than in all others. In studying the most productive districts—outliers in that they can get high outcomes for students and do so at the average or lower spending level—it turns out that being rural can be an advantage! The odds of being a super-high-ROI district are *higher* if the district is a remote rural district than if it is closer to an urban or more densely populated area.

This paper presents this new data on the relationship between spending and outcomes across rural districts in different states. First this study examines the cost trends for rural districts, relative to peers in their states, to understand the extent to which funding varies by state. It then examines 2008 data from 46 states assembled by the Center for American Progress (CAP) as part of a national return on investment (ROI) study.<sup>1</sup> The data include an achievement index capturing each district's relative performance on state mandated tests, and extensive spending data on each district with at least 250 students. The findings highlight several policy implications for states seeking improved outcomes for all their districts in the context of limited resources.

## • THE “COST” OF A RURAL DISTRICT IS DETERMINED BY THE STATE FUNDING FORMULA •

Many state leaders point to the notion of economies of scale in explaining the higher cost of small and rural districts. Lower-enrolled districts, so the thinking goes, have a set of unavoidable “fixed costs” that drive up per-pupil spending when divided among smaller enrollments.<sup>2</sup> These fixed costs might include the superintendent, payroll clerk, librarian, nurse, counselor, physical education teacher, and other fixtures of public education. When the schools are also separated by mountain ranges, or hundreds of miles, the district can’t share costs of special education services, such as a speech therapist.

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The result of this mindset is that many states have structured their state education finance systems in ways that ensure rural districts receive more funds per pupil than do their more centrally located counterparts. According to a 2010 *Education Week* report, 29 states have an explicit “weight” in their state allocation formula to account for district size. Others fund some items (e.g., staff or programs) in “one per district” amounts such that when the costs of those items are divided by the lower enrollment of smaller

districts, per-pupil price tags are quite high. Still others include a factor for population density, so that low-density rural districts are awarded extra funds.

It is worth explicitly pointing out that these higher spending levels are the product of state policy that assumes a specific complement of staff in order to provide a set of services in a particular way, and that they may not be inherent in the district characteristics. For all districts, the “cost” of services is exactly equal to the total funds provided. When districts receive more revenues, the costs are higher. When they receive fewer funds, the costs are lower. So, rural districts cost more when the state and local revenue structure allocates them more funds.

The states that allocate more monies to small districts do so under the assumption that services can't be provided to smaller numbers of students without losing economies of scale. That assumption doesn't hold across all states. In fact, because state policies differ on how state and local funds are structured for rural districts, so do their “costs.” As mentioned above, some states subsidize “smallness” and others subsidize low population density. To compare funding for small districts to their peers in the same state, this study relied on the Center for American Progress data file for the year 2008. The analysis averaged total weighted per-pupil spending<sup>3</sup> for small districts (here defined as having 250 to 1,200 students) and divided that by the average per-pupil spending level for all districts in the state. As Figure 1 indicates, the extent to which small districts receive extra funds indeed varies from state to state. In states like California and Georgia, smaller districts receive a subsidy of 15 percent or more of the average per-pupil spending levels in their larger-district peers. In 12 states, small districts receive an excess of five percent or more than the state's per-pupil norm. Minnesota and Wisconsin, in contrast, have small districts that operate at funding levels on par with their larger peers, and in 12 states (presumably due to other variables such as low local revenue capacity<sup>4</sup>) the small districts actually operate with fewer dollars than the state's per-pupil average.



