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Issue Backgrounder
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Assessing Colorado Rural Public School Performance

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Summary

Data from rural Colorado school districts show lower academic achievement is associated with socio-economic factors such as Free and Reduced lunch recipients and minorities.

Two rural Colorado school districts, Sargent School District and La Veta School District, are exceptions to the trend of academic achievement being negatively affected by socio-economic factors. National education researchers Jay Greene and Douglas Reeves have both written about research that shows demographic factors do not determine student performance because "effective teaching and leadership make a difference" and can overcome socio-economic challenges.[1]

The following practices are identified as practices associated with better student performance:

- Clear, focused curriculum
- Routine teacher collaboration
- Identifying students who are struggling through regular assessments
- Working to help students catch up

Introduction

In Colorado, education research and policy tend to focus on large metropolitan areas, while rural school districts are often overlooked because of the low numbers of students and the remote locations. Some basic statistics and observations of rural schools can lead to a better assessment and understanding of how public education fares in districts that serve small student populations. The associations observed between various socio-economic factors and performance, the effective programs of two high-performing rural districts in Colorado, and the writings of education researchers, provide insight into improving student achievement.

Surveying Rural School District Performance

Rural school districts are defined by the Colorado Department of Education as "Districts with no population centers in excess of one thousand persons and characterized by sparse widespread

populations."[2] Although 86 of Colorado's 178 school districts are classified as rural,[3] only about 5 percent of students in Colorado are enrolled in rural districts.[4]

The School Accountability Report (SAR) ratings for each rural school were used to evaluate the performance of the 86 rural school districts. As mandated by Colorado law, all schools in the state receive a SAR. The purpose of the SAR is to help parents and taxpayers monitor school performance.[5] SARs include a school rating, ranging from "unsatisfactory" to "excellent," based upon how well students in grades 3 through 10 score on the Colorado Student Assessment Program and how well high school juniors score on the ACT. There are a few exceptions: Scores from students who have disabilities, are not proficient English speakers and have been in a Colorado public school less than three years, have been expelled, or entered their school after October 1, are not counted in the SAR rating.[6]

The average rural District Rating in Colorado was 3.4—above "average" but lower than "high."

Because school districts do not receive SARs, the ratings for individual schools within a district had to be quantified into a "District Rating" in order to form a useful measurement for this report. A school rated "excellent" on its SAR received a score of five, a school rated "high" received a four, "average" received a three, "below average" received a two, and "unsatisfactory" received a one. The scores of each school within a district were totaled and divided by the number of schools in the district to provide a District Rating (average of school SAR ratings).

SAR Rating	Unsatisfactory	Low	Average	High	Excellent
Score	1	2	3	4	5

For example, Edison School District in El Paso County has four schools. The elementary school received a "high" on its SAR, which corresponds to a 4. The middle school received a "high" as well, giving it a score of 4. There are two high schools: one received a rating of "low" (2) and the other qualified as "average" (3). So the total score for the district was 13. Divide the total score by the number of schools (4), and the District Rating is 3.25.[7] The average rural District Rating in Colorado was 3.4—on the whole above "average" but lower than "high." Although this method is not perfect, it is helpful for comparing districts and understanding their performance relative to the rural school district average.

Another indicator of performance is whether school districts have made Adequate Yearly Progress (AYP) in accordance with the No Child Left Behind Act. Before a district can make AYP, the district and its schools must meet annual academic performance targets in reading and math. Federal law additionally requires districts to meet performance targets for each of the following subgroups if there are 30 or more students in that subgroup for two consecutive years: White, Native American, Asian, Hispanic, Black, English Language Learners, economically disadvantaged, and students with disabilities.[8] In 2006-2007, 85 percent of rural school districts made AYP, while only 32 percent of non-rural school districts made AYP.[9] One of the reasons why rural school districts are more likely than non-rural school districts to make AYP is because rural districts have a smaller number of students, which means fewer qualifying subgroups and therefore fewer performance targets to meet.

Rural school districts on average have a lower fraction of minority students and a higher fraction of Free and Reduced Lunch students than their non-rural counterparts. In 2006-2007 minorities made up 27 percent of rural student populations, compared to the state average of 38 percent.[10] The Free and Reduced Lunch Program is a federal program that subsidizes meals for children in families below 185 percent of the poverty line. For example, in 2007-2008, a child in a family of four making less than $38,203 a year would be eligible for free or reduced meals.[11] Researchers commonly use Free and Reduced Lunch rates as a benchmark for measuring the affluence of a student population. In 2006-2007 the average rural school district percentage of Free and Reduced Lunch recipients was 39 percent of rural school district students, higher than 34 percent of students statewide.[12]

The Free and Reduced Lunch Program, however, does not take the cost of living into account. So although rural districts tend to have higher rates of Free and Reduced Lunch participation, poverty may be less of a factor since it typically costs less to live in these districts. Only 15 of the 86 rural districts had a higher cost of living than the state average in 2007. In fact, the average cost of living in rural school districts was $3,300 less than the state average ($44,500) and $4,700 less than Denver ($45,892).[13]

Despite having a slightly lower cost of living, the average expenditure for rural school districts ($9,128) was almost $500 more than the average expenditure per student for the entire state ($8,630).[14] One reason rural districts tend to spend more dollars per student is the "J" curve created by Colorado's School Finance Act. The J curve "compensates districts based on the theory that per-pupil costs are subject to economies of scale."[15] Economies-of-scale mean that regardless of size, the fixed costs of running a school district (i.e., every district needs administration, maintenance, food services, etc.) are higher than the variable costs of adding more students. Therefore, the fixed costs of a small district as a percentage of total costs are higher than the fixed costs of a larger district. Dividing the higher relative costs by fewer students contributes to higher per-pupil spending in small districts.

