Looking at School Performance From a Different Perspective: A Maryland Report Card Reflecting Students Served

Christopher Wohn, M.D., Liepa Boberiene, Ph.D.

June 2019

Introduction

The federal Every Student Succeeds Act (ESSA) that passed in 2015 changed many aspects of school accountability across the United States. Under ESSA states had to interpret new requirements and create accountability plans. Maryland developed a plan that was approved by the U.S. Department of Education in 2018. As part of Maryland's ESSA plan, a new school report, the Maryland Report Card, was developed to evaluate school performance across multiple metrics, including assessment performance, student growth, school climate, and implementation of a well-rounded curriculum. Schools across the state were ranked according to how many points they earned by meeting performance expectations on these indicators, and each school received a summative "star" rating, from one to five stars.

Schools are complex entities and any measurement of overall school performance can be attributed to multiple inputs: quality of teachers, socio-economic background of students, involvement of parents in the school community, resources of the governing school district, and so on. Summative school evaluation systems, such as the Maryland Report Card, often take a blunt approach to judging school success and can fail to recognize outstanding instruction and academic gains in school communities that exist in high poverty. Accountability metrics with no consideration of students served may end up in large part representing the socio-economic level of students' families rather than the quality of each school.

Socio-economic Measures in ESSA. Economic disadvantage (ED) is the term used in ESSA, and states must determine their own definitions. In Maryland, ED is measured by counting students who are directly certified, which means they are enrolled in the Supplemental Nutrition Assistance Program (SNAP), Temporary Assistance for Needy Families (TANF), federal foster care, or they are experiencing homelessness. When the percentage of points earned on the Maryland Report Card is visualized against the percentage of students that are identified as economically disadvantaged at a school, the correlation between Report Card performance and poverty can be easily appreciated (Figure 1).
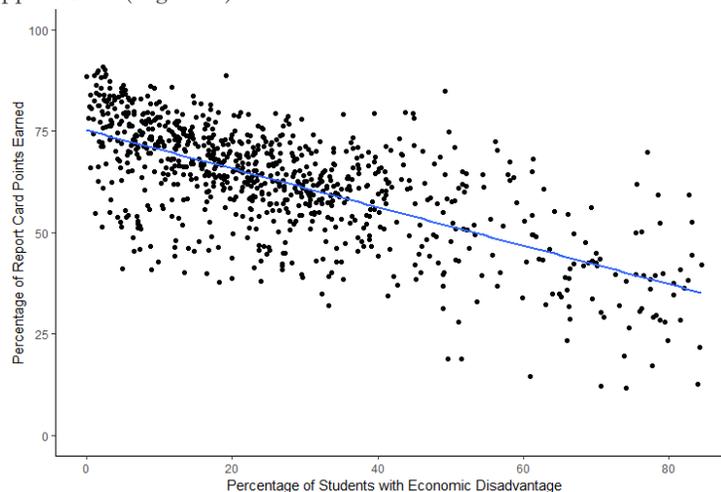
Figure 1. Elementary school report card performance compared to student economic disadvantage.

The relationship between academic achievement and poverty is one of the most consistent findings in education research, and the income-achievement gap has been growing for at least 50 years. Based on Maryland Report Card results, we see that as a school's population becomes more concentrated in poverty, the number of points it earns on the Report Card decreases. This trend plays out in star rating as well, with high poverty elementary schools (> 60% ED) never earning a five-star rating. To some extent, the Maryland Report Card results reinforce the influence of poverty rather than capturing the value added by educators in light of the different student populations that schools serve.

Data Sources and Methods

All report card data are publicly available and were obtained from the Maryland State Department of Education (MSDE) in April 2019, reflecting any data updates captured through the state's rating appeal process. The Maryland Report Cards released in December 2018 were based on school year 2017-18 data. Student economic disadvantage (quantified as direct certification) and enrollment counts were obtained from the MSDE Food and Nutrition website for the 2017-18 school year. For this analysis, schools spanning grade bands, e.g., schools serving grades K-8, are reported as both elementary (including data for grades K-5) and middle (including grades 6-8), rather than combining to a summative rating for the whole school as was done in the Maryland Report Card.