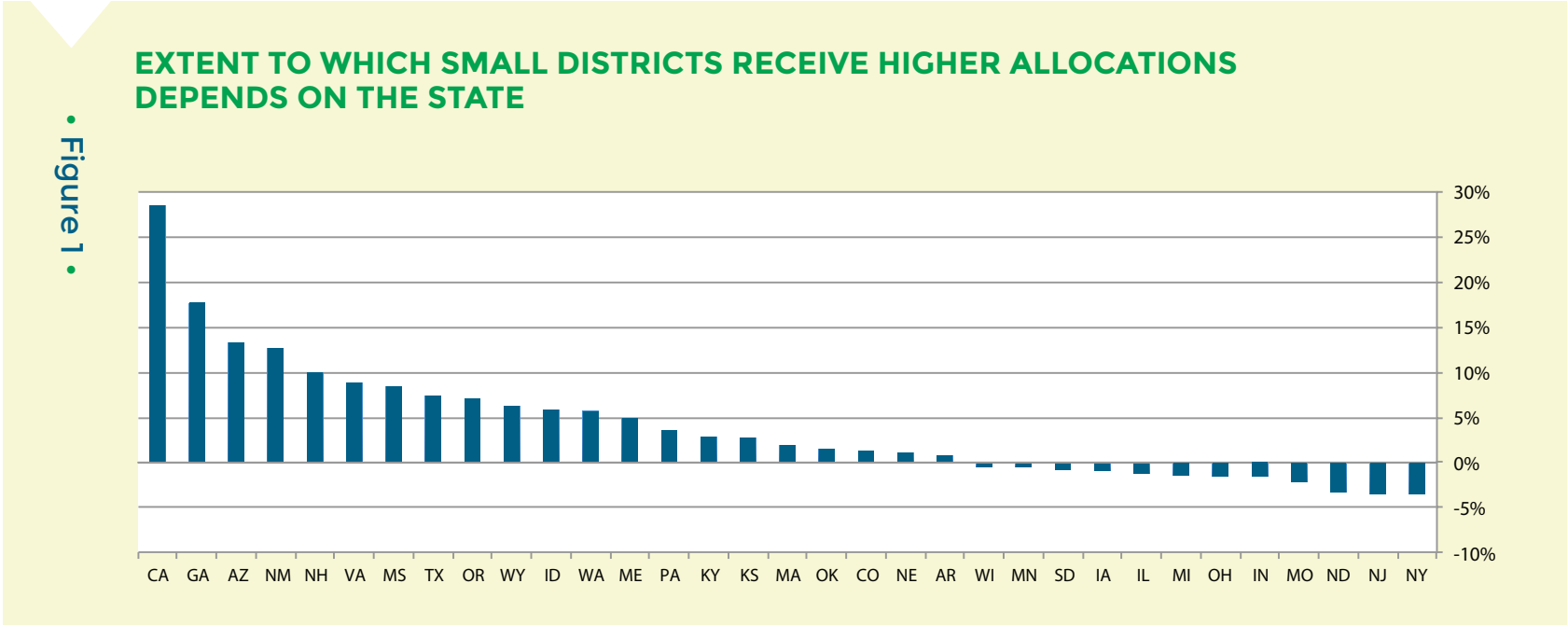
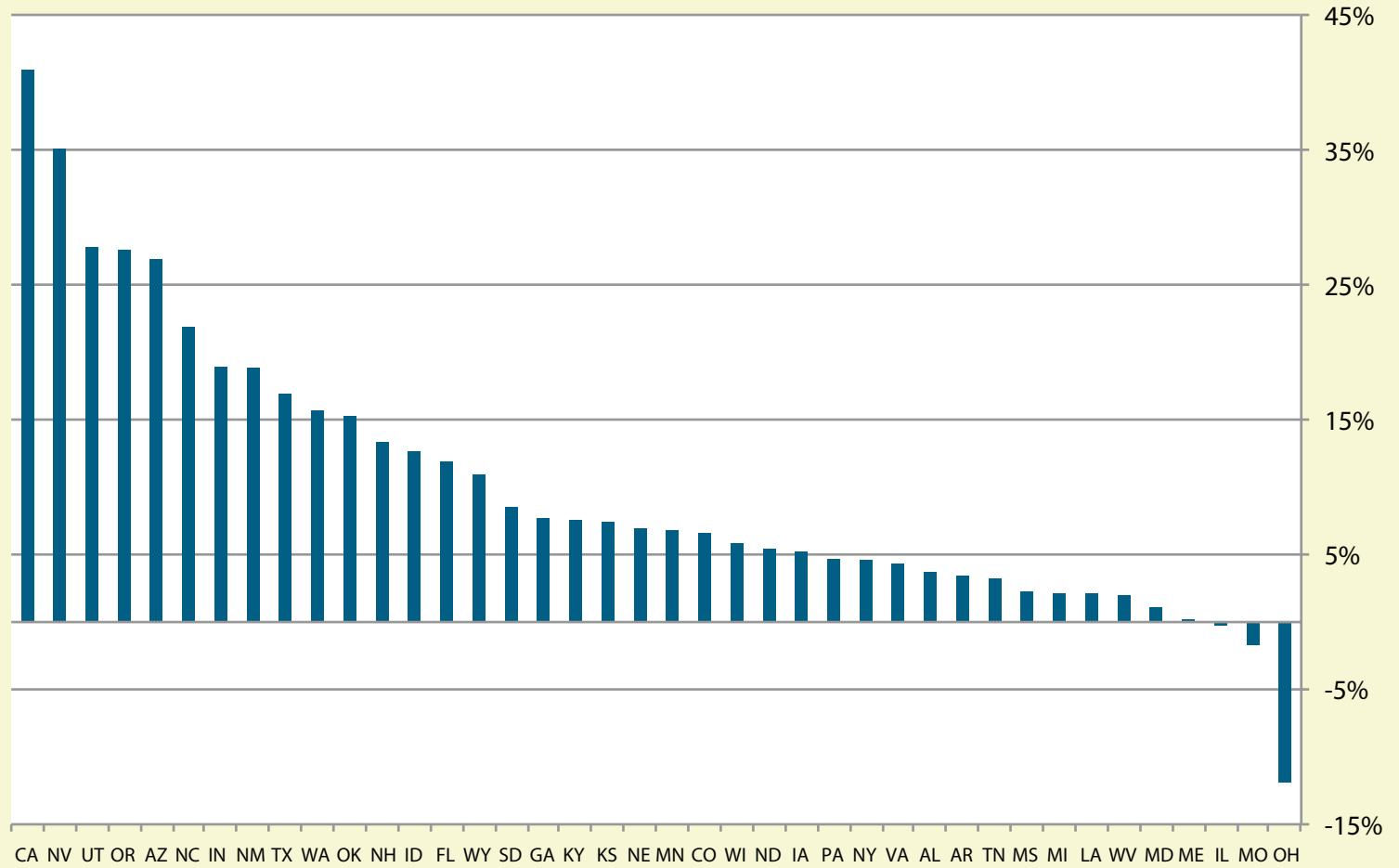