Despite having a slightly lower cost of living, the average expenditure for rural school districts ($9,128) was almost $500 more than the average expenditure per student for the entire state ($8,630).

Table 1 (below) highlights rural school districts with District Ratings of 4 or higher, and provides additional data about AYP, the percentage of minority students, the percentage of students who qualified for the federal Free and Reduced Lunch Program, total student count, and dollars spent per student. The highlighted portions correspond to high-performing districts relative to demographic factors.[16] A complete list of rural Colorado school districts and their District Ratings can be found in the appendix.

Correlations and Associations

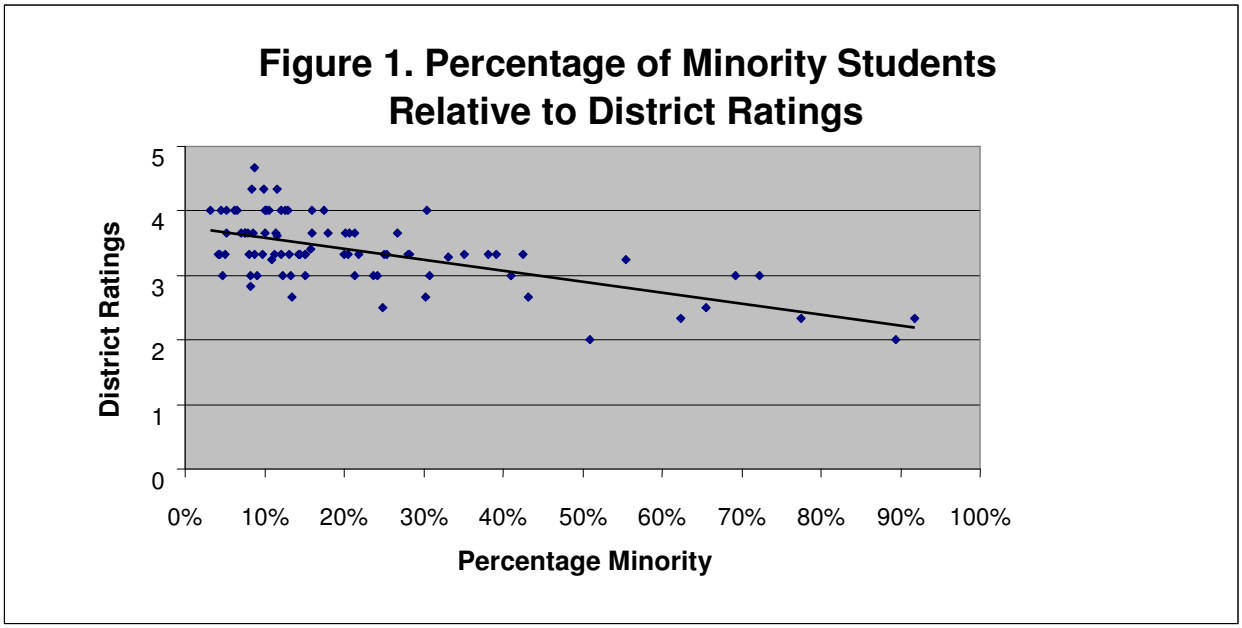
Among Colorado's rural school districts, there seems to be some association between academic performance and socio-economic factors. A correlation means that two factors partially explain changes in the other factor. A perfect correlation (1 or -1) means the change in one variable can completely explain the change in the other variable. (e.g., in the equation Y=2X, Y and X are

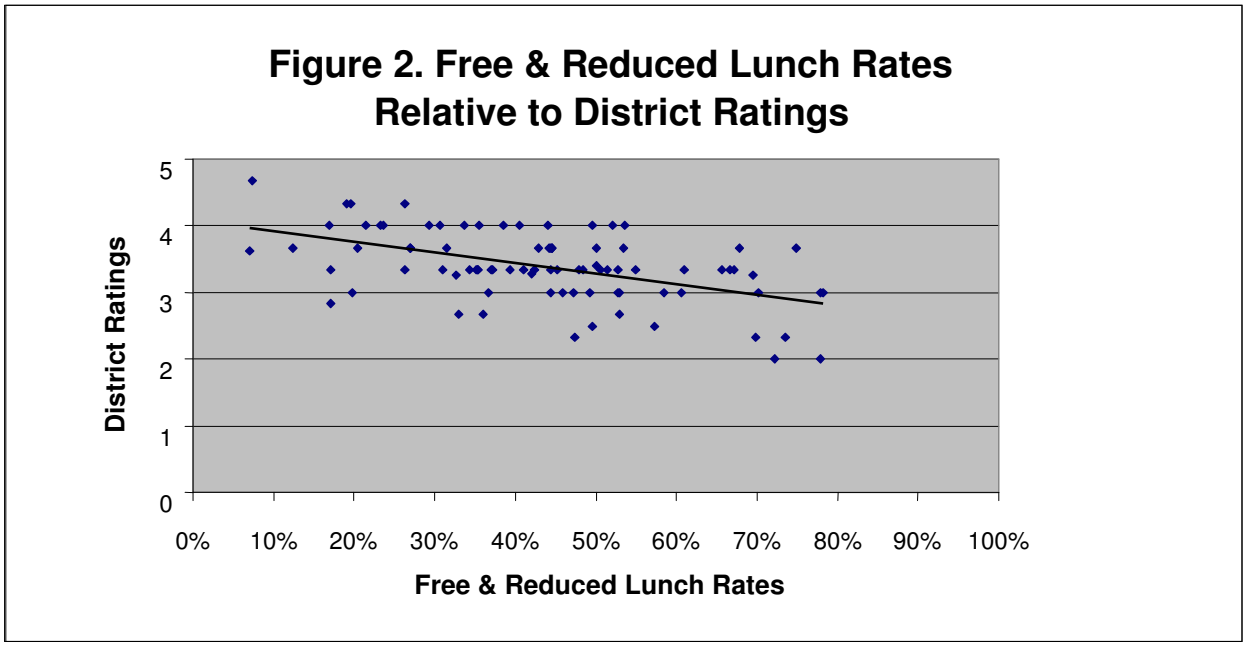
perfectly correlated: any change in X will completely explain the corresponding change in Y.) On the other hand, a correlation of 0 means the two variables are completely unrelated.