Borrowing from a different field, we estimate the relationship between school economic disadvantage rate and the percentage of Report Card points earned by schools across the state using quantile regression. Quantile regression is the technique used to estimate height and weight percentile charts for infants and children (Figure 2). It is also used to calculate student growth percentiles (SGP), which are a part of the academic progress indicator in the Maryland Report Card.
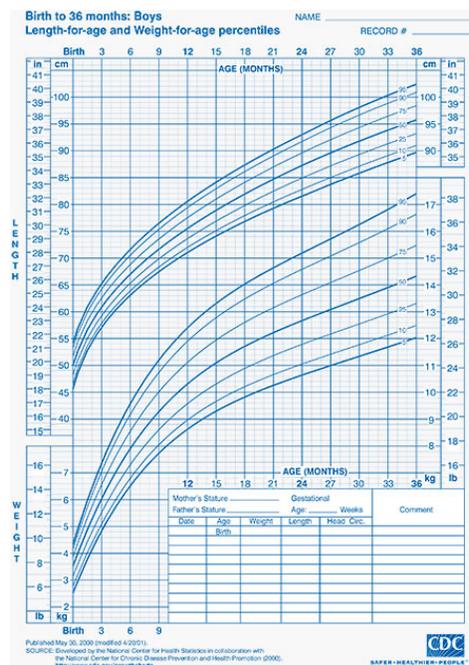
Figure 2: Pediatric growth charts with quantile regression.

All schools with available data on the Maryland Report Card website were included. The quantiles chosen were those associated with each of the star ratings, based on decisions from the November 2018 MSDE Board Meeting (Option 2c).

Table 1. Maryland Report Card Quantiles

Star Rating	Range of Points Earned (%)
1	0-30
2	30-45
3	45-60
4	60-75
5	75-100

Source: Maryland State Department of Education, 2018

These Report Card quantiles were used to calculate new star ratings adjusted for students served by schools through the steps outlined below (Figure 3). Similar to how percentiles of weight and height are estimated by age on a pediatric growth chart, adjusted Report Card score quantiles were estimated as a function of economic disadvantage for schools in Maryland. This method ensures that adjusted results have the same number of schools in each star rating category for each grade band. The percentile ranks associated with each star rating are provided in the Appendix.
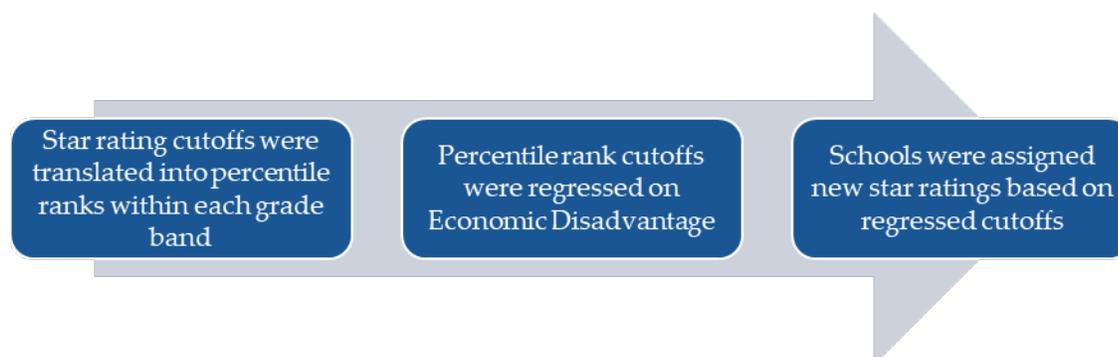
Figure 3: Steps in determining correlation-adjusted star ratings.