Figure 2 isolates districts categorized by the National Center for Education Statistics (NCES) as “remote” rural, meaning that the district is in a “census-defined rural territory that is more than 25 miles from an urbanized area and is also more than 10 miles from an urban cluster.”<sup>5</sup> Here again, most states have school finance systems in place that allocate higher per-pupil amounts to remote rural districts than the norm for the state. As is evident in the figure, 25 states allocate an excess of five percent or more to remote rural districts than the state average per pupil.

REMOTE RURAL DISTRICTS RECEIVE HIGHER ALLOCATIONS IN NEARLY ALL STATES

• Figure 2 •



## • NOT ALL SMALL OR RURAL DISTRICTS “COST” MORE •

While the data do show that many states provide a higher level of funding to small and rural districts, the extent of the subsidy varies substantially. Looking closer at state school finance systems, we find that the variations often have nothing to do with policy directed at small or rural settings. Beyond some 10 percent of funds that come from the federal government, a district's revenues are a product of both state and local monies,<sup>6</sup> and both funding streams are determined by many different factors. The number of state dollars a district receives may include some level of base (or foundation) funds, and then earmarked dollars for specific services or purchased inputs, and then a series of adjustments that may include hold-harmless amounts or grandfathering clauses. The state's allocation formula may or may not be adjusted by local revenue capacity (with an equalization clause, combined formula, or levy limits). For instance, some states set a target revenue amount per district using some version of a student formula, and then provide the difference between what the state assumes the district will collect locally and the target. In states like New York, local elections then determine the actual level of local revenues to be collected. Depending on the interaction, local monies can create their own patterns that are more reflective of property wealth or voter appetite for education than of student enrollment. All told, the total amount of any one district's revenues (including those of rural districts) is often the chance aggregation of separate funding policies, not of a clear or transparent resource allocation strategy for districts.

**But whatever the reasons for their total revenues, the data show that the cost patterns for rural districts are anything but uniform from state to state.**

But whatever the reasons for their total revenues, the data show that the cost patterns for rural districts are anything but uniform from state to state. Small and rural districts do typically receive more resources, but not everywhere. Take the outlier of Ohio, where for the year studied, both

urban and suburban districts outspent remote rural districts on average largely because rural districts were less able to tap local revenues (property and income taxes) to boost their state allocations. Toward the other end of the spectrum, rural districts in states like North Carolina and Washington receive substantially higher allocations largely as a result of the state's staffing allocation formula, which projects staffing needs by district (where many staff are one-per-school) and then allocates funding accordingly. Under this model, smaller districts with fewer students are then more expensive.