Table 1. Rural School District Ratings of 4 or Higher[17]

School District	District Ratings 2006-2007	Adequate Yearly Progress 2006-2007	% Minority 2006-2007	Free and Reduced 2006-2007	Pupil Count 2006-2007	Dollars Spent per Pupil 2006-2007
RURAL AVERAGE	**3.40**		**27.41%**	**39.20%**	**436**	**$9,128**
Plateau Re-5	5.00	Yes	5.39%	40.26%	167	14,378
Hinsdale County Re-1	4.67	Yes	8.79%	7.41%	91	12,441
Ridgway R-2	4.33	Yes	9.94%	19.16%	332	12,333
Platte Canyon 1	4.33	Yes	11.60%	19.60%	1,345	8,019
Deer Trail 26J	4.33	Yes	8.33%	26.23%	204	12,166
Sargent Re-33J	4.00	Yes	30.39%	43.97%	464	7,732
Prairie Re-11	4.00	Yes	10.67%	29.29%	150	12,316
Peyton 23 JT	4.00	Yes	12.65%	21.49%	680	8,013
Pawnee Re-12	4.00	Yes	4.59%	35.51%	109	15,118
Ouray R-1	4.00	Yes	12.98%	23.57%	285	10,825
La Veta Re-2	4.00	Yes	16.04%	52.14%	293	9,146
Kit Carson R-1	4.00	Yes	17.43%	38.53%	109	18,507
Kim Reorganized 88	4.00	Yes	3.23%	53.57%	62	16,441
Elbert 200	4.00	Yes	5.28%	16.94%	265	9,519
Eads Re-1	4.00	Yes	10.17%	40.61%	177	10,866
Creede Consolidated 1	4.00	Yes	6.62%	23.26%	136	10,462
Calhan RJ-1	4.00	Yes	6.15%	30.61%	667	8,039
Buffalo Re-4	4.00	Yes	10.10%	33.67%	297	9,772
Arickaree R-2	4.00	Yes	12.07%	49.50%	116	13,960

Running a basic analysis of 2006-2007 data shows a moderate negative correlation (-.63) between District Ratings and the percentage of minorities in each district.[18] This means 63 percent of the change in District Ratings can be explained by changes in the percentage of minorities. As shown in figure 1, there seems to be an imperfect but clear trend. Test scores tend to decrease as the proportion of minorities increase. Another association is the negative correlation (-.50) between District Ratings and the percentage of Free and Reduced Lunch recipients. Although not as clear as the previous graph, figure 2 indicates test scores tend to decrease as the proportion of Free and Reduced Lunch recipients increases.





There was a slight positive correlation (.15) between District Ratings and the amount of resources allocated per student. The correlation (.15) between per-pupil funding and rural school district performance, however, is quite small: .15 is much closer to 0 than to 1 or -1. Thus the association between funding and student performance is closer to random, than to explanatory or causal associations. To put things in perspective, there was a correlation of -.52 between per-pupil funding and the number of students in rural districts. This observation means differences in a district's student population size better predict per-pupil funding than do differences in academic performance. Table 2 (below) demonstrates the weakness of the idea that higher funding improves student achievement. Even though there was a small positive correlation

between per-pupil spending and District Ratings, only eight of the 17 rural school districts with the highest per-pupil funding had District Ratings above the rural average.

Table 2. Rural School Districts Spending $13,000 or More Per Student

School District	District Ratings 2006-2007	Adequate Yearly Progress 2006-2007	% Minority 2006-2007	Free and Reduced 2006-2007	Pupil Count 2006-2007	Dollars Spent per Pupil 2006-2007
RURAL AVERAGE	**3.40**		**27.41%**	**39.20%**	**436**	**$9,128**
Kit Carson R-1	4.00	Yes	17.43%	38.53%	109	18,507
Agate 300	3.67	Yes	18.03%	44.26%	61	17,858
Woodlin R-104	3.33	Yes	14.29%	52.81%	98	16,729
Kim Reorganized 88	4.00	Yes	3.23%	53.57%	62	16,441
Silverton 1	3.00	Yes	24.24%	77.97%	66	16,371
Pritchett Re-3	3.33	Yes	4.23%	66.67%	71	16,292
Platte Valley Re-3	3.67	Yes	20.75%	67.92%	106	15,700
Campo Re-6	3.00	Yes	4.69%	60.71%	64	15,250
Pawnee Re-12	4.00	Yes	4.59%	35.51%	109	15,118
Plainview Re-2	3.67	Yes	7.58%	53.45%	66	14,973
Hi-Plains R-23	3.33	Yes	8.04%	44.34%	112	14,879
Plateau Re-5	5.00	Yes	5.39%	40.26%	167	14,378
Briggsdale Re-10	3.33	Yes	13.10%	39.31%	145	14,220
Arickaree R-2	4.00	Yes	12.07%	49.50%	116	13,960
Moffat 2	3.33	Yes	21.82%	47.83%	220	13,652
Bethune R-5	3.33	Yes	35.16%	61.02%	128	13,631
Mountain Valley Re 1	3.00	Yes	41.09%	70.25%	129	13,307