Results

New star ratings were assigned to schools based on the regression procedure described above. This resulted in a banding of star rating that adjusts for the estimated correlation between percentage of Report Card points earned and school economic disadvantage rates. Figure 4 represents original and adjusted star ratings (color coded) for elementary school grade bands in Maryland. These plots illustrate the effect of adjusting for the ED-Report Card points correlation among elementary schools. Many schools with more than 60% of students in economic disadvantage received five stars after including economic disadvantage (see right-hand panel, as opposed to the left-hand panel of Figure 4).
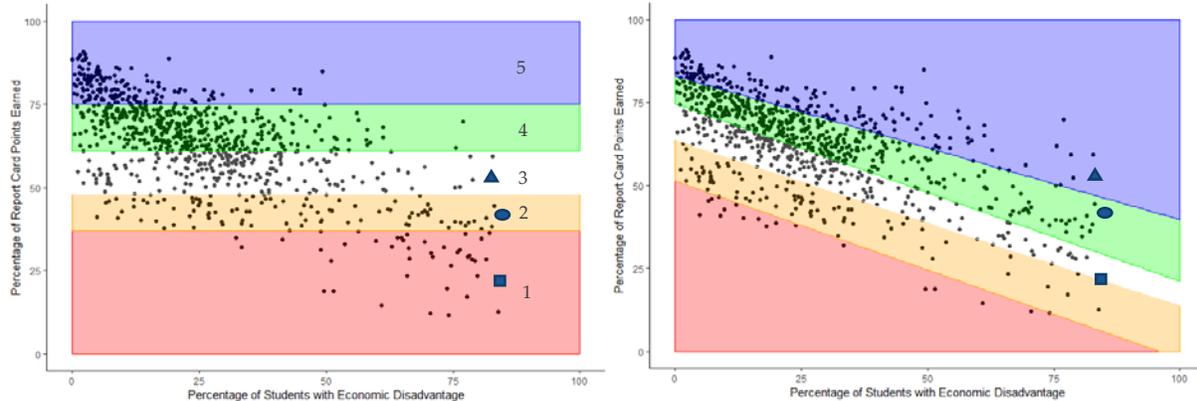
Figure 4. Original star ratings (left) compared to ratings adjusted for student economic disadvantage (right).

This adjustment provides high poverty schools an opportunity to be recognized for the value they add to high-need student populations, rather than getting scores that reflect the socio-economic background of students. Three high poverty schools are highlighted by shapes (triangle, oval and square) in Figure 4 to allow readers to focus on the changes in star ratings created by the adjustment. Click here for a complete list of all Maryland schools with their original star ratings, and the new correlation-adjusted star ratings. Click here for summary sheets of elementary, middle and high schools. Table 2 includes the average star rating for each Local Education Agency (LEA) before and after the adjustment.

Discussion

As shown in Table 2, changes in average star ratings for districts are as large as a full star. In Baltimore City, one of the highest poverty districts in Maryland, the number of five-star schools increased dramatically after adjusting for economic disadvantage. In the original ratings, only two high schools were identified as five-star schools; in the adjusted ratings, twelve received five-star ratings. The size of the change reinforces the finding that concentrated poverty has an enormous impact on the ratings released in the Maryland Report Cards.

This leads us to consider the purpose of the accountability requirements under ESSA and how the data reporting can help achieve the goals of the legislation. Should the star ratings released by the Maryland State Department of Education reflect the characteristics of students enrolled at each school, or the effectiveness of the educators given different school contexts? And how can these ratings be used for improvement?

State Superintendent of Schools Karen Salmon highlights the intent to improve schools through the Maryland Report Cards, to set "our schools on the path to continuous improvement," with the ultimate goal of ensuring "ALL students have access to the opportunity to attain an excellent education" (Salmon, 2018). Low star ratings can translate into additional funding support for schools identified for improvement. Yet, a low star rating may in fact negatively impact schools that already struggle in the most challenging circumstances. Schools may be harmed by a loss of enrolled students, high quality teachers and administrators, or community support following the public communication of a low star rating.