That said, in a portion of states, the small or rural districts receive within five percent of the state's norm, and some operate with the same or lower level of revenues as their larger, more urban peers. Where state leaders have concluded that small rural districts simply *can't* operate with comparable resources, these examples provide some counterintuitive cases.

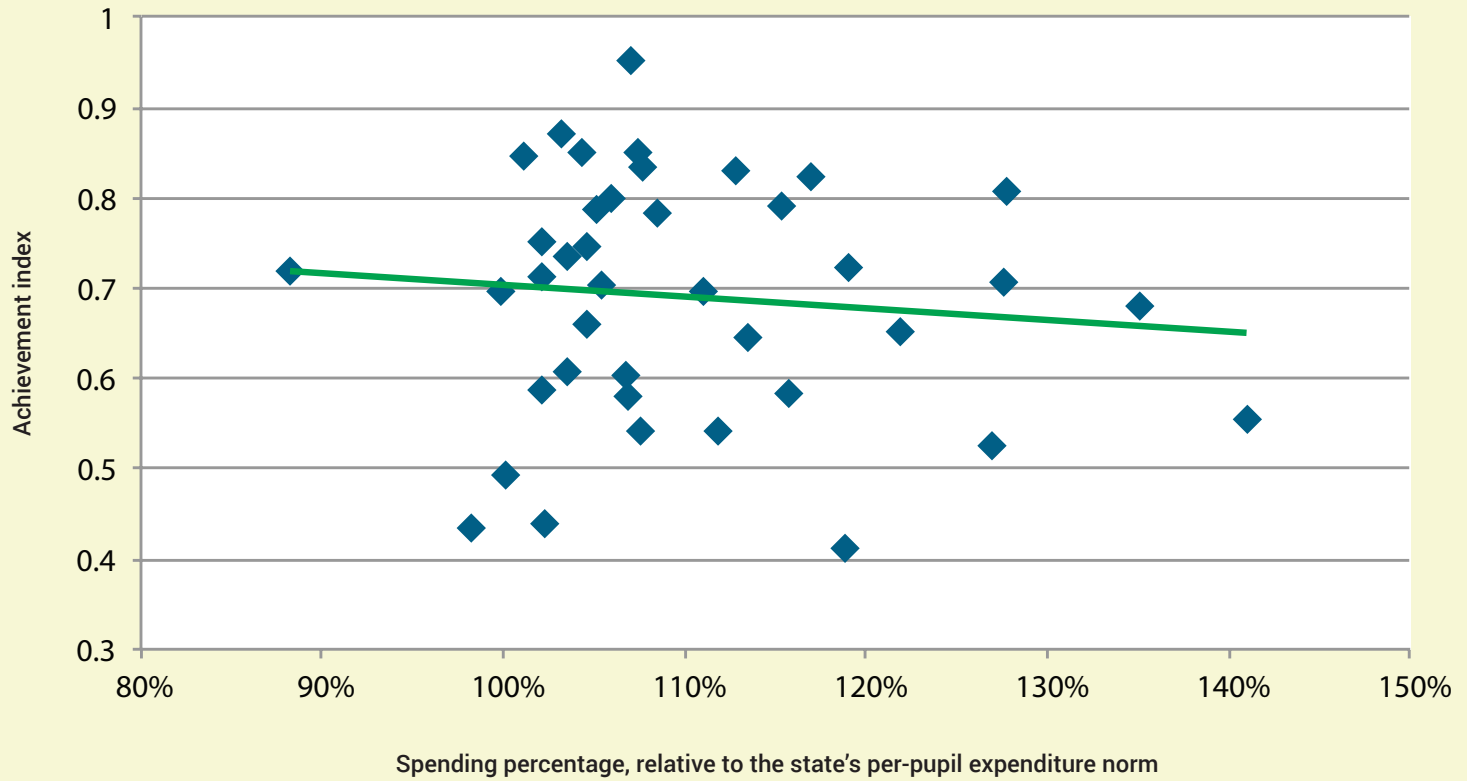
## • WHAT ABOUT OUTCOMES? •

So how do remote rural districts perform? This analysis draws on a large-scale analysis by Ulrich Boser of the Center for American Progress (CAP) designed to measure the academic achievement a school district produces relative to its total spending, while controlling for a district's demographics and cost-of-living factors. The CAP dataset pairs data from 2008 on current expenditures (which excludes capital expenditures) with achievement data from the same year (measuring the percentage of students proficient or above on state assessments in reading and math in 4th, 8th, and 10th grades).