…[B]ecause correlations do not necessarily indicate direct causation, it is possible for schools to overcome demographic challenges like poverty and high minority populations….

These trends are observations, and correlation does not necessarily imply causation. For example, there is a correlation between drowning and sunny days (i.e., more people tend to drown on sunny days than on cloudy days). This observation does not mean that the sun directly causes drowning, but that there are other factors involved related to them both (more people go swimming on sunny days). So because correlations do not necessarily indicate direct causation, it is possible for schools to overcome demographic challenges like poverty and high minority populations by addressing the other factors.

Dr. Douglas Reeves, a leading expert on student achievement and accountability, writes in his report, *High Performance in High Poverty Schools*, "while economic deprivation clearly affects student achievement, demographic characteristics do not determine academic performance."[19] In this report Reeves found common practices associated with high student achievement. And while he clearly emphasizes that "there are no magic potions to deliver improved student achievement,"[20] he also points out that "effective teaching and leadership make a difference."[21]

In observing the practices of successful schools with severe demographic challenges,[22] Reeves finds some consistent themes. These themes include a "focus on academic achievement," "clear

curriculum choices," and "frequent assessment of student progress and multiple opportunities for improvement."[23]

The tendency of lower performance being linked with a higher percentage of minorities and greater poverty can help identify school districts that are strong performers and beating the socio-economic odds. Two examples of high-performing rural school districts in Colorado appear to practice some of Reeves' observations.

Two Rural School Districts Beating the Odds

Sargent School District is one district that performs quite well, while having both a higher percentage of minorities and Free and Reduced Lunch recipients than the rural average, as well as the 8th lowest per-pupil spending. This small district of 464 students in southern Colorado appears to be flourishing. Sargent's website highlights the focus on academic achievement. A link near the center of the homepage invites the viewer to examine the district's CSAP scores. Over the past four years Sargent has substantially improved its SAR ratings. It has also made Adequate Yearly Progress (AYP) in each of the past four years.

…[M[any of the students who transfer into Sargent Elementary start two grade levels behind in reading and need extra intervention.

Departing Sargent Elementary School principal Mike Roth said that roughly 62 percent of the students in Sargent schools come from outside the district. He also noted that the size of the school has grown from 180 to 255 since he arrived in 2000, with most of the growth occurring in the past three to five years. Although one might think that students coming from other districts are probably star performers who bring up the school's test scores, Roth explained that many of the students who transfer into Sargent Elementary start two grade levels behind in reading and need extra intervention. He also said the Free and Reduced Lunch rate increased at Sargent Elementary School from about 30 percent to 43 percent over that same time period.[24]

As shown in table 3 (below), Sargent is the only district with at least a 30 percent minority student population also to be rated at or above the rural average. In fact, Sargent's District Rating of 4 is well ahead of all others on the high-minority population list.

Table 3. Rural School Districts with 30+ Percent Minority Student Population

School District	District Ratings 2006-2007	Adequate Yearly Progress 2006-2007	% Minority 2006-2007	Free and Reduced 2006-2007	Pupil Count 2006-2007	Dollars Spent per Pupil 2006-2007
RURAL AVERAGE	**3.40**		**27.41%**	**39.20%**	**436**	**$9,128**
South Conejos Re-10	2.33	Yes	91.72%	69.79%	290	10,505
Centennial R-1	2.00	No	89.45%	77.83%	237	12,983
Sierra Grande R-30	2.33	No	77.52%	73.49%	298	11,000
Granada Re-1	3.00	Yes	72.24%	58.43%	263	10,202
Manzanola 3J	3.00	Yes	69.19%	78.20%	211	12,646
Ignacio 11 JT	2.50	No	65.61%	49.56%	791	11,134
Vilas Re-5	2.33	No	62.39%	47.42%	4,424	6,191
North Conejos Re-1J	3.25	Yes	55.44%	69.56%	1,205	7,496
Aguilar Reorganized 6	2.00	No	50.93%	72.14%	161	11,541
Primero Reorganized 2	2.67	No	43.16%	36.02%	234	12,387
Holly Re-3	3.33	N/A	42.45%	67.12%	318	10,173
Mountain Valley Re 1	3.00	Yes	41.09%	70.25%	129	13,307
Hoehne Reorganized 3	3.33	Yes	39.17%	35.14%	360	9,751
Sanford 6J	3.33	Yes	38.21%	65.61%	335	9,153
Bethune R-5	3.33	Yes	35.16%	61.02%	128	13,631
Keenesburg Re-3J	3.29	No	33.05%	42.06%	2,088	8,226
Garfield 16	3.00	No	30.75%	44.45%	1,174	8,580
Sargent Re-33J	**4.00**	**Yes**	**30.39%**	**43.97%**	**464**	**7,732**
Hanover 28	2.67	Yes	30.23%	53.00%	301	9,656