Table 2
Rating Summary by Local Education Agency (LEA) of Original Star Ratings and
Ratings Adjusted for Student Economic Disadvantage

LEA	Average Original Star Rating	Average Adjusted Star Rating	Change in Average Rating
Allegany	4.1	4.6	0.5
Anne Arundel	3.1	2.3	-0.8
Baltimore City	2.5	3.6	1.1
Baltimore County	3.6	3.6	0
Calvert	4.3	3.8	-0.5
Caroline	4	4.4	0.4
Carroll	4.4	4.1	-0.3
Cecil	3.7	3.9	0.2
Charles	3.8	3.6	-0.2
Dorchester	3.6	4.2	0.6
Frederick	4.1	3.6	-0.5
Garrett	4.1	4.2	0.1
Harford	3.8	3.5	-0.3
Howard	4.3	3.9	-0.4
Kent	3.8	4.2	0.4
Montgomery	4	3.7	-0.3
Prince George's	3.4	3.1	-0.3
Queen Anne's	4.3	4.3	0
Saint Mary's	4.1	4	-0.1
Somerset	3.3	4.3	1
Talbot	4	4.1	0.1
Washington	4.2	4.2	0
Wicomico	3.6	4.3	0.7
Worcester	4	4.3	0.3

There is evidence that families, particularly those with high incomes, make housing decisions based on school ratings that end up increasing segregation. A recent review of the effects of "Great Schools" ratings across the U.S. from 2006 – 2015 found that the availability of school ratings accelerated disparities in housing values and income distributions across communities, as neighborhoods with schools with low ratings lost high-income and college-educated residents. Therefore, the availability of school ratings resulted in less school integration and less equity in education rather than more (Hasan & Kumar, 2018).

Given that a substantial proportion of the Maryland Report Card star rating is explained by the percentage of students in economic disadvantage, it seems that a strategy to improve ratings would be to reduce family poverty or attract more affluent families into a school community. Yet, a "1 star" rating may make the latter impossible or even cause an increase in concentrated poverty. Replacing staff at schools that fail to improve or

closing them completely may not benefit our poorest students unless these students are redirected to schools that are much higher performing (Berner & Steiner, 2019). The long-term effects of being labeled a "1-star" school should be analyzed in future years, tracking the cohorts of students currently attending these schools.

The method used in this brief is one of many that could help account for differences in student populations when rating school performance. A simpler approach of grouping and ranking schools according to economic disadvantage rates could also address the issue. In addition to economic disadvantage, other characteristics of the student population, such as disability or English learner status, could be considered to create more fair comparisons between schools. Statistical techniques such as propensity score matching would also offer opportunities to create even more accurate comparison groups for schools and students. See a complete list of all Maryland schools, a summary sheet for elementary, middle and high schools.

Conclusion

This brief explores how school rating systems can represent the effectiveness of educators as opposed to the characteristics of their students. When Maryland Report Card ratings are adjusted for economic disadvantage, it helps us better understand school quality in terms of the value that educators bring to schools, as opposed to the challenges and advantages that students themselves bring. Using the new star ratings adjusted for economic disadvantage, we can identify schools that are making strides in the highest concentrations of poverty and potentially avoid the negative consequences associated with public communication of low star ratings for high poverty schools that are making gains. This may better help some of our most vulnerable students close gaps in both educational access and outcomes.

References

Berner, A. & Steiner, D (2019). Quality and schools: Managing school closings to optimize student outcomes.

Hasan, S. & Kumar, A. (2018). Digitization and divergence: Online school ratings and segregation in America.

Reardon, S. F. (2011). The widening academic achievement gap between the rich and poor: New evidence and possible explanations.

Salmon, K. B. (2018). A Message from the State Superintendent of Schools. Maryland State Department of Education.

Appendices

Appendix A
Percentile Ranks of Points Earned on Maryland Report Card by Grade Band

Star Rating	Elementary Percentile Rank Cutoffs	Middle Percentile Rank Cutoffs	High Percentile Rank Cutoffs
1	0-2.4	0-4.4	0-3.3
2	2.5-12.8	4.5-20.5	3.4-19.8
3	12.9-36.4	20.6-57.4	19.9-44.1
4	36.5-82.7	57.5-90.5	44.2-80.3
5	82.8-100	90.6-100	80.4-100