Figure 3 arrays the results where each dot represents a different state. On the face of it, student outcomes in remote rural districts don't appear higher (on a relative basis) in those states where the remote rural districts receive disproportionately more funds than their peers in the same state. In other words, where remote rural districts do receive more funds than their peer districts, the outcomes aren't any better on a relative basis. It is important not to draw too many conclusions from the data, as the analysis leaves out many relevant variables: for instance, size, context, and geography of remote rural districts differ by state, as do those of their peers. And of course, where some states have state regulations in place that dictate the delivery of services in each district, the higher spending in those locales might be better correlated with those regulations than with student outcomes. In any case, without diving further into the data, there doesn't appear to be a clear payoff for overfunding remote rural districts in terms of student outcomes.

### POOR RELATIONSHIP BETWEEN RELATIVE SPENDING AND RELATIVE OUTCOMES FOR REMOTE RURAL DISTRICTS

• Figure 3 •



## • OVERALL, REMOTE RURAL DISTRICTS EXHIBIT LOW ROI •

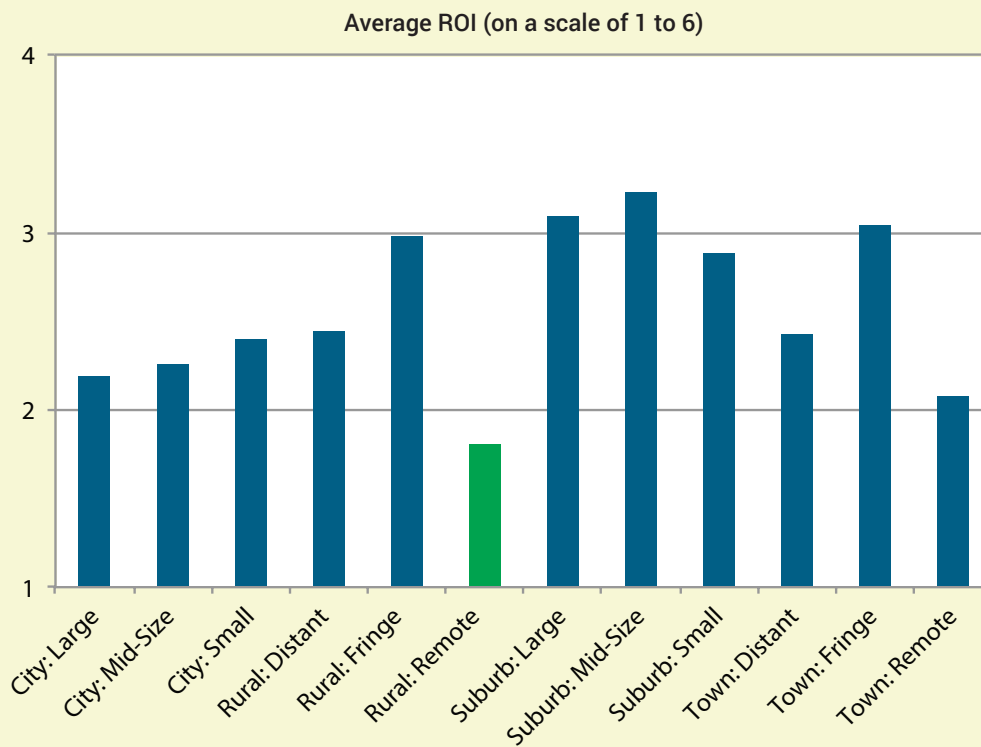
In order to explore the ROI for rural districts relative to non-rural districts, we use CAP's "Production ROI Index" for each district. To compute the index, the CAP analysis uses a regression equation to predict the achievement a district should have relative to other districts in the state, given its mix of student needs and its spending level.<sup>7</sup> Districts with the highest ROI scores are those where achievement is beating the expectations given the current spending and demographics. With this index, districts with high-poverty students aren't clustered at the bottom of the achievement spectrum, as the achievement index adjusts for the mix of students at each district relative to the norm for the state.<sup>8</sup> In this way, a moderately-spending district with many low-income students can receive a high ranking if its achievement levels exceed those typical of lower-income students.