La Veta School District also appears to beat the odds. Situated in southern Colorado, La Veta is a small district with 293 students that has made AYP for the past four years (2003-2006). Although La Veta has a lower ratio of minority students than the rural school district average and is 21st lowest in per-pupil spending, it has a higher rate of Free and Reduced Lunch recipients (52.1 percent). Dave Seaney, district superintendent and principal of La Veta Junior-Senior High, explains that though the district has been performing well for a long time, he has made an effort to spread the word to nearby districts. After three years the district has grown from about 230 to 300 pupils and has a waiting list.[25] Table 4 (below) shows La Veta to be the only school district (other than Kim Reorganized) with a District Rating higher than 3.7 that serves student populations with 50 percent or greater Free and Reduced Lunch recipients. (La Veta has a larger percentage of minorities and lower per-pupil funding than Kim Reorganized.)

Administrators from Sargent and La Veta shared a few thoughts and observations about what practices the districts use and why they think those practices have been successful. In Sargent, principal Roth said he and his team of teachers place great emphasis on planning curriculum, performing routine assessment, and setting short-term goals. He said teachers spend time every week planning and coordinating curriculum and assessments for each grade level.[26] The evaluations and assessments used in Sargent are not exclusively standardized tests, but include a variety of methods to gauge student learning and performance. Constantly tracking student performance with target goals allows teachers in the school to evaluate which students struggle

in particular areas. Tying performance goals and measurements to state standards and the Colorado Student Assessment Program (CSAP) also helps to focus their teaching.

Table 4. Rural School Districts with 50+ Percent Free & Reduced Lunch Recipients

School District	District Ratings 2006-2007	Adequate Yearly Progress 2006-2007	% Minority 2006-2007	Free and Reduced 2006-2007	Pupil Count 2006-2007	Dollars Spent per Pupil 2006-2007
RURAL AVERAGE	**3.40**		**27.41%**	**39.20%**	**436**	**$9,128**
Manzanola 3J	3.00	Yes	69.19%	78.20%	211	12,646
Silverton 1	3.00	Yes	24.24%	77.97%	66	16,371
Centennial R-1	2.00	No	89.45%	77.83%	237	12,983
Walsh Re-1	3.67	Yes	16.03%	74.82%	156	11,845
Sierra Grande R-30	2.33	No	77.52%	73.49%	298	11,000
Aguilar Reorganized 6	2.00	No	50.93%	72.14%	161	11,541
Mountain Valley Re 1	3.00	Yes	41.09%	70.25%	129	13,307
South Conejos Re-10	2.33	Yes	91.72%	69.79%	290	10,505
North Conejos Re-1J	3.25	Yes	55.44%	69.56%	1,205	7,496
Platte Valley Re-3	3.67	Yes	20.75%	67.92%	106	15,700
Holly Re-3	3.33	N/A	42.45%	67.12%	318	10,173
Pritchett Re-3	3.33	Yes	4.23%	66.67%	71	16,292
Sanford 6J	3.33	Yes	38.21%	65.61%	335	9,153
Bethune R-5	3.33	Yes	35.16%	61.02%	128	13,631
Campo Re-6	3.00	Yes	4.69%	60.71%	64	15,250
Granada Re-1	3.00	Yes	72.24%	58.43%	263	10,202
Ellicott 22	2.50	No	24.80%	57.31%	976	7,523
Sangre De Cristo RE-22J	3.33	Yes	25.07%	54.86%	335	9,537
Kim Reorganized 88	4.00	Yes	3.23%	53.57%	62	16,441
Plainview Re-2	3.67	Yes	7.58%	53.45%	66	14,973
Hanover 28	2.67	Yes	30.23%	53.00%	301	9,656
Miami/Yoder 60 JT	3.00	Yes	21.31%	52.89%	366	8,764
Cripple Creek-Victor Re-1	3.00	Yes	15.07%	52.84%	448	12,581
Woodlin R-104	3.33	Yes	14.29%	52.81%	98	16,729
La Veta Re-2	**4.00**	**Yes**	**16.04%**	**52.14%**	**293**	**9,146**
Wiley Re-13JT	3.33	Yes	28.08%	51.46%	292	9,969
Mc Clave Re-2	3.33	Yes	28.20%	50.61%	266	9,231
West End Re-2	3.40	Yes	15.86%	50.16%	353	10,331
North Park R-1	3.67	Yes	21.37%	50.00%	248	11,380

Similarly, superintendent Seaney associated La Veta's success with constant re-evaluation of curriculum and emphasized the importance of standards-based education and measurement. One interesting aspect of La Veta Junior-Senior High School is its focus on interventions. The school holds regular classes four days a week, and on Fridays offers additional on-site tutoring for the most at-risk students and others identified as struggling. The school district also runs after-school tutoring programs during the week for students who need help in their classes. In addition, Seaney attributed part of the district's success to professional development opportunities for La Veta teachers.[27]

Another characteristic both districts have in common is that large numbers of their incoming students have exercised the option of open enrollment. Out of 86 rural districts, Sargent School District had the 5th highest percentage of open-enrolled students, while La Veta School District was 20th.[28] Even though geography limits educational options available in most rural areas, the examples of La Veta and Sargent show that families still can (and do) exercise school choice by sending their children to a public school in another district.

Another characteristic both districts have in common is large numbers of their incoming students have exercised the option of open enrollment.

Other rural school districts besides Sargent and La Veta perform well, but none face the same challenges of serving high-minority or high Free and Reduced Lunch populations with relatively low per-pupil spending. As previously noted there appears to be a fairly strong association between high-minority and high Free and Reduced Lunch populations and reduced academic performance. But despite these factors, Sargent and La Veta have beaten the odds. Both Roth and Seaney stressed the importance of routine assessment, curriculum re-evaluation and planning, and setting short term benchmarks for individual students in achieving this performance.

Conclusion

This report is an initial snapshot of rural Colorado school districts. The observations made here can serve as a stepping stone for future research. As education analysts and researchers, along with schools, districts, and the state, move forward to address problems within the current system, it will become increasingly important to be able to measure and evaluate student learning. To that end, the Colorado Department of Education has launched a new evaluation system called the "Colorado Growth Model."[29] This new model measures both the academic performance and the academic improvement of individual schools.[30] This methodology should make it much easier for researchers, policy makers, and parents to evaluate which schools perform at a high level and make a successful effort to improve student performance over time.

Education researcher Jay Greene wrote about what he called "The Myth of Helplessness."[31] His argument, in part, applies to the observations of rural school districts in Colorado. Although the correlations between District Ratings and socio-economic factors seem to support the idea that demographic challenges exist and can be formidable, those challenges are not insurmountable. The examples of Sargent School District and La Veta School District support the case that poor or minority populations can succeed academically. The findings of Douglas Reeves about schools with demographic challenges are reinforced by the school administrators in Sargent and La Veta; namely spending time on curriculum development and planning as well as routine assessment of student performance and frequent intervention for students who are struggling can make a difference—regardless of demographic factors.

Appendix: Rural Colorado School Districts by District Rating

School District	District Ratings 2006-2007	Adequate Yearly Progress 2006-2007	% Minority 2006-2007	Free and Reduced 2006-2007	Pupil Count 2006-2007	Dollars Spent per Pupil 2006-2007
RURAL AVERAGE	**3.40**		**27.41%**	**39.20%**	**436**	**$9,128**
Plateau Re-5	5.00	Yes	5.39%	40.26%	167	14,378
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Ridgway R-2	4.33	Yes	9.94%	19.16%	332	12,333
Kim Reorganized 88	4.00	Yes	3.23%	53.57%	62	16,441
La Veta Re-2	**4.00**	**Yes**	**16.04%**	**52.14%**	**293**	**9,146**
Arickaree R-2	4.00	Yes	12.07%	49.50%	116	13,960
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Eads Re-1	4.00	Yes	10.17%	40.61%	177	10,866
Kit Carson R-1	4.00	Yes	17.43%	38.53%	109	18,507
Pawnee Re-12	4.00	Yes	4.59%	35.51%	109	15,118
Buffalo Re-4	4.00	Yes	10.10%	33.67%	297	9,772
Calhan RJ-1	4.00	Yes	6.15%	30.61%	667	8,039
Prairie Re-11	4.00	Yes	10.67%	29.29%	150	12,316
Ouray R-1	4.00	Yes	12.98%	23.57%	285	10,825
Creede Consolidated 1	4.00	Yes	6.62%	23.26%	136	10,462
Peyton 23 JT	4.00	Yes	12.65%	21.49%	680	8,013
Elbert 200	4.00	Yes	5.28%	16.94%	265	9,519
Walsh Re-1	3.67	Yes	16.03%	74.82%	156	11,845
Platte Valley Re-3	3.67	Yes	20.75%	67.92%	106	15,700
Plainview Re-2	3.67	Yes	7.58%	53.45%	66	14,973
North Park R-1	3.67	Yes	21.37%	50.00%	248	11,380
Big Sandy 100J	3.67	Yes	5.14%	44.63%	331	10,695
Cheraw 31	3.67	Yes	20.20%	44.57%	198	11,859
Arriba-Flagler C-20	3.67	Yes	6.99%	44.44%	186	11,550
Agate 300	3.67	Yes	18.03%	44.26%	61	17,858
Otis R-3	3.67	Yes	7.94%	42.93%	214	11,627
Frenchman Re-3	3.67	Yes	8.53%	31.55%	211	11,045
Swink 33	3.67	Yes	26.70%	27.03%	382	8,665
South Routt Re 3	3.67	Yes	10.07%	26.94%	457	9,689
Gilpin County Re-1	3.67	Yes	7.49%	20.45%	414	12,054
Strasburg 31J	3.67	No	11.48%	12.46%	958	7,600
Elizabeth C-1	3.63	No	11.63%	7.07%	3,017	7,640
West End Re-2	3.40	Yes	15.86%	50.16%	353	10,331
Holly Re-3	3.33	N/A	42.45%	67.12%	318	10,173
Pritchett Re-3	3.33	Yes	4.23%	66.67%	71	16,292
Sanford 6J	3.33	Yes	38.21%	65.61%	335	9,153
Bethune R-5	3.33	Yes	35.16%	61.02%	128	13,631
Sangre De Cristo RE-22J	3.33	Yes	25.07%	54.86%	335	9,537
Woodlin R-104	3.33	Yes	14.29%	52.81%	98	16,729
Wiley Re-13JT	3.33	Yes	28.08%	51.46%	292	9,969