The ROI measures from the same CAP dataset confirm these findings. Using the "Basic ROI" measure, the analysis computed an ROI measure for each district on a scale of 1 to 6.<sup>9</sup> The best overall scores were given to those districts with the highest achievement (relative to their student types) but with spending levels that didn't exceed the state norm. This study then compared the average of the achievement indices for each state's remote rural districts and compared those averages to the state average. Where districts spent more but weren't able to realize improved student outcomes, they did indeed have a lower ROI.

Consistent with the assumptions about remote rural districts, the data suggest that these districts exhibit a worse ROI than other district types. Figure 4 displays the averages by urbanicity, where higher figures represent greater productivity. Remote rural districts exhibit the lowest average ROI among any sector.<sup>10</sup> Because the ROI equation takes into account spending level, in many states the higher spending associated with remote rural districts contributes to the lower relative ROI.

**REMOTE RURAL DISTRICTS EXHIBIT VERY LOW OVERALL ROI**

• Figure 4 •





## • SURPRISINGLY, REMOTE RURAL DISTRICTS ARE HEAVILY REPRESENTED AMONG THE HIGH-ROI OUTLIERS •

Despite the overall low ROI results for remote rural districts, deeper analysis into the dataset on spending and outcomes offers some promise for this sector. Specifically, while the average remote rural district produces a poor return on the dollar, there are outliers. In fact, an examination of the super-high-ROI districts across all sectors

**In an analysis of the outliers across all district types, it turns out that the odds of being a super-high-ROI district are highest if the district is a remote rural district.**

provides a useful measure of what's possible in each district sector.

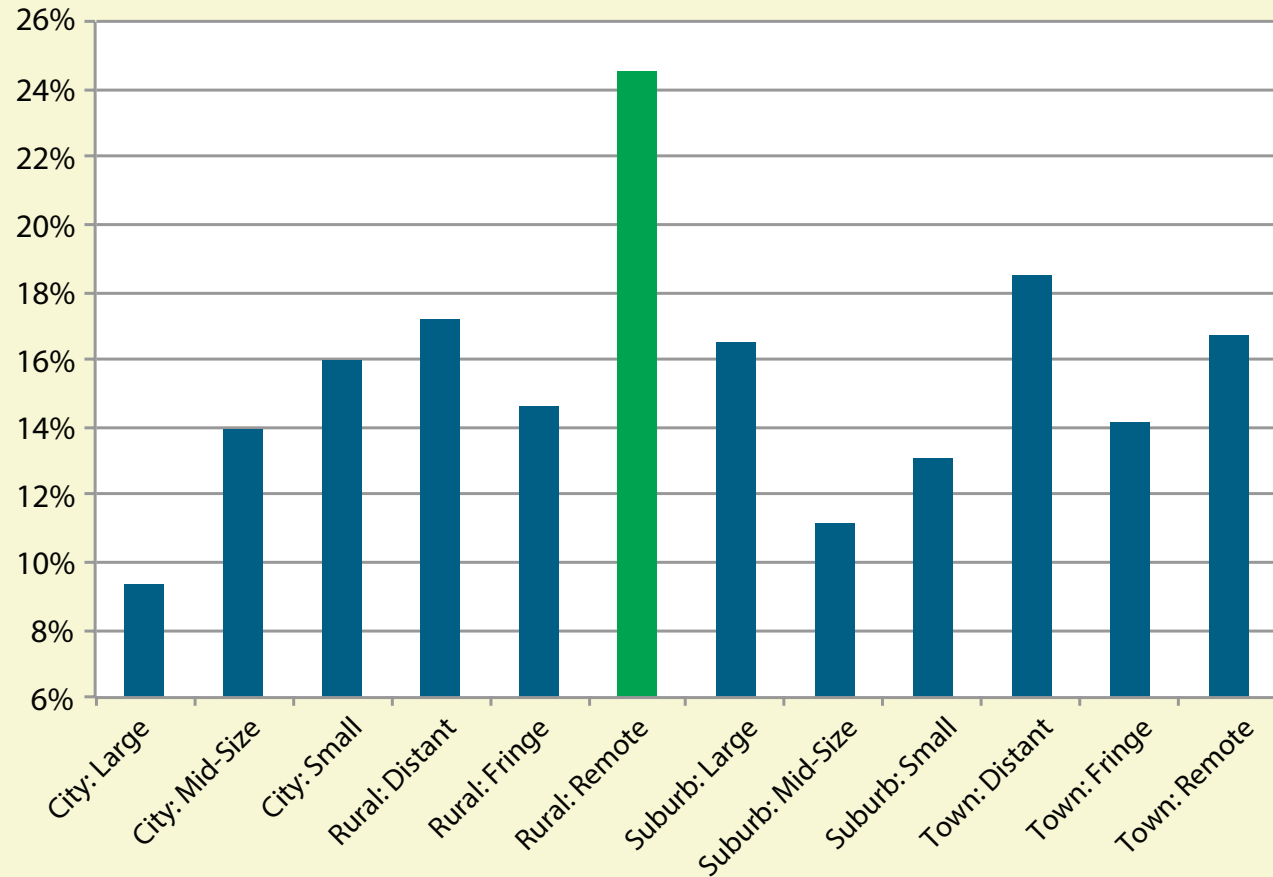
For this analysis, we examine the distribution of the “super-high-ROI” districts. These are districts that boast the highest level of outcomes relative to the predicted outcomes, based on spending level and demographics