School District	SAR score 2006-2007	Adequate Yearly Progress 2006-2007	% Minority 2006-2007	Free and Reduced 2006-2007	Pupil Count 2006-2007	Dollars Spent per Pupil 2006-2007
Mc Clave Re-2	3.33	Yes	28.20%	50.61%	266	9,231
Stratton R-4	3.33	Yes	11.20%	48.48%	250	10,068
Moffat 2	3.33	Yes	21.82%	47.83%	220	13,652
Weldon Valley Re-20J	3.33	Yes	14.49%	45.21%	207	11,088
Hi-Plains R-23	3.33	Yes	8.04%	44.34%	112	14,879
Wiggins Re-50J	3.33	Yes	25.33%	42.36%	604	9,214
Park County Re-2	3.33	Yes	9.82%	41.12%	672	11,137
Briggsdale Re-10	3.33	Yes	13.10%	39.31%	145	14,220
Dolores Re-4A	3.33	Yes	15.08%	37.14%	756	8,383
Haxtun Re-2J	3.33	Yes	8.71%	37.06%	310	9,940
Byers 32J	3.33	Yes	12.15%	35.40%	543	8,503
Lone Star 101	3.33	Yes	15.09%	35.29%	106	12,478
Hoehne Reorganized 3	3.33	Yes	39.17%	35.14%	360	9,751
Norwood R-2J	3.33	Yes	4.35%	34.40%	276	10,353
Branson Reorganized 82	3.33	No	20.52%	31.00%	916	6,319
Custer County	3.33	Yes	4.98%	26.38%	522	10,224
Plateau Valley 50	3.33	No	20.00%	17.06%	485	7,887
Keenesburg Re-3J	3.29	No	33.05%	42.06%	2,088	8,226
North Conejos Re-1J	3.25	Yes	55.44%	69.56%	1,205	7,496
Edison 54 JT	3.25	Yes	10.97%	32.65%	155	12,404
Manzanola 3J	3.00	Yes	69.19%	78.20%	211	12,646
Silverton 1	3.00	Yes	24.24%	77.97%	66	16,371
Mountain Valley Re 1	3.00	Yes	41.09%	70.25%	129	13,307
Campo Re-6	3.00	Yes	4.69%	60.71%	64	15,250
Granada Re-1	3.00	Yes	72.24%	58.43%	263	10,202
Miami/Yoder 60 JT	3.00	Yes	21.31%	52.89%	366	8,764
Cripple Creek-Victor Re-1	3.00	Yes	15.07%	52.84%	448	12,581
Genoa-Hugo C113	3.00	Yes	8.17%	49.21%	208	11,627
Cotopaxi Re-3	3.00	Yes	12.34%	47.24%	316	8,851
Mancos Re-6	3.00	Yes	23.70%	45.83%	422	9,158
Garfield 16	3.00	No	30.75%	44.45%	1,174	8,580
Dolores County Re No. 2	3.00	Yes	13.33%	36.62%	300	10,559
Kiowa C-2	3.00	Yes	9.14%	19.83%	383	8,916
Karval Re-23	2.83	Yes	8.18%	17.05%	220	7,325
Hanover 28	2.67	Yes	30.23%	53.00%	301	9,656
Primero Reorganized 2	2.67	No	43.16%	36.02%	234	12,387
De Beque 49JT	2.67	Yes	13.48%	32.93%	178	11,248
Ellicott 22	2.50	No	24.80%	57.31%	976	7,523
Ignacio 11 JT	2.50	No	65.61%	49.56%	791	11,134
Sierra Grande R-30	2.33	No	77.52%	73.49%	298	11,000
South Conejos Re-10	2.33	Yes	91.72%	69.79%	290	10,505
Vilas Re-5	2.33	No	62.39%	47.42%	4,424	6,191
Centennial R-1	2.00	No	89.45%	77.83%	237	12,983
Aguilar Reorganized 6	2.00	No	50.93%	72.14%	161	11,541

Notes

[1] Douglas B. Reeves, "High Performance in High Poverty Schools: 90/90/90 and Beyond," p. 8, http://www.sabine.k12.la.us/online/leadershipacademy/high%20performance%2090%2090%2090%20and%20beyond.pdf

[2] Colorado Department of Education (CDE), "Definitions of Selected Terms," http://www.cde.state.co.us/cdereval/rvdefine.htm

[3] CDE, Fall 2007 "Pupil Membership by District Setting," http://www.cde.state.co.us/cdereval/rv2007pmlinks.htm

[4] CDE, Fall 2006 "Pupil Membership by County and District," http://www.cde.state.co.us/cdereval/rv2006pmlinks.htm. There were 794,026 students in Colorado in 06-07; 37,542 of those students were enrolled in rural school districts.

[5] Colorado Revised Statutes § 22-7-601(1)(f).