within a given state.<sup>11</sup> These districts are beating the odds. Their presence is uncommon, occurring across all sectors only 14 times for every 100 districts.

In an analysis of the outliers across all district types, it turns out that the odds of being a super-high-ROI district are *highest* if the district is a remote rural district. As Figure 5 demonstrates, the distribution of super-high-ROI districts is uneven across district types, with the best odds occurring in remote rural districts.

### ONE IN FIVE REMOTE RURAL DISTRICTS IS A HIGH-ROI OUTLIER

• Figure 5 •



## • RURAL DISTRICTS: BEYOND THE DEFICIT MINDSET •

Why might so many remote rural districts pop up as productivity exemplars, when the average remote rural district produces ROI outcomes that are so lackluster? While we can't know from the dataset, building on these exemplars might mean capitalizing on the strengths we know to be present in isolated rural communities.

Looking at remote rural districts as an opportunity, we might consider how isolation and smallness could enable conditions that increase the chances of education innovation, instead of seeing the same factors only as deficits. Anecdotally, when we inquire about super-high-ROI districts, we hear about how some of these districts are able to leverage their rural context to their advantage. However, without an additional study of the causes of success in the super-high-ROI rural districts, we can only speculate as to the advantages. Where districts don't have the scale to implement large operational systems, perhaps these districts are better able to capitalize on the strength of specific staff, or leverage the personal relationships that surface in smaller settings, maybe for student motivation. In one conversation, we heard about a principal in a small community who reminded all students that attendance at Friday's football game hinged on meeting basic academic requirements and solid class attendance. We know that some rural districts are purchasing services from other providers and may be more effective as contractor than as provider. For instance, we heard about a rural high school that couldn't offer a full complement of electives, and so had been using online classes during its school day to create more offerings.

**It is possible that where a district is small and trying new things, it may be the case that its small nature allows it to be more nimble, making micro-adjustments in reform efforts on a more regular basis.**

Or perhaps these super-high-ROI districts are beating the odds because they can tap the local ingenuity long thought to be part of the rural mindset in order to meet the most pressing needs of their students. In another example, we heard about a remote district that contracted with a personal trainer to work with the students in

lieu of hiring a full-time PE teacher. Again, while we can't know for sure, it is possible that where a district is small and trying new things, it may be the case that its small nature allows it to be more nimble, making micro-adjustments in reform efforts on a more regular basis.

Whatever the reasons, it is clear that some isolated rural districts have advantages that make them more likely to deliver high productivity results. Toward this end, the opportunity for both rural districts and states is to move beyond the deficit mindset such that more rural districts can learn to leverage their advantages.

## • THE OPPORTUNITY FOR STATES •

The ROI findings presented here confront the assumption that rural schools must cost more to produce the same (or even worse) outcomes. If that assumption were true, the data wouldn't show that isolated rural districts actually present the best odds of producing the best returns for the dollar. These findings challenge the assumption that rural schools must offer services in the same way they are offered in more densely populated regions, but with

**Where states are hoping to get better outcomes across their rural districts, leaders might move away from the notion that what's been learned in more populous regions ought to be imposed on rural settings. Rather, states might view the challenge for rural districts as one of harnessing the independent, nimble, and entrepreneurial spirit of rural communities, and empowering rural districts to innovate toward improved services in the context of limited resources.**

fewer students per classroom and thus higher per-pupil costs. The findings also challenge the notion that because isolated rural districts suffer from a talent gap they can't produce outcomes as high as other districts without vastly more resources. And they fly in the face of policies pushing for district consolidation, as doing so might inhibit the very conditions that currently make super-high-ROI results more likely in isolated rural districts.