[6] CDE, "Academic Performance Rating Methodology," p. 2, http://www.cde.state.co.us/cdeassess/sar_info.html

[7] CDE, "2007 Ratings," http://www.cde.state.co.us/cdeassess/documents/SAR/ratings.htm

[8] CDE, "Adequate Yearly Progress – Frequently Asked Questions," http://www.cde.state.co.us/FedPrograms/ayp/faq.asp#q2

[9] To survey Colorado's AYP success rate for the past four years, the table below uses data from CDE, "District AYP Determinations," http://www.cde.state.co.us/FedPrograms/AYP/Results.asp

	Rural	Non-Rural	State
2003-2004	93%	36%	63%
2004-2005	88%	33%	59%
2005-2006	87%	39%	62%
2006-2007	85%	32%	57%

[10] The percentage of minorities was figured using data from CDE, "Pupil Membership by District, Race/Ethnicity, and Percent Minority," http://www.cde.state.co.us/cdereval/rv2006pmlinks.htm

[11] United States Department of Agriculture, Food and Nutrition Service, "Child Nutrition Programs—Income Eligibility Guidelines" (July 1, 2007–June 30, 2008), *Federal Register* 72, no. 38 (February 2007): 8685, http://www.fns.usda.gov/cnd/governance/notices/iegs/IEGs07-08.pdf. Families between 131 percent and 185 percent of the federal poverty line qualify for reduced lunches, and families under 130 percent qualify for free lunches.

[12] The record of Free and Reduced Lunch recipients can be found at CDE, "K-12 Free and Reduced Lunch Eligibility by County, and District," http://www.cde.state.co.us/cdereval/rv2006pmlinks.htm

[13] Colorado General Assembly, Legislative Council Staff Memorandum, "2007 School District Cost-of-Living Study," March 25, 2008, http://www.state.co.us/gov_dir/leg_dir/lcsstaff/schfin/2008/CostofLivingMemo08.pdf

[14] CDE, "Comparison of Revenues and Expenditures for Selected Funds," http://www.cde.state.co.us/cdefinance/FY06-07RevExp.htm. The data can be found in the second table (IIB) under "Current Expenditures" (with transportation costs). The $9,102 figure reflects a weighted average (i.e., total funding divided by total number of rural school district students). All these numbers exclude costs for capital construction (buildings).

[15] Colorado Legislative Council, Research Publication No. 451 (January 1999), "School District Size Factors," http://www.state.co.us/gov_dir/leg_dir/lcsstaff/schfin/sizefactor.htm

[16] Demographic challenges were determined by looking at whether the school is above average in either its minority or Free and Reduced Lunch population; high performance was determined by above average SAR scores. These high performers also had lower than average or slightly more than average per-pupil funding.

[17] Tables 1-4 were created using values taken from CDE's website. The SAR scoring has already been explained in the paper (see n. 6). Adequate Yearly Progress was measured at the district level and reported by CDE for 2006-2007 in "District AYP Determinations," http://www.cde.state.co.us/FedPrograms/AYP/Results.asp. The percentage of minorities in each district was taken from "Pupil Membership by District, Race/Ethnicity, and Percent Minority," http://www.cde.state.co.us/cdereval/rv2006pmlinks.htm. The rural average was a weighted average (total minority population divided by total number of rural school district students). The record of Free and Reduced Lunch recipients can be found at "K-12 Free and Reduced Lunch Eligibility by County, and District," http://www.cde.state.co.us/cdereval/rv2006pmlinks.htm. The rural average was a weighted average (total Free and Reduced Lunch population divided by total number of rural school district students). The pupil count came from

"Pupil Membership by County and District," http://www.cde.state.co.us/cdereval/rv2006pmlinks.htm. Finally, spending per student was taken from "Comparison of Revenues and Expenditures for Selected Funds," http://www.cde.state.co.us/cdefinance/FY06-07RevExp.htm. It can be found in the second table IIB under "Current Expenditures" w/ transportation. The rural average was a weighted average (total funding divided by total number of rural school district students).

[18] While correlation can be a helpful tool, it has certain limits. For example, a data set could have a clear trend but low correlation if there is large variation among the data. The correlation used in the report is called the "correlation coefficient". The equation used to derive it is:

- $\sum ((x-x_{avg})*(y-y_{avg})) / \sqrt{\sum (x-x_{avg})^2 * \sum (y-y_{avg})^2}$

This equation corresponds to the CORREL function on Microsoft Excel. Merriam-Webster Dictionary defines correlation as "the state or relation of being correlated; specifically : a relation existing between phenomena or things or between mathematical or statistical variables which tend to vary, be associated, or occur together in a way not expected on the basis of chance alone," http://www.merriam-webster.com/dictionary/correlation

[19] Reeves, p. 1.

[20] Ibid., p. 19.

[21] Ibid., p. 8.

[22] The demographic challenges refer to 90-90-90 schools: schools with more than 90 percent of students qualifying for the Federal Free and Reduced Lunch Program, minorities making up more than 90 percent of the student population, and more than 90 percent of the student population scoring proficient or higher.

[23] Reeves, p. 3.

[24] Mike Roth, principal, Sargent Elementary School, telephone conversation with the author, June 27, 2008.

[25] Dave Seaney, superintendent and principal, La Veta Junior-Senior High, telephone conversation with the author, June 27, 2008.

[26] Author's telephone conversation with Roth.

[27] Author's telephone conversation with Seaney.

[28] CDE, "Districts Serving Non-Resident Students," http://www.cde.state.co.us/cdereval/rv2006pmlinks.htm

[29] CDE, Cover Letter for Awareness Release (May 21, 2008), http://www.cde.state.co.us/cdeedserv/download/pdf/AwarenessReleaseCoverLetter.pdf

[30] CDE, "2007 Colorado Growth Model District & School Reports," http://www.cde.state.co.us/cdeedserv/GrowthModelDistSchReport.htm

[31] Jay P. Greene, *Education Myths* (New York: Rowman & Littlefield Publishers, 2005), p. 39-48.

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ADDITIONAL RESOURCES on this subject can be found at: http://www.i2i.org/main/page.php?page_id=8