Given the opportunity, for states the imperative is to design policy that makes it possible to embrace the advantages present in isolated rural districts, in

order that more rural districts may produce similar returns and all the state's districts can learn from practices in these outliers. As so many states are facing constrained revenues, the challenge for states is to create conditions for more districts to become super-high-ROI outliers.

The findings have important implications for state finance policy. Where states are hoping to get better outcomes across their rural districts, leaders might move away from the notion that what's been learned in more populous regions ought to be imposed on rural settings. Rather, states might view the challenge for rural districts as one of harnessing the independent, nimble, and entrepreneurial spirit of rural communities, and empowering rural districts to innovate toward improved services in the context of limited resources. State policies that would foster innovation toward improved ROI in rural communities might include the following:

- **Develop information systems.** The first step for many states is developing the information systems needed to measure productivity and better identify super-high-ROI districts. District leaders need to understand that productivity is a priority, and that results show that districts vary on the extent to which they can leverage their funding toward maximizing student outcomes.
- **Document and disseminate practices in super-high-ROI rural districts.** The next step is to learn from these super-high-ROI rural districts. States should identify these districts and actively learn from the practices taking place so as to share the findings with other remote rural districts.
- **Allocate funds based on students and student characteristics.** Allocation policies based on staffing expectations, cost reimbursements, or other input requirements work to reinforce the notion that there is only one way to deliver services.
- **Eliminate specifications around service delivery.** The worst thing a state can do is put a stop to whatever innovation is happening. State actions designed to press for uniformity of practice across all districts miss the boat in that district context seems to matter when it comes to the odds of attaining super-high productivity outcomes. State prescriptions on service delivery, staffing requirements, or other regulations may work to suppress the assets that exist in rural districts.

- ***Provide innovation grants to promote redesigned delivery models that enhance ROI.*** These innovation grants might back proposals for shared services across districts or school year schedules that include a distance learning component. In any case, it is the district leaders with close connections to the rural context that should conceive of and lead the implementation of these innovations.

For states, the opportunity is clear. Rather than view rural districts as the expensive, low-performing portion of a state's education system, restructuring state policy so that rural schools are the hotbed of innovation could yield benefits across the board.

## • ENDNOTES •

- 1 Ulrich Boser. *Return on Educational Investment*. Center for American Progress. January 2011. Accessed February 16, 2015. <https://cdn.americanprogress.org/wp-content/uploads/issues/2011/01/pdf/dwwroi.pdf>
- 2 J.A. and Kathryn Albertson Foundation. *The ReThink Series: Five Questions About Education Funding in Idaho*. J.A. and Kathryn Albertson Foundation. 2014. Accessed February 16, 2015. [http://issuu.com/jkaf/docs/jkaf\\_rethink\\_funding](http://issuu.com/jkaf/docs/jkaf_rethink_funding)
- 3 “Weighted per-pupil spending” is the average per-pupil spending minus a fixed amount per each student need, as identified in the demographic data (poverty, bilingual education, special education).
- 4 In another example, a few states consider the experience level of the district’s staff in making its allocations, so if the rural districts have teachers with less experience, the state awards fewer dollars. Some states also allocate more funds to urban areas with high poverty, which could result in lower average spending among all other non-urban districts.
- 5 “Identification of Rural Locales,” National Center for Education Statistics. Accessed on May 12, 2014. [http://nces.ed.gov/ccd/rural\\_locales.asp](http://nces.ed.gov/ccd/rural_locales.asp)
- 6 Federal monies account for roughly 10 percent of a district’s total revenues.
- 7 Boser, *Return on Educational Investment*, 22.
- 8 The CAP report provides three different indices, each of which has been critiqued for its shortcomings (see, for instance, Baker, Bruce, Deficiencies and Misinterpretations, 2011, available at <http://nepc.colorado.edu/files/CAP%20ROI.pdf>). This analysis selects the production ROI index from the three because it adjusts expectations for achievement based on each district’s demographics.
- 9 In the dataset, high-ROI districts are given a 1, with 6 being the lowest. This analysis has inverted the numbers for ease of graphic representation.
- 10 One of the critiques of the ROI measure is that it doesn’t adjust for district size or sparsity, which allows us to see how rural districts then compare.
- 11 The regression model used by the CAP study adjusts for spending level and the percentage of students in free lunch, special education, and bilingual education. See Boser (2011).



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